

Spillways Restoration & Community Revitalization: A MULTI-BENEFIT FLOODPLAIN PROJECT IN THE OROVILLE WILDLIFE AREA

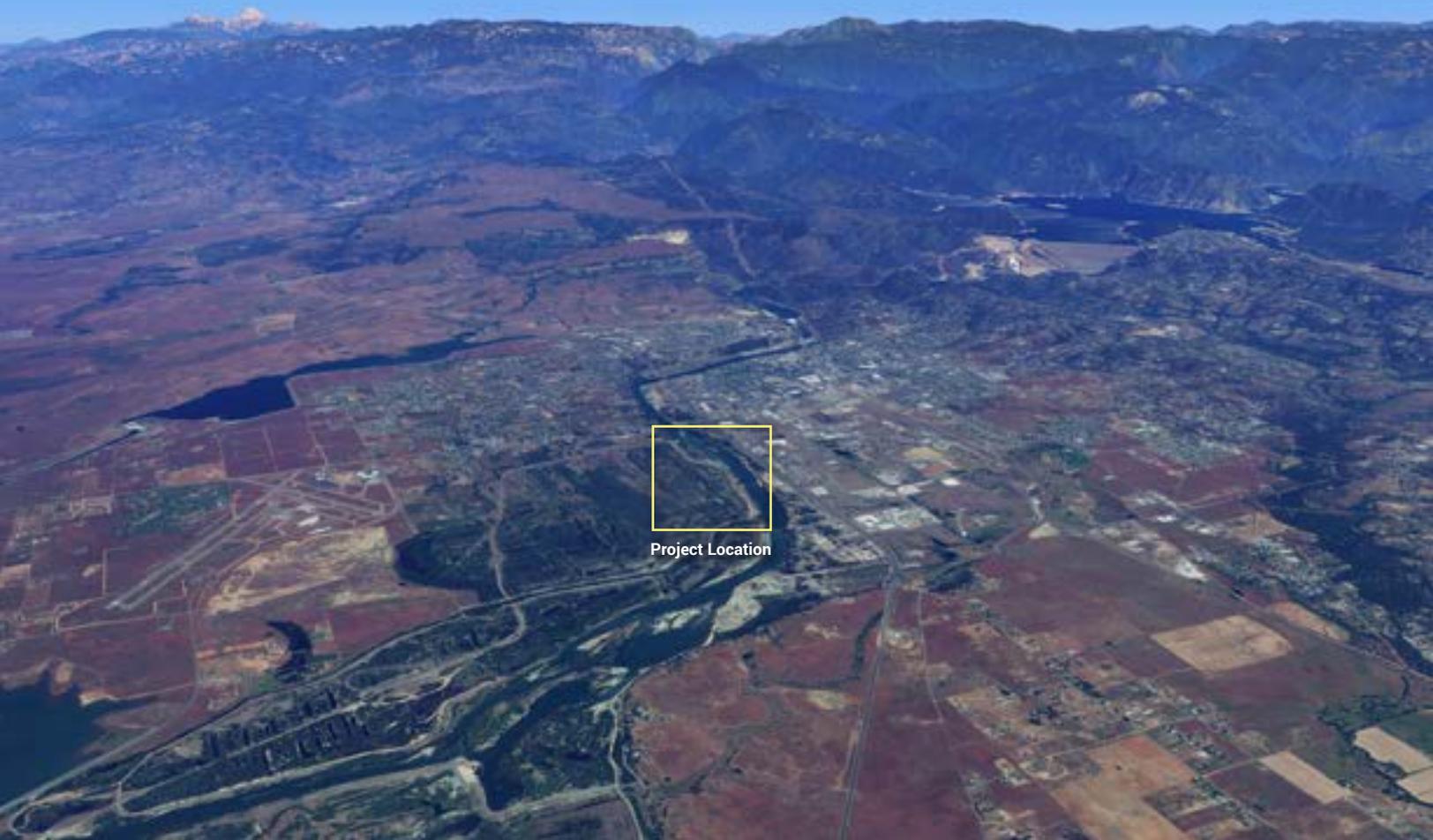
This document presents a potential multi-benefit flood and ecosystem project in the Oroville Wildlife Area along the Feather River to achieve multiple benefits—locally and regionally. The project would be a highly cost-effective way of increasing public safety and reducing the possible loss of life and property during a major flood event. The flood attenuation site would also create high-quality habitat for threatened and endangered species, as well as providing the residents of California with enhanced recreational opportunities for hunters, fishers, birders, kayakers and other outdoor activities. If planned and configured appropriately, the project will also support 2018 Oroville Spillways recovery and restoration (making that effort cheaper, more sustainable, and more expedient), may be configured to achieve implementation of key parts of the pending Federal Energy Regulatory Commission (FERC) license, and can strengthen partnerships with the Oroville community.

Location & Background

The State-owned Oroville Wildlife Area (OWA; see photo below) is approximately 11,800 acres in size and is located immediately southwest of the City of Oroville. The Feather River transects the site and runs nearly 10 miles through the OWA. The Feather River and its floodplain in the OWA were altered by large-scale bucket-line gold dredge mining that occurred from 1898 to 1952. Today, nearly 5,000 acres of the OWA, in places measuring nearly 2 miles wide (east/west) by more than 7 miles long (north/south), consists of large areas primarily composed of the remnants of dredge tailings and associated features. The dredging removed vital topsoil and the resultant gravel/cobble tailings piles (some as tall as 50 feet or

more above the river) have created a moonscape that locals have decried in public meetings as “an ecological travesty.” Once used to keep the un-dammed Feather River from disrupting gold dredging operations, the upstream portions of the tailings configured into a now-obsolete flood control “levee” is an eyesore that also diminish habitat for fish and birds by constricting flood flows onto neighboring lands, eliminating vital flood flows from engaging the floodplain. This highly disturbed topography also increases flood stages in the Feather River and exacerbates flooding in the south Oroville industrial area, east and west of Highway 70.

¹ The feature envisioned for removal in this project is not a FEMA-accredited levee, nor is it a USACE Project levee or a part of the State Plan of Flood Control.



Project Location

The Project

The project itself is a relatively-simple aggregate excavation and sediment sorting project. The project's "multiple benefits" are created with the appropriate location and configuration of the excavation, along with the sorting and use of the excavated material and subsequent site revegetation. The project would excavate an obsolete tailings pile (presently configured in a sort of "levee" that protects nothing other than other mine tailings) on the right-bank² of the Feather River in the OWA (see figure at right). The resultant land surface would be configured to create a naturalized floodplain surface that would increase the channel's flood capacity, would allow flood flows to move into and attenuate in the newly-opened floodplain, and this new floodplain and river

connection would greatly help juvenile salmon and steelhead by providing increased and improved rearing habitat. In order to provide for decreased costs for 2018 Spillways work, DWR would place a performance specification into subsequent designs/bid packages requiring the contractor to mine and process the material for the spillways project from this State-owned location. The configuration of the excavation and associated restoration would need to be carefully planned and executed to meld with and achieve other State- and locally-driven plans and goals. Importantly, the appropriate planning and collaboration necessary to complete the project and achieve all benefits must be initiated immediately to achieve requisite timelines and maintain credibility³.

² As viewed from the perspective of looking downstream.

³ In October, DWR announced and filed with the FERC notification that up to approximately 80,000 cubic yards of aggregate will be extracted from the OWA for use as pervious drain material in Spillways repairs, with this work anticipated to commence mid-December 2017. However, that 80,000 CY of material is planned to be extracted far from the river and will not provide the multiple benefits noted here; and DWR didn't clearly articulate that their project is NOT the same project described here / that has been discussed by the local community for the last 6 months. That ambiguity has further eroded confidence in the Department and to some locals feels like "bait and switch".



The Project's Multiple Benefits

Multi-benefit flood projects such as this one are designed to both reduce flood risk and enhance habitat by allowing rivers and floodplains to function more naturally. This project would also create additional public benefits such as protecting downstream cities and farms, improving water quality, increasing groundwater recharge, providing public recreation opportunities, and making more efficient and sustainable the FERC license-related measures and Spillways repairs. The project also offers the opportunity to strengthen relationships and partnerships locally and regionally, and do so in a manner that is economically-efficient and sustainable.

Flood Benefits:

- **Locally increased flood conveyance and decreased flood water surface elevations**, reducing flood hazards for Highway 70 and the adjacent industrial area. Businesses would benefit from being able to regain flood insurance, lost after the 2017 flood releases.
- **Attenuation of flood flows for downstream cities and farms.** Increasing flood flows down the Feather River would expand out into the floodplain, delaying the rise in the hydrograph for downstream locations. Delaying this peak flow would reduce downstream water surface elevations for a time, potentially eliminating levee failures and also would providing emergency responders with extra time needed to prepare and/or safely evacuate downstream communities, as appropriate.
- **Alignment with the CVFPP 2017 Update.**
- **Likely no expansion in FEMA mapped floodplains.** The area behind the existing, obsolete "levee" is already subject to inundation when the highest flood flows backwater into the site. This project would simply remove the constriction by this levee, lowering water surface elevations in the river and allowing flows to expand into the floodplain, increasing the frequency and duration of floodplain inundation.

Ecosystem Benefits:

- **Restoration in the OWA.** Without active restoration, recovery from the legacy of Gold Rush impacts will be on a geologic timescale. This project is a critical first step that is long overdue.
- **Restoration of vital rearing habitat and refugia for threatened and endangered fish species.** With upstream Oroville facilities limiting spawning and rearing habitat, this floodplain project will increase critical habitat and rehabilitate key geomorphic processes that create and (importantly) maintain these habitats for fish and avian species.

FERC License Benefits:

- **Supports DWR completing Settlement Agreement/FERC License Articles A102, A103, A104, A106, and potentially A105.**
- **Provides increased floodplain habitat and opportunity for side channels for A106 and A103 and A104.**
- **Floodplain-width (oscillation) in this project can be designed to enhance riffle sediment retention in support of A102. This decreases the long-term O&M requirements on this habitat, decreasing total costs on A102.**
- **Portions of the excavated material can be sorted and used for gravel augmentation to support A102 and for Spillways repairs.**
- **Floodplain can be configured to support development of a pilot (and long-term) fish count and/or segregation weir for A105.**

Spillways Repair Benefits:

- **A local source of aggregate for Spillways repairs and/or upgrades, decreasing GHG emissions** for materials transport, **lowering costs**, while simultaneously providing an immediate use for excavated floodplain material that cannot be used for spawning gravel augmentation. This is a **sustainable** approach to this project and the Spillway repairs.
- **Eliminates the long haul distances from the Yuba River aggregate/sand operations** presently being used on the Spillways. One truck driver working on the Spillways project died in a crash on Highway 70 in March (since termed "Blood Alley," per highway billboards). Aside from GHG emissions and economics, reducing Highway 70 construction traffic by sourcing material locally is the right thing to do.

Economic Benefits:

- **Elimination of aggregate purchasing and decreased transport costs for ensuing Spillways repairs.**
- Integration of material sourcing for the Spillways repairs with implementation of the Settlement Agreement/FERC License Articles, **yields large cost savings and efficiencies for DWR and the SWC:**
 - Short-term savings come from lower material costs for the Spillway; long-term savings comes from completing FERC measures sooner than later, thus spending cheaper dollars/on lower costs to complete these measures.
 - Importantly, use of material from the OWA is a highly-efficient way to complete the Spillways repairs and complete FERC with the same dollars.
- **Decreases flood insurance/allows for flood insurance for local businesses** in the Highway 70/South Oroville Industrial Area
- Implementing the **A105 segregation weir** (separating listed fish runs from those that could be available for the sport fishery) **could support changes in the Fish and Game Code to allow for increased fishing opportunities** for salmon and steelhead in the Feather River, **increasing recreation and spurring economic recovery.**

Partnerships:

- This project is **supported by the local Oroville Strong! stakeholders and the Oroville Dam Coalition** because it improves habitat, decreases flood hazard, is efficient and promotes sustainability at multiple levels, and could save the SWC and DWR money if implemented appropriately. It is viewed locally as a "no-brainer" and a "win-win."
- **Opportunity for partnership and a strategic "win" for DWR/SWC in collaborating with Oroville locals.**
- **A foundational first step at reconciling past practices that have decimated a critically important floodplain along one of California's most important rivers**, and a respectful and practical offering in addressing the environmental justice issues that plague the legacy of Oroville Dam.
- Supports making **early progress on FERC License implementation** by integration of ecosystem items into the spillway recovery. With an eye toward endangered species recovery, several NGOs are seeking to expedite the ecosystem restoration elements of the FERC license—leaving issues related to the Project's facilities (i.e., the Spillways and Dam) to the side for now.



This project was identified in the Feather River Consolidated Master Plan as one of the six priority projects for immediate implementation in coordination with Spillways Recovery & Restoration. Similar to the other five projects, this project meets local priorities for river restoration, recreation, and economic recovery.

Potential Alignment/Integration with the Feather River Consolidated Master Plan (SBF Steering Committee, 2017)

The recently-accepted Feather River Consolidated Master Plan presents project concepts that integrate locally-preferred projects with implementation of the FERC License/Settlement Agreement articles (as noted above). Other elements that this Plan proposes/identifies include:

- **Construction of a new pedestrian and bicycle bridge across the Feather River into the OWA** in conjunction with the new floodplain. Views from the bridge of fish spawning below or passing upstream would offer an attraction similar to that at the upstream fish barrier dam/hatchery, but in a natural spawning environment—presenting education and recreational benefits.
- **Linking the existing Riverbend Park to the Oroville Wildlife Area via a Class 1 trail** that keeps the river in sight from downtown to the OWA, providing opportunities for salmon viewing in the river and views of the Sacramento Valley/Table Mountain/etc.
- Examine the California State land lease immediately opposite the OWA (currently occupied by Mathews Ready Mix) to determine opportunity to integrate this land into **Highway 70-based access/open space/trailhead with the bridge**.
- **Construct new trails thru the OWA**, including surfacing suitable to support road bikes riding from a start area in Downtown and continuing from the new pedestrian and bicycle bridge downstream through the OWA. This configuration and design would be **sufficient to support triathlons, bike races, and adventure events**.
- **Develop this reach of river as a designated Blue Trail** (a national-level program). Blue Trails are river segments that serve as water-based recreational resources. Blue Trails are adopted by communities that are dedicated to improving family friendly recreation such as fishing, boating, hiking, and wildlife watching, and conserving rivers and lands.