



DEPARTMENT OF THE ARMY
U.S ARMY CORPS OF ENGINEERS
SOUTH PACIFIC DIVISION
450 GOLDEN GATE AVENUE
SAN FRANCISCO CALIFORNIA 94102-3661

01 November 2022

CESPD-PD

MEMORANDUM FOR Commander, San Francisco District, ATTN: CESP-PMN Ms. Anisa Jones, 450 Golden Gate Avenue, San Francisco, California 94102

SUBJECT: Upper Guadalupe Flood Risk Management Study, GRR Review Plan (RP)

1. References:

a. CESPD-PDP (FRM-PCX) Memorandum (Review Plan Endorsement for the Upper Guadalupe River, San Jose, California Integrated NEPA and General Reevaluation Report), 19 Aug 2022.

b. Engineering Circular 1165-2-217 dated 1 May 2021, Civil Works Review Policy.

2. The Flood Risk Management Center of Expertise (FRM-PCX), as the assigned Review Management Organization, coordinated with the San Francisco District in the development of the enclosed RP and reviewed it. All review comments have been satisfactorily resolved, and the FRM-PCX has endorsed Reference 1.a., including the risk-informed decision to forego an Independent External Peer Review Report.

3. The South Pacific Division San Francisco District Support Team has reviewed the RP and has verified that it complies with current policy requirements and is consistent with Reference 1.b..

4. I hereby approve this RP, which is subject to change as circumstances require, consistent with work product development under the Project Delivery Business Process. Subsequent revisions to this RP or its execution due to significant changes in the study/scope or level of review will require new written approval from this office.

5. The point of contact for this action is Mr. Jay Kinberger, (415) 503-6556, or Jay.Kinberger@usace.army.mil

Encl

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JOHN D. MORENO, P.E., SES
Programs Director

REVIEW PLAN



Upper Guadalupe Flood Risk Management Reformulation Study
Upper Guadalupe River, San Jose, California
Integrated NEPA and General Reevaluation Report
P2# 104617



US Army
Corps of Engineers
San Francisco District



Valley Water

8 November 2022

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1 PROJECT DETAILS

Project Name: Upper Guadalupe Flood Risk Management Reformulation Study

P2 Number: 104617

Decision Document Type: General Reevaluation Report

Project Type: Flood Risk Management

District: San Francisco

District Contact: Project Manager (415-503-2901)

Major Subordinate Command (MSC): South Pacific Division

MSC Contact: (916-642-6580)

Review Management Organization (RMO): Flood Risk Management PCX

RMO Contact: Deputy Director, 415-503-6852

Key Review Plan Dates

Date of RMO Endorsement of Review Plan: 19 August 2022

Date of FRM-PCX Endorsement of Review Plan: 15 March 2022; updated version 19 August 2022

Date of MSC Approval of Review Plan: 1 Nov 2022

Date of IEPR Exclusion Approval: 1 Nov 2022

Has the Review Plan changed since PCX Endorsement? Yes, the RP has been updated to include a changed decision which seeks IEPR Exclusion Approval per newly developed cost estimates of the likely TSP. A memo summarizing the changes was shared with the FRM-PCX and they concurred with the approach. This RP update captures the new info. The RP has also been updated to address SPD comments.

Date of Last Review Plan Revision: 19 August 2022

Date of Review Plan Web Posting: 9 Nov 2022

Date of Congressional Notifications: Pending (= date the RIT notified Congress of IEPR decisions)

Table 1 Milestone Schedule

	Scheduled	Actual	Complete
Feasibility Cost Share Agreement:	30 December 2020	30 Dec 2020	Yes
Alternatives Milestone:	15 April 2021	20 Apr 2021	Yes
Tentatively Selected Plan:	NLT 8 September 2022	8 Sep 2022	Yes
Release Draft Report to Public:	7 November 2022	7 Nov 2022	Yes
Agency Decision Milestone:	23 January 2023 (current) 09 March 2023 (updated est. date)	TBD	No
Final Report Transmittal:	28 August 2023 (current) 08 March 2024 (updated est. date)*	TBD	No
Senior Leaders Briefing:	09 October 2023 (current) 22 April 2024 (updated est. date)*	TBD	No
Chief's Report or Director's Report:	29 December 2023 (current) 07 August 2024 (updated est. date)*	TBD	No

*this and subsequent dates are subject to change based on 3x3 waiver process and approval. PDT is working to update the schedule.

Project Name: Upper Guadalupe River, Flood Risk Management Reformulation Study
General Reevaluation Report and NEPA Document

Location: San Jose, California

Authority: Section 4 of the Flood Control Act of 18 August 1941 authorized a preliminary examination of the Guadalupe River, its tributaries and adjacent streams. The authorization reads as follows:

The Secretary of War is hereby authorized and directed to cause preliminary examinations and surveys for flood control, to be made under the direction of the Chief of Engineers, in drainage areas, the United States and its territorial possessions, which include the following named localities: Coyote River and tributaries, California; San Francisquito Creek, San Mateo and Santa Clara Counties, California; Matadero Creek, Santa Clara County, California; and Guadalupe River and tributaries.

On 6 June 1945, the Chief of Engineers endorsed the Preliminary Examination Report of Guadalupe River and Tributaries (dated 28 February 1945). This endorsement authorized a flood control investigation of Guadalupe River, Coyote Creek, San Francisquito Creek and numerous other creeks which continued to be studied under the 1941 Guadalupe River and Adjacent Streams authorization.

Construction Authority

Congress authorized the Upper Guadalupe River Project in 1999 per legislation contained in the Water Resources Development Act (WRDA) of 1999:

Construction of the locally preferred plan for the flood damage reduction and recreation project, Upper Guadalupe River, California, described as the Bypass Channel Plan of the Chief of Engineers dated August 19, 1998, at a total cost of \$140,328,000, with an estimated Federal cost of \$44,000,000 and an estimated non-Federal cost of \$96,328,000.

The WRDA of 2007 re-authorized the project as such:

The project for flood damage reduction and recreation, Upper Guadalupe River, California, authorized by section 101(a)(9) of the Water Resources Development Act of 1999 (113 Stat. 275), is modified to authorize the Secretary to construct the project generally in accordance with the Upper Guadalupe River Flood Damage Reduction, San Jose, California, Limited Reevaluation Report, dated March 2004, at a total cost of

\$256,000,000, with an estimated Federal cost of \$136,700,000 and an estimated non-Federal cost of \$119,300,000.

Post Authorization Changes and Reformulation

During Pre-Construction Engineering and Design (PED) Phase of the authorized plan, the Project Delivery Team (PDT) identified issues with the 2007 authorized plan that required design changes which warranted the preparation of a Post-Authorization Change Report and reformulation in the form of a general reevaluation. Of the existing authorized plan, Reach 12 and most of Reach 10b were constructed in order to advance the mitigation for the authorized project. Reaches 7, 8, 9, 10a, remainder of 10b, 11, Ross Creek, and Canoas Creek have not been constructed.

A general reevaluation is a study to affirm, reformulate or modify a plan, or portions of a plan, under current planning criteria. This study may be similar to a feasibility study (ER 1105-2-100). If a project has changed substantially after authorization, then a post-authorization decision document, which may be titled as a general reevaluation report (GRR), is prepared and used as the supporting document for the project partnership agreement. The post-authorization document that reformulates a project would be similar to a feasibility report and will contain an engineering appendix, and National Environmental Policy Act documentation.

Approval authority will depend on the recommendation in the GRR. At the minimum, the GRR would be approved at the Major Subordinate Command (MSC), or Division, level, ranging to approval by the Director of Civil Works, or a Chief's Report requiring Congressional reauthorization and/or deauthorization. If the recommendation is within a twenty percent cost and scope limit of the authorized plan (as defined in Appendix G of ER 1105-2-100 for post-authorization changes), then a Limited Reevaluation Report or Validation Report may be prepared in lieu of a GRR, to be signed by the MSC Commander. If reauthorization or deauthorization of part or all of the authorized plan is necessary, or if the recommendation is expected to exceed the 902 cost limit established for the project, then a Chief's Report will be prepared and processed. If the recommendation within the GRR is within the existing Congressional authority, but the reformulation is general and not limited, then a Director's Report may be prepared in lieu of a Chief's Report. A post-authorization document that reformulates an authorized portion of the project, would be used as the basis for a federal commitment and supporting documents for the project partnership agreement moving into the PED Phase.

Sponsor: Santa Clara Valley Water District (Valley Water) is the non-federal sponsor. The Upper Guadalupe River General Reevaluation and Reformulation Study is cost shared 50% federal and 50% non-federal.

Type of Study: General Reevaluation and Reformulation Study

SMART Planning Status: This study is seeking a 3x3x3 waiver.

Project Area: The project area includes roughly 5.5 miles of the Upper Guadalupe River main stem between the Southern Pacific Railroad Bridge and the Blossom Hill Road Bridge. Two tributaries, which frequently overtop their banks, Ross Creek and Canoas Creek, are also included within the study area.

The project is located in Santa Clara County, in west central California, immediately south of the San Francisco Bay. The project area is in the southwestern portion of the City of San Jose, within the highly urbanized Santa Clara Valley (Figure 1). The Guadalupe River is the second largest stream in Santa Clara County. The river discharges into the San Francisco Bay approximately 20 miles north of its origin in the Santa Cruz Mountains. The Guadalupe drains an area of approximately 170 square miles (Figure 2). The lower watershed is primarily residential and commercial, and includes limited industrial and agricultural land, while the upper watershed is composed of mostly undeveloped land.

The upper watershed includes a system of reservoirs, including Almaden, Calero, Guadalupe, and Lexington Reservoirs. They are owned and operated by Valley Water and provide water supply and groundwater recharge. Alamitos Creek becomes the Guadalupe River when it exits Lake Almaden and joins the Guadalupe Creek.



Figure 1: Project Location



Figure 2: Watershed and Study Area

Problem Statement: Frequent flooding along the Guadalupe River continues to result in significant damages and present risk to the surrounding community and the City of San Jose, since at least the 1800s, and flooding continues to be a risk in the study area. Figure 3 depicts the without project floodplain during a 1% annual exceedance probability event.

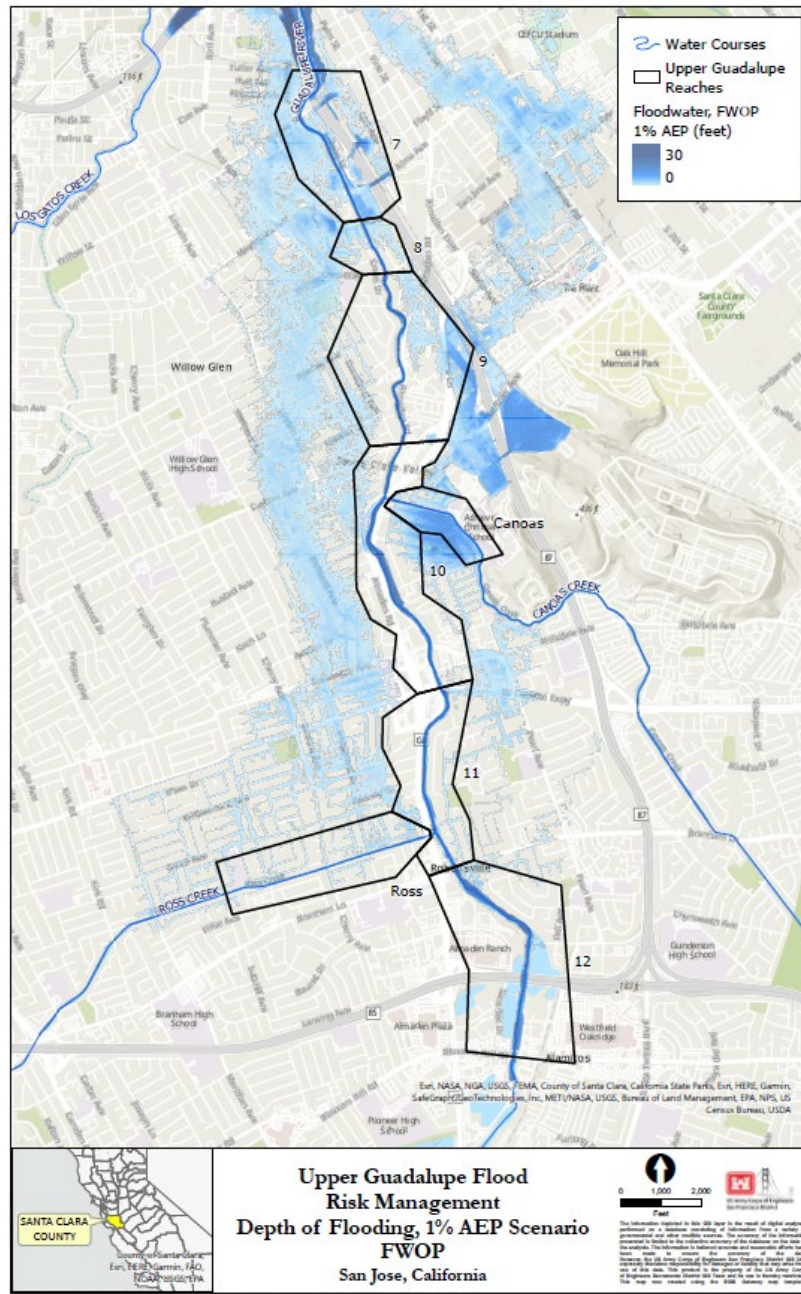


Figure 3. Modeled depth and extent of flooding during a 1% annual exceedance probability event. San Jose, California. This map is subject to change as a result of reviews.

High velocities and the sediment-starved condition of the river cause erosion that has damaged or threatened nearby infrastructure, as well as the stability of the river bed and banks. In addition to the economic cost of managing erosion and its impacts, this has resulted in an incised channel morphology that lacks the complexity necessary to support native fish and wildlife, including migratory and rearing habitat for federally threatened steelhead (*Oncorhynchus mykiss*), and threatens stands of regionally scarce and significant mature riparian vegetation, that contribute to shaded riverine aquatic, and undercut bank habitats.

High velocities and flood depths risk the safety and life of anyone in the channel, including the unhoused populations that create encampments along the river. There is a potential for life safety risk in the neighborhoods with deeper flooding on both sides of Canoas Creek. Depths exceed 7 feet at the 1% Annual Exceedance Probability (AEP) event north of Canoas Creek near Mill Pond Drive in a neighborhood where there is only one evacuation route out of the neighborhood. Depths exceed 6 ft at the 1% AEP south of Canoas Creek near Hummingbird Drive creating the potential for a life safety hazard. The Virginia and Curtner Light Rail stations could be impacted from high velocities, depths, and velocity-depth combinations.

Current lack of public access to the riparian corridor and dense urban development results in limited recreational opportunities.

Federal Interest

There are 13,235 people living in structures that are projected to flood (with at least .2 feet of water) during a 1% AEP event. Just under half of those residents are considered to be socially vulnerable to the impacts of flooding based on income, race, age, mobility, etc. Future without project expected annual damages from flooding are roughly \$22.5 million. In addition to the structures and people at risk, and transportation corridors in the Silicon Valley region have been identified to be at risk of flooding.

The City of San Jose is the third largest in California, with a population of over 1 million people (based on 2016 Census estimates), which can be expected to grow to over 1.7 million during a 50-year period of analysis¹. There is a potential life safety risk in the densely populated urban areas within the floodplain due to the the rapid nature of the

¹ If you apply the County's population growth rate to San Jose. ^[1] United States Census, 2016 Annual Population Estimates: factfinder.census.gov

^[2] Bureau of Labor Statistics, Labor Force Statistics from the Current Population Survey, July 2017: www.bls.gov

^[3] United States Census, American Community Survey, 2011-2015: factfinder.census.gov

^[4] United States Census, American Community Survey, 2011-2015: factfinder.census.gov

flooding in this system. High depths and velocities in the channel pose a significant life safety risk to the large, unhoused population residing in encampments within the channel. The homelessness issue in San Jose has increased significantly with rising home prices, and the City of San Jose has indicated that they do not have sufficient temporary or alternate housing to relocate unhoused people to. The last major flood event was in 1995 and saw major inundation downtown and on Highway 87 (see Figures 4 and 5). The area is a densely populated mix of residential, commercial, and public facilities, including key transportation corridors in the Silicon Valley region.



Figure 2. Flooding from the 1995 flood event in Downtown San Jose saw significant inundation.

The 1% AEP floodplain inundates approximately 2,312 acres and 4,032 structures, while the .2% AEP floodplain inundates roughly 3,522 acres and 5,580, with a greater volume of water in a similar floodplain area. Impacts and damages due to flooding have intensified since World War II, as the Valley's primary land use changed from agricultural to residential, commercial, and industrial. There have been approximately fifteen significant floods since 1945.



Figure 3. Major inundation from the flood of 1995 occurred on Highway 87 in San Jose's downtown area

Updated analysis performed as a part of this reformulation has shown an investment to manage flood risk in this area would provide a net benefit to the nation's economy by avoiding future flood damages, as well as improve life safety by reducing risk to human life and safety. All plans in the final array have Benefit to Cost Ratios (BCRs) above unity.

Risks Identified in Study:

- High channel velocities cause erosion, channel incision, and high maintenance costs for the non-federal sponsor. SCVWD maintenance staff have raised concern that current design poses unacceptable erosion risk and ongoing maintenance cost.
- Environmentally sensitive area with federally listed salmonid species. Alterations to habitat could adversely impact the species. However, the channel may continue to degrade in the future without a project as well.
- The currently identified erosion risks were not clearly defined and analyzed in the previous project's NEPA documents or adequately addressed in previous coordination with resource agencies.
- Gravel routing and downstream deposition could create maintenance issues, affect flood conveyance, and require disposal.

- Project may reduce water levels and thereby degrade or kill existing vegetation, due to channel relocation (bypass design) which could dry up the original channel during seasonal low water or drought conditions. If this risk is realized, mitigation costs may make the bypass plan unjustifiable with costs exceeding benefits. To manage risk and uncertainty for this, the team can develop a water budget description for the existing and future without project condition to describe flood risk and frequency, as well as drought and seasonality variations in the system.
- The existing authorized but not fully constructed plan has a marginal BCR. Additional work needed to address erosion concerns and mitigate for impacts could increase costs.
- Regulatory and environmental compliance, particularly in relation to the in-water alternatives: Strict state and federal regulatory requirements for activities in San Francisco Bay could limit the scope of alternatives.
- To date, no life loss from flooding has been documented. However, there is no flood warning system in place to protect communities in the study area, nor established evacuation plans.
- Limited water and clay soils increase the cost to conduct plantings / revegetation. Best practices and the cost of these are known due to ongoing adaptive management of constructed mitigation.

Uncertainties:

- Additional studies and modeling are needed to characterize the erosion risks and identify the best options to address them. Models have been identified to address this risk and are listed below in Tables 6 and 7.
- Unknown whether a bypass channel is still considered the environmentally preferable plan.
- The changes associated with climate change provide added uncertainty in the future without project condition.
- Possible future changes to the operation of upstream Lexington, Calero, Almaden, and Guadalupe reservoirs is undetermined, though expected to potentially lower flood risk in the FWOPC

Public Concerns:

- Managing flood risk
- Continuous recreation/trails network
- Mitigation should be performed on-site
- Quality shaded riverine aquatic habitat not just quantity

- Limit potential adverse impacts on fish and wildlife habitat, with special emphasis on remnant steelhead trout and chinook salmon, using the opportunities associated with construction of the flood protection components
- Minimize impacts to stream temperatures and mitigate unavoidable impacts
- Incorporate information from the existing NEPA/CEQA documentation associated with the authorized project

Flood Hazards

- The project area is at risk of flooding in low-lying areas. Overbank flows begin damaging structures adjacent to the Upper Guadalupe Creek starting at the 4% Annual Exceedance Probability (AEP) event. Previous investigations, most recently by the San Francisco District in 2017, indicate that more severe events tend to inundate additional properties rather than add depth (and damage) to structures inundated by less severe events.
- Though flooding is generally shallow, there are pockets of deeper flooding which poses a potential life safety risk given that the river is in a densely populated urban area. High depths and velocities in the channel pose a significant life safety risk to those residing in unhoused encampments within the channel. Because of these life safety risk factors, the Chief of Engineering has determined that a SAR will be performed during the PED phase.

Measure and Alternatives

Nineteen structural measures are being considered for the project, including nine natural and nature-based features/measures (NNBFs), and 12 non-structural measures. Measures that could be deemed ineffective at achieving objectives, unlikely to be efficient (cost-effective), or unacceptable were screened out during the alternatives development.

Structural measures considered include detention basins, levees, setback levees, floodwalls, channel widening, percolation ponds as overflow storage, crib walls, bridge removal, rehabilitation and placement, bypass channels, and improved public access/recreational opportunities.

Nature and Nature-based features include floodplain connectivity/reestablishment, multi-stage channel, gravel augmentation, riparian forest planting, invasive vegetation removal, off-channel habitat development, grade control, large wood structures/bio engineering, and green infrastructure for stormwater management.

Nonstructural measures include flood warning systems, floodplain mapping, flood emergency preparedness plans, land use regulations, zoning, evacuation plans, risk communication, elevation, relocation, buyout/acquisition, dry flood proofing, and wet floodproofing.

The following alternatives were developed:

- Alternative 1: No Action Plan
- Alternative 2: Valley View Plan (NED Plan from 1998 Feasibility Study)
- Alternative 2a: Valley View Plan updated with new info/understanding developed in PED phase
- Alternative 3: Bypass Channel Plan (Locally Preferred and Authorized Plan from 1998 Feasibility Study and 2005 LRR)
- Alternative 3b: Bypass Channel Plan with adjustments to address velocity & erosion concerns identified in Reaches 7 & 8
- Alternative 4: Non-Structural Plan
- Alternative 5: Engineering with Nature Alternative—Maximize Nature-Based Features in Combination with Structural Features
- Alternative 6: Traditional Flood Risk Management Features Plan
- Alternative 7: Lower Cost/Lower Scope Flood Risk Management
- Alternative 8: Combination
- Alternative 9: Separable Reach Investigation, Reaches 7 & 8 separable from Reaches 9-12

The focused array of alternatives includes five action alternatives:

- Alternative 1: No Action Plan
- Alternative 2a: Valley View Plan updated with new info/understanding developed in PED phase
- Alternative 3b: Bypass Channel Plan with adjustments to address velocity & erosion concerns identified in Reaches 7 & 8
- Alternative 4: Non-Structural Plan
- Alternative 7: Least Cost Flood Risk Management (FRM)
- Alternative 8: Combination of Engineering with Nature and Traditional FRM

The likely TSP is the Combination of Engineering with Nature and Traditional FRM. The total project cost is approximately \$123.7 million. The average annual NED benefits are roughly \$21.4 million, and it is the plan that maximizes net benefits. As it relates to transportation routes (streets), we currently do not have a quantitative estimate for damages by frequency in any condition (with vs. without project). Given that flood depths remain shallow and velocities are slow in the vast majority of overbank areas, it is assumed the damages to streets would be nuisance related, such as cleaning up flood debris, mud, sand, etc. and not related to having to reconstruct the road. A description related to the expected impact to streets will be included in the economic appendix and described qualitatively. At this point in the study, critical infrastructure is identified via GIS mapping, but those structures are not tagged within the economic model to show damages reduced or risk mitigated. The PDT is targeting quantifying the risk mitigation to critical infrastructure post-TSP.

Scope of Review

Will the study likely be challenging? Yes. The study can leverage existing information and previous studies. However, it may be challenging to identify a plan that is both acceptable, efficient, and effective. By removing previous planning constraints, in coordination with resource agencies, the team looked to reformulate using updated information and a better understanding about the system to identify and evaluate feasible alternatives.

Provide a preliminary assessment of where the project risks are likely to occur and assess the magnitude of those risks.

Key assumptions will include:

- Assume existing sediment contains hazardous levels of mercury, and that hazardous, toxic, and radioactive waste will be encountered. Based on coordination with the District's HTRW RTS specialist, office of counsel, and environmental, there is only an HTRW issue if soils need to be taken off-site for disposal, which would only occur if they reached thresholds beyond what is allowed by the Water Board. The PDT actively coordinates with the Water Board to manage the material on site without exceeding thresholds. Feasibility analysis of the quantity of excavated soil from the likely TSP, and the likely percentage of that which may have mercury thresholds that make it expensive to move off site, shows that there will be sufficient space to reuse the material on-site, which controls the risk to cost. Accordingly a typical HTRW reviewer will not be necessary.
- Assume a high level of discovering unanticipated archaeological sites in the study area which will require consultation and development of an agreement document with affiliated Native American tribal bands, organizations, and rancherias.
- Assume changes to the hydrologic regime due to climate change, which may need to be assessed and incorporated into alternatives and TSP, and adaptive management plan.

Key Social and Environmental Factors and Mitigation Actions

The environmental impacts from each alternative will be assessed in a NEPA document, which will be integrated with the GRR. Based on current information, impacts to the following resources are anticipated:

- Special Status Species (steelhead) and habitat
- Air Quality
- Water Quality
- Vegetation and wildlife
- Noise & Traffic
- Environmental Justice

- Cultural Resources

The study team is actively coordinating with resource agency partners. Letters inviting resource agency partners to be cooperating agencies under NEPA have been distributed, and USACE and interagency and tribal coordination is underway.

Stakeholder Perspectives and Differences

The study team has and will continue to coordinate with Valley Water continuously throughout the study. Valley Water's input will be considered and incorporated into the measures and alternatives developed during plan formulation process. Existing and active stakeholder groups will be engaged throughout the study. Resource agencies were engaged as part of the planning charettes, and around the AMM, and the PDT is coordinating with them as we near TSP selection. USACE will continue to seek input and feedback from these parties throughout the study.

Is the project likely to be justified by life safety or is the study or project likely to involve significant life safety issues?

The study is likely to involve potential life safety issues. For the unhoused, there are significant life safety issues associated with living within the channel. Each alternative includes non-structural measures to reduce this risk such as risk communication, early warning systems and evacuation planning. The City of San Jose already has some of these measures in place, and the team is working to enhance them using flood risk information developed and provided as part of this study. The study is not likely to be justified by life safety as project benefits although they will be considered. The project will likely be justified based on net national economic benefits resulting from a reduction in expected future direct and indirect flood damages to buildings, contents, and public infrastructure. Environmental quality (EQ) and other social effect benefits are likely to also contribute to project justification, and are being evaluated along with regional economic development.

The highest contributor to life safety for Upper Guadalupe is the floodprone unhoused population. Life safety risk associated with the unhoused population is compounded by a rapidly rising river, encampment locations along the riverbanks, lack of warning system, lack of access to shelter, and migratory trend of moving from one floodprone encampment to another. The encampment population data changes regularly, but recent data analyzed identified 10 encampments housing ~135 people situated in high flood hazard areas where velocities times depths exceed 6.46 ft² per second. The high number of encampments and flashiness of the system make it difficult for emergency responders to get to them all in the case of a flood.

The measures for managing life safety risk to the unhoused populations include risk communication and early warning systems, which are included in all alternatives in the final array. The City of San Jose already works to relocate encampments within the channel, but it is a pervasive and shifting problem, which is compounded by the insufficient shelter beds available for the existing unhoused populations. In this case a more detailed analysis now would not change the TSP selection and can be delayed to post-TSP.

Post-TSP, once the study team has the required inputs for HEC-LifeSim, a full model run(s) will be completed on the entire Upper Guadalupe study area. This will include analysis of potential consequences with and without project to the general population as well as the unhoused population.

Has the Governor of an affected state requested a peer review by independent experts?

No.

Will the project/study likely involve significant public dispute as to the project's size, nature, or effects?

No. The study has been previously undergone public involvement, and is not likely to involved significant public disagreements over the project size, nature, or effects. Public outreach during the scoping period did not identify any disputes.

Is the project/study likely to involve significant public dispute as to the economic or environmental cost or benefit of the project?

No. It is unlikely that economic or environmental costs will cause any public dispute. There could be public concern due to environmental impacts of the construction, but it is anticipated that the short term impacts will be outweighed by ecological benefits over the long term.

Is the information in the decision document or anticipated project design likely to be based on novel methods, involve innovative materials or techniques, present complex challenges for interpretation, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices?

Possibly. The team will evaluate natural and nature-based features which may be considered innovative, work in tandem with traditional methods of FRM, and may have added benefits desired by the project sponsor and stakeholders.

Does the project design require redundancy, resiliency, and/or robustness, unique construction sequencing, or a reduced or overlapping design/construction schedule?

Yes. Construction schedule will be constrained based on regulatory permits.

Is the estimated total cost of the project greater than \$200 million?

No, the likely TSP is less than \$200 million.

Will an Environmental Impact Statement be prepared as part of the study?

No, an Environmental Assessment (EA) to supplement the existing EIS will be prepared. This decision has been coordinated with the vertical team.

Is the project expected to have more than negligible adverse impacts on scarce or unique tribal, cultural, or historic resources?

Based on review of past cultural resource inventories available, previously identified tribal, cultural, or historic resources aren't expected to be impacted by the project. However, the PDT assumes there will be a risk of discovering unanticipated archaeological sites due to the Upper Guadalupe River's geomorphology indicating a high sensitivity for buried sites. The high likelihood of discovering an unanticipated archaeological site in undisturbed areas near the Guadalupe River may require field investigations before construction to determine this sensitivity for the selected alternative or development of an agreement document with the California State Historic Preservation Officer as well as the affiliated Native American tribal bands, organizations, and rancherias in the area.

Is the project expected to have substantial adverse impacts on fish and wildlife species and their habitat prior to the implementation of mitigation measures?

Construction of the project will cause temporary adverse impacts to existing habitat for fish and wildlife. The study is incorporating natural and nature-based features where possible as well as mitigation measures to address these impacts.

Is the project expected to have, before mitigation measures, more than a negligible adverse impact on an endangered or threatened species or their designated critical habitat?

No. While listed salmonids use the study area for migration corridors, the study area is not listed as designated critical habitat. However, there will be more than negligible adverse impacts to riparian vegetation, which impacts the condition of the watered channel for salmonids.

4 REVIEW EXECUTION PLAN

This section describes each level of review to be conducted. Based upon the factors discussed in Section 3, this study will undergo the following types of reviews:

E&C Products to be developed throughout the project (PED/Construction)	Expertise Needed for Review
Revised initial Design Documentation Reports (DRR) for Reach 7, 8, 9, 10, 11, and 12	Hydrology & Hydraulics, Geo-Sciences, Civil Engineering
Supplemental Design Documentation Reports (SDDR) for Reach 7 and 8, Canoas Creek, and Ross Creek	Hydrology & Hydraulics, Geo-Sciences, Civil Engineering
Gravel augmentation Study	Hydrology & Hydraulics
Hydraulic (HEC-RAS) model	Hydrology & Hydraulics
Plans & Specifications for Reach 7 and 8, Canoas Creek and Ross Creek	Hydrology & Hydraulics, Geo-Sciences, Civil Engineering, Project Site Owner (Sponsor)
Final revised DDR for all reaches	Hydrology & Hydraulics, Geo-Sciences, Civil Engineering
Initial Operation, Maintenance, Repair, Replacement & Rehabilitation Manual (OMRR&R) for the project	Project Site Owner (Sponsor), Hydrology & Hydraulics, Geo-Sciences, Civil Engineering
Interim OMRR&R manuals for Reach 7, 8, Canoas Creek and Ross Creek	Project Site Owner (Sponsor), Hydrology & Hydraulics, Geo-Sciences, Civil Engineering
Final OMRR&R manual	Project Site Owner (Sponsor), Hydrology & Hydraulics, Geo-Sciences, Civil Engineering
Annual Project Cost Estimate Packages with the construction estimate updated (with repricing cost)	Cost Engineering
Economic reevaluation reports	Economics, Cost Engineering, Hydrology & Hydraulics, Geo-Sciences, Civil Engineering
SAR	Project Site Owner (Sponsor), Hydrology & Hydraulics, Geo-Sciences, Civil Engineering

District Quality Control. All decision documents (including data, analyses, environmental compliance documents, etc.) undergo DQC. This internal review process covers basic science and engineering work products. It fulfills the project quality requirements of the Project Management Plan.

Agency Technical Review. ATR is performed by a qualified team from outside the home district that is not involved in the day-to-day production of the project/product. These teams will be comprised of certified USACE personnel. The ATR team lead will be from outside the home MSC. If significant life safety issues are involved in a study or project, a safety assurance review should be conducted during ATR.

Independent External Peer Review (IEPR). IEPR may be required for decision documents under certain circumstances. This is the most independent level of review, and is applied in cases that meet criteria where the risk and magnitude of the project are such that a critical examination by a qualified team outside of USACE is warranted. A risk-informed decision is made as to whether IEPR is appropriate. An IEPR exclusion is requested on this study.

Cost Engineering Review. All decision documents shall be coordinated with the Cost Engineering Mandatory Center of Expertise (MCX). The MCX will assist in determining the expertise needed on the ATR and IEPR teams. The MCX will provide the Cost Engineering certification. The RMO is responsible for coordinating with the MCX for the reviews. These reviews typically occur as part of ATR.

Model Review and Approval/Certification. EC 1105-2-412 mandates the use of certified or approved models for all planning work to ensure the models are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions.

Policy and Legal Review. All decision documents will be reviewed for compliance with law and policy. ER 1105-2-100, Appendix H provides guidance on policy and legal compliance reviews. These reviews culminate in determinations that report recommendations and the supporting analyses and coordination comply with law and policy, and warrant approval or further recommendation to higher authority by the home MSC Commander. These reviews are not further detailed in this section of the Review Plan.

Safety Assurance Review. The District's Chief of Engineering has assessed the significance of life safety risk for this study to determine whether Safety Assurance Reviews will be needed during design or construction. Given the densely populated land use, including large and numerous encampments within the channel, the Chief of Engineering concludes that there is a significant threat to life safety for the unhoused populations and therefore recommends a Safety Assurance Review be completed during PED Phase.

Life safety is an important factor for formulation and evaluation in the Other Social Effects and is being analyzed and discussed through the study. However, the project will not be justified by life safety and does the structural FRM elements of the project do not involve significant threat to human life/safety assurance. There are no significant threats to human life associated with either construction of the proposed improvements, O&M of the proposed project, or with project failure. Since the measures to address the significant risk are non-structural (early warning system, evacuation planning, and risk communication), and will not affect plan selection (they're included in each plan), they do not warrant IEPR. However, the Chief of Engineering determined that due to the construction of an FRM project in a densely populated urban area, SAR will be performed in PED.

Table 2 provides the schedules and preliminary costs for reviews.

The specific expertise required for the teams are identified in later subsections covering each review. These subsections also identify requirements, special reporting provisions, and sources of more information.

Public Review. The Draft Integrated Report will be reviewed by the public per the policy set forth in the Principles and Requirements for Federal Investments in Water Resources and in parallel with the public involvement process required by the National Environmental Policy Act (NEPA). The PDT will consider all comments provided and incorporate any recommendations, as appropriate, into the Final Integrated Report.

Table 2: Schedule and Costs for Review

PRODUCT(S) TO UNDERGO REVIEW	REVIEW LEVEL	START DATE (M/D/Y)	END DATE (M/D/Y)	COST	COMPLETE
Draft Integrated Report, including Draft Environmental Existing Conditions, Economics Appendix, Engineering Appendix, Real Estate Plan, and Supporting NEPA Documents	District Quality Control	09/09/2022	11/07/2022	\$60,000	Yes
Draft Integrated Report	Agency Technical Review	11/07/2022	01/06/2023	\$70,000	No
Draft Integrated Report	Policy and Legal Review	11/07/2022	12/05/2022	n/a	No
Draft Integrated Report	Public Review	11/07/2022	12/16/2022	n/a	No
Final Integrated Report	District Quality Control	10/23/2023	11/06/2023	\$20,000	No
Final Integrated Report	Agency Technical Review	12/04/2023	01/29/2024	\$50,000	No
Final Integrated Report	Policy and Legal Review	03/11/2024	04/08/2024	n/a	No
Detailed Design Report and Operations and Maintenance Manual	Safety Assurance Review	TBD	6-8 week duration	\$80,000 for AE contract	No (occurs in PED)

4.1 DISTRICT QUALITY CONTROL

The home district shall manage DQC and will appoint a DQC Lead (San Francisco District Plan Formulation Section Chief) to manage the local review. The DQC Lead will prepare a DQC Plan and provide it to the RMO and MSC prior to starting DQC reviews. Table 3 identifies the required expertise for the DQC team. Prior to DQC, the full PDT will review the feasibility report for accuracy and completeness.

Potential work in-kind products provided by the nonfederal sponsor will be submitted to the PDT and internally/peer-reviewed for applicability to study. If applicable, it then will be reviewed in accordance with DQC and Corps Policy compliance.

Table 2: Required DQC Expertise

DQC DISCIPLINES	EXPERTISE REQUIRED
Planning	The reviewer should have recent experience in reviewing plan formulation processes for flood risk management studies and be able to draw on “lessons learned” in advising the PDT of best practices.
Economics	The Economics reviewer should be a senior economist with experience in flood damage analysis, preferably in using HEC-FDA or other fluvial models; recreation analysis; use of RECONS model to address regional economic development associated with a project; discussion of other social effects (OSE) associated with flood risk, as well as OSE benefits from reduction in flood risk; economic justification of projects in accordance with current USACE policy for flood damages.
Hydrology & Hydraulic Engineering (H&H)	The hydrology and hydraulics reviewer will be CERCAP certified and should be a senior engineer with experience using HEC-HMS and HEC-RAS. They should have an understanding of open channel one-dimensional and two-dimensional unsteady flow hydraulic models and have a knowledge of the application of flood walls, channel widening/benching, hydraulic restriction removals (such as bridge removals/replacements and culvert replacements), and non-structural solutions involving flood risk management. This reviewer should be capable of determining system nonstationarity and assessing system climate change vulnerability, adaptability, and resilience.
Flood Risk Management (Fluvial)	The flood risk management reviewer should be familiar with the latest guidance from the National Flood Risk Management Program and the communication of flood risk to the affected communities. The reviewer should also be versed in fluvial geomorphic first principles, sediment transport, and basic river processes.

Environmental Resources	The reviewer should have a solid background in the biological resources to be found in the Western United States, and understand the factors that may affect native species of plants and animals, public access, air quality, and other environmental resources. The reviewer should have expertise in salmonid habitat considerations and needs.
Cultural / Historic Resources	The reviewer should have extensive USACE experience regarding cultural and historic resources on public lands. They need to be familiar with Department of Defense as well as USACE policies and procedures as they pertain to USACE studies and projects.
Geotechnical Engineering	The reviewer should have recent experience in the USACE design requirements. This person should also have experience in investigating existing subsurface conditions and materials; determining their physical/mechanical and chemical properties that are relevant to the project considered, assessing risks posed by site conditions; designing earthworks and structure foundations; and monitoring site conditions, earthwork and foundation construction. To the extent available, the reviewer should have experience with seismic considerations.
Civil Engineering	The reviewer should have recent experience in the design of and plans for various flood risk management features including structural, non structural, and nature-based. The reviewer should be well versed in the life safety risks associated with flood risk management projects.
Cost Engineering	The reviewer should have experience preparing cost estimates for flood risk management projects and the application of scientific principles and techniques to cost engineering.
Real Estate	The reviewer should have experience preparing Real Estate Plans for General Investigation Studies.
Climate Preparedness	The reviewer should have experience in USACE climate policy and planning requirements.

Documentation of DQC. Quality Control should be performed continuously throughout the study. A specific certification of DQC completion is required at the draft and final report stages. Documentation of DQC should follow the District Quality Manual and the MSC Quality Management Plan. An example DQC Certification statement is provided in ER 1165-2-217.

Documentation of completed DQC should be provided to the MSC, RMO, and ATR Team leader prior to initiating an ATR. The ATR team will examine DQC records and comment in the ATR report on the adequacy of the DQC effort. Missing or inadequate DQC documentation can result in delays to the start of other reviews.

4.2 AGENCY TECHNICAL REVIEW

The ATR will assess whether the analyses are technically correct and comply with guidance, and that reports explain the analyses and results in a clear manner. An RMO manages ATR. The review is conducted by an ATR Team whose members are certified to perform reviews. Lists of certified reviewers are maintained by the various technical Communities of Practice. Table 4 identifies the disciplines and required expertise for this ATR Team. Note, some reviewers can cover more than one discipline for their ATR review, such as engineering and climate preparedness, risk analysis and economics, or other possible combinations. If deemed justified, the Project Manager will request the RMO for the appropriate ATR specialist to conduct a targeted ATR on a section of the report before submittal of the final report (e.g., Economics, H&H).

Table 3: Required ATR Team Expertise

ATR DISCIPLINES	EXPERTISE REQUIRED
ATR Lead	The ATR lead should be a senior professional with extensive experience in preparing Civil Works decision documents and conducting ATR. The lead should also have the necessary skills and experience to guide a virtual team through the ATR process. The ATR lead may also serve as a reviewer for a specific discipline (e.g., planning, economics, environmental resources).
Planning	The Planning reviewer should be a senior water resources planner with experience in flood risk management, familiarity with the “Planning Guidance Notebook” (ER-1105-100), the Water Resources Council’s Principals and Guidelines, and SMART Planning guidance.
Hydrology & Hydraulic Engineering (H&H)	The hydrology and hydraulics reviewer will be CERCAP certified and should be a senior engineer with experience using HEC-HMS and HEC-RAS. They should have an understanding of open channel one-dimensional and two-dimensional unsteady flow hydraulic models and have a knowledge of the application of flood walls, channel widening/benching, hydraulic restriction removals (such as bridge removals/replacements and culvert replacements), and non-structural solutions involving flood risk management. This reviewer should be capable of determining system nonstationarity and assessing system climate change vulnerability, adaptability, and resilience. The reviewer should have experience with fluvial geomorphic processes, dynamic incised river systems, and sediment transport processes.
Economics	The Economics reviewer should be a senior economist with experience in flood damage analysis, preferably in using HEC-FDA or other fluvial models; recreation analysis; use of RECONS model to address regional economic development associated with a project; discussion of other social effects (OSE) associated with flood risk, as well as OSE benefits from reduction in flood risk; economic justification of projects in accordance with current USACE policy for flood damages.
Environmental Resources	The Environmental Resources reviewer should have experience in the integration of environmental evaluation and compliance requirements pursuant to the “Procedures for Implementing the National Environmental Policy Act (NEPA)” (ER 200-2-2), national environmental statutes, applicable executive orders, and other Federal planning requirements into the planning of Civil Works projects. Experience with ESA, fishery resources, mitigation, and riparian habitat is required.

Cultural Resources	The Cultural Resources reviewer should be an archaeologist or historic preservation expert familiar with conducting literature and records searches, cultural resources inventories and fieldwork methodology, Section 106 of the National Historic Preservation Act, and State and Federal laws/executive orders pertaining to California Native Americans and Indian Tribes.
Climate Preparedness and Resilience	A member of the Climate Preparedness and Resilience CoP will participate on the ATR team.
Geotechnical Engineering	The reviewer should be a geotechnical engineer familiar with sampling and laboratory testing, embankment stability and seepage analyses, planning analysis, sea walls, fragility curves, and a number of other closely associated technical subjects. It is recommended that this reviewer have experience with seismic considerations.
Civil Engineering	The reviewer should have recent experience in the design of plans for various flood risk management features including structural, non structural, and nature-based. The reviewer should be well versed in the life safety risks associated with flood risk management projects.
Cost Engineering	The reviewer should be a cost estimating specialist competent in cost estimating for construction using MCACES/MII; working knowledge of construction; capable of making professional determinations based on experience.
Real Estate	The real estate specialist should be familiar with real estate valuation, gross appraisal, utility relocations, takings, and partial takings as needed for implementation of Civil Works projects.
Risk Analysis	The risk analysis reviewer will be experienced with performing and presenting risk analyses in accordance with ER 1105-2-101 and other related guidance, including familiarity with how information from the various disciplines involved in the analysis interact and affect the results. The reviewer should also be familiar with failure tree statistical analysis and flood risk transfer.

Documentation of ATR. ProjNet/DrChecks will be used to document all ATR comments, responses, and resolutions. Comments should be limited to those needed to ensure product adequacy. If a concern cannot be resolved by the ATR team and PDT, it will be elevated to the vertical team for resolution using the ER 1165-2-217 issue resolution process. Concerns can be closed in ProjNet/DrChecks by noting the concern has been elevated for resolution. The ATR Lead will prepare a Statement of Technical Review, for the draft and final reports, certifying that review issues have been resolved or elevated. ATR may be certified when all concerns are resolved or referred to the vertical team and the ATR documentation is complete.

4.3 INDEPENDENT EXTERNAL PEER REVIEW

Decision on IEPR. IEPR is managed outside of the USACE and conducted on studies. IEPR panels assess the adequacy and acceptability of the economic and environmental assumptions and projections, project evaluation data, economic analysis, environmental analyses, engineering analyses, formulation of alternative plans, methods for integrating

risk and uncertainty, models used in the evaluation of environmental impacts of proposed projects, and biological opinions of the project study.

IEPR will not be performed on this study. In accordance with ER 1165-2-217, the project does not meet the conditions of the 3 mandatory triggers and does not warrant a discretionary requirement. Our risk-informed assessment:

Assessment of the 3 Mandatory Triggers:

- The estimated total cost of the project, including mitigation costs, is less than \$200 million. Our likely TSP is much less expensive than the previously authorized Bypass Plan. Total construction costs of the likely TSP, the Combination Plan, are ~\$44 million and total project cost is roughly \$124 million (to include lands, easements, rights of way, relocations, and disposal areas).
- The Governor of California has not requested a peer review by independent experts.
- The Chief of Engineers has not determined the project study is controversial due to significant public dispute over the size, nature, or effects of the project or the economic or environmental costs or benefits of the project. (During a June 2022 site visit, the Chief expressed a sincere desire to expedite the project and offered his support for accelerated delivery).

Assessment of Discretionary Decision:

- No head of a federal or state agency charged with reviewing the project study has determined that the project is likely to have a significant adverse impact on environmental, cultural, or other resources under the jurisdiction of the agency after implementation of proposed mitigation plans.

Risk-Informed Decision:

- The likely TSP does not include measures that are likely to generate controversy.
- The PDT held a public scoping meeting which was advertised locally, using stakeholder outreach lists developed over decades and used during the construction of Reaches 6, 10b and 12 for regular community outreach, etc. Participation was low and no controversial issues or concerns were raised.
- The sponsor concurs that there is low likelihood for controversy. Based on past and current coordination, we are expecting the public to be most interested in homelessness/public safety from unhoused people of the area which is outside of the jurisdiction of the Corps,

and a local responsibility. USACE is coordinating with applicable agencies on an integrated approach, especially as they pertain to life safety non-structural recommendations for the unhoused people at risk in the study area.

- The PDT has also conducted early coordination with the resource agencies and tribes. FWS has raised some concerns about the type of model used for ecological modeling, but this is more to inform mitigation than plan selection, and the PDT is coordinating with USFWS to address their concerns and set up a timeline for what USFWS can expect and when. We do not expect this coordination to rise to the level of controversial. Furthermore, USFWS coordination on this project is through FWCAR and we will not need permits from USFWS to implement the project. They can recommend mitigation and USACE can accept or reject their recommendations. Therefore, the risk to project implementation is low. NOAA NMFS on the other hand is the regulatory body for threatened steelhead and we do need to coordinate with them to get our permits. They have been supportive of the approach taken by the PDT and have not raised any concerns, but rather praised our process-based approach.

4.4 MODEL CERTIFICATION OR APPROVAL

EC 1105-2-412 mandates the use of certified or approved models for all planning activities to ensure the models are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions. Planning models are any models and analytical tools used to define water resources management problems and opportunities, to formulate potential alternatives to address the problems and take advantage of the opportunities, to evaluate potential effects of alternatives and to support decision-making. The use of a certified/approved planning model does not constitute technical review of a planning product. The selection and application of the model and the input and output data are the responsibility of the users and are subject to DQC and ATR.

Table 5 lists the proposed planning models for the study.

Table 5: Planning Models

MODEL NAME AND VERSION	MODEL DESCRIPTION AND HOW IT WILL BE USED IN THE STUDY	CERT/APPROVAL
HEC-FDA ver. 1.4.3	Flood Damage Reduction Analysis (HEC-FDA) software developed by the U.S. Army Corps of Engineers' (USACE) Hydrologic Engineering Center (CEIWR-HEC) provides the capability to perform an integrated hydrologic engineering and economic analysis during the formulation and evaluation of flood risk management plans.	Ver. 1.4.3 certified September 2021
RECONS	Regional Economic System (RECONS) is a USACE-certified regional economic modeling tool. It is designed to provide estimates of regional economic impacts and contributions associated with Corps projects, programs, and infrastructure. Regional economic impacts and contributions are measured as economic output, jobs, income, and value added.	Model was recertified in September 2019.
HEC-LifeSim 2.0	HEC-LifeSim is a USACE certified software designed to help study teams better understand the consequences of a flood event. HEC-LifeSim is a spatially distributed, dynamic simulation system for estimating potential life loss and economic damages from flood hazards. HEC-LifeSim will be used to evaluate the life safety risk to the study without project and determine incremental risk for structural components of selected plan.	Ver. 2.0 Certified 2021
General Salmon Model	The General salmon model is an excel-based spreadsheet model used to evaluate EQ benefits of alternatives. During 2 meetings with the EcoPCX, the project team received guidance on how to run the general spreadsheet model with data derived from NFS and publicly available sources. This is a general model used for evaluating/ large differences in projected habitat value. This is calibrated for Pacific Northwest	USACE approved model
CDFW Instream Flow Model	CDFW's Instream Flow Model used 1 or 2D hydraulic model outputs to evaluate depth and velocity criteria for instream Salmonid habitat. Project team, in coordination with the EcoPCX is exploring use of an instream flow model to evaluate the differences in depth and velocities by alternative with regards to in stream habitat provided. This is calibrated for Norther and Central California streams. Environmental staff are working with H&H models to directly use outputs from hydraulic modeling. EcoPCX is supportive of PDT using this model and seeking a single use waiver if appropriate	ECO-PCX approved single use waiver

Table 6 lists the proposed Engineering models to be used for the study.

Table 6: Engineering Models

MODEL NAME AND VERSION	MODEL DESCRIPTION AND HOW IT WILL BE USED IN THE STUDY	CERT/APPROVAL
HEC- RAS ver. 6	The HEC's River Analysis System (RAS) is a hydraulic model that will be used to evaluate the water surface elevation and velocity of water within the river and floodplain for the feasibility study area. This information will be used to assess potential future damages and likely benefits of the final array of alternatives in order to compare and select an alternative.	USACE H&H CoP preferred model
HEC-HMS	A HEC-HMS (hydrologic) model was previously developed outside of the GRR to determine rainfall-runoff for the basin. At the time, the HEC-HMS model use underwent DQC and ATR. Outputs from this hydrologic model are being used as inputs into the HEC-RAS (hydraulic) model that is being used to analyze water surface elevations and depths of flow for existing conditions and proposed alternatives. Therefore, HEC-HMS has been added to the list of models used for the study (PDT leveraged existing information). Since the HEC-HMS model already received a DQC and ATR certificate (in November 2009), current review of this model should focus on how the modeling results were applied in the General Reevaluation, and not on the modeling itself.	
ArcGIS Online ArcMap v 10.8 ArcPro v 2.7	ArcGIS is composed of a suite of relational database management programs that allow the user to create, interpret and display the results from a multitude of geospatial processes and analysis. ArcGIS may be used to map and overlay layers such as property rights, land-use, hydraulic geospatial analysis results, among others to identify hot spots, opportunities, or support economic impact assessments.	USACE Geospatial Community of Practice (CoP) preferred geographic information system (GIS) program
Autodesk AutoCAD Civil 3D version 2020	Will be used to support analysis of array of alternatives effectiveness. Civil design team will work with ATR/vertical team to agree on an approved model/approach.	TBD—working with vertical team. Standard of practice.

The PDT has proposed an iterative approach to the sediment analysis to increase in detail as we proceed. Namely, we have utilized existing information developed by McBain and Trush to incorporate some grade control, namely gravel augmentation, but plan to run a sediment transport model (possibly in HEC-RAS) in PED to better refine where and when and what grain size to use for the gravel augmentation. Post TSP, pre-ADM, the team will look more closely at the extent of gravel augmentation needed. Since this is time consuming, this detailed analysis will be performed on the TSP only. There will be further opportunity to refine as part of Value Engineering.

EC 1105-2-412 does not cover engineering models used in planning. The responsible use of well-known and proven USACE developed and commercial engineering software will continue. The professional practice of documenting the application of the software and modeling results will be followed. The USACE Scientific and Engineering Technology Initiative has identified many engineering models as preferred or acceptable for use in studies. These models should be used when appropriate. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC and ATR.

4.5 POLICY AND LEGAL REVIEW

Policy and legal compliance reviews for draft and final planning decision documents are delegated to the MSC at this time (see Director's Policy Memorandum 2018-05, paragraph 9).

4.5.1 Policy Review

The policy review team is identified through the collaboration of the MSC Chief of Planning and Policy and the HQUSACE Chief of the Office of Water Project Review. The team is identified in Attachment 1 of this Review Plan. The makeup of the Policy Review team will be drawn from Headquarters (HQUSACE), the MSC, the Planning Centers of Expertise, and other review resources as needed.

- The Policy Review Team will be invited to participate in key meetings during the development of decision documents as well as SMART Planning Milestone meetings. These engagements may include In-Progress Reviews, Issue Resolution Conferences or other vertical team meetings plus the milestone events.
- The input from the Policy Review team should be documented in a Memorandum for the Record (MFR) produced for each engagement with the team. The MFR should be distributed to all meeting participants.
- In addition, teams may choose to capture some of the policy review input in a risk register, if appropriate. These items should be highlighted at future meetings until the issues are resolved. Any key decisions on how to address risk or other considerations should be documented in an MFR.

4.5.2 Legal Review

Representatives from the Office of Counsel will be assigned to participate in reviews. Members may participate from the District, MSC, and HQUSACE. The MSC Chief of Planning and Policy will coordinate membership and participation with the office chiefs.

- In some cases, legal review input may be captured in the MFR for the particular meeting or milestone. In other cases, a separate legal memorandum may be used to document the input from the Office of Counsel.
- Each participating Office of Counsel will determine how to document legal review input.

4.6 PUBLIC REVIEW

This section describes how and when there will be opportunities for the public to review and comment on the decision document (the Draft Integrated Report, and when significant and relevant public comments will be provided to the reviewers before they conduct their review.

The public scoping period for the study occurred in July 2021. A virtual public scoping meeting was held on 14 July 2021. Comments and recommendations from the public were sought in writing and input received during the scoping meeting is being considered as part of plan formulation and selection of the tentatively selected plan. No significant comments were received.

The Draft Integrated Report will be released to provide the public an opportunity to comment on the draft environmental analysis and tentatively selected plan. Currently, public review is tentatively scheduled to occur beginning 1 March 2022. Following the public review period, the PDT will review and respond to the public comments, and incorporate any changes, as appropriate, for incorporation into the Final Integrated Report.

5 OPTIONAL – FUTURE REVIEWS
