



Sausal Creek Restoration at Dimond Park

Alternatives Analysis

Purpose

This document analyzes several design alternatives for the restoration of Sausal Creek in Dimond Park and outlines key criteria for project feasibility.

Restoration of the creek is proposed to address existing conditions that are causing bank erosion, instability and channel down-cutting; deteriorating water quality and habitat; blocking native fish passage; and threatening the safety of neighboring houses and a city roadway. These conditions were, in large part, the impetus for including Sausal Creek restoration among the projects analyzed in the Measure DD EIR and for its high ranking on the Measure DD list of Prioritized Creek Restoration Projects (see attached).

Project Criteria

A. Channel Stability

Provides long-term stabilization of the channel banks, potential for future maintenance reduction, fine sediment reduction, and protection of private and public infrastructure and property.

B. Fish Passage

Supports native rainbow trout populations by improving the passage of rainbow trout upstream and downstream of the Dimond Park culvert.

C. Riparian and Fish Habitat

Enhances riparian and in-stream habitat and native plant diversity to improve the ecological function of the site.

D. Alameda County Flood Control District Requirements

Meets the Alameda County Flood Control and Water Conservation District's (Flood Control District) requirement to maintain or improve flood protection for the surrounding community. Hydraulic modeling is required to verify water surface elevations during different design storms.

E. Regulatory Compliance

Achieves permit requirements for the US Army Corps of Engineers, California Department of Fish and Game, and the Regional Water Quality Control Board.

F. Funding Feasibility

May feasibly attain the required project funding including acquiring outside funding for the project from Oakland Measure DD funds, California River Parkways Grant program, as well as other state and federal grant programs.

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Alternatives

1. No Project

1.1. Brief Description

This is the do nothing alternative. Early site assessment work for the project determined that the channel and banks are continuing to destabilize. Public and private infrastructure, homes, and existing trees along the banks will continue to be threatened and City liability will continue to grow. With this alternative, no work would be conducted to ameliorate current conditions.

1.2. Evaluation

No work on the creek would be conducted, however due to deteriorating conditions, work will eventually be needed to protect infrastructure, remove fallen trees, clear channel blockage, and address liabilities. This option preserves some of the trees in the short term but may result in lost trees due to failing banks and other emergency repair work in the future. This option carries a higher risk of damage to adjacent property and infrastructure. An accelerated schedule necessitated by emergency repair work increases project spending, limits environmental and habitat improvements, and eliminates grant funding options.

This alternative does not meet Project Criteria.

2. Full-Width Restoration

2.1. Brief Description

This alternative implements a fully restored Sausal Creek through the project area designed to meet typical restoration standards. Both banks are graded to stable slopes (minimum 2:1 slopes), the channel is moved further into the park, sufficient floodplain is created to ensure stability during large storm events, and the channel is replanted with native riparian vegetation.

2.2. Evaluation

This alternative meets Flood Control District requirements, provides a stable channel and banks that fully meet regulatory agency and geotechnical standards, and maximizes fish passage and riparian habitat improvements. This alternative would require the removal more trees than the proposed alternative and would require the relocation of the existing concrete pedestrian path in several locations.

This alternative meets Project Criteria.

3. Proposed Project

3.1. Brief Description

The Proposed Project scales back the Full-Width Restoration alternative to accommodate trees at the top of bank. The overall width of the channel corridor is approximately 15-ft narrower than the Full-Width Restoration alternative. The

left bank is graded to a more stable slope and adjusted to preserve and protect trees while also balancing with the goals of meeting the needs of other criteria. The right bank, as viewed while looking downstream, remains over-steepened. The toe of the right bank is protected with a combination of rock and bioengineering to improve bank stability over current conditions. The channel is restored and raised where feasible to reduce bank heights while still maintaining the required flood capacity.

3.2. Evaluation

This alternative meets the requirements of the Flood Control District and the regulatory agencies. It stabilizes the channel bed and banks, provides fish passage, and significantly improves riparian habitat. Many trees are required to be removed but many more trees remain than in the Full-Width Restoration alternative. The some of the largest trees are preserved and protected.

This alternative meets Project Criteria.

4. Secondary Channel

4.1. Brief Description

The Secondary Channel alternative implements a second channel that is routed through the park adjacent to the existing channel. This secondary channel would be sized to accommodate storm flows to ensure flood risk does not increase over existing conditions and would likely be between 3 to 8 feet lower than the park surface with a channel corridor width of 20 to 40 feet through Dimond Park.

4.1. Evaluation

This alternative meets Flood Control District and fish passage requirements, but may not meet the regulatory compliance, channel stability, fish and riparian habitat improvement, or funding feasibility requirements. The channel banks will not be stabilized to the degree shown in the Proposed Project alternative. Fish and riparian habitat are minimally improved. The secondary channel will impact some of the trees through the park and where it reconnects back into the existing channel at the downstream end of the park. To achieve a riparian habitat benefit similar to the proposed project, the secondary channel would have to be sized such that an equivalent number of trees would likely be lost. The secondary channel also impacts a significantly larger component of Dimond Park resulting in the loss of park space and potentially requires rerouting a 66-inch reinforced concrete pipe storm drain as well as additional unknown utilities within the park. As a result the costs of this alternative are significantly more than the Proposed Project. Grant funding may or may not cover a portion of this alternative's cost.

This project only meets criteria for flood control and fish passage.