5 Alternatives

5.1 Introduction

This chapter presents descriptions and evaluations of alternatives to the Corte Madera Creek Flood Risk Management Project, Phase 1 (project) (including the required No Project Alternative), describes the alternatives screening process and alternatives eliminated from consideration, compares the environmental merits of the alternatives, and identifies the environmentally superior alternative.

Section 15126.6(a) of the California Environmental Quality Act (CEQA) Guidelines states that an EIR must describe and evaluate a reasonable range of alternatives to the proposed project that would feasibly attain most of the project's basic objectives but would avoid or substantially lessen any identified significant adverse environmental effects of the proposed project. Specifically, the CEQA Guidelines (Section 15126.6) set forth the following criteria for selecting and evaluating alternatives:

1. **Identifying Alternatives.** The selection of alternatives is to focus on identifying those alternatives that would avoid or substantially lessen any of the significant effects of the project, are feasible, and would attain most of the basic objectives of the project. Factors that may be considered when addressing the feasibility of an alternative include site suitability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, economic viability, and whether the proponent can reasonably acquire, control, or otherwise have access to an alternative site. An Environmental Impact Report (EIR) need not consider an alternative whose impact cannot be reasonably ascertained and whose implementation is remote and speculative. The specific alternative of "No Project" also must be evaluated. The "No Project" analysis is to discuss existing conditions at the time the environmental analysis is begun, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved.
2. **Range of Alternatives.** An EIR need not consider every conceivable alternative but must consider and discuss a reasonable range of feasible alternatives in a manner that will foster informed decision-making and public participation. The "rule of reason" governs the selection and consideration of EIR alternatives, requiring that an EIR set forth only those alternatives necessary to permit a reasoned choice. The lead agency (Marin County Flood Control and Water Conservation District [District]) is responsible for selecting a range of project

alternatives to be examined and for disclosing its reasons for the selection of the alternatives.

3. **Evaluation of Alternatives.** An EIR is required to include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. Matrices may be used to display the major characteristics and environmental effects of each alternative. If an alternative would cause one or more significant effects that would not result from the project as proposed, the significant effects of the alternative must be discussed, but in less detail than the significant effects of the proposed project.

5.2 Approach to Alternatives Selection

5.2.1 Overview of Selection Process

Consistent with CEQA (Public Resources Code, Section 15004[b][1]), the District incorporated consideration of environmental impacts as well as environmental benefits into conceptualization, planning, and design for the project. The process for selecting alternatives to be evaluated in the EIR included gathering public input on potential alternatives to consider and defining alternatives to reduce environmental impacts during project planning and the preparation of this EIR, screening alternatives against CEQA alternatives screening criteria, and evaluating whether to retain each alternative for analysis in the EIR. The alternatives retained for analysis in this EIR are presented in Section 5.3. A comparison of these alternatives against the project is presented in Section 5.4.

5.2.2 Alternatives Considered during Project Planning

The alternatives considered during the project planning process included:

- alternatives evaluated in the Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR), prepared by U.S. Army Corps of Engineers (USACE) in 2018;
- alternatives that were suggested in comments submitted during the public review period of the Draft EIS/EIR, prepared by USACE in 2018;
- alternatives developed by the District through evaluation of significant environmental impacts; and
- alternatives suggested by the public during the 2020 EIR scoping process.

5.2.3 Alternatives Screening Methodology

Screening Methodology

The alternatives that were considered during project planning were evaluated using a screening process consisting of three steps:

Step 1: Clearly define each alternative to allow comparative evaluation.

Step 2: Evaluate each alternative in comparison with the project using CEQA criteria (defined below)

Step 3: Based on the results of Step 2, determine the suitability of each alternative for full analysis in the EIR. If the alternative is unsuitable, eliminate it from further consideration.

CEQA Requirements for Alternatives

CEQA provides guidance on selecting a reasonable range of alternatives for evaluation in an EIR. This alternatives screening and evaluation process satisfies CEQA requirements. The CEQA requirements for selection of alternatives are described next.

An important aspect of EIR preparation is identification and assessment of a reasonable range of alternatives that have the potential for avoiding or minimizing the impacts of a project (CEQA Guidelines, Section 15126.6[d]). The CEQA Guidelines also require consideration of the No Project Alternative (Section 15126.6[e]). The EIR must adequately assess these alternatives to allow a comparative analysis for consideration by decision makers. Section 15126.6(a) of the CEQA Guidelines state that:

> An EIR shall describe a reasonable range of alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation.

To comply with CEQA requirements, each alternative that has been suggested or developed for the project has been evaluated in three ways:

1. Does the alternative accomplish all or most of the project objectives?
2. Is the alternative potentially feasible (from economic, environmental, legal, social, and technological standpoints)?
3. Does the alternative avoid or substantially lessen any significant effects of the project (including consideration of whether the alternative itself could create significant environmental effects potentially greater than those of the project)?

Each of these criteria is described in more detail in the following sections.

Project Goals and Objectives

The primary goals of the project are to reduce the frequency and severity of flooding, and to protect human life and property in the communities of Ross and Kentfield by enhancing and improving Corte Madera Creek. The District has defined the following six project objectives:

1. **Flood Risk Reduction.** Reduce overall flood inundation extent and depth in the Town of Ross and Kentfield area.

2. **Environmental Benefits.** Improve fish passage, natural creek processes, and fish and riparian habitats adjacent to the creek.
3. **Public Access and Enhanced Recreational Experience.** Maintain public access along the creek via the multi-use path and enhance the recreational experience and amenities along the creek corridor to meet the Town of Ross and Kentfield area community needs.
4. **Operational Reliability.** Improve operational reliability and reduce long-term maintenance costs by increasing maintenance access, improving channel stability, and protecting existing utilities.
5. **Regulatory Compliance.** Comply with local, State, and federal environmental laws and regulations.
6. **Fiscally Responsible Flood Risk Reduction.** Implement a flood risk reduction project that can be accomplished with currently available local and grant funding and reasonably foreseeable grant funding opportunities.

The CEQA Guidelines require consideration of alternatives capable of eliminating or reducing significant environmental effects even though they may "impede to some degree the attainment of project objectives" (Section 15126.6[b]). Therefore, CEQA does not require that each alternative meet all the project objectives identified above. The determination of whether to eliminate or retain alternatives in the EIR was based on each alternative's ability to adequately meet most of the project objectives, as defined by the District. Each alternative that met four or more of the six project objectives was moved forward to screen for feasibility.

Feasibility

Section 15364 of the CEQA Guidelines define feasibility as "...capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors." The alternatives screening analysis mainly is governed by what CEQA terms the "rule of reason," meaning that the analysis should remain focused not on every possible eventuality but rather on the alternatives necessary to permit a reasoned choice. Alternatives that are potentially feasible, while still meeting most project objectives, are to be fully analyzed in the EIR if they also reduce a project's environmental impacts.

According to Section 15126.6(f)(1) of the CEQA Guidelines, the factors that may be considered when addressing the potential feasibility of alternatives include site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or other regulatory limitations, jurisdictional boundaries, and the project proponent's control over alternative sites. For the screening analysis, the potential feasibility of alternatives was assessed by considering the following factors:

- **Legal Feasibility.** Would the alternative have the potential to avoid land with uses having legal protection that may prohibit or substantially limit the feasibility of permitting channel improvements? Land use afforded legal protections that would prohibit project construction or would require an act of Congress for permitting is

considered to be a less feasible location for the project. Such land use designations include wilderness areas, wilderness study areas, restricted military bases, airports, and Native American reservations.

- **Regulatory Feasibility.** Would regulatory restrictions substantially limit the likelihood of successful permitting of a high-voltage transmission line? Is the alternative consistent with regulatory standards for transmission system design, operation, and maintenance?
- **Technical Feasibility.** Would the alternative be potentially feasible from a technological perspective, considering available technology? Would any construction, operation, or maintenance constraints be likely to occur that could not be overcome?
- **Economic Feasibility.** Would the alternative be so costly that its implementation would be prohibitive? Section 15126.6(b) of the CEQA Guidelines requires consideration of alternatives capable of eliminating or reducing significant environmental effects, although they may "impede to some degree the attainment of the project objectives, or would be more costly." In 1988, the Court of Appeals determined in Citizens of Goleta Valley v. Board of Supervisors: ". . .The fact that an alternative may be more expensive or less profitable is not sufficient to show that the alternative is financially infeasible. What is required is evidence that the additional costs or lost profitability would be severe enough to render it impractical to proceed with the project."
- **Environmental Feasibility.** Would implementation of the alternative cause substantially greater environmental damage than the project, thereby making the alternative clearly inferior from an environmental standpoint? Would the alternative reduce any potentially significant project impact? This issue primarily is to be addressed in terms of the alternative's potential to eliminate potentially significant project effects.

Potential to Eliminate Significant Environmental Effects

A key CEQA requirement for an alternative is that it must have the potential to "avoid or substantially lessen any of the significant effects of the project" (CEQA Guidelines, Section 15126.6[a]). At the screening stage, evaluating or quantifying all the impacts of the alternatives in comparison to the project would not be possible. However, identifying elements of an alternative that are likely to be the sources of impacts and relating them, to the extent possible, to general conditions in the project area would be possible.

The project's potentially significant environmental impacts were identified and evaluated to develop alternatives and determine whether an alternative would meet the CEQA Section 15126.6 requirements. The potentially significant impacts of the project are described in Chapter 3, Environmental Setting, Impacts, and Mitigation Measures, of the EIR and include visual quality. The project would result in a substantial change in visual quality at Frederick Allen Park during tree growth and establishment.

Furthermore, the project would have the potential to result in additional significant impacts on aesthetics, air quality, biological resources, cultural resources, geology and soils, hydrology and water quality, noise, recreation, and transportation, but these impacts would be reduced to less than significant after implementing mitigation. The analysis in Chapter 3 of the EIR show that project impacts on visual quality would be significant and unavoidable, even after incorporating mitigation.

5.2.4 Selecting Alternatives for Analysis in the EIR

Each of the alternatives considered during project planning and preparation of the EIR are identified in Table 5.2-1, showing a summary of each alternative's ability to meet the basic project objectives and feasibility criteria. The alternatives retained for further consideration and analysis and the No Project Alternative are described in Section 5.3. The alternatives eliminated from further consideration are described in Section 5.3, along with the rationale for their elimination.

Table 5.2-1 Alternatives Screening Results

Description of Alternative	Meets Most Objectives?	Meets Feasibility Criteria?	Avoids/Reduces Environmental Effects?	Conclusion
Alternatives Retained				
Alternative 1: Reduced Footprint–Avoid Frederick Allen Park Alternative 1 would avoid the concrete channel removal and floodplain construction in Frederick Allen Park. The concrete channel in the park would remain, and four larger fish resting pools would be constructed within the concrete channel adjacent to the park, to improve fish passage within the Frederick Allen Park reach of Unit 3. Alternative 1 would incorporate and would not modify all remaining project elements in Unit 4, including removal of the fish ladder, all project elements in lower Unit 3, and all project elements in Unit 2. *Sources: Town of Ross, scoping comments*	**Yes.** This alternative would meet most project objectives. It would partially meet Objective 1 and would provide flood risk reduction, as demonstrated in the analysis below; however, the flood reduction would be less than the proposed project. It would partially meet Objective 2 because it would improve fish passage, but to a lesser extent than the project, and it would not enhance natural creek processes or include riparian habitat creation. It would partially meet Objective 3 by maintaining the existing public access, but it would not enhance the recreational opportunity. It would partially meet Objective 4 by protecting existing utilities, but it would not improve operational reliability or reduce long-term maintenance of the concrete channel. It would meet Objectives 5 and 6 because it would comply with relevant laws and regulations and could be accomplished with local and reasonably foreseeable grant funding.	**Yes.** This alternative meets the feasibility criteria. It would include installation of four fish pools that would be like other fish pools that would be installed as part of the project. It would be technically feasible to construct, like the fish pools that would be constructed in lower Unit 3. With the additional fish pools in the concrete channel, this alternative still would achieve fish passage improvement, although the improvement would be less than that of the proposed project. Therefore, the alternative would meet regulatory feasibility criteria. It would avoid land uses with legal protection, which would make it legally feasible. The alternative would be less costly than the proposed project and would meet economic feasibility criteria.	**Yes.** This alternative would avoid the temporary significant impacts on visual quality from removal of trees at Frederick Allen Park. It also would avoid temporary biological, noise, traffic, and recreational impacts by avoiding construction in the park area. It would not result in any increased or new significant environmental impacts, in comparison to the project.	**Retained.** This alternative has been retained for detailed analysis because it would meet most objectives, would be feasible, and would avoid the potentially significant project impacts.
Alternative 2: Boardwalk in Frederick Allen Park Alternative 2 would involve constructing Bike Route 20 on a boardwalk attached to the short new floodwall at the west edge of Frederick Allen Park. The boardwalk bike path would be elevated above the floodplain and would not be subject to increased flooding risk. The alternative would not create new public access to the creek but would include a new maintenance accessway parallel to the creek, to accommodate maintenance of the riparian habitat and floodplain. It would incorporate and would not modify any of the remaining project elements in Unit 4, the floodplain construction, floodwalls, and retaining walls in Frederick Allen Park, and lower Unit 3, and Unit 2. *Sources: District, scoping comments*	**Yes.** This alternative would meet all project objectives. It would meet Objective 1 and provide flood control benefits comparable to the project, because the floodplain at Frederick Allen Park and all remaining project elements still would be constructed. It would meet Objective 2, because it would improve fish passage, enhance natural creek processes, and create riparian habitat comparable to the project. It would meet Objective 3 by maintaining public access and enhancing recreational opportunities, by construction of a new boardwalk and overlook in the riparian and creek habitat. It would meet Objective 4 by protecting existing utilities and increasing operational reliability, comparable to the proposed project. It would meet Objectives 5 and 6, because it would comply with relevant laws and regulations and could be accomplished with local and reasonably foreseeable grant funding.	**Yes.** The boardwalk at Frederick Allen Park would meet all feasibility criteria. The boardwalk adjacent to the floodwall and unpaved maintenance access path would be technically feasible to construct. The alternative still would include the concrete channel removal and creation of natural riparian habitat that would meet regulatory requirements. The pathway adjacent to the floodwall would avoid trees adjacent to the floodwall and would meet Section 408 requirements for tree setback from the floodwall. The alternative would be in Frederick Allen Park and would require Town of Ross approval for construction of the boardwalk on Town property. It would meet legally feasibility criteria, like the proposed project. It would involve construction of a boardwalk multi-use path instead of a paved multi-use path. The difference in cost between the paved path and boardwalk would be minimal, and the alternative would be economically feasible.	**Yes.** This alternative would avoid impacts from increased flooding of the multi-use pathway in Frederick Allen Park, by locating the pathway at a higher elevation above the floodplain. It also would avoid the less-than-significant impacts associated with increased pedestrian access to the creek and would accommodate increased planting in the floodplain, by allowing planting below the boardwalk. It would not result in any increased or new significant environmental impacts, in comparison to the project.	**Retained.** The alternative has been retained for detailed analysis because it would meet all project objectives, would be feasible, and would avoid project impacts.
Alternative 3: Reduced Concrete and Increased Natural Materials Alternative 3 would reduce the use of concrete in the project by implementing the following modifications: 1. Replacement of the concrete transition from Unit 4 to Frederick Allen Park with large rock to protect the Ross Valley Sanitary District (RVSD) pipeline.	**Yes.** This alternative would meet all project objectives. It would meet Objective 1 and provide flood control benefits comparable to the project because all project elements would be constructed; however, some of the elements would be constructed with materials other than concrete. It would meet Objective 2 because it would improve fish passage, enhance natural creek processes, and create riparian habitat comparable to the project. It would meet Objective 3 by maintaining public access and enhancing recreational opportunities comparable to the project. It	**Yes.** Preliminary analysis indicates this alternative would meet all feasibility criteria. Use of non-concrete retaining walls and non-concrete protection for buried pipelines has been feasible in other locations. Additional engineering would be required to determine the feasibility of the alternative elements in the project setting. The alternative presumably would meet regulatory feasibility criteria because the riparian corridor and fish passage improvements associated with the project still would remain. USACE may determine	**Yes.** This alternative would not avoid impacts from use of concrete in Corte Madera Creek and the floodplain. The alternative would not be likely to result in any new or increased significant impacts and could result in long-term benefits for fish and wildlife, resulting from reduced concrete and increased use of natural materials.	**Retained.** This alternative has been retained for detailed analysis because it would meet most project objectives, would be feasible, and would not result in any increase in environmental impacts.

Description of Alternative	Meets Most Objectives?	Meets Feasibility Criteria?	Avoids/Reduces Environmental Effects?	Conclusion
2. Construction of the retaining walls in Unit 4 and Unit 3 with rock or a material that would allow planting within the retaining walls. 3. Construction of the Unit 2 floodwall with rock instead of concrete. The alternative would not remove any elements of the project but would involve only replacing certain concrete elements with other materials. *Sources: District, scoping comments*	would meet Objective 4 by meeting the engineering criteria for protection of the RVSD sewer line. The operational reliability of the non-concrete elements has not been determined. The alternative would meet Objectives 5 and 6 because it would comply with relevant laws and regulations and could be accomplished with local and reasonably foreseeable grant funding.	that the non-concrete floodwall in Unit 2 is not a floodwall; however, this would be subject to additional evaluation. The alternative elements would be implemented on District property and would meet legal feasibility requirements. The alternative presumably would be similar in cost to the proposed project and would meet economic feasibility criteria.		
Alternatives Eliminated				
Alternative A: Top-of-Bank Floodwall Alternative A would construct top-of-bank floodwalls along the length of the creek in the project area. Setback floodwalls would be constructed around Kent Middle School athletic fields. *Source: 2018 EIS/EIR*	**Yes.** This alternative would meet most project objectives. It would partially meet Objective 3 by maintaining recreational access, but it would not include improvements to enhance the recreational experience in the creek corridor. Objective 6 would require achieving flood risk reduction using currently available local and reasonably foreseeable grant funding. The alternative could not be accomplished using existing and foreseeable funding because of the necessary real estate acquisitions.	**No.** This alternative is not feasible because of the time it would take to purchase 30 parcels and relocate residents living on purchased parcels. The project schedule could not accommodate the real estate acquisition duration. The project would not be legally feasible. In addition, USACE estimated that the cost to implement the alternative would be approximately $200 million, greatly exceeding the $14 million in funding that would be available for the project and not meeting economic feasibility criteria. Because parcels would require acquisition by the District, it may be legally infeasible to implement this alternative.	**No.** This alternative would have significant and unavoidable impacts on water quality, biological resources, aesthetics, noise, and land use. It would have substantially more impact than the project because of the additional activities upstream from Lagunitas Creek and downstream from Kent Middle School.	**Rejected.** The alternative would not meet legal and economic feasibility criteria and would not reduce environmental effects.
Alternative B: Top-of-Bank Floodwall/Partial Sylvan Lane Setback/College of Marin Widening Alternative B would replace the concrete channel lining around the College of Marin and Kent Middle School with an earthen channel, and box culverts would be installed under College Avenue. *Source: 2018 EIS/EIR*	**Yes.** This alternative would satisfy most project objectives. It would partially meet Objective 3 by maintaining recreational access, but it would not include improvements to enhance the recreational experience in the creek corridor. Objective 6 would require achieving flood risk reduction using currently available local and reasonably foreseeable grant funding. The alternative could not be accomplished using existing and foreseeable funding because of the need for substantial real estate acquisition, additional construction, and associated expense.	**No.** This alternative would not be feasible because of the time and cost it would take to purchase 18 parcels and relocate residents living on purchased parcels. USACE estimated the cost to implement this alternative would be $172.5 million, greatly exceeding the $14 million available to construct the project, and thus the alternative would not meet the economic feasibility criteria. Because the District does not own the land where the project would be located and substantial property acquisition would be required, the project also would not meet legal feasibility criteria.	**No.** This alternative would have significant and unavoidable impacts on water quality, biological resources, aesthetics, noise, and land use. It would have substantially more impact than the project because of the additional activities upstream from Lagunitas Creek and downstream from Kent Middle School.	**Rejected.** The alternative would not meet legal and economic feasibility criteria and would not reduce environmental effects.
Alternative C: Top-of-Bank Floodwall/Full Sylvan Lane Setback/College of Marin Widening Alternative C would construct a combination of top-of-bank and setback floodwalls. It would involve creek widening, a lowered bike path, and selected setback barriers at the College of Marin. *Source: 2018 EIS/EIR*	**Yes.** This alternative would satisfy most project objectives. It would meet or partially meet Objectives 1 through 5. It would not meet Objective 6, which would require achieving the project using currently available local and reasonably foreseeable grant funding. It could not be accomplished using existing and foreseeable funding because of the necessary real estate acquisitions and substantial additional construction expense.	**No.** This alternative would not be feasible because of the time it would take to purchase 18 parcels and relocate residents living on purchased parcels. It would not be legally feasible to acquire the 18 parcels within the project time frame. The alternative cost would be similar to Alternative B ($173 million), greatly exceeding the available funding, and in fact would be more expensive than Alternative B. Implementing the project with the funding that would be available for Phase I would not be economically feasible.	**No.** This alternative would have significant and unavoidable impacts on water quality, biological resources, aesthetics, noise, and land use. It would have substantially more impact than the project because of the additional activities upstream from Lagunitas Creek and downstream from Kent Middle School.	**Rejected.** The alternative would not meet legal or economic feasibility criteria and would not reduce environmental effects.

Description of Alternative	Meets Most Objectives?	Meets Feasibility Criteria?	Avoids/Reduces Environmental Effects?	Conclusion
Alternative F: Underpass/Allen Park Riparian Corridor/College of Marin Widening Alternative F would construct top-of-bank and setback floodwalls (maximum height of 9 feet) and an underpass under Sir Francis Drake Boulevard. It would make improvements to a recreation path in Frederick Allen Park. It would replace a concrete lining with an earthen channel in Unit 3 at the College of Marin. *Source: 2018 EIS/EIR*	**Yes.** This alternative would satisfy most project objectives. It would not meet Objective 6, which would require achieving the project using currently available local and reasonably foreseeable grant funding. It would exceed the funding available because it would include a substantial increase in construction to replace the concrete channel in Unit 3 at the College of Marin and add the underpass under Sir Francis Drake Boulevard.	**No**. This alternative would not be feasible because of the substantial funding required to construct the underpass under Sir Francis Drake Boulevard and remove the concrete channel in Unit 3 at the College of Marin, in addition to the project construction at Frederick Allen Park. The cost for this alternative would range from $37 million to $56 million, which would exceed the $14 million available for project construction.	**No.** This alternative would have significant and unavoidable impacts on water quality, noise, and traffic. It would have substantially more impact than the project because of the additional activities under Sir Francis Drake Boulevard and at the College of Marin.	**Rejected.** The alternative would not meet economic feasibility criteria and would not reduce environmental effects.
Alternative G: Floodwall/Allen Park Riparian Corridor/College of Marin Widening Alternative G would construct top-of-bank floodwalls (maximum height of 6 feet), make improvements to the recreation path in Frederick Allen Park, and replace the concrete lining with an earthen channel in Unit 3 at College of Marin. *Source: 2018 EIS/EIR*	**Yes.** This alternative would satisfy most project objectives. It would not meet Objective 6, which would require achieving flood risk reduction using currently available local and reasonably foreseeable grant funding. The alternative could not be accomplished using existing and foreseeable funding.	**No.** This alternative would not be feasible because of the time it would take to purchase 18 parcels and relocate residents living on purchased parcels. The acquisition of 18 parcels would not be legally feasible within the project's time frame. USACE estimates that the cost of this alternative would be $173 million, greatly exceeding the $14 million available for project construction. The alternative would not meet the economic feasibility criteria.	**No.** This alternative would have significant and unavoidable impacts on water quality, biological resources, aesthetics, noise, and land use. It would have substantially more impact than the project because of the additional activities at the College of Marin and related to acquisition of the 18 property parcels.	**Rejected.** The alternative would not meet legal or economic feasibility criteria and would not reduce environmental effects.
Alternative J: Underpass/Allen Park Riparian Corridor/Floodwall Alternative J would construct an underpass under Sir Francis Drake Boulevard and floodwalls in Frederick Allen Park near the Granton Park neighborhood, adjacent to College Avenue. *Source: 2018 EIS/EIR*	**Yes.** This alternative would satisfy five of the six project objectives. It would not meet Objective 6, which would require achieving flood risk reduction using currently available local and reasonably foreseeable grant funding. The alternative could not be accomplished using existing and foreseeable funding.	**No.** This alternative would result in additional cost to construct the underpass under Sir Francis Drake Boulevard in addition to all other proposed project elements. The additional cost of underpass construction to the proposed project elements would exceed the $14 million available for project construction. The alternative would not meet economic feasibility criteria.	**No.** This alternative would increase noise and traffic impacts because of construction of the underpass under Sir Francis Drake Boulevard. It would have substantially more impact than the project because of the additional activities under Sir Francis Drake Boulevard.	**Rejected.** The alternative would not meet economic feasibility criteria and would not reduce environmental effects.
Fish Ladder Removal Only This alternative would remove only the fish ladder in Unit 4 and would include no other proposed project elements. This alternative is similar to Alternative 1 in that Alternative 1 does not modify Frederick Allen Park. This alternative differs from Alternative 1 because Alternative 1 includes proposed flood control and habitat elements in Unit 4 and Kentfield areas. Alternative 1 also includes 4 larger fish pools in the existing concrete channel adjacent to Frederick Allen Park. *Source: scoping comments*	**No.** This alternative would not meet most project objectives. Removal of the fish ladder in the absence of all other project components would not meet Objective 1, because the floodwalls in Units 2 and 3 and the stormwater pump station would not be constructed. Flooding in Kentfield would continue and would be worsened by the alternative. The alternative would not improve fish passage and would not meet Objective 2 because none of the fish resting pools would be constructed, and the gap in fish passage in the concrete channel would remain. The alternative would retain existing public access and would partially meet Objective 3 for public access. It would leave the RVSD pipeline at risk and would not provide adequate transition between Unit 3 and Unit 4; therefore, it could undermine the integrity of the existing concrete channel and would not meet Objective 4. It would not meet Objective 5 because it would not comply with the regulatory criteria, it would affect the stability of the USACE flood control	**No**. This alternative would not be technically feasible because removal of the fish ladder in the absence of other hydrologic modifications would create hydrologic instability in Corte Madera Creek and could cause scour at the transition to the concrete channel. USACE would not approve removal of the fish ladder in the absence of a transition to Unit 3. Natural resource agencies would not approve the fish ladder removal in the absence of other fish passage and habitat improvements; therefore, the alternative would not meet regulatory requirements. The alternative could be completed with the available funds, would occur on District-owned land, and could meet economic and legal feasibility criteria.	**No.** This alternative would result in significant hydrologic impacts because it would not provide protection for Kentfield, leading to increased flooding in Units 3 and 2. It also would cause increased scour and hydrologic impacts on the transition to Unit 3, which would cause significant utility impacts. Although the alternative would avoid the project impacts on visual quality and recreational opportunity, it would result in long-term significant impacts on flooding and hydrology.	**Rejected.** This alternative would not meet most project objectives, would not meet regulatory requirements, and would result in a significant increase in hydrologic effects that would outweigh the benefits of the alternative.

Description of Alternative	Meets Most Objectives?	Meets Feasibility Criteria?	Avoids/Reduces Environmental Effects?	Conclusion
	channel, and it would not provide any improvement to fish passage or riparian habitat. The alternative would meet Objective 6 because it could be accomplished with the available funding.			
All Fish Resting Pools Improvement This alternative would include improving all 28 resting pools to address fish passage in Unit 3. It would replace the proposed project construction of 11 fish resting pools in Unit 3 but would not modify any other project elements. *Source: CDFW scoping comment*	**Yes.** This alternative would meet the proposed project objectives. The additional fish pools would provide fish resting habitat, comparable to the fish pools proposed as part of the project. The alternative would not meet Objective 6 because it could not be accomplished with currently available local or reasonably foreseeable funding.	**No.** Construction of larger fish pools in the concrete channel would be technically and legally feasible and would be part of the project. The alternative is expected to meet regulatory requirements and was suggested by CDFW. The cost of enlargement of 28 fish pools in Unit 3 (more than double the number proposed) would exceed the funding available for construction of fish resting pools and would not meet economic feasibility criteria.	**No.** This alternative would not avoid or reduce any project impacts and would not increase benefits for fish passage. The proposed fish passage resting pools were selected optimally to provide improvement to fish passage in Corte Madera Creek based on the 2020 study and evaluation prepared by Mike Love & Associates. The additional fish pools would result in additional construction impacts on hydrology in Corte Madera Creek and would lengthen the construction schedule.	**Rejected.** This alternative would not be economically feasible and would increase environmental effects.
Concrete Channel Removal in Units 2 and 3 This alternative would remove the concrete channel in Units 2 and 3 and would minimize floodwall construction that could result in permanent loss of riparian vegetation. The alternative would maximize concrete removal and channel naturalization. *Source: RWQCB comments on 2018 Draft EIS/EIR; scoping comments*	**Yes.** The alternative potentially meets most project objectives. As part of the alternative, additional design would be required to evaluate approaches to address flood control and incorporate recreational access along the multi-use pathway in Units 2 and 3. The alternative would not meet Objective 6 because it could not be accomplished with currently available local or reasonably foreseeable funding.	**No.** Removing the concrete channel may be technically feasible but would require further design. Removing the additional concrete in Units 2 and 3 presumably would meet regulatory requirements and legal feasibility criteria. The alternative would require substantially more funding than currently is available to the District, and it would not meet economic feasibility criteria. The alternative is considered as a separate and cumulative project in Chapter 4. The alternative could be implemented as a separate project in the future if sufficient funding to implement the alternative becomes available.	**No.** This alternative would not avoid or reduce any significant project impacts. It would involve concrete removal in new areas and would result in potentially significant impacts associated with construction in new areas. Additional environmental documentation would be needed before additional concrete channel removal in the lower Unit 3.	**Rejected**. This alternative would not be economically feasible and could not be accomplished within the project schedule. The alternative would also result in greater environmental impacts and would reduce impacts of the proposed project.
Sylvan Lane Flood Reduction–Winship Bridge to Lagunitas Bridge This alternative would include flood risk reduction in the Sylvan Lane area through flood control actions in the Winship Bridge to Lagunitas Bridge area of Corte Madera Creek. *Source: scoping comments*	**Yes.** This alternative would include project elements of the proposed project to meet Objectives 1 through 5. The alternative would add additional project elements upstream from Lagunitas Bridge, which could not be implemented with the available grant funding. It would not meet Objective 6 because it could not be accomplished with reasonably foreseeable grant funding.	**No.** This alternative would be potentially technically feasible but likely would require elements similar to the project, which would not be feasible (as discussed above). The alternative would not meet economic feasibility criteria because it would exceed available funding to add major elements to the proposed project. A separate project may be feasible in the future to address flooding in this area.	**No.** This alternative would require additional elements in other areas, which would not avoid or reduce the proposed project impacts and would result in greater impacts in new areas.	**Rejected.** This alternative would not meet economic feasibility criteria and would not reduce any environmental effects.
Buffer between the Retaining Walls and Corte Madera Creek in Frederick Allen Park This alternative either would remove the retaining walls at Frederick Allen Park or would set the retaining walls back from the creek to allow increased riparian plantings along the creek. *Source: CDFW scoping comment*	**No.** This alternative would not meet Objective 1 for flood risk reduction because a retaining wall would be required to provide flood protection for properties surrounding the project area. It would not meet Objective 3 for maintaining recreational access because moving the retaining wall would require removal of the bike path; the retaining wall is proposed in areas where the creek is adjacent to the bike path. It would not meet Objective 4 because it would not protect utilities that would be protected by the retaining wall and would not ensure operational reliability because the retaining wall is proposed to protect the creek at the transition from Unit 4 to Unit 3. In the absence of a retaining wall, the channel would be subject to	**No.** This alternative would not be technically feasible because the retaining wall would be required to protect existing infrastructure. If the retaining wall was removed, the infrastructure (including the bike path and adjacent structures) would not be sufficiently protected from the creek. Setting back the floodwall would require acquisition of residential and commercial properties, the cost of which would substantially exceed the available funding. Thus, the alternative would not be economically feasible.	**No.** This alternative would result in increased hydrologic impacts by removing the retaining wall, which would be needed for creek stability. It would not reduce any significant project impacts.	**Rejected.** This alternative would not meet the project objectives, would not be technically, legally, or economically feasible, and would result in increased flooding impacts without reducing any environmental effects.

Description of Alternative	Meets Most Objectives?	Meets Feasibility Criteria?	Avoids/Reduces Environmental Effects?	Conclusion
	substantial erosion at the transition. It also would not meet the objective for completing the project with available funding because relocating the retaining wall likely would require additional real estate acquisition of nearby properties.			
Stormwater Drainage under Kent Avenue This alternative would add stormwater drainage under Kent Avenue. *Source: scoping comments*	**Yes.** This alternative, in combination with the proposed project, would meet Objectives 1 through 5. The alternative would not meet Objective 6 because it would require additional elements that could not be accomplished with reasonably foreseeable grant funding.	**No.** This alternative is potentially technically feasible and could meet regulatory requirements and legal feasibility criteria. The alternative would require additional construction. Because this was suggested as an additional element that would be added to all other project elements, it would not be feasible to complete this work within the project budget and because the alternative was suggested as an addition, it is not an alternative to the project. Therefore, this alternative would not be economically feasible.	**No.** This alternative would result in new impacts along Kent Avenue and would not reduce any proposed project impacts because it would not avoid or replace any portion of the project.	**Rejected.** This alternative would not meet economic feasibility criteria and would not reduce environmental effects.

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5.3 Alternatives Selected for Analysis in the EIR

The alternatives selected for analysis in this EIR are:

1. No Project Alternative
2. Alternative 1: Reduced Footprint–Avoid Frederick Allen Park
3. Alternative 2: Boardwalk in Frederick Allen Park
4. Alternative 3: Reduced Concrete and Increased Natural Materials

To evaluate the various alternatives, the impacts of the proposed project within the "area of comparison" were compared to the impacts of the alternative, as described next, and summarized in Table 5.3-1, below. The "area of comparison" reflects the area of the proposed project that would be replaced by the alternative. The impacts of the proposed project would remain outside the area of comparison. The information contained in this Draft EIR will be reviewed and considered by the District Board of Supervisors before deciding to approve, disapprove, or modify the proposed project. As part of its deliberations, the Board of Supervisors will decide whether to approve all or part of the proposed project. The Board of Supervisors may adopt one or more of the alternatives, or parts of the alternatives described in this section, in lieu of the proposed project.

Table 5.3-1 Alternatives Areas of Comparison

Alternative	Proposed Project Area of Comparison	Difference from Proposed Project
Alternative 1: Reduced Footprint – Avoid Frederick Allen Park	• Construction in Corte Madera Creek and Frederick Allen Park between Unit 4 and Town of Ross jurisdictional limits • Limits of flooding upstream and downstream	• No modifications to Frederick Allen Park and Pathway • Four additional fish pools in the existing concrete channel • Modified transition from Unit 4 to Unit 3
Alternative 2: Boardwalk in Frederick Allen Park	• Bike Route 20 in Frederick Allen Park • Maintenance access at Frederick Allen Park	• Raised and realigned Bike Route 20 boardwalk path • No pedestrian creek access • New maintenance access parallel to creek
Alternative 3: Reduced Concrete and Increased Natural Materials	• Concrete in Corte Madera Creek at Unit 3 transition • Concrete retaining walls in Frederick Allen Park and Unit 4 • Concrete floodwall in Unit 2	• Non-concrete retaining walls in Unit 4 and Unit 3 • Non-concrete transition between Unit 3 and Unit 4 • Non-concrete floodwall in Unit 2

5.3.1 No Project Alternative

The CEQA Guidelines require an EIR to include an evaluation of the No Project Alternative, to provide decision-makers with the information necessary to compare the relative impacts of approving the project, or an alternative, and not approving the project (CEQA Guidelines Section 15126.6[e]). The No Project Alternative is defined as a continuation of existing conditions, as well as conditions that are reasonably expected to occur if the project is not implemented. The following discussion describes this alternative.

Description

The No Project Alternative represents the expected future condition if none of the action alternatives are approved and no change occurs in the current channel configuration. For the No Project Alternative, the current conditions and flood capacity would remain unchanged. The capacity ranges from 3,630 cubic feet per second (cfs) at Lagunitas Road Bridge in Unit 4 to greater than 6,900 cfs downstream of Unit 2 (USACE, 2010; Stetson Engineers, 2017). Under these existing conditions, flood flows exceeding these capacities would continue to pass outside the channel, onto the floodplain, and would continue to flood residential and commercial areas The Denil fish ladder would not be replaced, and fish passage would not be improved through Corte Madera Creek. Over time, the fish ladder likely would continue to degrade. Moreover, the transition point between the natural Unit 4 and concrete-lined Unit 3 stream reaches would remain a constricted section or a flood flow breakout zone. In Unit 2, the concrete channel below Stadium Way would remain, and marsh habitat that is resilient to climate change would not be established.

Environmental Impacts

The No Project Alternative would include maintaining the existing creek condition; baseline conditions would be maintained in the project area, and no new environmental impacts would be introduced. The cumulative flood control projects upstream from the project area still would occur. No improvement to fish passage, natural creek processes, or habitat would occur, nor would improvements to recreational facilities occur in the project area.

Aesthetics and Visual Resources

Implementation of the No Project Alternative would not affect the visual character of the project area because it would remain in its current condition. Views along Bike Path 20 in Frederick Allen Park and along Corte Madera Creek would remain unchanged. No impact would occur on aesthetics or visual resources.

The No Project Alternative would avoid the project's potentially significant impacts on visual quality from tree and vegetation removal and grading in Frederick Allen Park and the less--than-significant impact from the floodwalls and stormwater pump station in lower Unit 3 and Unit 2. The No Project Alternative also would not achieve the long-term benefit to aesthetics from creation of natural riparian habitats and a natural stream channel in Frederick Allen Park.

Air Quality
The No Project Alternative would not require vehicle or equipment use beyond the existing maintenance of the Corte Madera Creek channel. Criteria air pollutant emissions would not increase, and the risk to sensitive receptors would remain the same as baseline conditions. The ambient air quality of the project site would not be affected by the No Project Alternative. The No Project Alternative would avoid the air quality impacts resulting from project construction. The No Project Alternative would result in less than significant air quality impacts resulting from operation and maintenance of existing facilities, like operational impacts of the proposed project.

Biological Resources
The No Project Alternative would not require construction-related, ground-disturbing activities and would not affect special-status species that may occur in the project area. No impact would occur on existing jurisdictional waters or riparian habitat. The No Project Alternative could result in tree removal if USACE requires tree removal within 15 feet of the creek, which could result in an impact on existing trees and habitat.

The No Project Alternative would avoid the proposed projects' temporary construction impacts on special-status species, invasive species, riparian and sensitive habitats, and wetlands. The No Project Alternative also would reduce the amount of tree removal required, particularly in Frederick Allen Park.

The No Project Alternative would not modify the existing concrete channel, and the existing fish passage barriers and conditions would remain. The restoration of riparian and marsh habitat included in the proposed project would not occur under the No Project Alternative. The No Project Alternative would not achieve the long-term project benefits for fish passage, riparian habitat, and wetlands. The existing degraded habitat conditions in the project area would remain.

Cultural Resources
The No Project Alternative would not involve ground-disturbing activities, and thus no impacts would occur on archaeological resources or human remains. Furthermore, no impact would occur on cultural resources. The No Project Alternative would avoid the potential project impacts from inadvertent discovery and impact on cultural resources during project construction.

Energy
The No Project Alternative would not require the use of energy (fuel) resources for project construction. The No Project Alternative would avoid energy use from the stormwater pump station because no stormwater pump station would be constructed. The ongoing maintenance of the existing floodwalls and existing creek condition in the project area would require minimal energy resources, consistent with existing conditions. The No Project Alternative would avoid the proposed project's less-than-significant impact on consumption of energy resources during construction.

Geology and Soils

The No Project Alternative would not involve floodwall installation, concrete removal in Corte Madera Creek, or modifications to Frederick Allen Park, and would not expose structures or property to adverse effects from rupture of an earthquake fault, strong seismic ground shaking, seismic-related ground failure, liquefaction, landslides, or expansive or unstable soil. The No Project Alternative would not involve ground-disturbing activities that would result in loss of topsoil, but could involve tree removal, as stipulated by USACE. Soil erosion would continue at baseline conditions in the creek channel within Unit 4. No geologic, soils, or seismicity impacts would occur with the No Project Alternative. The No Project Alternative would not involve ground disturbance that could affect paleontological resources.

The No Project Alternative would avoid the proposed project's less-than-significant impacts related to geologic and seismic events, loss of topsoil and erosion, unstable geologic units, and expansive soils. The No Project Alternative would avoid the proposed project's less-than-significant impact on paleontological resources.

Under the No Project Alternative, the new streambank stabilization structures in Unit 4, riparian planting and streambank stabilization in Frederick Allen Park and salt marsh habitat in Unit 2 would not occur. The long-term improvements in streambank stabilization and structural reliability from the proposed project would not be achieved. The existing seismic risks to the concrete channel and erosion risks would remain.

Greenhouse Gas Emissions

The No Project Alternative would not involve floodwall installation, concrete removal in Corte Madera Creek, or modifications to Frederick Allen Park, and no construction-related greenhouse gas (GHG) emissions would be generated. Operational GHG emissions would occur from maintenance of existing facilities at the same rate as existing conditions.

The No Project Alternative would avoid the proposed project's impact on GHG resulting from use of off-road construction equipment and vehicles during project construction and would avoid GHG emissions from operation of the emergency generator and energy use at the stormwater pump station. The No Project Alternative would have minimal greenhouse gas emissions during maintenance of existing facilities, like the proposed project. However, the No Project Alternative would not involve creation of natural riparian habitat and would not create the greenhouse gas emission reduction benefits of the proposed project.

Hazards and Hazardous Materials

The No Project Alternative would not involve transportation or use of hazardous materials related to construction equipment use and would not emit hazardous emissions, resulting from construction, within 0.25 mile of an existing or proposed school. The No Project Alternative would not involve construction activities that could interfere with emergency response plans. Maintenance of the existing flood control channel under the No Project Alternative would involve limited quantities of hazardous materials.

The No Project Alternative would avoid the proposed project's less-than-significant impacts related to transportation and use of hazardous materials, emission of hazardous materials, and interference with emergency plans. The No Project Alternative would have less-than-significant impacts related to hazardous materials' use during operation and maintenance of existing facilities, like to the proposed project.

Hydrology and Water Quality

The No Project Alternative would not involve ground-disturbing activities that would result in impacts on hydrology and water quality or construction activities that could result in the risk of pollutant release because of inundation. The No Project Alternative would not use groundwater, alter the existing drainage pattern of the project area, or change the amount of surface water or flow of water in Corte Madera Creek. Under the No Project Alternative, the destructive flooding that has occurred historically at Corte Madera Creek would continue to occur and would expose people and property to flooding and other water-related hazards. The cumulative flood control projects would provide some reduction in flooding in the town of Ross, but the ongoing flooding consequences in the Town of Ross and Kentfield area generally would remain.

The No Project Alternative would avoid the proposed project's potential water quality impacts from disturbance of potentially contaminated soils during construction. The No Project Alternative would avoid the minimal proposed project impact from increased flooding in the parking lot and field near the College of Marin Avenue. The No Project Alternative would not achieve the widespread proposed project benefits from reduction in flooding throughout the Town of Ross and Kentfield areas.

Noise

Under the No Project Alternative, project construction, including floodwalls, Frederick Allen Park modifications, and concrete channel removal, would not occur, and ambient noise levels in the project area would remain the same as existing conditions. The No Project Alternative would not result in changes to the ambient noise levels or cause vibration impacts.

The No Project Alternative would avoid the proposed project's potentially significant impacts related to an increase in ambient noise and groundborne vibration during construction. The noise impacts from maintenance of the channel would be less than significant and would be like the proposed project.

Public Services

The No Project Alternative would not cause a need for new or altered government facilities, including fire protection, police protection, schools, and parks. The No Project Alternative would not involve construction of proposed project components that could increase the need for fire or police services, and the alternative would not induce population growth and would not increase the need for new schools. The No Project Alternative would require maintenance of Corte Madera Creek, similar to existing conditions.

The No Project Alternative would avoid the proposed project's less-than-significant impacts on public services. The No Project Alternative would not achieve project benefits from improvements in stormwater drainage in the Kentfield Area, and the existing potential flooding impacts would remain.

Recreation
The No Project Alternative would not involve construction closures of Fredrick Allen Park, Bike Route 20, or the unnamed unofficial paths. The alternative would not include modifications to Frederick Allen Park or construction of an informal recreational path segment within Unit 2. The No Project Alternative would not increase the use of existing parks, include new recreational facilities, or affect existing recreational opportunities.

The No Project Alternative would avoid the proposed project impacts from increased flooding of the multi-use pathway in Frederick Allen Park and temporary loss of shade. The No Project Alternative also would avoid the less-than-significant impacts from a new access to the creek. The No Project Alternative would not have a beneficial impact on the recreational experience in Fredrick Allen Park, resulting from opportunities afforded through increased creek and habitat viewing.

Transportation and Circulation
Under the No Project Alternative, no construction-related transportation and traffic impacts would occur. Nearby roadways would not be used for construction-related traffic, and existing roads and/or recreational paths would not be used for access roads. The No Project Alternative would involve minimal vehicle miles traveled for maintenance of the existing flood control channel.

The No Project Alternative would avoid the proposed project's potentially significant, construction-related impacts on transportation and traffic, resulting from temporary closure of Bike Route 20 in Frederick Allen Park. The No Project Alternative would have a less-than-significant impact on transportation and circulation from vehicle miles traveled to maintain the flood control channel.

Tribal Cultural Resources
The No Project Alternative would not involve ground-disturbing activities, and no potential impacts on tribal cultural resources would occur. The No Project Alternative would avoid the proposed project's potential for inadvertent discovery of tribal cultural resources.

Utilities and Service Systems
The No Project Alternative would not require or result in relocation or construction of new water conveyance, wastewater treatment, and stormwater drainage, or the addition of electric power, natural gas, or telecommunications facilities. The No Project Alternative would not require water supplies because no project construction or operation would occur. Under the No Project Alternative, no wastewater or solid waste would be generated greater than existing conditions. The No Project Alternative would avoid the proposed project's less-than-significant impacts related to relocation or construction of water conveyance, wastewater treatment, and

stormwater drainage; the addition of electric power, natural gas, or telecommunications facilities; additional water supply; or wastewater and solid waste generation.

Agriculture and Forestry, Land Use and Planning, Mineral Resources, Population and Housing, Socioeconomics, and Wildfire
The No Project Alternative would not involve impacts on lands containing agricultural or forestry resources or mineral resources. The No Project Alternative would not involve changes in land use or character of the community and would not conflict with the Town of Ross General Plan, Kentfield General Plan, or Marin Countywide Plan. The No Project Alternative would not induce unplanned population growth, and planned growth would continue as under existing conditions. The No Project Alternative would not involve any activities in areas that are very high fire hazard areas. The No Project Alternative would avoid the proposed project's less-than-significant impacts related to dividing an established community and unplanned population growth.

No Project Alternative Summary and Ability to Meet Objectives

Selection of the No Project Alternative would avoid the environmental impacts of the proposed project because no floodwalls, modifications to Frederick Allen Park, or concrete channel removal would occur. The baseline environmental conditions of the project area would remain under the No Project Alternative, including ongoing flooding consequences from Corte Madera Creek. The No Project Alternative would not meet any of the proposed project objectives.

5.3.2 Alternative 1: Reduced Footprint–Avoid Frederick Allen Park

Description

Alternative 1 would reduce the project footprint/area of disturbance by avoiding construction in Frederick Allen Park. The concrete channel would remain adjacent to Frederick Allen Park, and no construction would occur in the park. To meet the regulatory requirements and objectives for fish passage, four large fish pools would be constructed within the existing concrete channel adjacent to Frederick Allen Park, in addition to the large fish pools that are proposed as part of the project downstream in Unit 3. The fish ladder at the upstream end of Frederick Allen Park would still be removed in Alternative 1. No other modifications would occur to the concrete channel adjacent to Frederick Allen Park. Alternative 1 would include all proposed project elements as described in Chapter 2, except for the Frederick Allen Park enhancements in the Town of Ross. The Alternative 1 avoidance area and fish pools are shown in Figure 5.3-1.

Work within Unit 4, lower Unit 3, and Unit 2, including removal of the fish ladder, would be the same as the proposed project. Therefore, the following analysis focuses on construction impacts resulting from the four additional fish pools in Corte Madera Creek adjacent to Frederick Allen Park and avoidance of project modifications in Frederick Allen Park.

Figure 5.3-1 Alternative 1: Reduced Footprint–Avoid Frederick Allen Park

Source: (GHD, 2020)

Environmental Impacts

Aesthetics and Visual Resources

Alternative 1 Impacts

Alternative 1 would include four additional fish pools in the concrete channel in upper Unit 3. The addition of the fish pools would have no impact on scenic vistas because they would not be visible from publicly accessible scenic vistas. The fish pools would have a less-than-significant impact on the visual character of the project area because the Alternative 1 fish pools would be below grade in the concrete channel and would appear visually similar to existing fish pools in the channel. Alternative 1 would not conflict with adopted visual policies or standards and would not involve temporary construction lighting or permanent lighting.

Comparison of Impacts to the Proposed Project

Alternative 1 would avoid the proposed project's significant and unavoidable impact on visual quality in Frederick Allen Park immediately following construction and up to 10 years, while the proposed project landscaping matures. Alternative 1 would not achieve the long-term benefits to visual quality from establishment of a natural riparian corridor and stream channel with viewing opportunities. Alternative 1 would result in reduced impacts on visual quality, but also reduced benefits.

Air Quality

Alternative 1 Impacts

Alternative 1 would involve use of construction equipment and vehicles that would result in temporary construction emissions. The alternative would not require disturbance of soil and would not require mitigation. Construction of Alternative 1 in combination with the proposed project in Unit 4, lower Unit 3, and Unit 2 would result in exposure of nearby residents to toxic air contaminants in excess of thresholds set by the Bay Area Air Quality Management District (BAAQMD), as shown in Table 5.3-2. The District would implement Mitigation Measure 3.2-3, which would require use of U.S. Environmental Protection Agency (USEPA) or California Air Resources Board (CARB) Tier 3 off-road equipment. The impact would be less than significant with mitigation incorporated, as shown in Table 5.3-3. Maintenance of the four fish pools would not result in any increase in air quality emissions over existing conditions.

Comparison of Impacts to the Proposed Project

Alternative 1 would use the same types of construction equipment as the proposed project. Alternative 1 would require approximately 2 weeks for construction of the four fish pools but would not include the 105 days of construction in Frederick Allen Park. The duration of construction would be less than the proposed project and would result in decreased constructed-related emissions. Air quality impacts from maintenance of Alternative 1 would be comparable to the proposed project. Alternative 1 would result in a decrease in construction-related emissions and air quality impacts, compared to the proposed project.

Table 5.3-2 Alternative 1 Estimated Unmitigated Construction Health Risk

Receptor	Maximum Cancer Risk (in 1 million)	Chronic Hazard Index	Acute Hazard Index	Annual Average $PM_{2.5}$ Exhaust Concentrations ($\mu g/m^3$)
Maximally Exposed Individual Receptor[a]	15.9	0.037	0.17[b]	0.11
BAAQMD Significance Thresholds	10.0	1.0	1.0	0.30
Threshold Exceeded?	**Yes**	No	No	No

Notes:

[a] This receptor location is where the maximum health risk would occur based on modeling. No real-world sensitive receptors occur at this location.

[b] The maximally exposed individual receptor is a different location for the acute hazard index.

Table 5.3-3 Alternative 1 Estimated Mitigated Construction Health Risk

Receptor	Maximum Cancer Risk (in 1 million)	Chronic Hazard Index	Acute Hazard Index	Annual Average $PM_{2.5}$ Exhaust Concentrations ($\mu g/m^3$)
Maximally Exposed Individual Receptor[a]	4.3	0.01	0.17[b]	0.03
BAAQMD Significance Thresholds	10.0	1.0	1.0	0.30
Threshold Exceeded?	No	No	No	No

Notes:

[a] This receptor location is where the maximum health risk would occur based on modeling. No real-world sensitive receptors occur at this location.

[b] The maximally exposed individual receptor is a different location for the acute hazard index.

Biological Resources

Alternative 1 Impacts

Construction of four fish pools in the concrete flood control channel would result in temporary impacts on aquatic resources, including special-status species, during temporary dewatering. Alternative 1 construction would be conducted between June 15 and October 15, to avoid potential significant impacts on special-status fish. Alternative 1 would have no impact on special-status plants or wildlife. Alternative 1 would have no impact on riparian habitat or sensitive vegetation communities. Alternative 1 would result in a net benefit to fish passage and habitat, by creating deeper and larger fish pools adjacent to Frederick Allen Park and removing the existing fish passage barrier. Alternative 1 would not conflict with any local plans or

ordinances for protection of biological resources and would not conflict with a habitat conservation plan.

Comparison of Impacts to the Proposed Project

Alternative 1 would avoid the proposed project's temporary impacts on special-status wildlife species and temporary impacts from oak tree removal in Frederick Allen Park. Alternative 1 would achieve less benefits to special-status species, fish passage, and creek habitat, and less benefits for wildlife habitat and riparian habitat than the proposed project because Alternative 1 would not create natural creek channel and riparian habitat in Frederick Allen Park. Alternative 1 also would avoid the potential for conflicts with a local tree protection policy because it would not require tree removal in Frederick Allen Park.

Cultural Resources

Alternative 1 Impacts

Alternative 1 would not result in a substantial adverse change in the significance of a historical resource because no historical resource occurs in the vicinity of the Alternative 1 fish pools. Alternative 1 would involve excavation in the existing flood control channel. No archaeological resources or human remains are known to occur beneath the flood control channel in the excavation vicinity. Although a low risk of encountering archaeological resources would exist during Alternative 1 construction, the alternative could result in inadvertent discovery of archaeological resources. The District would implement Mitigation Measure 3.5-2, which specifies procedures to avoid impacts from inadvertent discoveries of archaeological resources. The resulting impact on archaeological resources from Alternative 1 construction would be less than significant with mitigation incorporated. Alternative 1 construction would have a less-than-significant impact from disturbance of human remains, because Alternative 1 would be implemented in compliance with Section 5097.98 of the Public Resources Code and Section 7050.5 of the Health and Safety Code, which specify procedures for handling discoveries of human remains.

Comparison of Impacts to the Proposed Project

Alternative 1 would have a slightly reduced potential to encounter archaeological resources or human remains than the proposed project, because of the reduced area of grading and ground disturbance in Frederick Allen Park. However, both the proposed project and Alternative 1 would have a low potential to encounter archaeological resources or human remains.

Energy

Alternative 1 Impacts

Alternative 1 would require use of energy resources during construction, primarily in the form of petroleum products (i.e., gasoline and diesel) used to operate construction equipment and transport materials/supplies and workers to and from the project area. Fuel use would be temporary and short-term over the approximately 2-week construction duration for the fish pools. Energy impacts from the short-term construction would be less than significant. Maintenance of Alternative 1 would require similar use of energy resources to the existing channel maintenance.

Comparison of Impacts to the Proposed Project

Compared to the proposed project, Alternative 1 would use the same types of construction equipment that require petroleum products, but construction duration and intensity would be less. Maintenance energy resources' use under Alternative 1 would be similar to that of the proposed project. Alternative 1 would have a slightly reduced impact related to energy resources compared to the proposed project because the construction duration would be shorter.

Geology and Soils

Alternative 1 Impacts

Alternative 1 would include construction of project components on similar ground and soil substrate as the proposed project. Alternative 1 would have less-than-significant impacts associated with seismicity and seismic-related events. Alternative 1 would require soil-disturbing activities, including tree and concrete removal, which would result in soil loss. Implementation of the best management practices (BMPs) described in the Stormwater Pollution Prevention Plan (SWPPP) would minimize potential impacts, and impacts related to soil loss and erosion would be less than significant. Alternative 1 would involve installation of four fish pools in upper Unit 3. Based on the initial assessment of the concrete channel downstream, enlarging the fish pools without compromising the structural integrity of the channel would be possible. Alternative 1 would not cause soils or geological conditions to become unstable, and thus the impact would be less than significant. The soil expansion potential is anticipated to be low and paleontological resources are not anticipated in sediments and rocks in the project area. Therefore, the impacts would be less than significant.

Comparison of Impacts to the Proposed Project

Alternative 1 would have similar impacts related to seismicity and seismic-related events, expansive soils, paleontological resources, and stability of geologic units as the proposed project. Alternative 1 would not involve ground-disturbing activities or tree removal in Frederick Allen Park and would avoid the potential for soil loss and erosion in Frederick Allen Park associated with the proposed project. Alternative 1 would not include removal of the concrete channel, and the existing risk related to geologic hazards from the concrete channel would remain. Alternative 1 would have a reduced impact on geology and soils when compared to the proposed project.

Greenhouse Gas Emissions

Alternative 1 Impacts

Construction of Alternative 1 would involve off-road construction equipment and vehicles that would result in construction GHG emissions that would be short-term and temporary. Operational GHG emissions would not exceed GHG significance thresholds, and impacts associated with GHG emissions would be less than significant.

Comparison of Impacts to the Proposed Project

Alternative 1 would involve the same type of equipment as that used by the proposed project, but the construction schedule would be shorter under Alternative 1 because no construction

would occur in Frederick Allen Park. The number of construction truck trips under this alternative also would be ~~slightly~~ lower than the proposed project because of avoidance of Frederick Allen Park, which would reduce the construction GHG emissions. Operational GHG emissions under Alternative 1 would be ~~the same as~~ greater than the proposed project because Alternative 1 would not remove the concrete channel and would not include as much vegetation in Frederick Allen Park. Temporary GHG emission impacts associated with implementation of Alternative 1 would be less than that of the proposed project, but Alternative 1 would have reduced long-term GHG reduction benefits than the proposed project.

Hazards and Hazardous Materials

Alternative 1 Impacts

Alternative 1 would require use of hazardous materials to operate equipment in construction of the fish pools. Hazardous emissions from Alternative 1 in combination with the remaining project elements are discussed previously under Air Quality. This construction would be more than 0.25 mile from a school. The new fish pools would be within the existing concrete channel and would not interfere with implementation of an emergency response plan. Maintenance of the existing flood control channel and fish pools under Alternative 1 would involve limited quantities of hazardous materials.

Comparison of Impacts to the Proposed Project

Construction of Alternative 1 would have slightly less impact than the proposed project in use of hazardous materials and hazardous emissions, because the alternative would require less construction equipment and would have a shorter construction duration in avoidance of construction in Frederick Allen Park.

Hydrology and Water Quality

Alternative 1 Impacts

Water Quality

Alternative 1 would require excavation of soils within the concrete channel to create large fish pools. The excavation area would be limited, and construction of the large fish pools would not violate any water quality standards. Alternative 1, in combination with the remaining project elements in Unit 4, lower Unit 3, and Unit 2, would result in a slight increase in velocity of approximately 0.4 to 2 feet/secondin areas of the concrete channel in Units 2 and 3, and an increase in velocity greater than 2 feet/second in Unit 4 under the 10-year and 25-year flood events, as shown in Figure 5.3-2 through Figure 5.3-4. The increase in velocity relative to baseline conditions would be less under the 100-year event than under the 10-year and 25-year events. The increase in velocity would be caused by removal of the Denil fish ladder, which would remove a constriction and thereby increase the flow capacity of the channel at the fish ladder location. The increase in velocity of approximately 2 feet/second would not cause a significant increase in erosion because the velocity increase would be minimal and would be concentrated in Unit 4, where the proposed project would incorporate streambank stabilization measures to protect the creek bank from erosion. The impact on erosion would be less than significant.

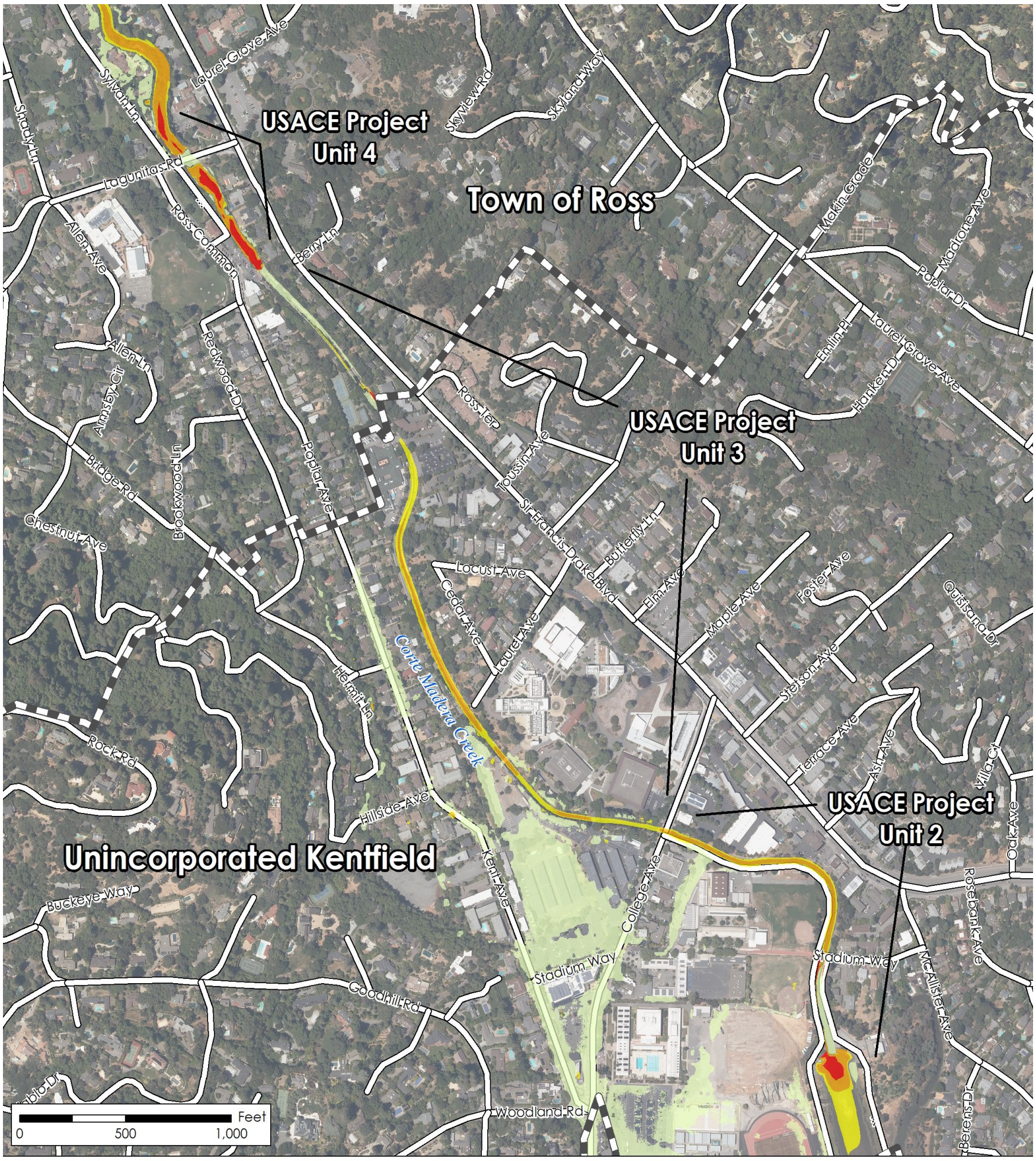
Flooding

Alternative 1 would result in reduced flood hazards in the town of Ross and Kentfield, as shown in Figure 5.3-5 through Figure 5.3-7. Figure 5.3-5 through 5.3-7 represent Alternative 1 impacts on the future condition baseline, including sea level rise projections included in the future condition baseline as discussed in Section 3.9 Hydrology. Alternative 1 would result in increased water surface elevations in the concrete channel where the new fish pools would be installed and flooding also would increase approximately 0.5 to 1 foot in the concrete channel below College Avenue during the 10-year, 25-year, and 100-year flood event. Small areas directly adjacent to the concrete channel in the parking area at the College of Marin west of College Avenue and a parking area east of College Avenue also would be subject to increase in water surface elevation of 0.2 to 1 foot during the 10-year, 25-year, and 100-year flood events. A small area adjacent to the concrete channel within Frederick Allen Park and within residential areas on the left bank of Corte Madera Creek would be subject to increased water surface elevation of 0.2 to 0.5 foot during the 100-year flood event as shown on Figure 5.3-7. Substantial reduction in water surface elevation, including model-predicted removal of flooding, would occur during the 10-year, 25-year, and 100-year flood events in the Town of Ross along Sylvan Lane, Sir Francis Drake Boulevard, Lagunitas Road, Ross Common, Poplar Avenue, and Redwood Road. Flooding also would be reduced along Kent Avenue and in the Granton Park neighborhood and the residential area north of Corte Madera Creek and east of College Avenue in the Kentfield area.

Comparison of Impacts to the Proposed Project

Alternative 1 would have a slightly less construction impact on water quality than the proposed project, because Alternative 1 would avoid construction disturbance of soils in Frederick Allen Park. Alternative 1 would not create increased riparian and natural stream channel functions in Frederick Allen Park and would not have the same long-term water quality benefits as the proposed project. Alternative 1 would have similar impacts and benefits to flooding as the proposed project, as shown in the flood reduction figures; however, in a 100-year storm event, Alternative 1 would have less flood reduction benefit and would result in increased water surface elevation compared to the proposed project, particularly along Poplar Avenue. Figure 5.3-8 shows the difference in model-predicted water surface elevations between Alternative 1 and the proposed project, under a 100-year storm event. Alternative 1 would result in lower water surface elevation in the creek channel and in the Frederick Allen Park floodplain because the floodplain area would not be constructed. However, residential and commercial areas around Frederick Allen Park would experience reduced flood reduction benefits under Alternative 1 than would be experienced with the proposed project.

Figure 5.3-2 Alternative 1 Changes in Velocity from Future Conditions - 10-Year Flood Event



Legend

Scale = 1:9,000

Town/County Boundary

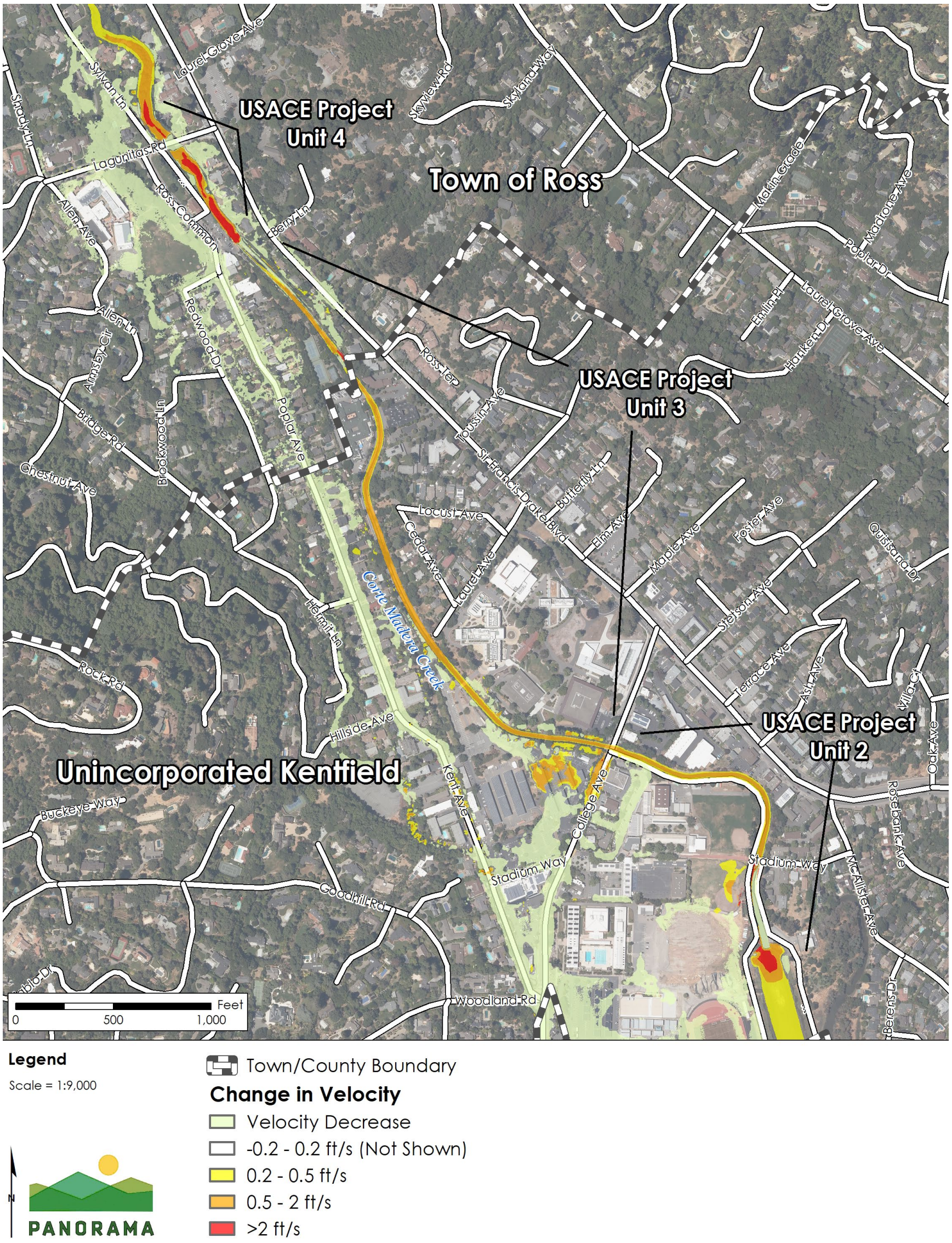
Change in Velocity

- Velocity Decrease
- -0.2 - 0.2 ft/s (Not Shown)
- 0.2 - 0.5 ft/s
- 0.5 - 2 ft/s
- >2 ft/s

PANORAMA

Source: (GHD, 2020)

Figure 5.3-3 Alternative 1 Changes in Velocity from Future Conditions - 25-Year Flood Event



Legend

Scale = 1:9,000

Town/County Boundary

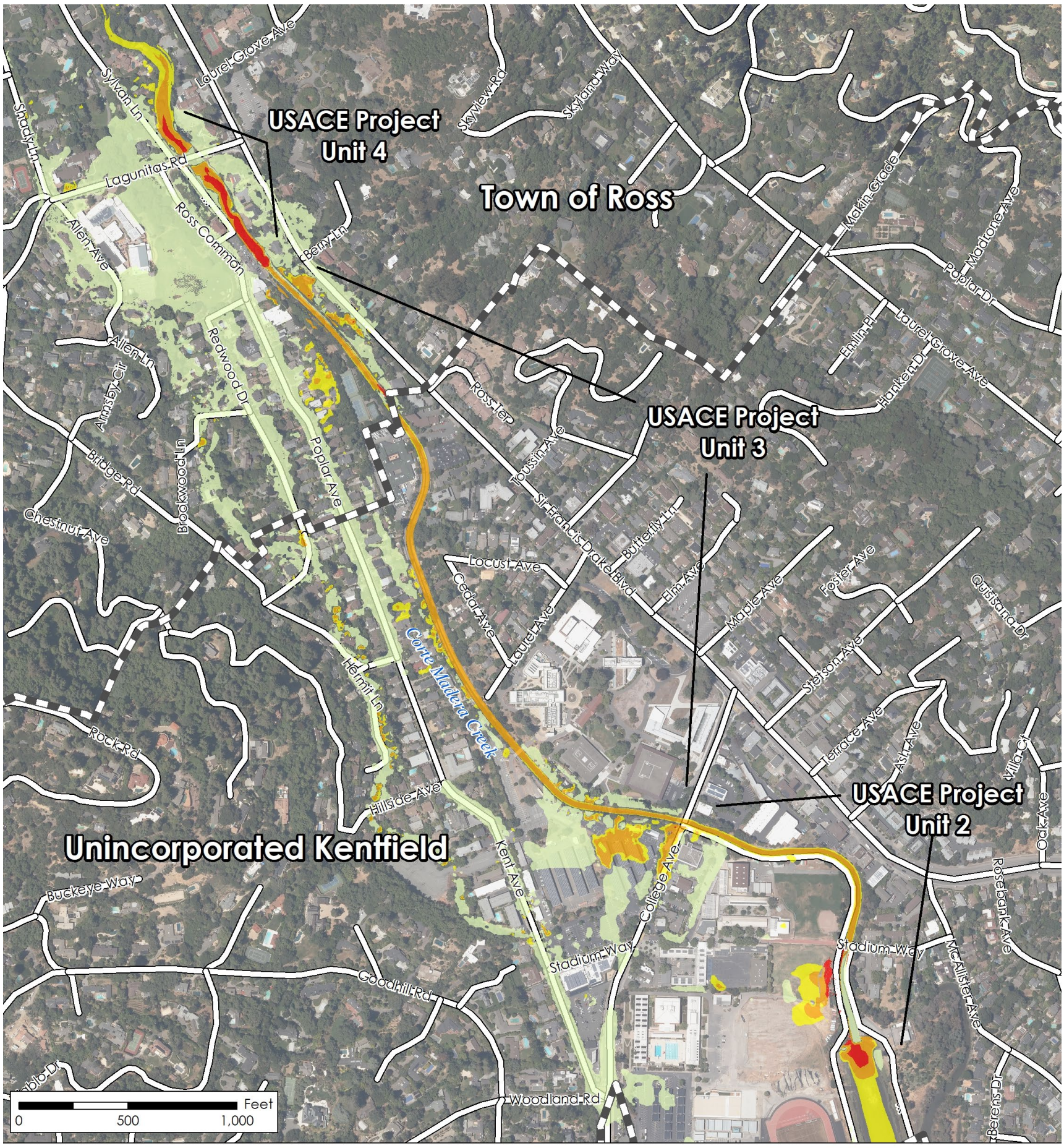
Change in Velocity

- Velocity Decrease
- -0.2 - 0.2 ft/s (Not Shown)
- 0.2 - 0.5 ft/s
- 0.5 - 2 ft/s
- >2 ft/s

PANORAMA

Source: (GHD, 2020)

Figure 5.3-4 Alternative 1 Changes in Velocity from Future Conditions - 100-Year Flood Event



Legend

Scale = 1:9,000

Town/County Boundary

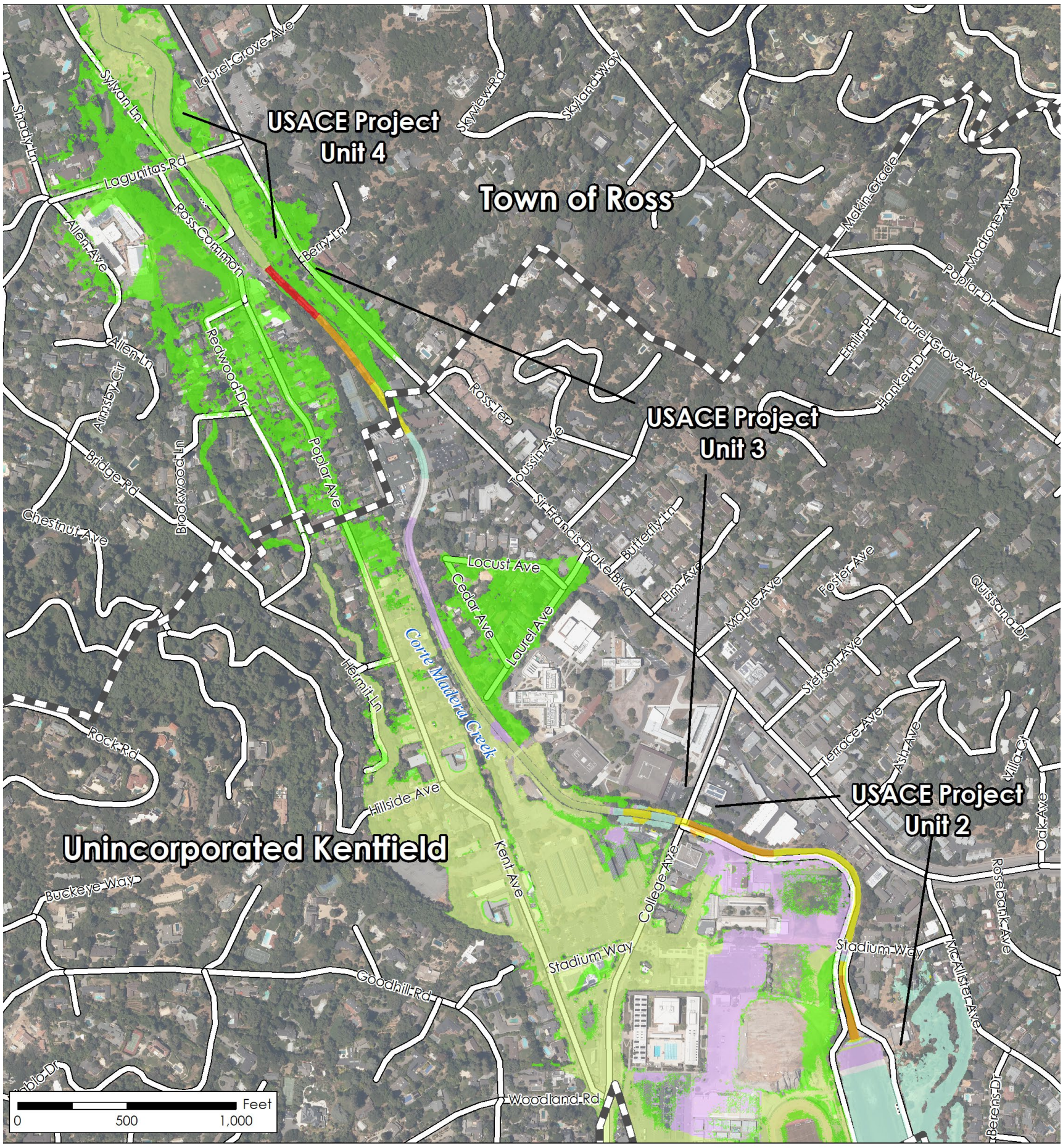
Change in Velocity

- Velocity Decrease
- -0.2 - 0.2 ft/s (Not Shown)
- 0.2 - 0.5 ft/s
- 0.5 - 2 ft/s
- >2 ft/s

PANORAMA

Source: (GHD, 2020)

Figure 5.3-5 Alternative 1 Changes in Water Surface Elevation, Future Conditions, 10-Year Flood Event



Legend

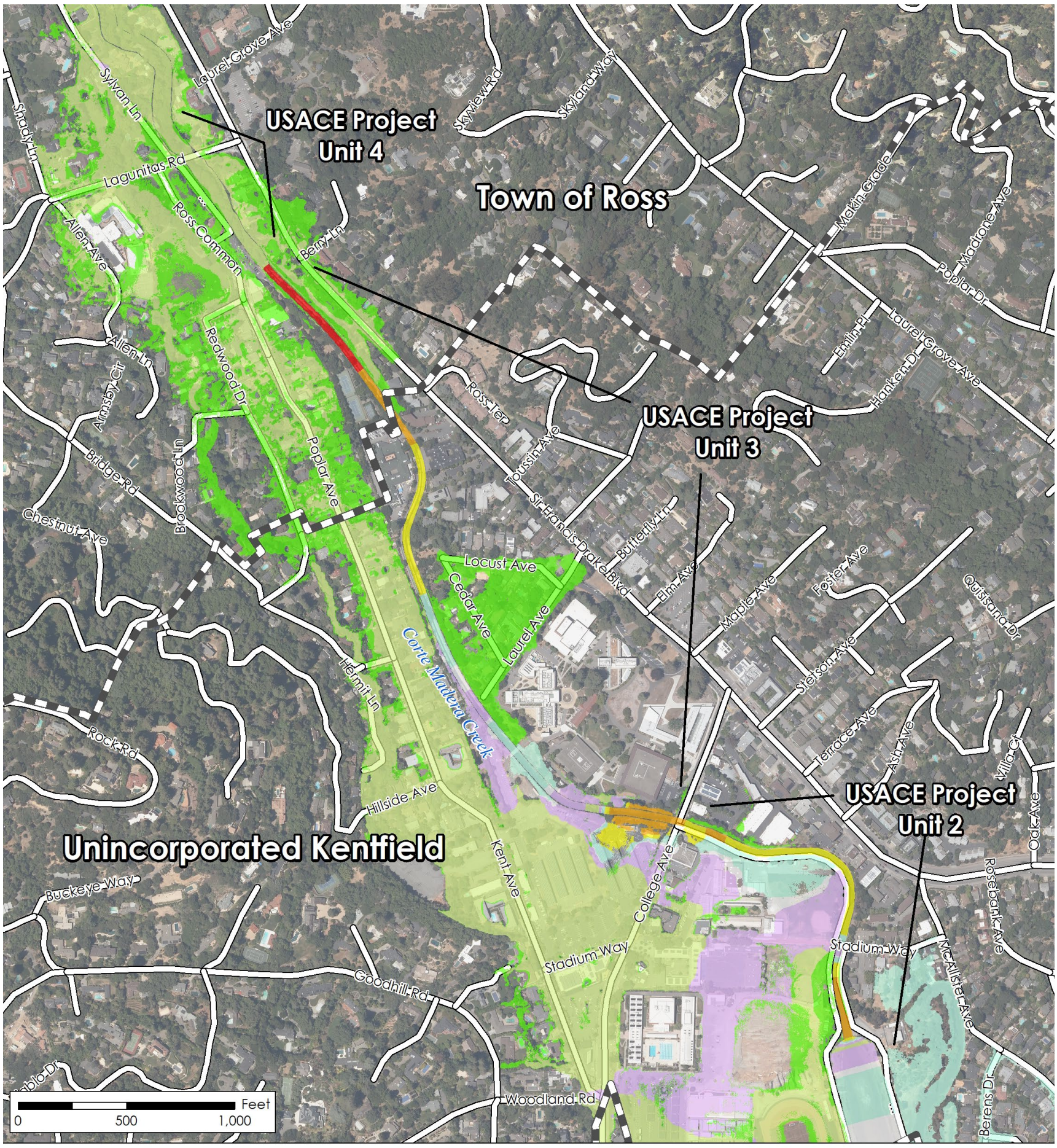
Scale = 1:9,000

- Town/County Boundary
- Flows Confined to Channel
- Flooding Reduced
- -0.2' - -0.02'
- -0.02' - 0.02'
- 0.02' - 0.2'
- 0.2' - 0.5'
- 0.5' - 1'
- >1'

PANORAMA

Source: (GHD, 2020)

Figure 5.3-6 Alternative 1 Changes in Water Surface Elevation, Future Conditions, 25-Year Flood Event



Legend

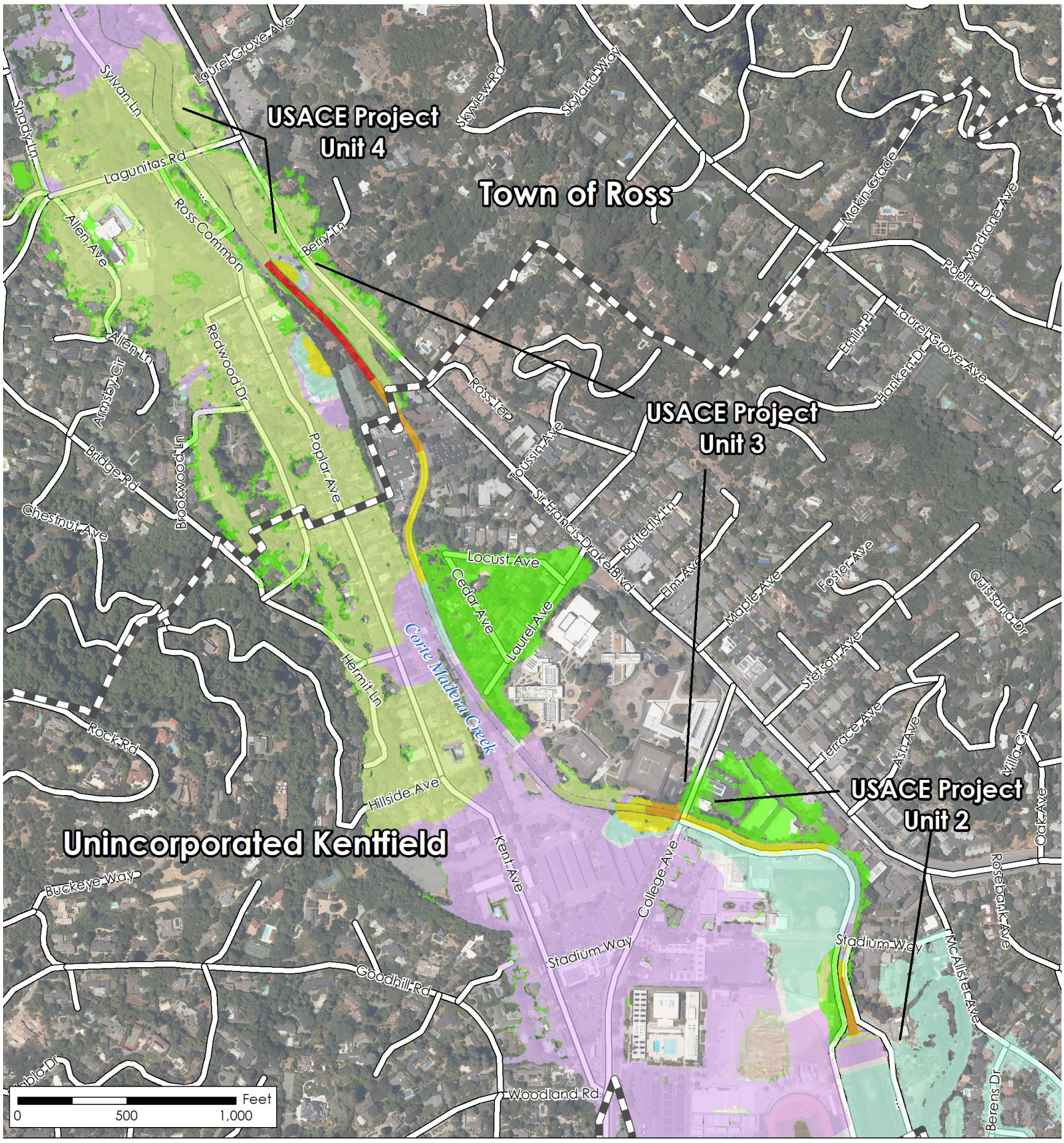
Scale = 1:9,000

- Town/County Boundary
- Flows Confined to Channel
- Flooding Reduced
- -0.2' - -0.02'
- -0.02' - 0.02'
- 0.02' - 0.2'
- 0.2' - 0.5'
- 0.5' - 1'
- >1'

PANORAMA

Source: (GHD, 2020)

Figure 5.3-7 Alternative 1 Changes in Water Surface Elevation, Future Conditions, 100-Year Flood Event



Legend

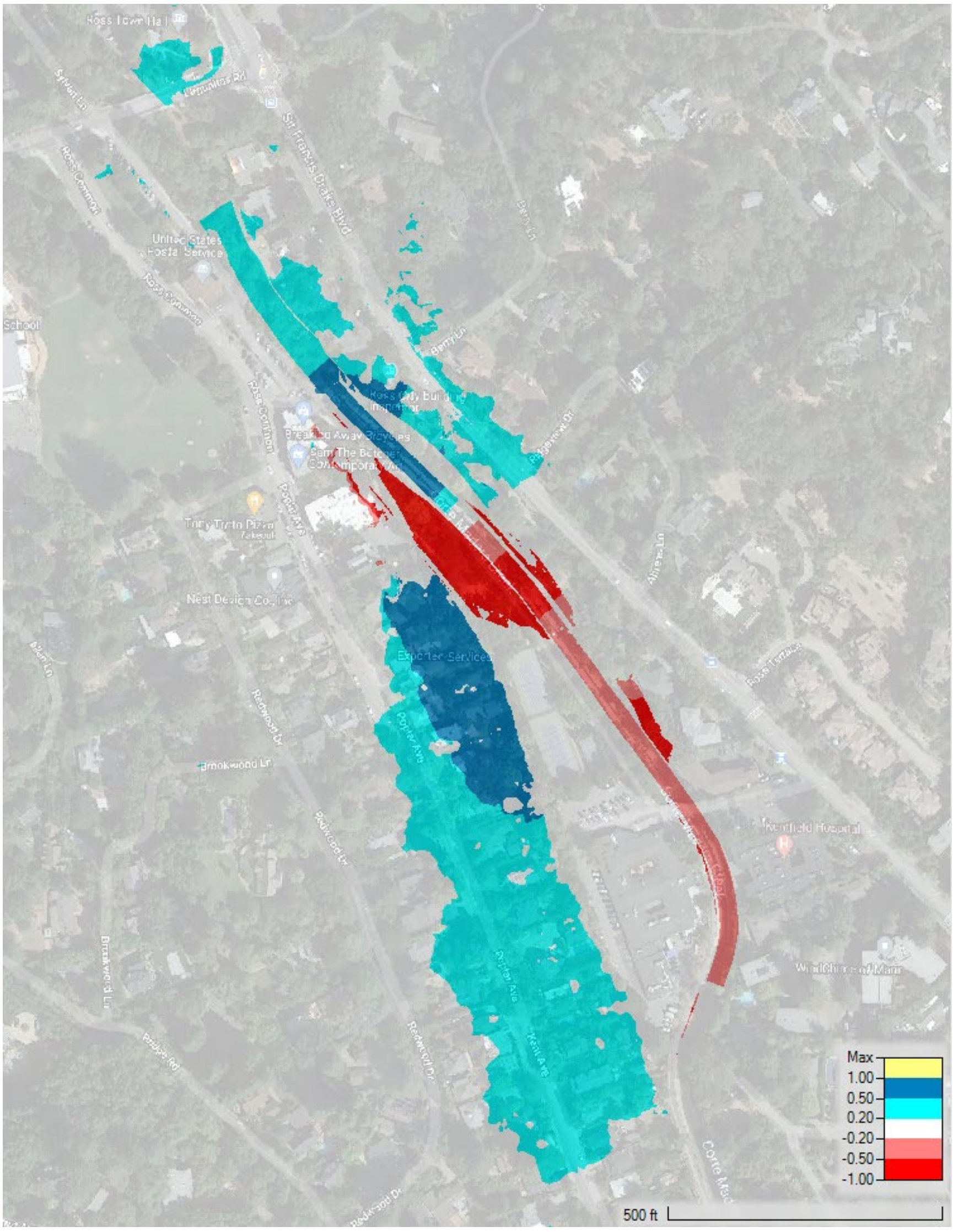
Scale = 1:9,000

- Town/County Boundary
- Flows Confined to Channel
- Flooding Reduced
- -0.2' - -0.02'
- -0.02' - 0.02'
- 0.02' - 0.2'
- 0.2' - 0.5'
- 0.5' - 1'
- >1'

PANORAMA

Source: (GHD, 2020)

Figure 5.3-8 Difference in Future Water Surface Elevation Between Alternative 1 and Proposed Project – 100-Year Flood Event



Source: (GHD, 2020)

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Noise

Alternative 1 Impacts

Alternative 1 would generate noise and vibration during the two weeks of construction of the fish pools. This noise would be partially attenuated by the existing concrete walls, and the noise and vibration impact would be less than significant. Alternative 1 would not occur in an airport land use plan area. The noise from maintenance of Alternative 1 would be similar to noise generated during maintenance of the existing concrete channel and fish pools and the Alternative 1 maintenance impact would be less than significant.

Comparison of Impacts to the Proposed Project

Alternative 1 would avoid the potentially significant construction noise impacts of the proposed project. Alternative 1 would generate less short-term noise impacts than the proposed project and similar long-term maintenance noise as the proposed project.

Public Services

Alternative 1 Impacts

Alternative 1 would not cause a need for new or altered government facilities related to fire protection, police protection, schools, and parks. The fish pools to be constructed in the concrete channel adjacent to Frederick Allen Park would not increase the need for fire or police services, and the alternative would not induce population growth or increase the need for new schools. Alternative 1 would require maintenance of the concrete flood control channel similar to existing conditions.

Comparison of Impacts to the Proposed Project

Alternative 1 would have the same less-than-significant impact on public services as the proposed project.

Recreation

Alternative 1 Impacts

Alternative 1 would not impact Frederick Allen Park. The additional fish pools would have no impact on recreation.

Comparison of Impacts to the Proposed Project

Construction of Alternative 1 would not involve closures of Fredrick Allen Park and Bike Route 20 through Frederick Allen Park because the alternative would not include modifications to Frederick Allen Park. Alternative 1 would not increase the use of existing parks, include new recreational facilities, or affect existing recreational opportunities. Alternative 1 would avoid the proposed project impacts from increased flooding of the multi-use pathway in Frederick Allen Park and temporary loss of shade. Alternative 1 also would avoid the less-than-significant impacts from the new public access to the creek. Alternative 1 would not have the beneficial impact on the recreational experience in Fredrick Allen Park, resulting from opportunities afforded through increased creek and habitat viewing.

Transportation and Circulation

Alternative 1 Impacts

Alternative 1 would require access of the concrete channel off area roads and would not conflict with any transportation management plan or policy. The alternative would not require closure of any bike route.

Comparison of Impacts to the Proposed Project

Alternative 1 would involve minimal vehicle miles traveled from maintenance of the existing flood control channel, similar to the proposed project. Alternative 1 would avoid the proposed project's potentially significant, construction-related impacts on transportation and traffic resulting from temporary closure of Bike Route 20 in Frederick Allen Park. Alternative 1 would have a less-than-significant impact on transportation and circulation from vehicle miles traveled to maintain the flood control channel.

Tribal Cultural Resources

Alternative 1 Impacts

Alternative 1 would involve minimal ground-disturbing activities where the fish pools would be excavated in the concrete channel. The potential impact on tribal cultural resources would be less than significant.

Comparison of Impacts to the Proposed Project

Alternative 1 would have a slightly reduced potential to encounter tribal cultural resources during earthwork than the proposed project because Alternative 1 would not involve grading and excavation in Frederick Allen Park. However, both the proposed project and alternative would have a low potential to affect tribal cultural resources.

Utilities and Service Systems

Alternative 1 Impacts

Alternative 1 would not require or result in relocation or construction of new water conveyance, wastewater treatment, or stormwater drainage, or the addition of electric power, natural gas, or telecommunications facilities. Alternative 1 would not require water supplies because the fish pools would be constructed within the channel. The fish pool construction would generate a very minimal volume of solid waste from the area of fish pool excavation. The impact would be less than significant.

Comparison of Impacts to the Proposed Project

Alternative 1 would have a reduced impact on utilities and service systems, compared to construction of the proposed project in Frederick Allen Park. Alternative 1 would require less water because water to stabilize the soil in Frederick Allen Park would not be required. Alternative 1 also would generate less waste because excavation at Frederick Allen Park would not occur. Alternative 1 and the proposed project would have a similar, less-than-significant impact on utilities during operation and maintenance.

Agriculture and Forestry, Land Use and Planning, Mineral Resources, Population and Housing, Socioeconomics, and Wildfire

Alternative 1 Impacts

Alternative 1 would not involve impacts on lands containing agricultural or forestry resources or mineral resources. Alternative 1 would not involve changes in land use or character of the community and would not conflict with the Town of Ross General Plan, Kentfield General Plan, or Marin Countywide Plan. Alternative 1 would not induce unplanned population growth, and planned growth would continue as under existing conditions. Alternative 1 would not involve any activities in a very high fire hazard area.

Comparison of Impacts to the Proposed Project

Alternative 1 would avoid the proposed project's less-than-significant impacts related to dividing an established community. Alternative 1 would have slightly less impact on land use compared to the proposed project.

Alternative 1 Summary, Feasibility, and Objectives

Alternative 1 would have less severe less than significant construction impacts on aesthetics, air quality, biological resources, geology and soils, GHG emissions, hazardous materials, hydrology and water quality, noise, recreation, transportation and circulation, and utilities than the proposed project (all of which would be less than significant with mitigation under the proposed project). Alternative 1 would avoid significant and unavoidable impacts on visual quality during the vegetation establishment period (approximately 10 years). The Alternative 1 impacts would have the same less than significant impacts to the proposed project impacts on cultural resources, tribal cultural resources, public services, agriculture and forestry resources, minerals, land use and planning, population and housing, and wildfire.

Alternative 1 would have less long-term benefits to aesthetics, biological resources, geology and soils, greenhouse gases, hydrology and water quality, and recreation than the proposed project because Alternative 1 would not include creation of a natural creek channel, floodplain, and riparian habitat in Frederick Allen Park. The fish pools in the concrete channel would result in limited benefits to habitat for fish and would not benefit terrestrial species or habitat over the long-term.

As described in Table 5.2-1, Alternative 1 is expected meet all feasibility criteria and would meet most project objectives.

5.3.3 Alternative 2: Boardwalk in Frederick Allen Park

Description

Alternative 2 would maintain the existing elevation for Bike Route 20 in Frederick Allen Park. The elevation of Bike Route 20 would be maintained at the current bike path elevation by constructing the multi-use path as a boardwalk, slightly elevated above the Frederick Allen Park floodplain area. The multi-use path would be along the western perimeter of the park and adjacent to the new, approximately 2-foot-tall floodwall. The boardwalk then would meander

back to join the existing pathway, as shown in Figure 5.3-8. The use of a boardwalk would allow the pathway to maintain its current elevation without causing loss of floodplain storage and would allow planting vegetation beneath the boardwalk. Alternative 2 also would differ from the proposed project because it would not include new public access to the creek. New access would be created for creek and flood control maintenance only. Alternative 2 would not modify any proposed project elements outside Frederick Allen Park. Alternative 2 would differ from the proposed project only in the elevation, alignment, and material used to construct the realigned Bike Route 20 in Frederick Allen Park, the location of the maintenance access path, and the removed proposed public access to Corte Madera Creek.

Environmental Impacts

Alternative 2 would involve construction of all the same elements as the proposed project, except that construction of the realigned multi-use path through the newly-created floodplain under the proposed project would be replaced with constructing a new boardwalk and restricting public use of the new creek access in Frederick Allen Park. The following resource impact discussions focus on the impacts from these two elements that differ from the proposed project. All other environmental impacts from Alternative 2 would be the same as the proposed project, which are discussed in Chapter 3.

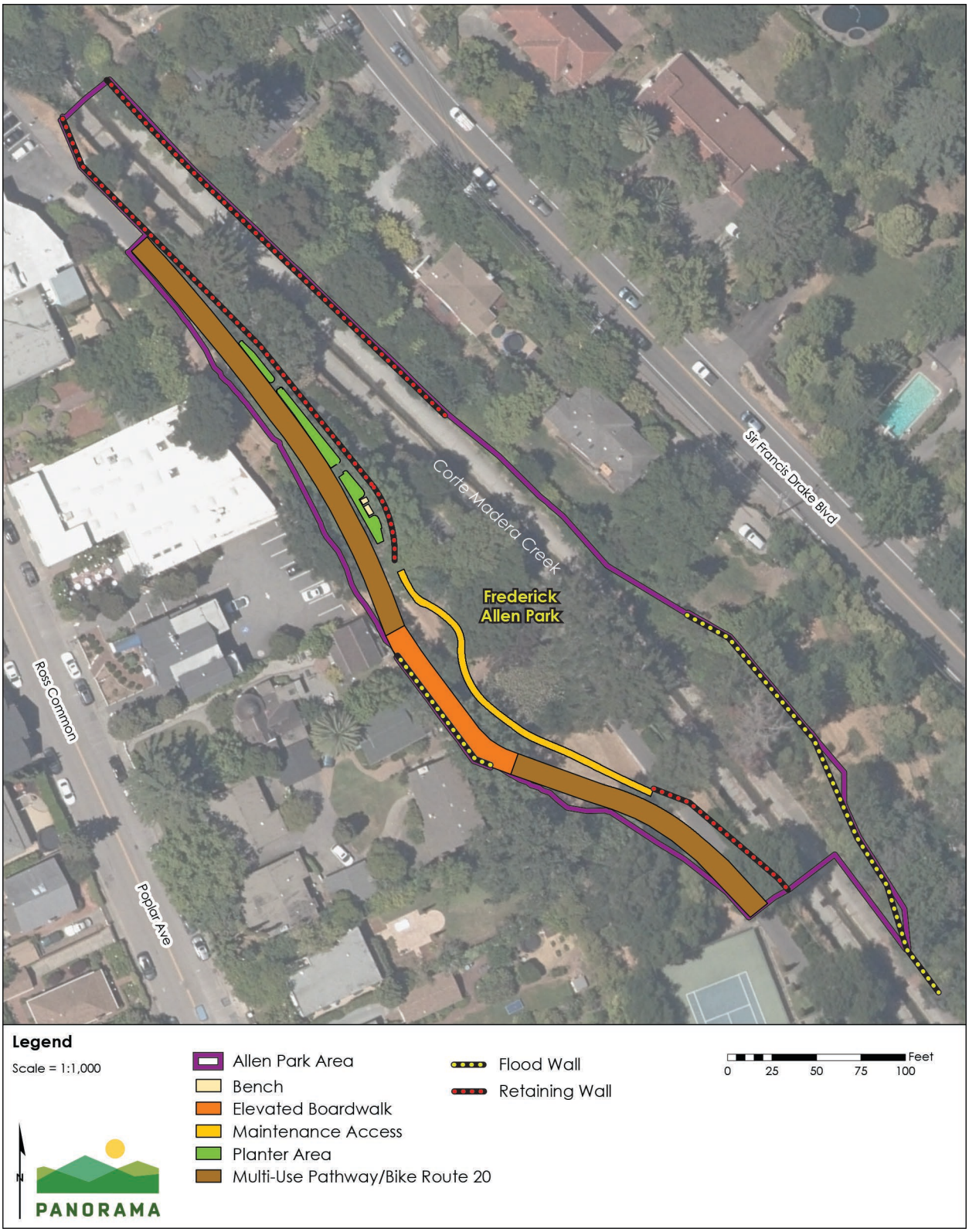
Aesthetics and Visual Resources

Alternative 2 Impacts

The Alternative 2 area is not visible from a state scenic highway and would not affect scenic resources along a state scenic highway. Alternative 2 would not conflict with applicable zoning and other regulations governing scenic quality. Alternative 2 would not create a new source of substantial light or glare that would affect day or nighttime views. The alternative pathway design through use of a boardwalk would not conflict with applicable zoning or other regulations governing scenic quality. The Alternative 2 boardwalk would be an area of Frederick Allen Park that contains 13 trees. Trees along the Alternative 2 boardwalk would be removed as part of the proposed floodplain construction and grading in Frederick Allen Park, which are discussed in Chapter 3. Construction of the Alternative 2 boardwalk and maintenance path would not require removal of any additional trees beyond those that would be removed for the proposed project. Alternative 2 would allow additional vegetation planting in Frederick Allen Park because the boardwalk would allow light to penetrate beneath the pathway, and ferns or other small vegetation could be planted in the floodplain beneath the elevated, multi-use boardwalk. The maintenance access path would be 4 feet wide and would parallel the creek. Trees, shrubs, and riparian vegetation would be planted on either side of the narrow maintenance path. The maintenance path would be unpaved to create a natural appearance in the creek corridor. Stairs would be constructed from the retaining wall at the north end of the park to the maintenance path, to provide through access. An artistic rendering of Alternative 2 is shown in Figure 5.3-9.

The impact on visual quality of just the Alternative 2 boardwalk and maintenance pathway would be less than significant. However, implementation of Alternative 2 would require construction of the floodplain in Frederick Allen Park, which would require removal of up to

Figure 5.3-9 Alternative 2 Layout



Source: (GHD, 2020)

Figure 5.3-10 Alternative 2 Visual Representation Looking North from the Tennis Courts at Frederick Allen Park

145 trees for floodplain grading. Alternative 2 would include planting a similar number of trees and similar species to those of the proposed project, as shown in the landscape plan provided in Appendix B. Additional trees could be planted because Alternative 2 would be adjacent to the 2-foot-tall floodwall, and the boardwalk would occupy the majority of the 15-foot setback from the floodwall. Therefore, the remaining area in Frederick Allen Park would not be subject to vegetation setbacks. Locating the boardwalk along the edge of the park also would create a visually uniform view across the floodplain and park, for viewers looking from the boardwalk toward the replanted areas.

Alternative 2 still would result in a significant and unavoidable impact immediately following construction and up to 10 years after construction, because of the loss of dense vegetation and tree canopy while the newly planted trees develop and establish in the area. The reduction in tree canopy would result in reduced intactness and unity in the landscape because the new concrete retaining walls and homes opposite the park would become more visible. After 10 years of vegetation establishment, the tree canopy and vegetation would visually screen the concrete retaining wall and residential areas and would create a uniform and intact landscape, as shown in Figure 5.3-9. The landscape vividness, intactness, and unity would increase relative to existing conditions because the natural creek channel and riparian vegetation would allow for views of a stream corridor with understory and canopy vegetation that appear consistent with the stream/riparian context, and the impact would be a net benefit to visual quality after 10 years of vegetation growth.

Comparison of Impacts to the Proposed Project

Alternative 2 would have comparable short-term impacts on visual quality to the proposed project because Alternative 2 would require removal of trees from the same area in Frederick Allen Park. The visual impact of Alternative 2 would be equivalent to the project.

Air Quality and Greenhouse Gas Emission

Alternative 2 Impacts

Alternative 2 would require use of construction equipment to construct the boardwalk and maintenance access path. Implementation of Alternative 2 in combination with the proposed project elements in other areas would result in generation of air quality and GHG emissions equivalent to the proposed project, including emissions of toxic air contaminants because the boardwalk and maintenance path would be constructed in lieu of the paved pathway and unpaved access to the creek. Implementation of Mitigation Measures 3.3-2 and Mitigation Measure 3.3-3, which would require implementation of dust control measures and use of USEPA or CARB Tier 3 or higher rated equipment would reduce the impact of Alternative 2 in combination with the proposed project in other areas to a less-than-significant level, similar to the project impact described in detail in Chapter 3. Alternative 2 would require removal of the same number of trees as the proposed project. Alternative 2 would allow increased planting relative to the proposed project because light and water could penetrate the boardwalk, which would allow planting underneath it. The increased planting would result in long-term GHG reduction benefits.

Comparison of Impacts to the Proposed Project

The Alternative 2 air quality and GHG emission impacts would be equivalent to the proposed project. Compared to the proposed project, Alternative 2 would result in a minor long-term net benefit on GHG emissions because of increased carbon sequestration from planting below the boardwalk.

Biological Resources

Alternative 2 Impacts

The Alternative 2 boardwalk and maintenance pathway would be in the same area of proposed project grading and vegetation removal. The impacts from construction of the Alternative 2 boardwalk and maintenance path would be equivalent to the direct and indirect impacts otherwise described for construction of the proposed project in Frederick Allen Park. Alternative 2 would not result in any new or increased impacts on biological resources. Alternative 2 would not create public access to Corte Madera Creek and would avoid the proposed project's less-than-significant impact from new access to the creek. Alternative 2 would allow vegetation planting beneath the boardwalk and would create more riparian areas than the proposed project.

Comparison of Impacts to the Proposed Project

Alternative 2 direct and indirect construction impacts on biological resources would be equivalent to the proposed project. Alternative 2 would result in less operational impacts on biological resources than the proposed project because Alternative 2 would not create public access to the creek. Alternative 2 also would increase more areas of riparian planting than the proposed project, resulting in additional benefits from increased riparian areas.

Cultural Resources

The Alternative 2 boardwalk and maintenance path construction would be in areas of proposed project grading. Alternative 2 would result in equivalent impacts on cultural resources to the proposed project because Alternative 2 would require grading and construction in the same areas as the proposed project and would have the same potential to disturb significant cultural resources. The impact would be less than significant with mitigation incorporated, as described in Chapter 3.

Energy

The intensity of construction of the boardwalk would be roughly equivalent to the intensity of construction of the proposed project paved multi-use pathway and unpaved creek access in Frederick Allen Park. The Alternative 2 boardwalk and maintenance path construction would require energy (fuel) use equivalent to the proposed project. The impact on energy use during construction would be less than significant. The Alternative 2 boardwalk and maintenance pathway would require similar maintenance to the proposed project paved multi-use pathway. Furthermore, the impact on energy use during Alternative 2 maintenance would be less than significant. Therefore, the impact of Alternative 2 would be equivalent to the proposed project.

Geology and Soils

Alternative 2 Impacts

Alternative 2 would be on the same geologic and soil units as the proposed project in Frederick Allen Park. The raised boardwalk structure potentially could result in geologic hazards from seismic activity unstable soil conditions, if a geotechnical investigation is not performed or geotechnical recommendations for the boardwalk are not implemented. The District would implement Mitigation Measures 3.6-1, which would require completion of a geotechnical survey and implementation of all geotechnical recommendations in the final design. The impact from implementation of Alternative 2 would be less than significant with mitigation incorporated.

Comparison of Impacts to the Proposed Project

Alternative 2 would have a slightly increased potential for geologic hazards because of the raised structure; however, the impact of Alternative 2 would be equivalent to the proposed project, with implementation of the geotechnical recommendations.

Hazards and Hazardous Materials

Alternative 2 would require use of the same volume, type, and quantity of hazardous materials as the proposed project in Frederick Allen Park, and the impact from hazardous materials would be less than significant. Alternative 2 would slightly reduce the less-than-significant flood hazard impact, because of relocating the multi-use pathway to an elevated boardwalk above the floodplain. The potential for flooding of the boardwalk would be less than that of the proposed project's multi-use pathway, and thus the potential hazard would be slightly less than the proposed project. The Alternative 2 impact on hazards and hazardous materials would be slightly less than the proposed project impact because of the elevation of the boardwalk above the floodplain.

Hydrology and Water Quality

Alternative 2 Impacts

Alternative 2 construction would require grading and excavation in the same areas as the proposed project and would have the same low potential to encounter contaminated sediments that contain water quality pollutants, similar to the proposed project. Implementation of Mitigation Measure 3.10-1 would require testing of excavated sediment to evaluate the risk of contamination. Through proper handling and treatment of any potentially contaminated soils, the water quality impact would be less than significant. The Alternative 2 boardwalk would reduce the amount of impervious surface used in pathway construction and would allow slightly increased groundwater infiltration and reduced runoff. The Alternative 2 boardwalk would be above the floodplain in Frederick Allen Park, and the boardwalk would not see increased flooding over existing conditions.

Comparison of Impacts to the Proposed Project

Alternative 2, in combination with the project elements in other areas, would result in the same water surface elevation increase as the proposed project and would achieve the same flood reduction benefits as the proposed project. Alternative 2 impacts on hydrology and water

quality would be slightly less than the proposed project impacts because the boardwalk would allow increased infiltration and would be elevated above the floodplain.

Noise

Alternative 2 Impacts

Construction of the Alternative 2 boardwalk would result in noise and vibration during installation of the footings and creation of the boardwalk pathway. The boardwalk would be adjacent to commercial buildings and would not result in increased noise to adjacent sensitive receptors. Alternative 2 would not reduce the potentially significant noise impact of the proposed project in other areas. The boardwalk would be installed adjacent to structures on Poplar Avenue and the vibration impact would be potentially significant, similar to the proposed project. Implementation of Mitigation Measure 3.11-2 would require monitoring the vibration and taking measures to reduce the vibration if it approaches criteria thresholds near buildings. Because the District would implement Mitigation Measure 3.11-2, the resulting Alternative 2 vibration impact would be less than significant with mitigation incorporated.

Comparison of Impacts to the Proposed Project

The Alternative 2 boardwalk would require similar intensity of maintenance to the proposed project paved path, or maintenance of the existing pathway. The Alternative 2 noise and vibration impacts would be less than significant with mitigation incorporated and equivalent to the proposed project noise and vibration impacts.

Public Services

Alternative 2 Impacts

Alternative 2 would not generate a need for new or altered government facilities, related to fire protection, police protection, schools, and parks. The boardwalk in Frederick Allen Park would not increase the need for fire department or police services, would not induce population growth, and would not increase the need for new schools. Alternative 2 would require maintenance of the boardwalk's pathway, similar to existing conditions.

Comparison of Impacts to the Proposed Project

Alternative 2 would have the same less-than-significant impact on public services as the proposed project. Alternative 2 impacts on public services would be equivalent to the proposed project.

Recreation

Alternative 2 Impacts

Alternative 2 would not involve closures of Fredrick Allen Park and Bike Route 20 through Frederick Allen Park during construction of the boardwalk. Alternative 2 would not include new public access to the creek. Alternative 2 would locate the Bike Route 20 on a boardwalk above the floodplain, where the pathway would not be subject to increased flooding. Alternative 2 would require removal of trees to construct the elevated pathway, maintenance access, and habitat.

Comparison of Impacts to the Proposed Project

Alternative 2 would involve landscaping with new riparian trees and vegetation and the temporary loss of shade would result in impacts on the recreation experience, similar to the proposed project as described in Chapter 3. Alternative 2 would avoid the proposed project impacts from increased flooding of the multi-use pathway in Frederick Allen Park. Alternative 2 also would avoid the proposed project's less-than-significant impacts from the new access to the creek. Alternative 2 would equivalent beneficial impact on the recreational experience in Fredrick Allen Park to the proposed project, by providing increased creek and habitat viewing and educational opportunities.

Transportation and Circulation

Alternative 2 Impacts

Alternative 2 would require temporary closure of Bike Route 20 during construction of the boardwalk and related landscaping in Frederick Allen Park. The impact from this temporary closure would be potentially significant. Implementation of Mitigation Measure 3.14-1 would require detours for bicyclists and pedestrians during construction, to maintain bicycle and pedestrian access. The impact from Alternative 2 construction would be less than significant with mitigation incorporated, because of the use of safe detours. Alternative 2 would require similar maintenance as the proposed project pathway and existing pathway in Frederick Allen Park. The operation and maintenance impact would be less than significant.

Comparison of Impacts to the Proposed Project

Alternative 2 would require an equivalent construction duration to that of the proposed project and would result in equivalent, temporary impacts on traffic and transportation. The Alternative 2 boardwalk would be elevated above the floodplain and would not be subject to increased flooding, resulting in less long-term impacts on bicycle and pedestrian transportation than the proposed project.

Tribal Cultural Resources

Alternative 2 would involve construction of the boardwalk and maintenance pathway in the same location as proposed project grading and construction. Alternative 2 would have an equivalent potential to encounter and disturb tribal cultural resources as the proposed project. The impact on tribal cultural resources would be less than significant with mitigation incorporated, as described in Chapter 3.

Utilities and Service Systems

Alternative 2 Impacts

Construction of the boardwalk pathway and maintenance path would have no impact on utilities. The boardwalk and maintenance path would generate a small amount of waste during construction. The boardwalk and maintenance path grading would require a similar volume of water as the proposed project for stabilization and irrigation of landscaped areas. The impact on service systems would be less than significant.

Comparison of Impacts to the Proposed Project
The Alternative 2 impact on utilities and service systems would be equivalent to the proposed project impacts and would be less than significant.

Agriculture and Forestry, Land Use and Planning, Mineral Resources, Population and Housing, and Wildfire
Alternative 2 Impacts
Alternative 2 would not involve impacts on land containing agricultural or forestry resources or mineral resources. Alternative 2 would not involve changes in land use or character of the community and would not conflict with the Town of Ross General Plan, Kentfield General Plan, or Marin Countywide Plan. Alternative 2 would not induce unplanned population growth, and planned growth would continue as under existing conditions. Alternative 2 would not involve any activities in a very high fire hazard area.

Comparison of Impacts to the Proposed Project
Alternative 2 would have equivalent temporary land use impacts to the proposed project, because of closure of Frederick Allen Park during construction and temporary physically dividing of a community by reduced access across Corte Madera Creek during construction. Alternative 2 agriculture and forestry, land use and planning, mineral resources, population and housing, and wildfire impacts would be equivalent to the proposed project.

Alternative 2 Summary, Feasibility, and Objectives
As discussed above and summarized in Table 5.4-1, Alternative 2 would result in reduced operational impacts and increased long-term benefits on biological resources, hydrology and water quality, hazards, recreation, and traffic and transportation, compared to the proposed project. Alternative 2 would cause equivalent significant and unavoidable impact to the proposed project on aesthetics, and less than significant with mitigation impacts on air quality, cultural resources, geology and soils, GHG emissions, noise, public services, tribal cultural resources, utilities and service systems, agriculture and forestry resources, minerals, land use and planning, population and housing, and wildfire. As described in Table 5.2-1, Alternative 2 would meet all feasibility criteria and all project objectives.

5.3.4 Alternative 3: Reduced Concrete

Description
Alternative 3 would include modification of several proposed project elements, reducing concrete in the project design in favor of natural materials. Alternative 3 would include constructing the retaining wall in Unit 4 and Frederick Allen Park using materials other than concrete, such as rocks or other material, to allow additional planting of vegetative material within the rocks or retaining wall. Alternative 3 also would replace the concrete transition structure at the connection between Units 3 and 4 with quarter- or half-ton rock, to protect the existing sanitary sewer line and stabilize the channel grade without use of concrete. Alternative 3 also would include constructing the additional floodwall segment within lower Unit 2 (downstream from College Avenue), using material such as rock or a soil-type barrier instead of

concrete. The natural floodwall would remain on the District's property but would be set back from the existing floodwall.

Environmental Impacts

Alternative 3 would involve construction of the same project elements as the proposed project, with the exception of the concrete retaining walls, concrete transition structure between Units 3 and 4, and the additional concrete floodwall in Unit 2, which would be replaced with non-concrete alternative materials. Construction of the natural material floodwall in Unit 2 could involve a larger footprint and require additional tree removal in comparison with the proposed project, because the new floodwall would be set back from the existing floodwall, whereas the proposed project would have an option of constructing a floodwall attached to the existing wall in Unit 2. The following resource impact discussions focus on the impacts from the construction approach or long-term impacts of Alternative 3 that would differ from the proposed project. All other potential environmental impacts from Alternative 3 would be the same as the proposed project, which are discussed in Chapter 3.

Aesthetics and Visual Resources

Alternative 3 Impacts

Alternative 3 would involve the use of natural materials, including imported rock and vegetation plantings, for construction of the retaining wall in Unit 4, the transition structure between Units 3 and 4, and the additional floodwall segment in Unit 2. The natural material retaining walls and floodwall would blend in with the materials of the stream environment and the visual impact of Alternative 3 would be less than significant.

Comparison of Impacts to the Proposed Project

Alternative would be more visually appealing than the proposed project concrete retaining walls and floodwall and would blend in with the vegetation in the natural creek channel in Unit 4 and surrounding vegetated areas. Alternative 3 would reduce the proposed project impact on visual quality in Frederick Allen Park by incorporating more natural materials to the landscape. However, Alternative 3 would not avoid removal of trees in Frederick Allen Park, and the significant and unavoidable impact on visual quality during the first 10 years after landscaping of the riparian habitat and floodplain would remain.

Air Quality and Greenhouse Gases

Alternative 3 would involve the use of construction equipment and vehicles that would result in temporary GHG emissions, similar to the proposed project. The amount of equipment and vehicle use, as well as fugitive dust and GHG emissions associated with Alternative 3 could be slightly higher than the proposed project because of the increased project footprint and associated number of truck trips for material import and export in Unit 2. Implementation of Mitigation Measure 3.2-1 would reduce the impacts to a less-than-significant level. The alternative would comply with all applicable BAAQMD rules and regulations and would not result in extended exposure of nearby residences to criteria air pollutants or toxic air contaminants. Operational air quality and GHG emissions impacts would be the similar to the proposed project because maintenance activities are anticipated to be similar and infrequent.

Biological Resources

Alternative 3 could involve an increase in the number of trees removed in Unit 2 compared to the proposed project, because the natural material retaining wall would need to be set back from the existing wall. Under the proposed project, whether trees within a 15-foot setback from floodwalls would need to be removed to address Section 408 requirements is uncertain, whereas under Alternative 3, additional trees within the setback from the existing Unit 2 floodwall would need to be removed. All tree removal would be conducted in accordance with procedures defined in local tree ordinances, similar to the proposed project. The tree removal impact on habitat would be potentially significant. Implementation of Mitigation Measure 3.4-2b would require replanting trees that would be removed during construction of Alternative 3. The resulting impact from tree removal would be less than significant with mitigation incorporated. Alternative 3 would not conflict with any local policies or ordinances with respect to the additional tree removal because all tree removal for Alternative 3 would occur within Marin County. The impact regarding conflicts with local policies or ordinances would remain less than significant. Alternative 3 potentially could result in increased temporary impacts on biological resources than the proposed project because of increased tree removal in Unit 2. Because Alternative 3 would use natural materials and increase planting areas in the retaining walls in Units 3 and 4, it potentially could result in increased benefits to biological resources over the operational life of the project.

Cultural Resources

The Alternative 3 non-concrete elements would be in areas of proposed project disturbance. Alternative 3 would result in potential impacts on cultural resources equivalent to the proposed project because it would require grading and construction in the same areas as the proposed project and would have the same potential to disturb significant cultural resources. The impact would be less than significant with mitigation incorporated, as described in Chapter 3.

Energy

The intensity of construction and associated use of energy (fuel) for Alternative 3 would be slightly greater than the proposed project because of slightly increased import of material to construct the natural floodwall in Unit 3. The impact of increased material hauling for Alternative 3 would be less than significant.

Geology and Soils

Alternative 3 would include construction of project components on the same ground and soil substrate as the proposed project. Alternative 3 would require an increase in soil disturbing activities at Unit 2, including additional tree removal, which could result in increased soil loss in comparison with the proposed project. Implementation of BMPs associated with the SWPPP would minimize the potential impacts, and the impact from soil loss and erosion would remain less than significant, similar to the project. Alternative 3 could result in potentially significant impacts if the retaining wall or floodwall is not designed properly to address geologic hazards. Implementation of Mitigation Measure 3.6-1 would require a geotechnical investigation and implementation of geotechnical recommendations in the final design, to address any geologic hazards. The impact of Alternative 3 on geologic hazards would be less than significant with

mitigation incorporated. Alternative 3 potentially could increase geology and soils impacts relative to the project because of the increased area of ground disturbance than concrete retaining and floodwalls.

Hazards and Hazardous Materials
Alternative 3 would require use of the same volume, type, and quantity of hazardous materials as the proposed project. The impact from hazardous materials would be less than significant. Alternative 3 impacts on hazards and hazardous materials would be equivalent to the proposed project.

Hydrology and Water Quality
Alternative 3 would involve use of natural materials for the retaining wall in Units 3 and 4, the transition structure between Units 3 and 4, and the additional floodwall segment in Unit 2. The use of natural materials in constructing the retaining walls and floodwall would not violate any water quality standards, would not result in substantial erosion, and would not result in increased flood hazards. The impact on hydrology and water quality from use of natural materials would be less than significant. The use of natural materials would result in long-term potential benefits to hydrology and water quality in comparison with the proposed project. Use of natural materials rather than concrete at these locations would generate increased groundwater recharge. It would also allow increased vegetation planting, which would naturally retain and absorb water quality contaminants. Alternative 3 would involve similar benefits to flood reduction as the proposed project because the walls would be located in the same locations as the proposed project retaining walls and floodwalls and would have the same function as the proposed project retaining and floodwalls. Additional design and modeling of the Alternative 3 elements would be required, to fully evaluate the engineering feasibility of implementing non-concrete alternatives while protecting the RVSD pipeline and ensuring structural stability.

Noise
Construction of the natural material retaining walls in Units 3 and 4 and the natural floodwall in Unit 2 would require use of equivalent noise-generating construction equipment, just like the proposed project. The Alternative 3 retaining walls and floodwall are not located adjacent to structures and would result in less than significant vibration impacts. The noise impact from Alternative 3 retaining wall construction would be less than significant with mitigation, similar to the impact described for the project in Chapter 3.

Recreation
The Alternative 3 floodwall segment in Unit 2 would be set back from the existing floodwall, which would affect the unnamed and unofficial path #2 (see Section 3.12 and Figure 3.12-2 for the unofficial path location) that would occur in the Alternative 3 floodwall area. Temporary closure of the unofficial path would be required during construction, similar to the proposed project. The impact with respect to deterioration of nearby recreational facilities would be less than significant. Following construction, the unofficial path would remain inaccessible because of the presence of the natural floodwall. The increased use of the formal multi-use path (Bike

Route 20) because of rerouting of the access from the informal path would not increase deterioration of the bike path. The reduced informal recreational access on the left bank of Corte Madera Creek at the Alternative 3 floodwall would have a less than significant impact on recreational opportunities because recreational opportunities are available and would remain on the right bank of Corte Madera Creek. Alternative 3 would have greater impacts on recreation than the proposed project because the alternative would close recreational access to the left bank of Corte Madera Creek at the Unit 2 floodwall.

Transportation and Circulation
Alternative 3 elements would be in the Corte Madera Creek channel and outside any designated bike routes or roads. The Alternative 3 project elements would not conflict with any transportation or circulation plan. Alternative 3 would involve minimal vehicle miles traveled. The impact would be less than significant, similar to the proposed project. Construction, operation, and maintenance of the Alternative 3 non-concrete retaining and floodwalls would result in equivalent transportation impacts to the proposed project's concrete retaining and floodwalls.

Tribal Cultural Resources
Alternative 3 would include excavation and temporary ground disturbance in the same areas as the proposed project. The ground disturbance could affect tribal cultural resources, similar to the proposed project. Implementation of Mitigation Measure 3.5-2, which specifies procedures to avoid impacts on tribal cultural resources, would reduce the impact to a less-than-significant level with mitigation incorporated. Alternative 3 would have an equivalent potential to encounter and affect tribal cultural resources as the proposed project.

Utilities and Service Systems
Alternative 3 would not require or result in relocation or construction of new water conveyance, wastewater treatment, and stormwater drainage, or the addition of electric power, natural gas, or telecommunications facilities. Alternative 3 would protect the existing RVSD pipeline beneath Corte Madera Creek with large rock instead of concrete. If Alternative 3 is approved, additional design and engineering would be required to evaluate whether it would meet RVSD standards for pipeline protection. Because the Alternative 3 design would be subject to conformance with RVSD engineering standards and RVSD review and approval, the impact on the RVSD pipeline would be less than significant. Alternative 3 would require an equivalent amount of water and would generate an equivalent volume of solid waste as the proposed project concrete structures. The impact would be less than significant. Alternative 3 maintenance would generate similar quantities of waste and use of water to the proposed project. The maintenance impact would be less than significant. Thus, Alternative 3 would result in an equivalent impact on utilities and service systems to the proposed project.

Agriculture and Forestry, Land Use and Planning, Mineral Resources, Population and Housing, and Wildfire
Alternative 3 would not involve impacts on land containing agricultural or forestry resources or mineral resources. Alternative 3 would not involve changes in land use or character of the

community and would not conflict with the Town of Ross General Plan, Kentfield General Plan, or Marin Countywide Plan. Alternative 3 would not induce unplanned population growth, and planned growth would continue as under existing conditions. Alternative 3 would not involve any activities in a very high fire hazard area. Alternative 3 would have no impact on land use and population and housing and the impact would be equivalent to the proposed project retaining walls and floodwall in Unit 2.

Alternative 3 Summary, Feasibility, and Objectives

Alternative 3 would result in a slight reduction in long-term aesthetic, biological, and hydrology and water quality impacts than the proposed project because of the reduction in concrete and use of natural materials in the Corte Madera Creek channel and floodplain. Alternative 3 could result in a slight temporary increase in air quality, GHG emissions, and energy (fuel) impacts during construction because of increased import of material to construct the Unit 2 floodwall using natural materials. Alternative 3 would result in equivalent impacts to the proposed project on cultural resources, geology and soils, hazards and hazardous materials, noise, public services, recreation, transportation and traffic, tribal cultural resources, utilities and service systems, agriculture and forestry resources, minerals, land use and planning, population and housing, and wildfire. As described in Table 5.2-1, Alternative 3 would meet all feasibility criteria and all project objectives.

5.4 Comparison of Alternatives

Table 5.4-1 summarizes the impacts of each alternative on the environmental resources evaluated in the Draft EIR. The significance determination (e.g., less than significant with mitigation [LTSM]) for each alternative reflects the impact that would result from implementation of the alternative project components in combination with the proposed project components in areas that are not modified by the alternative.

Table 5.4-1 Comparison of Alternatives and Environmental Considerations

Topic	Proposed Project	No Project Alternative	Alternative 1: Reduced Footprint–Avoid Frederick Allen Park (with proposed project in other areas)	Alternative 2: Maintain Elevation of Bike Route 20 in Frederick Allen Park and No Creek Access (with proposed project in other areas)	Alternative 3: Reduced Concrete (with proposed project in other areas)
Aesthetics and Visual Resources	LTS impact on scenic vistas. SU impact on visual quality (years 0 to 10); long-term beneficial impact on visual quality	No Impact	LTS The alternative would avoid the SU impact on visual quality from removal of trees in Frederick Allen Park. The alternative would not achieve the long-term benefits on visual quality because the existing concrete channel would remain.	SU = The alternative would have similar impacts on visual quality during the first 10 years of vegetation establishment at Frederick Allen Park. The alternative could result in greater benefits to visual quality from increased landscaping.	SU < The alternative would have similar impacts on visual quality during the first 10 years of vegetation establishment at Frederick Allen Park. The alternative could result in greater benefits to visual quality from use of natural materials and plants in lieu of concrete.
Air Quality	LTSM impact from air quality emissions and exposure to substantial pollutant concentrations LTS impact from conflict with an air quality plan and resulting in other emissions affecting a substantial number of people	No Impact	LTSM < The alternative would result in reduced emissions from reduced construction it still would require implementation of mitigation to avoid a potentially significant impact from substantial pollutant concentrations.	LTSM = The alternative would result in equivalent construction activity and emissions to the proposed project.	LTSM > The alternative would result in a slight increase in construction activity and emissions in Unit 2 as compared to the proposed project, though impacts would remain less than significant.

Topic	Proposed Project	No Project Alternative	Alternative 1: Reduced Footprint–Avoid Frederick Allen Park (with proposed project in other areas)	Alternative 2: Maintain Elevation of Bike Route 20 in Frederick Allen Park and No Creek Access (with proposed project in other areas)	Alternative 3: Reduced Concrete (with proposed project in other areas)
Biological Resources	LTSM impact on special-status species, riparian and sensitive natural communities, wetlands, conflicts with ordinance for protection of biological resources, and introduction of invasive species	No Impact: existing fish passage barriers would remain.	LTSM > The alternative would avoid short-term impacts from tree removal in Frederick Allen Park but would not achieve the long-term benefits to water quality and habitat from removal of the concrete channel and creation of a natural riparian habitat.	LTSM < The alternative would reduce the long-term impact from recreational access to the creek. The boardwalk would allow habitat creation underneath the boardwalk.	LTSM < The alternative would reduce the impact from new concrete structures in the Corte Madera Creek channel and floodplain.
Cultural Resources	LTSM impact on archaeological resources LTS impact on human remains	No Impact	LTSM < The alternative would have a low potential to encounter archaeological resources or human remains. The impact would be slightly less than theproposed project due to the reduced area of grading/earthwork.	LTSM = The alternative would have a low potential to encounter archaeological resources or human remains. The impact would be equivalent to the proposed project.	LTSM = The alternative would have a low potential to encounter archaeological resources or human remains. The impact would be equivalent to the proposed project.
Energy	LTS impact on energy supplies	No Impact	LTS < The alternative would require less energy use during construction	LTS = The alternative would require an equivalent amount of energy use to	LTS > The alternative could require slightly more energy to construct because of the potential

Topic	Proposed Project	No Project Alternative	Alternative 1: Reduced Footprint–Avoid Frederick Allen Park (with proposed project in other areas)	Alternative 2: Maintain Elevation of Bike Route 20 in Frederick Allen Park and No Creek Access (with proposed project in other areas)	Alternative 3: Reduced Concrete (with proposed project in other areas)
			because of reduced construction activity.	construct as the proposed project.	increased hauling of materials to construct the Unit 2 floodwall.
Geology and Soils	LTSM impact from geologic hazards LTS impact from loss of topsoil	No Impact	LTSM < The reduced construction area would have slightly less potential to cause geology and soils-related impacts from construction-related erosion and topsoil loss than the proposed project.	LTSM = The impact of geologic hazards from construction of a boardwalk would be equivalent to the impact from proposed project construction.	LTSM > The impact from geologic hazards and soil loss from construction of the non-concrete floodwall would be slightly greater than the proposed project.
Greenhouse Gas (GHG) Emissions	LTS impact from GHG emissions	No Impact	LTS <u>≤ ≥</u> The reduced construction in Frederick Allen Park would result in reduced GHG emissions <u>during construction, but the alternative would not achieve the long-term GHG reduction emissions</u>.	LTS = <u>≤</u> The construction intensity would be similar to the proposed project and would have similar GHG emissions. <u>The alternative would have greater GHG reduction benefits.</u>	LTS > The floodwall construction in Unit 2 would result in slightly greater hauling of material and slightly increased GHG emissions, compared to the proposed project.

Topic	Proposed Project	No Project Alternative	Alternative 1: Reduced Footprint–Avoid Frederick Allen Park (with proposed project in other areas)	Alternative 2: Maintain Elevation of Bike Route 20 in Frederick Allen Park and No Creek Access (with proposed project in other areas)	Alternative 3: Reduced Concrete (with proposed project in other areas)
Hazards and Hazardous Materials	LTS impact from transport and use of hazardous materials and flooding hazards	No Impact	LTS < The reduced area of construction would require slightly less use of hazardous materials and would not increase flooding of the bike path, compared to the proposed project.	LTS < Compared to the proposed project, the alternative would require an equivalent volume of hazardous materials (fuel) to construct. The alternative would avoid increased flooding of the bike path.	LTS = The alternative would require an equivalent volume of hazardous materials (fuel) to construct, compared to the proposed project. The alternative would not change exposure of the public to flood hazards.
Hydrology and Water Quality	LTSM impact from violation of water quality standards LTS impact on erosion and from flooding hazards	No Impact: ongoing flooding consequences would remain	LTSM > The alternative would avoid the impact from excavation and exposure of potentially contaminated soils. The alternative would result in greater, but LTS, long-term impacts on flooding on properties adjacent to Frederick Allen Park.	LTSM < The alternative would elevate the bike path above the floodplain and lessen the risk of flooding, compared to the proposed project. The alternative also would reduce the use of impervious surfaces.	LTSM < The alternative would result in a slight reduction in water quality impacts because of the use of natural materials in lieu of concrete.
Noise	LTSM impact from noise generation exceeding noise ordinances and generation of groundborne vibration	No Impact	LTSM < The alternative would avoid construction in Frederick Allen Park and would eliminate the associated potentially significant increase in	LTSM = The alternative would require an equivalent level of grading and construction activity and would result in similar noise and vibration,	LTSM = The alternative would require an equivalent level of grading and construction activity and would result in similar noise and vibration,

Topic	Proposed Project	No Project Alternative	Alternative 1: Reduced Footprint–Avoid Frederick Allen Park (with proposed project in other areas)	Alternative 2: Maintain Elevation of Bike Route 20 in Frederick Allen Park and No Creek Access (with proposed project in other areas)	Alternative 3: Reduced Concrete (with proposed project in other areas)
			noise levels and groundborne vibration.	compared to the proposed project.	compared to the proposed project.
Public Services	LTS impact on police, fire department, and other public services	No Impact	LTS = The alternative would have equivalent impacts on public services, compared to the proposed project.	LTS = The alternative would have equivalent impacts on public services, compared to the proposed project.	LTS = The alternative would have equivalent impacts on public services, compared to the proposed project.
Recreation	LTSM impact on recreational opportunity from reduced shade LTS impact from new recreational access and associated public access impacts on the creek	No Impact	LTS < The alternative would reduce the impact on recreational access because of avoidance of construction activities and modifications in Frederick Allen Park.	LTSM < The alternative would avoid impacts associated with public access to the creek and would reduce impacts on recreational access because the boardwalk would be elevated above the floodplain. The impact from loss of shade would be equivalent to the proposed project.	LTSM > The alternative would not modify any proposed project elements in Frederick Allen Park. The alternative would block access to an unofficial path at the location of the non-concrete floodwall in Unit 2 The impact would be greater than the proposed project.
Transportation and Circulation	LTSM impact from temporary closure of Bike Route 20 during construction in Frederick Allen Park	No Impact	LTS < The alternative would avoid closure of Bike Route 20 and associated temporarily significant impacts on bicycle and	LTSM < The alternative would result in equivalent short-term construction impacts for the new boardwalk in Frederick	LTSM = The alternative would not change any project elements that would affect transportation.

Topic	Proposed Project	No Project Alternative	Alternative 1: Reduced Footprint–Avoid Frederick Allen Park (with proposed project in other areas)	Alternative 2: Maintain Elevation of Bike Route 20 in Frederick Allen Park and No Creek Access (with proposed project in other areas)	Alternative 3: Reduced Concrete (with proposed project in other areas)
	LTS impact on vehicle miles traveled		pedestrian facilities, unlike the proposed project.	Allen Park. The boardwalk would be elevated above the floodplain and would reduce potential long-term impacts on bicycle access because of reduced flooding.	
Tribal Cultural Resources	LTSM impact on tribal cultural resources from inadvertent discovery	No Impact	LTSM = Would involve construction in areas with low potential to encounter tribal cultural resources, similar to the proposed project.	LTSM = Would involve construction in areas with low potential to encounter tribal cultural resources, similar to the proposed project.	LTSM = Would involve construction in areas with low potential to encounter tribal cultural resources, similar to the proposed project.
Utilities and Service Systems	LTS impact from relocation or construction of new utilities and exceedance of water supply, wastewater, or solid waste capacity	No Impact	LTS < The reduced construction area would result in slightly reduced temporary demand for utilities and service systems.	LTS = The alternative would have a comparable impact on utilities and service systems to the proposed project.	LTS = The alternative would have a comparable impact on utilities and service systems to the proposed project assuming that the rock protection of the RVSD sewer line is adequate.
Agriculture and Forestry, Land Use and Planning,	No impact on agriculture and	No Impact	No Impact < The alternative would avoid the temporary	LTS = The alternative would result in the same	LTS = The alternative would result in the same

Topic	Proposed Project	No Project Alternative	Alternative 1: Reduced Footprint–Avoid Frederick Allen Park (with proposed project in other areas)	Alternative 2: Maintain Elevation of Bike Route 20 in Frederick Allen Park and No Creek Access (with proposed project in other areas)	Alternative 3: Reduced Concrete (with proposed project in other areas)
Mineral Resources, Population and Housing, and Wildfire	forestry, land use, minerals, and wildfire LTS impact on dividing an established community during construction		impact from dividing an established community because Frederick Allen Park would remain open during construction.	impacts as the proposed project during construction in Frederick Allen Park.	impacts as the proposed project during construction in Frederick Allen Park.

Notes:

LTS = Less than significant impact

LTSM = Less than significant impact with mitigation incorporated

SU = Significant and unavoidable impact

< = alternative would reduce one or more impacts of the proposed project.

> = alternative would increase one or more impacts of the proposed project.

= = the proposed project and alternative impacts would be equivalent.

5.5 Environmentally Superior Alternative

CEQA requires that an environmentally superior alternative be identified. The environmentally superior alternative is the alternative that would result in the fewest or least significant environmental impacts while providing the greatest environmental benefits. If the No Project Alternative is the environmentally superior alternative, Section 15126.6(e)(2) of the CEQA Guidelines requires that another alternative that feasibly could attain most of the project's basic objectives be chosen as the environmentally superior alternative.

Although the No Project Alternative would avoid the short-term impacts of project construction, the No Project Alternative would result in a continuation of the existing flooding hazards throughout the Town of Ross and Kentfield area. This existing flooding hazard is a significant detriment to public safety and property. The No Project Alternative also would not address the lack of fish resting pools and insufficient fish and riparian habitat within the Corte Madera Creek concrete channel. These existing habitat impacts are significant. Although Alternative 1 would avoid the proposed project's significant and unavoidable short-term impact on visual quality during the first 10 years after construction, Alternative 1 would result in additional flooding impacts in the Town of Ross during the 100-year flood event and would have substantially reduced habitat benefits than the proposed project.

Alternative 2 would be the environmentally superior alternative because it would avoid the impacts related to recreation, hazards, and transportation from increased flooding on Bike Route 20. Alternative 2 also would reduce the LTS impact from creating a new pedestrian access to the creek and would allow increased riparian planting and infiltration of rainfall due to construction of an elevated boardwalk instead of a paved pathway. Alternative 2 also would meet all project objectives and feasibility criteria.

5.6 References

GHD. (2020, October 23). Scenario B2 Hydraulic Modeling.

Stetson Engineers. (2017). *Report on Hydraulic Modeling of Corte Madera Creek Option C for the Phoenix Lake.*

USACE. (2010). *Corte Madera Creek Flood Control Study Baseline Report.* San Francisco, CA: U.S. Army Corps of Engineers, San Francisco District.

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