Small Communities Flood Risk Reduction Program
Knights Landing Flood Risk Reduction Feasibility Study: Draft Report
DWR Review Comments - June 12, 2019

No.	REFERENCE: Draft REPORT /DOCUMENT	COMMENT	DWR REVIEWER
		General Comments	
1	Draft Report: Executive Summary	Suggest review/revising presentation of Executive Summary (ES) to improve clarity and flow of information for Executive level briefing. Consider structure/order of ES content to include: (1) brief background, objectives/goals of the study (paragraph 1 as shown ok); (2) study area (refer to map?); note, DWR grant was limited to the Knights Landing (KL) community boundaries- brief notes as why the KL basin need to be considered is helpful (also add to the main report); (3) work performed under this study (i.e. main Tasks/scope of work agreed upon in DWR Agreement, Exhibit A); (4) Study findings and outcome, including main challenges; (5) Recommendations made; (6) future efforts/work needed/brief summary of implementation requirements, associated challenges (funding constraints?).	PZ/NM
2	Draft Report: Executive Summary	Addition/ clarifications to be made in ES: (a) ES notes historical flood hazard, FEMA rating for the study area. Suggest including a statement to summarize flood hazard modeling results, to emphasize the potential flood hazard/risk in the study area; (b) Suggest including in ES a summary of climate change and sea level rise analysis (from CVFPP 2017 Update or elsewhere), as well as recommendations for future studies in view of the scope and limitation of the completed study; (c) Clarify/identify the recommended/preferred alternative(s) by its assigned number per the report (ALt 12); (d) Include cost break-down for preferred alternative: (i)levee improvements, and (ii) the new cross levee; (e) Is phasing approach an be considered and order/priority of phase implementing;	MG/PZ/NM
3	Draft Report: Executive Summary	Add map/ make reference to a map/figure to depict the KL community area & the basin.	PZ/NM
4	Draft Report: Executive Summary	Suggest listing the (main) "stakeholders" , especially those that may have impacted the project team's decisions on alternatives selection: include in the ES and the main report (Section 1).	PZ/NM
5	Draft Report: Executive Summary	Non-structural measures currently under implementation: include in the ES funding sources for this describe how is it funding who is funding, how many residents/properties will receive flood risk reduction through these measures.	PZ/NM
6	Draft report: Section 4.5.1	Is the Sacramento District USACE Geotechnical Levee Practice 2008 the most recent version of the guidance?	PZ/NM

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7	Chapter 6: Multi-Benefit Alternatives	It would be helpful to see the maps for the multi-benefit alternatives	PZ/NM
8	Technical Memorandum (TM)	Check TMs to ensure the "subject"/titles mach the reference in the Draft Report (e.g. Appendix F: Knights Landing Assessment TM is called Financial Feasibility TM).	PZ/NM
9	Draft Report: Section 1.4.9	It would be helpful to see the map of the projects completed in 2014 and the work remaining to do	PZ/NM
10	Draft Report	Acronyms-/Abbreviations: some acronyms are not defined when first used in the report and/or not listed in Acronyms/Abbreviation list.	PZ/NM
11	All	Review formatting, spelling, grammar, consistency in the word choice (like "alternatives" vs "actions", "multiple-objective" vs "multiple-benefit") and font. Use Arial font, size 12	PZ/NM
		Planning	
12	Non-Structural Alternatives: Chapter 5	The nonstructural actions are not evaluated on an equal footing with structural actions. The report acknowledges that nonstructural actions are more than 40% cheaper than the preferred structural alternative. Nonstructural alternatives and structural alternatives should be directly compared with each other.	ET
13	Structural Alternatives: Chapter 4	Could Alternative 1 be revised to reduce the cross levee length (i.e. no embankment around the wastewater treatment plant), thus making it cheaper than Alternative 3? It would seem like there should be an alternative that does not protect the wastewater treatment plant.	ET
14	Structural Alternatives: Chapter 4	It seems strange that Alternative 12 is only slightly more expensive than Alternative 3, when Alternative 12 has much more seepage remediation to protect rural areas.	ET
15	Structural/Non-Structural Alternatives: Chapters 4 & 5	There may be a conflict between alternatives that have low stakeholder acceptability (Alternatives 1, 3, and nonstructural alternatives) and those representing the most efficient and effective investments for the State. Stating that local agencies “don’t like an alternative more than another alternative” is not a sufficient reason to screen out that alternative. However, this logic is applied in many instances when screening alternatives in the report.	ET
16	Alternatives Analysis: Remediation	Need a stronger justification for why implementing seepage remediation in rural areas is justified beyond “local stakeholder acceptability”.	ET

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17	Multi-Benefit Features: Integration	Instead of formulating separate, isolated multi-benefit features that could be added to any structural alternative; explore opportunities to integrate multi-benefit features more directly with flood management improvements, where feasible.	ET
18	Ecosystem Restoration	Benefits of ecosystem restoration features should be quantified using appropriate metrics.	ET
19	Ecosystem/Multi-Benefit Actions	The most efficient ecosystem restoration and multi-benefit actions should be included within one preferred alternative	ET
		H&H	
20	Appendix A - TM: H&H	"Flood risk" term used in the TM (with reference to the analysis presented in the TM) does not follow the standard usage in practice.	MG
21	TM: H&H -Figure 7	Are the profiles correct? If yes, need to explain why the 1957- profile is higher than the 1997-95% profile.	MG
22	TM: H&H -Table 1	The caption (Number of Piers and Dimension in Feet) does not look appropriate. Also, please rephrase the caption " Average Depth Against Proposed Cross Levee" for better clarity.	MG
23	Study Report/ TM: H&H	The main report (page 28) reports a simulated breach analysis that indicated flooding in the entire basin including the entire community of Knights Landing. It would be good to include that analysis in the H&H TM.	MG
24	Study Report/ TM: H&H	The main report (page 102) cites the H&H analysis to suggest 3-12 ft raising required for the structures in the study area. No analysis or discussion was made in the TM in this regard.	MG
25	Study Report/ TM: H&H	Suggest including the terrain of the study area (Figure 2 Main Report) in the H&H TM, too. Also, an analysis/discussion on average depth of inundation in the Knights Landing settlement area in the absence of cross levee (with breaches considered at the specified locations considered in the TM) would help demonstrate efficacy of the cross-levee.	MG
26	Study Report/ TM: H&H	For completeness, please cite the report for the statement that suggests SLR does not extend far enough up the Sacramento River System to affect the Knights Landing Basin.	MG
27	Study Report/ TM: H&H	The TM does not make any reference to the recommended Option 12 (which apparently has similar cross levee option as Alternative 3) in the main report.	MG

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28	Study Report/ TM: H&H	It would be good to have following additional information on modeling details such as roughness values used for 2-D domain, source of terrain data, computational options and parameters used for the models, approach to model bridge or other structures (if any) in the 2-d areas, break lines etc.	MG
29	H&H TM	Inlcude additional information (indicated in DWR Agreement Exhibit A/Scope of Work) such as the results of the potential flood depths, overbank flood flows and the time it takes to inundation evacuation routes and critical facilities with floodwater by one-foot as well as maximum flood depths.	MG
		Environmental	
30	Multi-Benefit Planning & Integration for Project Alternatives	The report identifies the multi-benefit alternatives that could be considered as a component to their overall project. However, DWR Would like to see the preferred multi-benefit components included with the preferred flood improvement alternative as one project. Each of the ecosystem related alternatives presented appear to have potential; however it is difficult to estimate the CVFPP-Conservation Strategy benefits based on high level information. Suggest conducting a meeting with DWR team to discuss further the multi-benefit alternatives, best multi-benefit alternative selection and identify ways that the DWR could support and help with planning this aspect of the project in any way possible.	JB
31	Draft Report: Chapter 4	Clarify if the 4,830 feet of stability improvements and waterside rock slope protection for erosion repair from levee mile 4.9 to 5.8 is an improvement of existing armored levee or if this would be 4,830 feet of new rock on natural bank.	JB
		Economical	
32	Trade-off Analysis and Alternatives Selections	Scope of Work (in DWR Funding Agreement, Exhibit A, Task 7) requires conducting trade-off analyses prior to selecting preferred alternative, stating a "Trade -off Analysis TM" as one of the deliverables: In response to DWR's inquiry regarding trade-off analysis TM , County responded " the comparison and evaluation is in section 7" of the report, there is no attachment". However, Section 7 of the report focuses on implementation. Per DWR Agreement, Exhibit A, objectives of the Task 7 trade-off analysis were described: a. “The tradeoff analysis will be built on evaluation of flood risk reduction in terms of improvements in annual frequency of flooding for consideration of public safety and economic benefits for both structural and non-structural alternatives.” b. “The Project will include incremental assessments to ensure any structural alternative is robust and optimal; considering the public safety, environmental stewardship, and the economics benefits of implementation of the preferred alternative.”	SC

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33	Trade-off Analysis and Alternatives Selections	Trade-off analyses are described in the Guidelines for Development of a State-Led Feasibility Study (December 2014; pgs 19-21): The [trade-off] analysis sequence described above is iterative in nature. The first pass through the analysis should have as its goal the elucidation of the potential range of benefits, a solid understanding of the tradeoffs between major benefit categories, and a rough approximation of costs for those factors that can be monetized. In subsequent passes the planning team would employ incremental analyses to optimize key tradeoffs. More detailed and thorough calculations of costs and benefits would ensue at the system level for the preferred alternative. Deciding among management actions in order to formulate a preferred configuration will require that the resulting output or service (benefits) provided by those actions be measured against the Public Safety, Economic Stability and Environmental Stewardship goals, and that the benefits be consistently compared among differing configurations.	SC
34	Trade-off Analysis and Alternatives Selections	Sections 3 (Plan Formulation) and 4 (Structural Alternatives) qualitatively describe the various structural alternatives' performances relative to the preliminary and final screening criteria. For example, Table 2 summarizes the preliminary screening of structural alternatives using these criteria: flood risk reduction, agricultural sustainability, and costs. Of the 13 preliminary alternatives, 7 are screened out from further consideration. Table 11 summarizes the final screening of the remaining 6 structural alternatives using these criteria: flood protection, capital costs, and stakeholder acceptability. These tables should satisfy the "first pass" through a trade-off analysis as described above, but it's not clear that the "subsequent passes" using "incremental analyses" and "more detailed and thorough calculations of costs and benefits" to "optimize key tradeoffs" has been done. Certainly the Trade-Off Analysis TM was not provided.	SC
35	Draft Report: Chapter 4	Regarding the preliminary screening in Table 2 which was based on a comparison of the 13 structural alternatives with the various metrics described in Section 3, Preliminary Alternative 2 has High Flood Risk Reduction, Low Agricultural Sustainability, and Medium Costs, but it was not carried forth into the final alternatives. However, Preliminary Alternative 3 has the same attributes except Medium to High Costs and it is to be carried forth into the final alternatives. Based on this table it is not clear why Alternative 3 would be preferred to Alternative 2 because it has potentially higher costs. Thus, at a minimum, please provide a summary table showing the scores of all the preliminary structural alternatives compared to the metrics described in Section 3 which presumably would show why Alternative 3 is preferable to Alternative 2.	SC

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36	Draft Report: Analysis	An optional analysis would be to use the 2017 CVFPP HEC-FDA models developed for the Knights Landing community (SAC 13) and the rest of the Knights Landing Basin (SAC 14) to estimate the economic benefits and annual flood frequencies of the final 6 structural alternatives. The Knights Landing basin without-project expected annual damage ($875,000) and expected annual frequency (10-25 years) are noted in the feasibility study (pg 34). Benefits of the final 6 alternatives could be estimated in the SAC 13 and SAC 14 HEC-FDA models by changing the levee failure assumptions in those models. The other inputs (H&H and structure/crop inventories) would remain the same. Such an analysis would provide more detailed estimates of the flood risk reduction benefits of the final 6 alternatives allowing for the differences in the desired level of protection for the community (SAC 13) vs. the agricultural portion of the basin (SAC 14) for current and future (climate change) conditions.	SC
37	Draft Report	Minor edits noted: a) Page 5--last paragraph. Not clear how Knights Landing has invested in "land use" to reduce flood risk. b) Page 6--first paragraph. "the availability of marketable" needs clarification. c) Page 15—second paragraph. Change "The county's plan amended in 2007" to "The county's plan was amended in 2007" d) Page 15—fourth paragraph. Change "twelve recommendation" to "twelve recommendations". e) Page 73—last paragraph. Correct "Figure26Figure26" f. Page 97—The Preferred Structural alternative needs a bulleted summary of the cross levee characteristics similar to the levee improvements.	SC