

Selection Panel Review

Proposal Number: 261 DA

California State Reclamation Board

Hamilton City Ecosystem Restoration and Flood Damage Reduction

Recommendation: Continue to Consider as Directed Action –

Recommended Funding: N/A

Conditions, if any, of approval: N/A

Description:

The Hamilton City Ecosystem Restoration and Flood Damage Reduction proposal is a feasibility study for ecosystem restoration and flood damage reduction, including setting back existing levees in the Sacramento Valley's Hamilton City area. It will complete the Hamilton City feasibility study initiated by the Sacramento and San Joaquin River Basin Comprehensive Study. The proposed project could restore approximately 2600 acres of riparian and floodplain habitat while also reducing flood damages. The feasibility study will identify a locally-preferred plan, select a recommended plan based upon the most accurate technical and scientific data, and implement a process that demonstrates the integrated and cooperative efforts between CALFED and the Comprehensive Study.

Selection Panel Review:

The proposal addresses several ERP goals. Its basic concept is good (e.g., to continue the planning and alternative selection process for a project that will modify levees to enhance floodplain habitat while protecting property and safety). The effort also brings together state and federal agencies in an important project that has strong local support. Because the project is important in concept, it should be helped to come to completion, if at all possible.

The proposal does not, however, fully use an adaptive management approach to develop the project, as called for in the ERP strategic plan and the PSP's guidelines. To do this, the proposal should include a conceptual model that explains how setting levees back will help achieve the ERP's habitat goals and the local community's flood damage reduction objectives. Project selection criteria that evaluate how well alternative levee modifications achieve these goals and objectives should then be used in selecting a preferred project. The text mentions use of monetary and non-monetary cost/benefit techniques for evaluation of levee modification alternatives. Estimating non-monetary cost/benefits is a helpful way to use the conceptual model.

The rewritten proposal should also have a better explanation of the review process, including peer review as outlined in the Sacramento and San Joaquin River Basin Comp Study *Draft Interim Report*.

4. Finally, because this feasibility study is partly complete, the proposal also needs to better explain the present stage of the planning process relative to the request for additional funds. For example, the budget has several tasks that may be partly or fully complete, but that require substantial funding, especially if the costs shown in the state-supported budget are only half the costs (considering an equal Army Corps of Engineers match). Other budgetary questions that need to be addressed include: (a) Considering that alternative plans have been presented in the proposal, why is there a need for \$130,000 (2 x \$65,000) to develop levee modification alternatives? (b) If alternative plans have already been developed, why is there a need to develop problems and opportunities or to conduct an inventory? These tasks should have preceded the development of the alternatives.

External Scientific Review Form
CALFED Ecosystem Restoration Program 2002 Directed Actions

Proposal No: ERP- #261DA

Proposal Title: Hamilton City Ecosystem Restoration and Flood Damage Reduction.

Review:

1. **Goals, Justification, Timeliness.** Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified? Is the concept timely and important?

The goal is to complete a feasibility study for 1) ecosystem restoration and 2) flood damage reduction in the Hamilton City area. Specifically the plan to identify problems, provide a detailed evaluation of alternatives to meet this objective then develop a restoration plan that will not only help with flood control but will benefit ERP priorities for riparian and floodplain habitats. It will likely involve various ways in which to realign an existing levee. Apparently the feasibility study is 30% complete but they need additional funds. It was not totally clear how much data and in what form are already available –i.e. what the ‘30%’ has accomplished.

What they proposed to do is certainly justified and given the flood frequency and the other tracks of nearby land being restored, the project is also very timely. The broader goal of contributing to creation of a continuous riparian corridor along the Sacramento is ambitious but worth working toward.

2. **Approach, Methods, Feasibility.** Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers? Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives?

This is certainly the weakest part of the proposal. Most of the proposal is justification of the project and very broad statements about what they will do. As a reviewer, I found myself on almost every page asking what specific technique, model, assessment approach, etc. would be used. They actually waste a fair amount of space either stating the obvious or duplicating ERP objectives to show that their work is applicable. Here are examples of some of the issues I needed to know far more about *in order to evaluate the technical feasibility & scientific soundness* of the proposed work:

- a) they will ‘assess the habitat restoration alternatives’
 - what do they mean by habitat restoration? we are never given specific goals/desirable endpoints?
 - How will they compare alternatives?

- If there are preliminary engineering design alternatives, we should see these or get a description.
- b) they will ‘determine the environmental effects of alternatives’
- what metrics will they use to measure env effects? What specifically are their environmental goals, e.g., a 10, 15, 25% increase in wetland plant biomass? A quantitative increase in fish spawning?
 - if they do have metrics, how will they measure success? i.e., what comparisons and statistical analyses will be used?
 - they mention an Ecosystems Function Model (EFM) ...what is this? What functions does it model and is it process based? Or is it a statistical ‘model’? Has it been evaluated by the external community (peer reviewed?)...if so, this needs to be cited. If not, the model should be presented in sufficient detail for reviewers to evaluate.
- c) they will ‘conduct hydraulic analysis for habitat restoration and flood damage reduction’
 3-this actually tells us very little. What type of analysis will be used? Figure 3 suggests they will use HEC-5 and other ‘tools’ but I have no clue how they will use them nor what some of them are. I work with a team that uses HEC-HMS and other event based modeling tools and variations on HSPF for continuous flow modeling but am not aware of a good off the shelf model for sediment transport, bank failure work. In short, I can’t say much about the feasibility of their technical approach because it is so vaguely outlined. This is the ‘trust me’ part of the proposal.
- d) they will ‘forecast critical resources’ (physical, demographic, economic, social, etc.)- HOW? Do they have econometric hazard type models? What are their demographic projection tools (census based?)? What types of physical forecasts will be made and how? What are social forecasts?

The indicate they will have a team of experts (e.g, technical experts at TNC) and an outside team that is not part of the project to review their methods, etc. but we are told little about who the experts are nor when this would occur.

3. **Novelty, Likelihood of contributing to knowledge base, Utility to Decision makers.**
Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

What is attractive about this is that the authors are attempting to meet stakeholder needs (flood mitigation) AND restoration needs. Multi-objective restoration is not easy and yet is probably the reality in most areas of the U.S. If they are able to successfully reduce flood damage and successfully restore a significant amount of floodplain plants and biota, this project could serve as an excellent demonstration project. It is not clear however if this is novel or will contribute to a broad knowledge base (or be transferable to other areas) because of the lack of detail provided on what they will actually do (what technical tools will be used and how).

5.4.Performance Measures. **Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans explicit and detailed enough to determine if performance measures will be adequately assessed?**

This section in their proposal amounted to nothing. They define completeness and effectiveness as ‘doing the project’ but do not truly address how they will determine if there are ecological benefits. For that matter they don’t really address measuring the performance of the flood mitigation aspect but it is easier to imagine how they might do this.

5. **Capabilities on authors, Infrastructure support. What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?**

I cannot evaluate this. Presumably they have a strong team as suggested by the long list but the lack of specifics on methods and assessment make me wonder if the project involves so many that it is being diluted scientifically.

Recommendation

Rating = GOOD

I would rate this a good but no higher due to the problems outlined above. This project does seem important and timely however before it is funded (if at all), I would require an addendum that specifically outlines 1) what the measurable targets/desired endpoints are – this should include specific ecological targets as well as flood control targets; 2) the *specific* metrics used to assess these ; 3) the tools used to gather data on the metrics for each alternative; 4) the methods (statistical or otherwise) used to compare the data obtained; 5) how the final decision will be made (presumably this will be stakeholder driven?);.

External Scientific Review Form
CALFED Ecosystem Restoration Program 2002 Directed Actions

Proposal No: ERP- #261DA

Proposal Title: Hamilton City Ecosystem Restoration and Flood Damage Reduction.

Review:

1. **Goals. Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the concept timely and important?**

The goals, objectives, and hypothesis are clearly stated and consistent with each other. However, the document is not entirely internally consistent in showing how those goals and objectives will be achieved (Selected examples: 1) one goal on p. 2 is identified as implementation of a successful multiobjective project, yet this proposal does not address implementation according to the Land Use Checklist and the project tasks identified on pages 11 and 12; 2) p.2 cites environmental compliance documentation as part of what work remains to be done, and preparation of an EIR/EIS is included under Task 6 on page 11, yet this is not identified as a project goal or objective in the list on p. 2, nor is it included as an expected product on p. 10, nor is a date provided for it on the Environmental Compliance checklist.)

Also, the hypothesis is identified as a process that will produce a planning study to meet certain criteria; however, this hypothesis cannot be fully tested until the implementation phase of the project. Both the goals and objectives and hypothesis statement of this proposal may suffer in part from a common problem of proposals to support phases of a given project: confusion between what goals, objectives, and hypotheses apply to a given phase of the project, and which apply to the project as a whole, from planning through implementation, monitoring, and adaptive management.

Nonetheless, there is no doubt that the concept embodied by this proposal is timely and important.

2. **Justification. Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?**

The study is justified relative to existing knowledge. The conceptual model outlined is for a planning process that has been previously developed and applied by the USACE and is clearly stated and used to provide the basis of the proposed work. However, the entire effort to frame a planning study as a conceptual model of human decision-making seems to me to be a contortion to fit the CALFED mandate to use conceptual models of ecosystem functions in framing projects. For this type of project, it is unnecessary and inappropriate – unless, perhaps, we are

testing different models of how to make these types of planning decisions, which is not the focus of this project.

Using the Draft Stage 1 Implementation Plan description of project type, this project, whether considered only in this phase (planning) or as a whole (through implementation) seems most appropriately considered a demonstration project. There is no research, per se, that is being conducted in this planning phase nor anticipated in the description of the implementation phase, other than seeing whether the effort succeeds in meeting its goals. It is not at all clear to me why the proposal states that CALFED considers this “a research or monitoring project.”

3. Approach. Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

Yes to all. The effort will provide very useful baseline information regarding opportunities and constraints for flood hazard reduction and ecosystem restoration efforts in this subreach of the Sacramento River. Many of the tools that will be developed in this effort (hydrologic and hydraulic models, ecosystem functions model, flood damage assessment model) will be useful to nearby and/or regional efforts, though they appear to be based on the assembly of existing information and not development of new information. The relative success of the process envisioned by this project for a multi-agency effort with a significant public involvement component within an ambitious timeframe will be instructive for similar subsequent efforts, especially within the Sacramento Valley. Lastly, and most importantly, this project offers an opportunity to test new methods to better integrate the ecosystem restoration and flood damage reduction goals of the CALFED ERP and the Comp Study, which will be of tremendous value to decision makers for this project as well as future similar projects if this effort is even partially successful.

The repeated references to the “adaptive” nature of the planning process seem more like an attempt to incorporate presumed necessary buzzwords than a realistic attempt to frame a multi-agency, stakeholder, highly technical planning process that can be accomplished in 15 months. This is not adaptive management in the sense of deliberately testing different approaches/models to determine more effective means to achieving project goals during implementation.

One of the very useful parts of this effort for other restoration projects will be the construction of the ecosystem functions model for the purpose of the relative assessment of environmental benefits. While the data on which this model is based will evolve continually as we learn more about ecosystem processes and relationships between processes, this product will represent an excellent way to encapsulate current knowledge and identify uncertainties in a useful form for similar future restoration projects.

This is a detail, but one aspect of plan assessment that would be particularly important for the selection of the recommended plan is the projection of ecologic conditions that would exist in the future under the No Action Plan, so that the value of the proposed alternatives to affect ecologic conditions is compared to this baseline, rather than the existing conditions. Even though this projection will be uncertain, it will be comparable to the projections for hydrology and land use that will apply in the economic comparison of alternatives. This may be addressed in the NER methodology, with which I am unfamiliar.

4. Feasibility. Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives?

The approach is technically feasible and marginally adequately documented. The likelihood of success seems moderate given the ambitious timeframe and the number of players and issues involved. Nonetheless, even partial success would warrant this level of investment, given the demonstration nature of this very promising opportunity. The scale is consistent with the objectives.

The primary concerns I hold are 1) the failure to identify an institutional structure (e.g., single project manager with agency/task-specific technical managers, each with sufficient authority to make all supervised efforts occur) that could implement this process as outlined, 2) the lack of demonstrated success in prior efforts (why is CALFED being asked to fund “completion” of a study? Where did that work leave off, that the new effort will pick up?) , 3) repeated reference to refinement and reevaluation of project alternatives (“adaptive” part of the planning process) without accommodation for that in the timeframe, and 4) a technically complex effort being addressed by a process involving many, many agency staff, from many different agencies, and many stakeholders is envisioned to fit within only a 15-month timeframe. (I must note, too, that the proposal text and budget indicate a 15-month timeframe, while the Project Information Form cites 3 years as the funding period.)

5. Project-Specific Performance Measures. Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans explicit and detailed enough to determine if performance measures will be adequately assessed?

This is another case where the nature of the project confuses the identification of the requested information. CALFED's instructions suggest that these measures should identify how successful this project is – and if this project is the planning phase, the measure of the planning phase success would typically be oriented towards whether certain activities and products were generated as expected, and

perhaps whether those met certain quality criteria. Instead, the proposal's description of performance measures addresses how the individual plan alternatives will be evaluated. While of interest, this content would more appropriately be included in the Approach, and this section would identify project milestones and perhaps criteria for product acceptability. The former are identified in the Milestone Table on p. 22 (though my pdf copy gave no explanation of the numbers in columns 2 and 3, I presume these are timelines), and the latter is identified in the description of the Final Feasibility report under Expected products on p. 10.

6. **Products. Are products of value likely from the project? Specifically for restoration projects, are products of value also likely from the monitoring component? Are interpretative outcomes likely from the project?**

Yes. See response to Question 3, above.

7. **Capabilities. What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?**

The agency participants and staff identified in the proposal are generally knowledgeable in the arenas addressed by this proposal and capable of performing this type of project. However, I am concerned by several factors: 1) apparent lack of success by the applicants in completing the feasibility study under a prior implementation plan (I presume it was previously planned and funded to completion, and yet is only 30% complete according to the proposal); 2) lack of identification of an overall institutional structure that will bridge the multiple agencies involved, including lack of identification of a single project manager; and 3) the Comp study efforts I am aware of, from large scale to individual projects, have had difficulty meeting their schedules, and the integration of CALFED ERP priorities into the process will make the planning effort potentially even more difficult. These three factors may only lead to the study taking longer than expected, and costing more, but may not limit the ability to generate the desired work products.

8. **Cost/Benefit Comments. Is the budget reasonable and adequate for the work proposed?**

Yes, the budget is reasonable and adequate for the work proposed if the schedule indicated can be achieved.

Miscellaneous comments:

If any large scale floodplain restoration/levee setback for flood hazard reduction project adjacent to a developed area can occur in the Central Valley, this is it. It is reasonable to

support the planning analysis necessary to make this project happen as a joint CALFED – Comp Study effort simply to demonstrate feasibility of the process, and ultimately the feasibility of this type of project.

Please provide an overall evaluation summary rating: Excellent: outstanding in all respects; Good: quality but some deficiencies; Poor: serious deficiencies.

Overall Evaluation Summary Rating	Provide a brief explanation of your summary rating
- Excellent	The project is excellent and entirely appropriate to CALFED ERP objectives. It will result in a plan for an integrated floodplain restoration-flood hazard reduction project for a significant area in an important and besieged ecosystem. It would also be a plan for a project that might not be justified on the basis of either flood hazard reduction or floodplain restoration alone, and thus represents an excellent opportunity to test the process of truly integrating these two objectives in a planning process. And such a analysis and plan is necessary for the ultimate implementation of this project, which will help to achieve ERP goals.
- Good XXXXX	
- Poor	However, the proposal suffers from the multiple agency and staff member authorship that is likely to continue to create confusion as staff enter into the project planning process. Strengthening the institutional framework to conduct this project should be fundamental to its final approval, and will no doubt assist in planning the component elements to the process (including the communication mechanisms within the project team and between the project team and the public), establishing the project schedule, and identifying the parties responsible for each task. The 15-month timeline identified in the proposal may not be achievable given the institutional challenges involved in a complex multi-agency/public effort and technically complex project requiring completion of environmental documentation as well as plan formulation and analysis.