# Chapter 5
# ALTERNATIVES ANALYSIS

## 5.1 Introduction

This chapter describes alternatives to the Proposed Project and evaluates their environmental impacts. This alternatives analysis was developed to serve three regulatory purposes: (1) CEQA compliance; (2) National Environmental Policy Act (NEPA) compliance; and (3) Clean Water Act Section 404(b)(1) permitting requirements. Although this DSEIR addresses CEQA requirements, NEPA and 404(b)(1) environmental review activities for the Proposed Project are occurring in parallel as part of the U.S. Army Corps of Engineers (USACE) permitting process. The analysis in this chapter is anticipated to be used by the USACE to develop its NEPA documentation and 404(b)(1) analyses. Therefore, this chapter considers those NEPA regulatory requirements and provides a consistent evaluation for each.

A detailed description of the regulatory requirements for consideration of alternatives is provided in Section 5.2, *Regulatory Requirements*. The chapter continues with a description of the alternatives development process, alternatives that were considered, and alternatives that were considered but dismissed from detailed analysis. The chapter concludes with identification of the environmentally superior alternative.

## 5.2 Regulatory Requirements

### *CEQA/NEPA Requirements*

CEQA requires that an EIR, and NEPA requires that an environmental assessment (EA) or environmental impact statement (EIS), evaluate a reasonable range of alternatives to the proposed action, including an alternative where no project would be developed. Although no clear rule exists for determining a reasonable range, CEQA and NEPA provide guidance that can be used to define the range of alternatives for consideration in the environmental document. According to NEPA, the range of alternatives required is governed by the rule of reason, which requires an EA or EIS to set forth only those alternatives necessary to allow for a reasoned decision regarding the proposed action. An EA or EIS must consider a reasonable range of options as defined by the specific facts and circumstances of the proposed action. First, alternatives must fulfill the basic purpose and need for the action. Second, alternatives to be analyzed should not have more significant impacts on the environment than the proposed action or result in impacts that are indistinguishable from those of the proposed action. Furthermore, alternatives must be able to be feasibly carried out in the context of technical, economic, environmental, and other factors. If alternatives have been eliminated from detailed study, the EA or EIS must briefly discuss the reason for their elimination (40 CFR 1502.14[a]; Forty Questions No.1[a]).

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The range of alternatives under CEQA is similarly governed by the rule of reason. Alternatives under CEQA must meet the basic project objectives, should reduce or eliminate one or more of the significant impacts of the proposed project (although the alternative can have greater impacts overall), and must be feasible. In determining whether alternatives are feasible, lead agencies are guided by the general definition of feasibility found in State CEQA Guidelines Section 15364: "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors." In accordance with State CEQA Guidelines Section 15126.6[f], the lead agency must consider site suitability, economic viability, availability of infrastructure, general plan consistency, other regulatory limitations, jurisdictional boundaries, and the proponent's control over alternative sites in determining the range of alternatives to be evaluated in an EIR. An EIR must briefly describe the rationale for selection and rejection of alternatives and the information that the lead agency relied on in making the selection. It should also identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reason for their exclusion (State CEQA Guidelines Section 15126[d][2]). These guidelines were used in developing the alternatives and their evaluation, as described below.

A No Action (NEPA)/No Project (CEQA) Alternative also is required to be considered. The No Action/No Project alternative allows decision makers to compare the impacts of approving the action against the impacts of not approving the action.

### *Clean Water Act Section 401(b)(1)*

Under 40 CFR Part 230 Section 401(b)(1), discharge of dredged or fill material will not be permitted if a practicable alternative exists to the proposed discharge that will have a lesser adverse impact on the aquatic ecosystem. However, the alternative cannot have other significant adverse environmental consequences that are greater than that of the proposed discharge.

For the purpose of this requirement, practicable alternatives include, but are not limited to:

- activities that do not involve a discharge of dredged or fill material into the waters of the United States or ocean waters; and
- discharges of dredged or fill material at other locations in waters of the United States or ocean waters.

Because Proposed Project activities would be necessarily water-dependent, alternatives which would not involve a discharge of dredged or fill material into waters of the United States were not considered. Additionally, the Project Area is specifically defined, based on maintenance needs for the region's flood protection channels. Because the Project Area was determined by fundamental Proposed Project needs, this precluded consideration of alternative locations for discharges outside of the Project Area. An alternative is practicable if it is available and capable of being undertaken after taking into consideration cost, existing technology, and logistics in light of overall project purposes. If it is otherwise a practicable alternative, an area not presently owned by the applicant that can reasonably be

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obtained, utilized, expanded or managed to fulfill the basic purpose of the proposed activity may be considered.

For actions subject to NEPA, where the U.S. Army Corps of Engineers (USACE) is the permitting agency, the analysis of alternatives required for NEPA environmental documents, including supplemental USACE NEPA documents, will in most cases provide the information for the evaluation of alternatives under the Section 401(b)(1) guidelines. On occasion, these NEPA documents may not have considered the alternatives in sufficient detail to respond to the requirements of the 401(b)(1) guidelines, and it may be necessary to supplement the NEPA documents with this additional information.

## 5.3 Alternatives Development Process

Alternatives to the SMP Update were developed as programmatic alternatives to implementation of the Proposed Project as a whole. Some of the alternatives considered would limit the extent of Proposed Project implementation by altering the frequency of maintenance activities or prohibiting maintenance activities from occurring on specific stream reaches. As a result, the programmatic alternatives would provide varying levels of flood protection. Alternatives were developed by considering the Proposed Project's overall goals and objectives as well as by its potential environmental impacts. Alternatives would seek to achieve similar goals as the Proposed Project, although the alternatives may reach these goals to a greater or lesser extent than the Proposed Project. The alternatives also would seek to reduce the significance of anticipated adverse environmental impacts associated with the Proposed Project. A reasonable range of alternatives is presented in Section 5.4, *Alternatives Considered*, describing their potential impacts as well as benefits.

### 5.3.1 Project Goals and Objectives

The SMP Update was developed to achieve the following goals and objectives:

- Maintain the design flow or appropriate conveyance capacity of SCVWD facilities
- Maintain the structural and functional integrity of SCVWD facilities
- Remove sediment to maintain the hydraulic, safety, and habitat functions of creek systems
- Manage vegetation to maintain the hydraulic, safety, and habitat functions of creek systems, and allow for levee inspections and maintenance access
- Stabilize beds and banks of creeks and canals to protect existing infrastructure, maintain public safety, reduce sediment loading, protect water quality, and protect habitat values
- Avoid, minimize, or mitigate impacts on the environment by incorporating stream stewardship principles into maintenance activities

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## 5.3.2 Significant Environmental Impacts of the Proposed Project

The following impacts have been identified as potentially significant, but they would be mitigated to a less-than-significant level by implementation of mitigation measures:

- **Impact BIO-1**: Loss or Disturbance of Wetlands and Other Waters
- **Impact BIO-2**: Loss or Disturbance of Woody Riparian Vegetation
- **Impact BIO-3**: Disturbance of Sensitive Plant Communities
- **Impact BIO-4**: Impacts to Serpentine-Associated Special-Status Plant Species
- **Impact BIO-5**: Impacts to Non-Serpentine Special-Status Plant Species
- **Impact BIO-6**: Impacts to Serpentine-Associated Special-Status Invertebrates
- **Impact BIO-7**: Loss of Ordinance Trees
- **Impact BIO-8**: Impacts on Steelhead
- **Impact BIO-9**: Impacts on the Pacific Lamprey and Monterey Roach
- **Impact BIO-10**: Impacts on the Longfin Smelt and Green Sturgeon
- **Impact BIO-11**: Impacts on the California Tiger Salamander
- **Impact BIO-12**: Impacts on the California Red-Legged Frog
- **Impact BIO-14**: Impacts on Non-Special-Status Fish and Amphibians
- **Impact BIO-16**: Impacts on the Western Pond Turtle
- **Impact BIO-20**: Impacts on the California Clapper Rail and Alameda Song Sparrow
- **Impact BIO-23**: Impacts on the Least Bell's Vireo
- **Impact BIO-24**: Impacts on the Burrowing Owl
- **Impact BIO-27**: Impacts on the Yellow Warbler
- **Impact BIO-28**: Impacts on the Yellow-Breasted Chat
- **Impact BIO-35**: Impacts on the Salt Marsh Harvest Mouse and Salt Marsh Wandering Shrew
- **Impact BIO-37**: Impacts on the Pallid Bat
- **Impact BIO-44**: Introduction of Invasive Species
- **Cumulative Impact BIO-1**: Effects on Biological Resources

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### 5.3.3 Significant and Unavoidable Environmental Impacts of the Proposed Project

The following impacts have been identified as significant and unavoidable:

- **Impact AES-3:** Temporary Alteration of Visual Character or Quality from Maintenance Activities
- **Impact AES-4:** Permanent Alteration of Visual Character or Quality from Maintenance Activities
- **Impact AIR-1:** Temporary Increase in ROG, NOx, $PM_{10}$, and $PM_{2.5}$ Emissions during Maintenance Activities
- **Impact Bio-45:** Habitat Fragmentation
- **Impact GCC-1**: Temporary Increase in GHGs during Maintenance Activities
- **Impact NZ-1:** Temporary Exposure of the Public to Noise Levels in Excess of City or County Standards
- **Impact NZ-3:** Temporary Substantial Increase in Noise above Ambient Levels
- **Cumulative Impact AIR-1**: Emissions of ROG, NOx, $PM_{10}$, and $PM_{2.5}$
- **Cumulative Impact AIR-2**: Emissions of Greenhouse Gases
- **Cumulative Impact Bio-2:** Habitat Fragmentation

## 5.4 Alternatives Considered

The following alternatives were considered because they would meet most of the Proposed Project objectives, would be feasible, and would avoid or substantially reduce one or more significant impacts of the Proposed Project:

- No Project Alternative
- Reduced Frequency Alternative
- Limited Work in Unmodified Channels Alternative
- Limited Activities Alternative

Table 5-1 provides a comparison of alternatives to the Proposed Project, focusing on notable changes in characteristics and adverse and beneficial impacts.

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**Table 5-1.** Comparison of Alternatives

| Alternative | Notable Comparisons to Proposed Project | | |
|---|---|---|---|
| | **Changes in Characteristics** | **Adverse Impacts** | **Beneficial Impacts** |
| No Project Alternative | • Either use of existing BMPs, or BMPs varying on a project-by-project basis<br>• Uses current maintenance period; no extension<br>• If project-by-project permits are sought, some maintenance may not occur in the year it was needed because of increased time and effort to conduct CEQA compliance and obtain permits annually<br>• If project-by-project permits are sought, biological impacts would be mitigated annually instead of comprehensively | • If work could not be conducted in a timely manner because of permit constraints, potential failure to maintain the design flow, or appropriate conveyance capacity of facilities resulting from sediment accumulation<br>• Various impacts could increase because existing BMPs may not be as protective as proposed BMPs | • Slight reduction in annual impacts associated with SMP Update activities if less annual maintenance would be conducted |
| Reduced Frequency Alternative | • Recurrence of sediment removal and vegetation management activities at any location would be half as frequent as under the Proposed Project<br>• The amount of maintenance done during each event likely would need to be greater to fulfill maintenance needs | • Temporary failure to maintain the design flow or appropriate conveyance capacity of facilities between maintenance activities<br>• Temporary increased fire risk on roads and levees<br>• Various impacts likely to increase in intensity because larger maintenance events would occur | • Impacts of sediment removal and vegetation management would occur less frequently |
| Limited Work in Unmodified Channels Alternative | • Maintenance activities that could be done in unmodified channels would be limited to within 100 feet up- and downstream of human-made structures<br>• Maintenance activities in unmodified channels located away from human-made structures would not occur | • Potential failure to maintain the design flow or appropriate conveyance capacity of facilities resulting from increased sediment accumulation in locations where no work was allowed<br>• Potential adverse impacts to water quality from increased sediment accumulation because of bank failures in areas where no work was allowed | • Potentially would reduce impacts to plant and animal species, riparian habitat, and wetlands in unmodified reaches<br>• Various impacts would be reduced overall because less annual maintenance would be conducted |

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**Table 5-1.** Comparison of Alternatives

| Alternative | Notable Comparisons to Proposed Project | | |
|---|---|---|---|
| | **Changes in Characteristics** | **Adverse Impacts** | **Beneficial Impacts** |
| Limited Activities Alternative | • Only "soft" bank stabilization measures would be used; no hardscape would be allowed<br>• Equipment for sediment removal would always be located at the top of the bank and would not be allowed in the stream channel<br>• No herbicides would be used for vegetation management; only mechanical methods or hand removal would be utilized<br>• No rodenticides would be used for management of animal conflicts | • Potential failure to maintain the design flow or appropriate conveyance capacity of facilities resulting from the inability to remove sediment inaccessible from top of bank<br>• Likely greater impacts to vegetation/habitat from trampling because of repeated hand or mechanized vegetation removal<br>• Potential variety of new/or greater impacts related to alternative methods of implementing maintenance activities<br>• Direct loss of riparian habitat and sediment discharges potentially resulting from repeated bank failures where soft methods were not sufficient<br>• Non-native species and species densities likely to increase because of less effective control methods; longer term result would be a loss of native flora and conversion to higher density non-natives | • Potentially reduced impacts to water quality from eliminating the use of herbicides and rodenticides<br>• Reduced instream impacts from not allowing large equipment in the channel for sediment removal<br>• Increased ecological value at bank stabilization sites where soft measures were used successfully |

Source: Data compiled by Horizon Water and Environment in 2011

## 5.4.1 No Project Alternative

### *Characteristics of this Alternative*

Under the No Project Alternative, SCVWD would pursue one of two options: (1) continue conducting maintenance activities, including CEQA compliance and project-by-project permitting on an annual basis, following practices under the existing SMP; or (2) seek to extend or renew existing SMP programmatic permits, following practices under the existing SMP and utilizing previous CEQA documentation. SCVWD would continue conducting the same maintenance activities under the existing SMP, using existing operation and maintenance guidelines and BMPs. A primary difference between this alternative and the Proposed Project is that the Proposed Project would include an extension of the end date of the maintenance period, from October 15 to December 31, as long as weather remained dry. In addition, this alternative would conduct maintenance projections to determine future work locations and extent. If project-by-project permitting was conducted, the BMPs may be

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modified on a project-by-project basis, as dictated by mitigation contained in CEQA compliance documents and the terms contained in annually renewed permits.

The No Project Alternative could require SCVWD to conduct CEQA compliance and obtain permits on an annual basis, requiring more time and effort annually compared to the Proposed Project. Because of the lead time needed to obtain regulatory permits, some needed maintenance likely would not be conducted during the same season as the need for it was identified, resulting in the potential for failure to maintain the design flow or appropriate conveyance capacity of facilities. Therefore, possibly less maintenance work would be accomplished each year. If less sediment removal were to occur, sediment removal activities (such as truck trips for hauling and disposal/reuse) also would be reduced. Additionally, under this alternative over the 10-year planning horizon (2012-2022), annual environmental compliance costs required for the No Project Alternative would be expected to be higher than the one-time compliance costs associated with the Proposed Project.

### *Impact Analysis*

The type and nature of environmental impacts resulting from the No Project Alternative could be expected to be similar to those of the Proposed Project. However, if less maintenance work was completed each year, then maintenance activities would be performed at each reach less frequently and/or less work would be completed overall. As a result, impacts related to aesthetics, air quality, biological resources, cultural resources, noise, recreation, traffic, geomorphology, and water quality would be slightly reduced. For instance, a longer period between maintenance activities would allow biological systems more time to restore ecological structure and function, resulting in somewhat reduced impacts to wetland and riparian habitats and other biological resources, when compared to the Proposed Project. To the extent that maintenance activities would improve ecological structure and function or remediate problems (for instance, bank stabilization to reduce sediment discharges to creeks), these benefits would not be realized to the same extent as under the Proposed Project.

If project-by-project permitting occurred, sediment discharges from areas requiring bank stabilization, combined with increased sediment accumulation resulting from the longer period between maintenance activities, would result in a greater temporary reduction in conveyance capacity than the Proposed Project. Consequently, the No Project Alternative would not be expected to maintain the design flow or appropriate conveyance capacity of facilities to the same extent as the Proposed Project. This would certainly be the case in channels that are included in the Proposed Project but not a part of the existing SMP.

Continued use of the BMPs in the current SMP, to the extent they are not as protective as the BMPs proposed for the SMP Update, may not reduce the impacts of maintenance to the same extent as under the Proposed Project. Furthermore, because SCVWD may not know what the mitigation requirements would be more than one year in advance, biological impacts then would need to be mitigated on an annual basis. Therefore, because mitigation would be undertaken in smaller increments, the overall mitigation may be less ecologically significant than the comprehensive approach proposed in the SMP Update, where

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maintenance projects are pooled together annually or over a longer timeframe for the purpose of identifying mitigation opportunities.

## 5.4.2 Reduced Frequency Alternative

### *Characteristics of this Alternative*

Under the Reduced Frequency Alternative, the types of maintenance activities undertaken by SCVWD would not change, but the recurrence of sediment removal and vegetation management activities would occur less frequently than under the Proposed Project. However, bank stabilization, management of animal conflicts, and minor maintenance activities would continue to occur as needed. All other aspects of the Proposed Project (e.g., the proposed BMPs) would be implemented under this alternative.

Under the Proposed Project, the recurrence of activities is projected for a 10-year period and would be influenced by a variety of factors, including the type of maintenance activity, where that activity would occur (e.g., levee or bank; unmodified channel or canal), and the site-specific factors at a particular location (e.g., rate of sediment accumulation or vegetation growth). The need for sediment removal or instream vegetation management typically would be based on field observations of reduced channel capacity from sediment accumulation or vegetation growth; non-instream vegetation management would be based on managing annual growth, including the removal of vegetation using both pre-emergent and post-emergent herbicides. Under the Reduced Frequency Alternative, the recurrence of sediment removal and vegetation management activities at any particular location would be half as frequent as under the Proposed Project. For example, if a stream reach was projected in the Proposed Project to need sediment removed in 4 out of 10 years, under the Reduced Frequency Alternative, sediment would be removed in 2 out of 10 years. Table 5-2 shows the 10-year average recurrence of sediment removal and instream and non-instream vegetation management activities under the Proposed Project and the Reduced Frequency Alternative.

Although maintenance activities would occur less frequently, the amount of maintenance done during each event likely would need to be greater to fulfill maintenance needs. For instance, a greater amount of sediment removal or instream vegetation management would need to occur during a maintenance event to maintain the design flood flow conveyance capacity during the longer periods between maintenance episodes. A greater amount of non-instream vegetation management also would need to occur during a maintenance event, to address fire hazards on roads and levees associated with a greater amount of vegetation growth. Similarly, different types of maintenance may be necessary (e.g., removal of larger trees may require larger equipment).

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**Table 5-2.** Reduced Frequency Alternative 10-Year Recurrence of Sediment Removal and Vegetation Management Activities

| Maintenance Type | Proposed Project 10-Year Average Recurrence | Reduced Frequency Alternative 10-Year Average Recurrence |
|---|---|---|
| Sediment Removal | 2.8 | 1.4 |
| *Instream Vegetation Management* | | |
| Herbicide | 8.9 | 4.5 |
| Hand Removal | 3.0 | 1.5 |
| Hand Pruning | 2.1 | 1.1 |
| *Non-Instream Vegetation Management* | | |
| Mowing | 9.6 | 4.8 |
| Herbicide | 14.2 | 7.1 |
| Hand Removal | 2.6 | 1.3 |
| Hand Pruning | 2.4 | 1.2 |
| Discing | 10 | 5 |

Note:
In reality maintenance events would not occur as fractions. This table is intended to demonstrate the average rate that these activities would occur over the entire Project Area.
Source: Data compiled by Horizon Water and Environment in 2011

### *Impact Analysis*

The type and nature of environmental impacts resulting from the Reduced Frequency Alternative is expected to be very similar to those of the Proposed Project. Compared to the Proposed Project, impacts theoretically would be reduced because maintenance events would occur less frequently; however, this may be offset by the increased intensity associated with the less frequent, larger maintenance events. The frequency and intensity of maintenance events would affect impacts related to aesthetics, air quality, biological resources, cultural resources, noise, recreation, traffic, geomorphology, and water quality. For instance, the longer period between maintenance activities would allow biological systems more time to restore ecological structure and function, resulting in somewhat reduced impacts to wetland and riparian habitats and other biological resources, when compared to the Proposed Project. To the extent that maintenance activities support or improve ecological structure and function (for instance, create conditions unfavorable to invasive exotic species), these benefits would not be realized to the same extent as under the Proposed Project.

Increased sediment accumulation and instream vegetation caused by the longer period between maintenance activities would result in a greater temporary reduction in conveyance capacity, and thus a reduction in the maintenance of the design flow or appropriate conveyance capacity of facilities, than under the Proposed Project. However, because larger maintenance events would occur, flood flow conveyance capacity would be retained over the long term. Increased non-instream vegetation growth caused by the

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longer period between maintenance activities would result in greater temporary fire hazards on roads and levees than under the Proposed Project. Local fire code requirements would not be able to be met annually.

## 5.4.3 Limited Work in Unmodified Channels Alternative

### *Characteristics of this Alternative*

Under the Limited Work in Unmodified Channels Alternative (Limited Work Alternative), maintenance activities that could be done in unmodified channels would be limited to within 100 feet up- and downstream of human-made structures, such as bridges, road crossings, stream gages, outfalls, and trash racks. As a result, a reduced amount of annual maintenance would occur under this alternative. Maintenance near human-made structures would be necessary because it would keep these structures functioning properly and safely. Necessary maintenance activities in unmodified channels located away from human-made structures would not occur, resulting in a reduction in the maintenance of the design flow or appropriate conveyance capacity of facilities, or in unaddressed maintenance needs. If less sediment removal and vegetation management were to occur, specific aspects of the work associated with these activities (such as truck trips for hauling and disposal/reuse) also would be reduced. All other aspects of the Proposed Project (e.g., the proposed BMPs) would be implemented under this alternative. To help illustrate this alternative, Figure 5-1 shows the locations of the unmodified channels.

### *Impact Analysis*

The primary goal of the Limited Work Alternative would be to reduce impacts to biological resources in unmodified channels. Although a range of ecological values would exist in both modified and unmodified channels, portions of the unmodified channels are believed to be among the channels which provide some of the greatest ecological value overall. The majority of impacts to biological resources in unmodified channels would be eliminated, but some disturbance and impact to unmodified channels would be necessary to maintain human-made structures. Compared to the Proposed Project, the Limited Work Alternative may promote the ecological structure and function of unmodified reaches by reducing impacts to plant and animal species, riparian habitat, and wetlands. To the extent that maintenance activities would support or improve ecological structure and function (for instance, create conditions unfavorable to invasive exotic species), these benefits would not be realized to the same extent as under the Proposed Project.

Under the Limited Work Alternative, the overall amount of maintenance likely would be reduced. As a result, impacts related to aesthetics, air quality, biological resources, cultural resources, noise, recreation, traffic, geomorphology, and water quality would be reduced compared to the Proposed Project.

Sediment discharges from bank failures that would not be addressed under this alternative would result in a greater temporary reduction in conveyance capacity than under the Proposed Project, and they would have adverse water quality (sedimentation) impacts. In addition, because flood flow capacities would not be maintained in these unmodified channels, flood risk may increase in these reaches.

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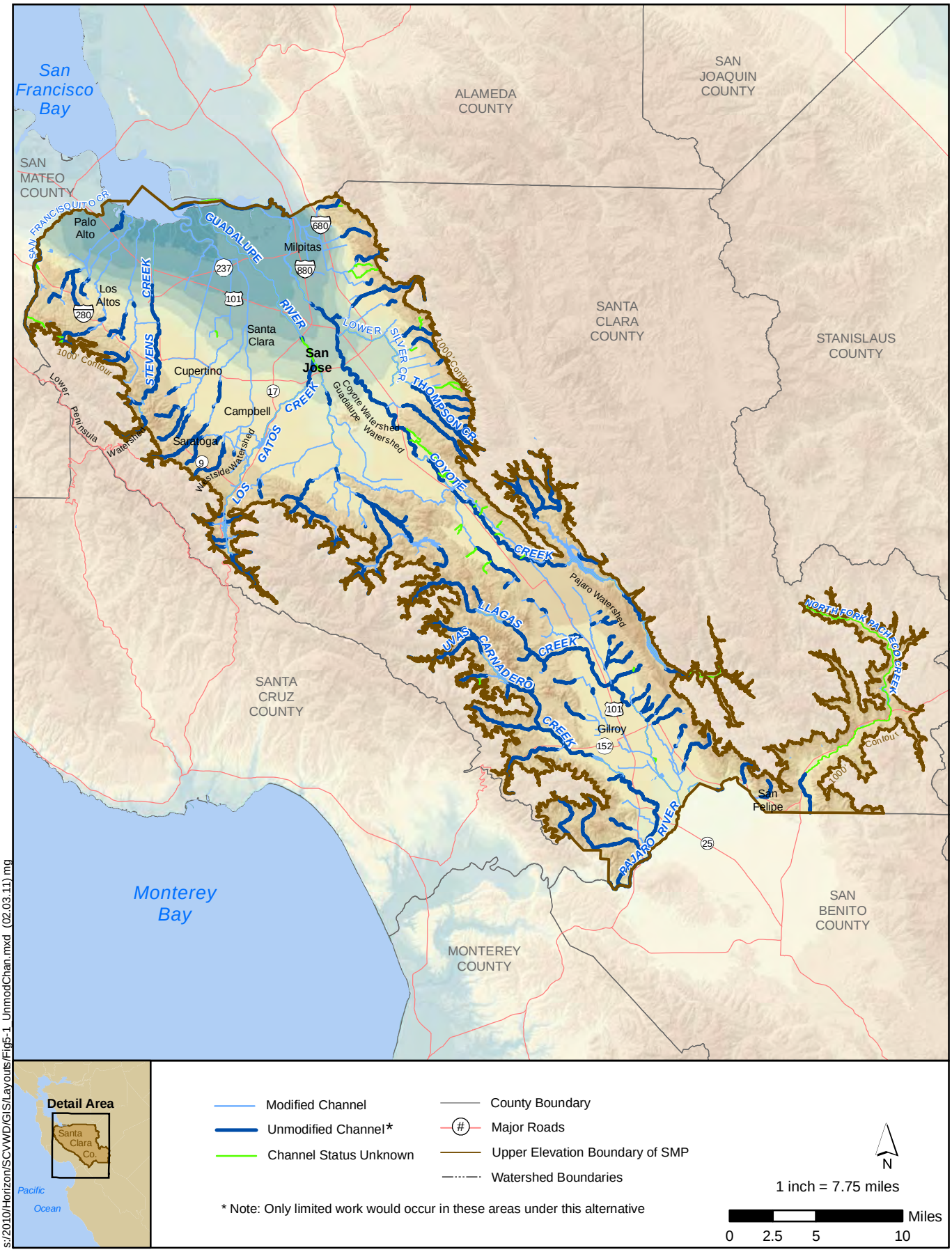


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**Figure 5-1: Limited Work in Unmodified Channels Alternative**

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## 5.4.4 Limited Activities Alternative

### *Characteristics of this Alternative*

Under the Limited Activities Alternative, the five types of maintenance activities proposed in the Proposed Project would occur, except those maintenance activities with the greatest biological impacts would be eliminated or modified. For bank stabilization activities, no hardening of stream banks would be allowed and only "soft" stabilization measures would be used. For sediment removal activities, equipment always would be located at the top of the bank and would not be allowed in the stream channel. For vegetation management activities, no herbicide use would be allowed, and only mechanical vegetation management methods would be utilized. For management of animal conflicts, no rodenticide use would be allowed. Minor maintenance activities would be conducted as described under the Proposed Project.

The methods included in the Proposed Project currently are used by SCVWD because they are the most effective methods for accomplishing maintenance. Relying on alternative methods would result in increased effort to accomplish the same degree of necessary maintenance. Alternative methods also may result in higher implementation costs and/or less maintenance work getting accomplished each year.

### *Impact Analysis*

Under the Limited Activities Alternative, avoidance of the most impactful activities would eliminate impacts but may increase others. For instance, eliminating the use of herbicides and rodenticides would reduce potential for impacts on water quality. However, repeated hand vegetation removal likely would result in greater trampling of vegetation/habitat than single events of herbicide application. Likewise, the growth of some species of undesirable vegetation may not be effectively controlled without the use of herbicides.

In addition, SCVWD would not always be able to complete needed maintenance by relying solely on the limited activities. For instance, conducting sediment removal from the top of the stream bank may not allow for removal of sediment from certain channels that could not be accessed from the top of the bank. Therefore, this alternative would be likely to impede sediment removal that would be necessary to maintain flood flow conveyance capacity. As a result, the potential flooding risk would increase at these locations.

Furthermore, reliance on alternative methods for implementing maintenance activities could result in new and/or increased environmental impacts, compared to the Proposed Project. For instance, relying solely on mechanical vegetation management as opposed to herbicides could result in greater noise and air quality impacts.

Finally, restricting bank stabilization to "soft" methods could result in inadequate bank protection in instances where hard methods are needed for bank stability. This could result in repeat bank failures, with adverse impacts on habitat and water quality through direct loss of riparian habitat as well as sediment discharges. The need for repeat bank repairs

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could increase the impacts associated with such maintenance activities (e.g., increased air emissions, noise impacts).

## 5.5 Alternatives Considered and Dismissed

The following alternatives were considered but ultimately were dismissed from further analysis for one or more of the following reasons: (1) they were not substantively different from one of the considered alternatives; (2) they would not sufficiently meet the Proposed Project objectives; (3) they were determined to be infeasible; or (4) they would not avoid or substantially reduce one or more significant impacts of the Proposed Project:

- Geomorphic Alternative
- Watershed Approach Alternative
- Return to As-Built Conditions Alternative
- Modified Pajaro River Basin Alternative
- No Herbicides Alternative
- Reduced Extent Alternative
- Alternative Locations
- Reduced Time Frame Alternative

### 5.5.1 Geomorphic Alternative

This alternative would improve habitat complexity and function in Project Area streams by restoring geomorphic functions. Restoration of geomorphic functions would include allowing channel meander and sediment transport within Proposed Project streams, by widening stream rights-of-way, creating flood benches where flood flows could disperse, removing hardscape elements, and restoring more natural hydrographs to stream flows.

Although it is anticipated that this alternative would reduce individual maintenance activities in the SMP Update, it would involve implementation of new capital projects. Because it would focus on capital projects rather than maintenance, it would not meet the fundamental goal of the SMP Update as a maintenance program for current infrastructure.

Development of these new capital projects would result in substantial additional construction and costs (land, design, and construction) for SCVWD. In addition, along many streams, especially in the Valley floor areas, channels would be very narrow and development would have encroached to the edge of the right of way, making the acquisition of additional right of way to allow channel meandering or create flood plains very difficult and expensive, if not impossible. The capital improvements and associated operational changes could result in a variety of new environmental impacts that would need to be mitigated by measures outside of the scope of the BMPs included in the Proposed Project.

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Because this alternative would not meet the project objective and would have limited feasibility, it was dismissed. However, SCVWD does engage in capital projects which are rooted in geomorphic design considerations, but such activities would be outside the scope of the SMP Update.

## 5.5.2 Watershed Approach Alternative

This alternative would attempt to reduce or eliminate the need for future sediment removal activities by using watershed management approaches to reduce sediment inputs to Proposed Project streams. To reduce sediment inputs, SCVWD would implement erosion control activities in the upper watersheds of Proposed Project streams. These erosion control activities could include bank stabilization, restoration or replanting of creek banks and surrounding lands, and installing fencing to exclude grazing animals from streams.

Although conceptually the watershed management approach should reduce the need for proposed sediment removal activities, this alternative would be unlikely to eliminate the need for future sediment removal. Because many Proposed Project streams would have confined channels, their capacity to transport or store sediment would be greatly diminished. Thus, to eliminate the need for sediment removal, upstream sediment inputs would need to be reduced to a very large extent (i.e., below pre-European settlement conditions). Furthermore, this alternative would not alleviate the need to conduct other aspects of the Proposed Project (i.e., bank stabilization, vegetation management, management of animal conflicts, and minor maintenance).

Finally, feasibility of this alternative may be limited because SCVWD would not necessarily own the land or have the necessary easements to conduct watershed-based sediment control. Overall, this alternative would have feasibility constraints and would not be likely to substantially reduce the scope of the Proposed Project or its related significant environmental impacts.

## 5.5.3 Return to As-Built Conditions

This alternative would maximize flood protection for residents by focusing solely on restoring design flow conveyance capacity rather than balancing flood protection needs with environmental needs. SCVWD would implement the SMP Update by focusing on restoring flood flow conveyance capacity, with minimal or no restrictions to protect biological or cultural resources. Sediment removal would be conducted in modified channels without regard for the presence of sensitive species or habitats and could occur as frequently as desired to maintain flood flow conveyance. Vegetation management would be conducted using the most cost effective methods, which likely would focus on herbicide use, tree removal, and removal of all vegetation from the channel.

This alternative would not meet the primary Proposed Project objective of incorporating stream stewardship principles into maintenance activities, to avoid, minimize, or mitigate impacts on the environment. Furthermore, it would be more challenging for SCVWD to obtain environmental permits from regulatory agencies because of the significant environmental impacts likely to be associated with this alternative, especially when less damaging alternatives existed, such as the Proposed Project.

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### 5.5.4 Modified Pajaro River Basin Alternative

This alternative was considered in the 2002 SMP EIR, to reduce environmental impacts on biological resources by limiting herbicide use for vegetation management in the Pajaro River Basin. Because an alternative already existed which considered limiting herbicide use (the Limited Activities Alternative), this alternative was not considered further.

### 5.5.5 No Herbicides Alternative

This alternative would reduce environmental impacts on biological resources by excluding herbicide use for vegetation management in the Project Area. Because an alternative already existed which considered limiting herbicide use (the Limited Activities Alternative), this alternative was not considered further.

### 5.5.6 Reduced Extent Alternative

This alternative would preserve the structure and functions of certain areas of high biological value by prohibiting maintenance activities with potential for adverse impacts on stream reaches with sensitive habitats. Sensitive habitat is defined as that which supports endangered species. Streams are by their nature sensitive habitats, and a large portion of Project Area streams provide some sensitive habitat. As a result, in large sections of Project Area streams, the SCVWD would not be able to perform SMP Update activities needed to maintain flood flow conveyance capacity. Therefore, this alternative would not meet the basic Proposed Project goal/objective of maintaining the appropriate flood conveyance capacity of Project Area streams.

### 5.5.7 Alternative Locations

This alternative would reduce environmental impacts by conducting maintenance activities at locations where fewer sensitive environmental resources were located. Although the SMP Update activities could restore flood conveyance capacity in any reach where they were conducted, the Proposed Project specifically would target stream reaches where the design conveyance capacity had been reduced. Conducting these activities at unnecessary locations would not address the needs for maintenance activities in reaches where conveyance capacity had decreased. This alternative could increase flood conveyance capacity in reaches beyond the design capacity, resulting in a capital project and activities outside of the scope/intent of the SMP Update. This alternative would not meet the basic Proposed Project goal/objective of maintaining the appropriate flood conveyance capacity of Project Area streams.

### 5.5.8 Reduced Time Frame Alternative

This alternative would reduce environmental impacts by limiting sediment removal, instream vegetation management, herbicide application, and bank stabilization activities to the period from June 15 to October 15. The Proposed Project would allow these activities to occur from October 15 to December 31, as long as the weather remained dry. Because the No Project Alternative already considered limiting work to the period from June 15 to October 15, this alternative was not considered further.

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## 5.6 Environmentally Superior Alternative

Weighing all issues, the Proposed Project is considered to be environmentally superior. Compared to any of the alternatives, it would strike the most appropriate balance among maintaining the design flow or appropriate conveyance capacity of facilities, protecting the ecological integrity of channels, and addressing other short- and long-term impacts associated with the proposed maintenance activities.

This fact notwithstanding, CEQA requires that an environmentally superior alternative be selected from among the alternatives to the Proposed Project. The Reduced Frequency Alternative is considered the environmentally superior alternative because by limiting the amount of all annual maintenance activities, it would reduce the impacts associated with these activities. However, this alternative would maintain the design flow or appropriate conveyance capacity of facilities to a lesser extent than the Proposed Project. Although flood flow capacity would be retained in the long term from conducting larger maintenance events, flood risk would increase in the interim because needed maintenance events would be delayed so that they occurred no more frequently than every 5 years.

The other alternatives were not selected as the environmentally superior alternative for the following reasons:

- ***No Project Alternative.*** Although this alternative would provide only a slight reduction in the maintenance of the design flow or appropriate conveyance capacity of facilities, maintenance would not necessarily be conducted in a timely manner to avoid flood hazards. Furthermore, maintenance activities may not be implemented along with a comprehensive mitigation approach and consistent set of BMPs. Therefore, flood risk would be greater and, at the same time, more residual impacts likely would remain.

- ***Limited Work Alternative.*** As a result of reduced maintenance activities in unmodified reaches, this alternative would promote the ecological structure and function of these reaches and, therefore, would reduce a variety of impacts related to the Proposed Project in those locations. However, this alternative would result in increased flood risk along unmodified channels and resulting impacts on downstream creek systems.

- ***Limited Activities Alternative.*** This alternative would slightly reduce impacts to biological resources. However, new/increased impacts also could result from the use of alternative maintenance methods. This alternative also could result in a reduction in the maintenance of the design flow or appropriate conveyance capacity of facilities at locations where sediment removal could not occur solely from the top of the bank, and increased water quality and habitat impacts where soft bank stabilization methods were not effective.