FINAL DRAFT

Small Communities Flood Risk Reduction Program

PROPOSAL SOLICITATION PACKAGE

Phase 1: Feasibility Study

STATE OF CALIFORNIA

DEPARTMENT OF WATER RESOURCES

DIVISION OF FLOOD MANAGEMENT

August 22, 2016

Small Communities Flood Risk Reduction Program

PROPOSAL SOLICITATION PACKAGE (PSP)

The California Department of Water Resources (DWR) invites you to submit a Small Communities Flood Risk Reduction (SCFRR) Program project proposal. Program funding comes from the Disaster Preparedness and Flood Prevention Bond Act of 2006 (Proposition 1E; Pub. Resources Code, § 5096.800 et seq.) as approved by the electorate on November 7, 2006.

PROPOSAL DUE DATE

Friday, October xx, 2016, at 5:00 p.m. Pacific Time
All proposals must be received by this time and date.

PROPOSAL SUBMITTAL

Submit **one** electronic copy and **one** hard copy for each proposal. Submitting a CD-ROM, DVD, or USB flash drive is acceptable, either in MS Word-compatible format or in a searchable PDF format with content copying enabled. Hard copies or hard-copy appendices must be completely legible and suitable for copying.

To submit by mail:

California Department of Water Resources
Division of Flood Management
P. O. Box 942836, Sacramento, CA 94236-0001
Attention: Robert Crane

By hand delivery or overnight carrier:

California Department of Water Resources, Robert Crane
Division of Flood Management
3464 El Camino Avenue, Suite 200
Sacramento, California 95821

By e-mail: SCFRR@water.ca.gov

QUESTIONS? NEED ASSISTANCE? CONTACT:

Nahideh Madankar
SCFRR Program Lead
(916) 574-1459
SCFRR@water.ca.gov

For an electronic copy of this PSP please go to:
www.water.ca.gov/floodmgmt/funding/small-communities.cfm

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1. BACKGROUND

The Small Communities Flood Risk Reduction (SCFRR) Program was created as a result of the adoption of the 2012 Central Valley Flood Protection Plan (CVFPP) (http://www.water.ca.gov/cvfmp/2012cvfpp.cfm). The SCFRR Program objective is to reduce flood risks for small communities protected by the State Plan of Flood Control (SPFC) facilities. Small communities are defined as developed areas with between 200 and 10,000 residents, as described in the CVFPP. Legacy communities will also be considered.[1]

The SCFRR Program supports the continued viability of small communities within the SPFC Planning Area to preserve cultural and historical continuity and important social, economic, and public services to rural-agricultural populations, agricultural enterprises, and commercial operations. Under the SSIA, several small communities within the SPFC Planning Area could achieve the FEMA benchmark (for the National Flood Insurance Program) of 100-year (1% annual chance) flood protection through structural means such as ring levees, training levees, or floodwalls; through reconstructing or making improvements to adjacent SPFC levees; or by implementing nonstructural improvements. This would preserve small community development opportunities within specific boundaries without encouraging broader urban development. DWR will fund small communities and counties to conduct feasibility studies in Phase 1, and to the extent funding allows, design and implement projects with a DWR-approved feasibility study in Phase 2.

The primary goals of the CVFPP are to reduce the chance of flooding and property damage once flooding occurs, and to improve public safety, community preparedness, and emergency response. Supporting goals of the CVFPP are to improve operations and maintenance, promote ecosystem functions, improve institutional support, and promote multi-benefit projects (CVFPP, pp. 1-26 and 1-27).

Under the SCFRR Program, State investments must be consistent with the SSIA in Section 3.0 of the CVFPP. For a project to be consistent with the SSIA, it must incorporate CVFPP principles and contribute to the applicable integrated water management plan objectives, which target public safety, economic stability, and ecosystem vitality.

Projects should be consistent with applicable regional flood management plans and make significant progress towards improving the level of flood protection. Projects should consider:

- Promoting flood risk management actions that will reduce flood risk to people and property protected by the SPFC.
- Land use planning in the floodplains protected by the SPFC that will not increase the State's liability.
- Improving flood protection for small communities while evaluating and considering multi-benefit projects that integrate other resources' needs (water supply, ecosystem, recreation, open space, effective flood emergency response, protection of State facilities, storage, etc.), as much as possible.

[1] Legacy communities are defined as communities that are registered as a historic district by either a state or federal entity.

-Supporting adaptive management of the SPFC for resiliency (i.e., to adapt to changing hydrologic, climate, social, political, regulatory, or ecological conditions). Resiliency includes the capacity to continue to function and recover quickly after damaging floods.

-Supporting a system-wide approach that improves flood management system resiliency and sustainability.

-Improving SPFC operations, maintenance and flood emergency response.

-Promoting ecosystem functions.

-Improving institutional support.

In Phase 1, communities will evaluate structural and non-structural alternatives through feasibility studies. If a feasible alternative is identified, the community may compete for funding for the design and implementation of projects to repair, rehabilitate, reconstruct, replace or expand SPFC facilities to reduce flood risk.

A feasibility study is an evaluation and analysis of the potential of a proposed project, which is based on a sufficient level of investigation, including statement of problem, identification of alternatives, assessment of the alternatives, selection of a preferred alternative, and analyses and research to support the process of decision-making toward the preferred project.

This PSP contains specific information regarding SCFRR Program eligibility and application requirements, proposal submittal and selection process, the anticipated schedule for submittal and review of the proposals, required forms, and the criteria by which proposals will be evaluated. Applicants should review the *SCFRR Program Guidelines* as well as this PSP to ensure that all program requirements are met. The final *SCFRR Program Guidelines* are specifically incorporated into this PSP and are available at: http://www.water.ca.gov/floodmgmt/scfrr/guidelines/.

2. FUNDING AUTHORITY

For Phase 1, DWR is offering approximately $18 million in funding from the Disaster Preparedness and Flood Prevention Bond Act of 2006 (Proposition 1E; Pub. Resources Code, § 5096.800 et seq.). Proposition 1E authorizes funding for DWR to repair, rehabilitate, reconstruct, or replace levees, weirs, bypasses and facilities of the SPFC. It also authorizes funds to implement mitigation measures for a project including participation in a natural community conservation plan, pursuant to Fish and Game Code section 2800 et seq.

Proposition 1E requires that the funds be expended while (1) securing the maximum feasible amounts of federal and local matching funds; (2) ensuring prudent and cost-effective use of the funds to the extent that doing so does not prohibit timely implementation of disaster preparedness and flood prevention projects; (3) prioritizing the selection of projects to achieve maximum public benefits from the use of the funds; and (4) supporting an investment strategy that meets long-term flood protection needs and minimizes flood damage.

Due to Proposition 1E funding limitations, DWR will not be able to fund the implementation of 100-year level of flood protection for every small community within the areas protected by the SPFC, unless and until additional funding becomes available for the program. This PSP is only for the development of feasibility studies for reducing flood risk for small communities.

3. COST-SHARE

For small communities, DWR will fund all reasonable and eligible costs needed to complete a feasibility study, up to a maximum of $500,000 per community. Costs over $500,000 shall be cost-shared at 50 percent between the applicant and DWR.

4. ELIGIBLE APPLICANTS

An applicant must be a local public agency with land use authority for the area where the community protected by the SPFC facilities is located. The applicant may be an incorporated city or a county applying on behalf of an unincorporated community.

5. ELIGIBLE PROJECTS

For this PSP, eligible projects are limited to feasibility studies to investigate and recommend actions to reduce flood risk for small communities and promote multiple benefits consistent with the 2012 CVFPP.

The feasibility studies should be consistent with the *Guidelines for Development of a State-Led Feasibility Study*, and include the following steps:

- Describing project and project area.
- Identifying problems and opportunities.
- Inventorying present conditions and forecasting future conditions.
- Describing sources of potential flooding.
- Formulating alternative plans to meet flood risk and other objectives.
- Evaluating alternatives.
- Looking at trade-offs and selecting a preferred alternative.
- Developing project implementation phasing, if applicable.
- Developing cost estimates for alternatives including the preferred alternative, as well as identifying local funding for project cost-sharing.

The feasibility study should identify and describe structural and non-structural options for reducing flood risk, opportunities for incorporating actions to support multiple benefits, potential complimentary actions, and phasing and prioritizing implementation of those actions. It should also include a financing plan to identify strategies for funding preferred actions.

All flood sources should be identified and considered (excluding internal drainage) in the feasibility study. However, through DWR's Proposition 1E Phase 2 Design and Implementation PSP, DWR will only fund preferred alternatives that reduce SPFC-related flood risk.

6. PROPOSAL REQUIREMENTS

Applicants must submit a separate proposal for each community. For each proposal, submit the following information and documents to DWR:

1. Table of Contents of submitted documentation;
2. An Applicant Information Form (Appendix 1);
3. Amount of funds requested.
4. Project description, including a draft detailed scope of work, with a budget justifying the amount of funds requested in the proposal (Appendix 2);
5. A draft feasibility study schedule
6. An Authorizing Resolution (Appendix 3);
7. Attorney's Certification (Appendix 4); and,
8. A statement of financial capability of the local agency to provide cost-share (if applicable) and pay contractors prior to reimbursement from the State.

During the proposal preparation period, applicants are encouraged to discuss their proposed feasibility study with DWR staff to improve the focus and scope of their proposal.

The applicant will need to adopt a resolution authorizing: the submission of the proposal for funding from DWR; that it will comply with all laws and regulations applicable to the funding source; and, identify the authorized representative of the applicant who may execute the funding agreement and submit all necessary documents. An example of an authorizing resolution is provided in Appendix 3.

The proposal is expected to be about 20 pages in length, including attachments. Proposals must be in 12 point font and should not exceed 30 pages.

7. PROPOSAL RANKING

Proposals will be reviewed for completeness and consistency with the CVFPP, SSIA and Proposition 1E's requirements. Proposals that are consistent with the SSIA and are considered complete will be evaluated using the Ranking Table in Appendix 6 by considering how well the feasibility studies propose to address the criteria. DWR will also consider geographic distribution of projects, population at risk, whether the community will receive protection from other DWR programs or projects, reasonableness of proposed schedule, budgets, and the total amount of funds requested. The proposals that are not consistent with the SSIA or are not complete will not be ranked, will not be awarded funds, and will be returned to the applicant. If the amount of available funds exceeds the total requests for funding, DWR may waive the ranking step.

The highest ranked proposals will be considered for funding. DWR will, at its discretion, issue additional PSP's if proposals accepted under this PSP do not use all available funding or do not merit funding according to the State's investment priorities.

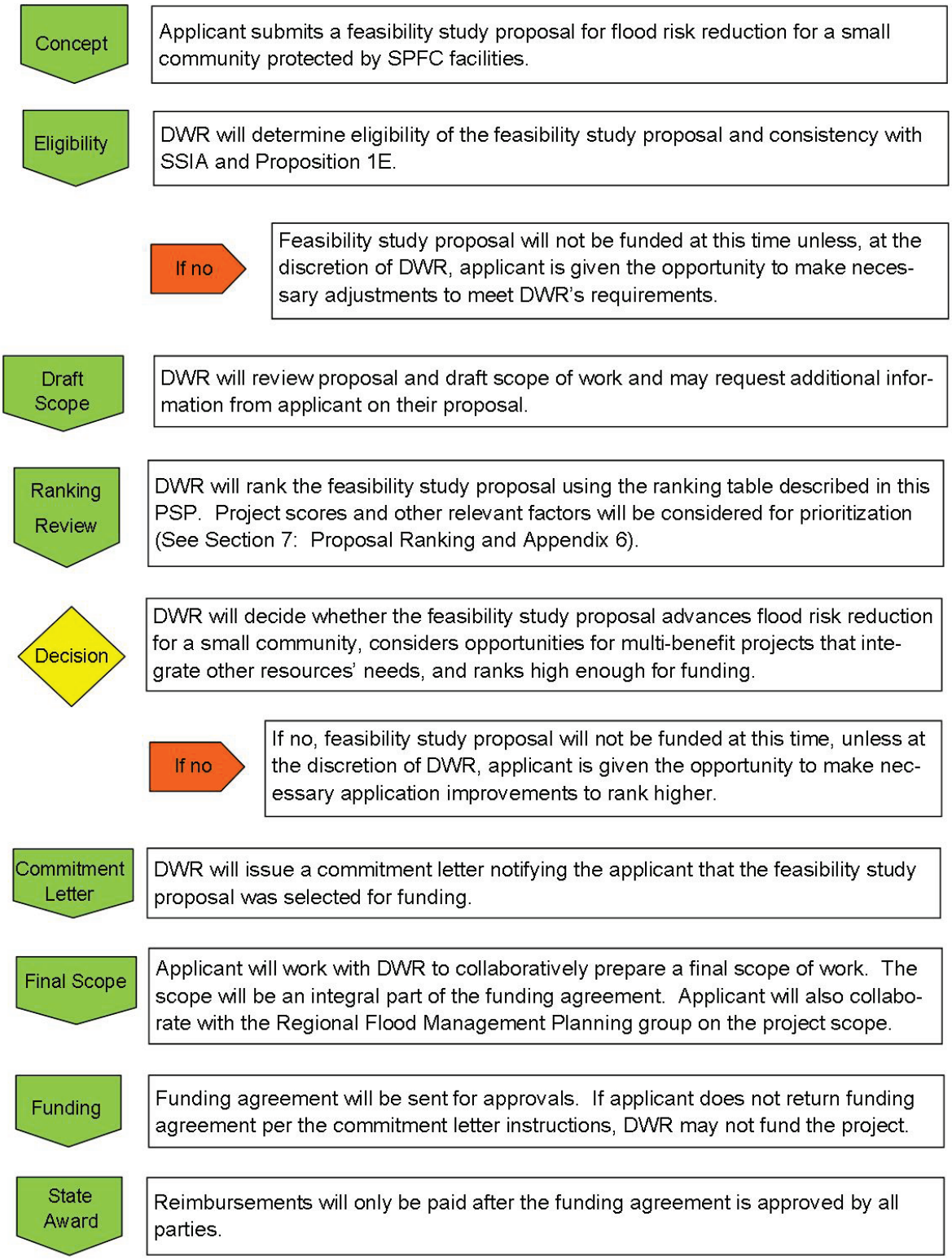
8. PROPOSAL SELECTION AND FUNDING PROCESS

The review and prioritization process for submitted proposals for feasibility studies will consist of the following steps:

- DWR will review the submitted proposals to ensure proposals' consistency with the CVFPP, SSIA and Proposition 1E's requirements, and to verify eligibility. DWR may request additional information from applicants during its proposal review process.
- DWR will prioritize the proposals that are considered complete and consistent with the SSIA based on the ranking criteria in Appendix 6 and other factors listed in Section 7.
- DWR will submit a recommended list of projects and award amounts for the DWR Director's approval. Awarded amounts may be for partial funding, may include in-kind work by DWR, and are contingent on final agreement on scope of work and DWR's in-kind contribution.
- DWR will work with each applicant to collaboratively prepare a final scope of work; budget that will include (if applicable) cost-share and DWR work; and schedule for the feasibility study's completion. In some cases, it may be technically desirable to consolidate proposals for two or more nearby communities into a single scope of work, resulting in a single feasibility study. The final scope of work will represent the State's interest in investing in the small community flood risk reduction feasibility study.
- Once the project scope, budget, and schedule are finalized, the applicant may enter into a funding agreement with DWR. The funding agreement is an agreement between the funding recipient and DWR covering the terms by which the funding recipient shall work to fund, manage, and complete the project. After execution of a funding agreement, the applicant is referred to as the funding recipient.

Figure 1 below represents the proposal and selection process that will be used to evaluate proposals that are submitted for funding consideration.

Figure 1. Proposal Selection Process



9. OTHER REQUIREMENTS

The applicant will need to adopt a resolution authorizing the submission of the proposal for funding from the State; ensuring that it will comply with all laws and regulations applicable to the funding source; and identifying the authorized representative of the applicant who may execute the funding agreement and submit all necessary documents. An example of an authorizing resolution is provided in Attachment 1.

The applicant will coordinate with the regional flood management planning group and other interest groups affected by the proposed project. If funded, the applicant will work closely with DWR and coordinate with local regional flood management groups, reclamation districts, and other interested parties to prepare the feasibility study.

The funding agreement shall include an overall work plan, which describes the work to be performed, a detailed budget and schedule, and reporting requirements. A draft funding agreement template will be available for review with the PSP on the website.

DWR has a database of updated hydrologic, hydraulic, and geotechnical evaluations; environmental data products (e.g. vegetation, sensitive species); and expertise to assist local agencies in formulation and completion of the feasibility study. The implementation of the scope of work may be collaboratively completed by DWR and the local public agency; DWR's assistance can save money and reduce the costs of the feasibility study.

10. ANTICIPATED SCHEDULE

The following is the anticipated schedule for the SCFRR Program proposal submittal and review process:

August xx, 2016	Updated SCFRR Program Guidelines and PSP approved for release and 14 day public review.
September xx, 2016	Final SCFRR Program Guidelines and PSP approved.
October xx, 2016	**Proposals must be received by 5:00 p.m. PST**
February xx, 2017	DWR notifies Local Agencies of results of funding decisions.

11. REQUIREMENTS WHEN SIGNING A FUNDING AGREEMENT WITH THE STATE

11.1 Conflict of Interest and Confidentiality

All participants are subject to State conflict of interest laws. Failure to comply with these laws, including business and financial disclosure provisions, will result in the proposal being rejected and any agreement being declared void. Other legal action may also be taken. Applicable statutes include, but are not limited to, Government Code section 1090 and Public Contract Code sections 10410 and 10411.

As part of the conflict of interest requirements, individuals working on behalf of a grantee may be required by the State to file a Statement of Economic Interests (Fair Political Practices Commission Form 700) if it is determined that an individual is a consultant for Political Reform Act purposes.

Applicants should be aware that when submitting a proposal to the State, they will waive their rights to the confidentiality of the contents of the proposal. Once final awards have been announced by DWR, all proposals are subject to disclosure pursuant to the California Public Records Act. (Gov. Code, § 6250 et seq.)

11.2 Indemnify and Hold Harmless

As part of the funding agreement, applicants shall indemnify and hold harmless the State, its officers, agents, and employees from any and all liability from any claims and damages arising from the planning and feasibility study, and any breach of the funding agreement.

11.3 Labor Code Compliance

Recipients of state funds are required to keep informed about and take all measures necessary to ensure compliance with California Labor Code requirements, including, but not limited to, section 1720 et seq. of the Labor Code regarding public works, limitations on use of volunteer labor (Lab. Code, § 1720.4), labor compliance programs (Lab. Code, § 1771.5), and payment of prevailing wages for projects funded with public funds (i.e., grant funds).

11.4 Compliance with All Applicable Laws and Regulation

Funding recipients will be required to comply with all local, State, and federal laws and regulations including the California Environmental Quality Act (see Appendix 5).

11.5 Work Quality

Each feasibility study will incorporate quality engineering, economic, and environmental analyses, with the goal of ensuring that the feasibility study will result in an actionable project and will provide sound information as a decision document within a reasonable cost and time frame.

11.6 Coordination and Collaboration

The feasibility study for SCFRR will be developed in coordination and collaboration with the local regional flood management planning team and DWR.

Appendix 1: Applicant Information

Provide the following information:

1. Agency Name, Primary Contact, Address, Phone Number, and email address.
2. Information about the authorized representative who may sign a funding agreement on behalf of the applicant; include name, title, phone number, and email address.
3. Small community's name that is under the applicant's jurisdiction.
4. Location of the proposed study area including regional flood management planning area, county, local maintaining agency and reclamation district.
5. Applicant's flood management authority.
6. Applicant's role in regional flood management planning.
7. Is there a regional flood management plan in place? Is the proposed community a priority within the regional plan?

Appendix 2: Project Description

Include, to the extent possible, the following information:

1. Community name, location, and population.
2. Community and Project area map(s). Include existing SPFC and other flood protection structures.
3. Description of the problem to be addressed by the feasibility study.
4. Feasibility study goals and objectives.
5. Description of Opportunities and Constraints (if known).
6. Description of potential alternative solutions to be evaluated and assessed by the feasibility study (if known). Include potential regional elements, if any, and list other nearby communities that might benefit.
7. Detailed description of the feasibility study approach (e.g. draft detailed scope of work).
8. Potential project benefits. Will the applicant consider integrated flood management and integrated multi-benefit features within the proposed project area? Will the applicant consider ecological opportunities to contribute to the goals and objectives of the 2016 Draft Central Valley Flood System Conservation Strategy? Explain.
9. Brief description of known studies or other documents relevant to the problem area.
10. Summary of known or potential project permitting and environmental compliance constraints.
11. Preliminary budget with total study cost, funds requested, and cost share amount (if applicable).
12. Feasibility study schedule.
13. If the project is located outside of the Levee Flood Protection Zone (LFPZ), supporting documents with the analysis to show the community should be included in the LFPZ and protected by the SPFC.

Appendix 3: Local Public Agency Authorizing Resolution

Resolution No. _____

A Resolution by the (Governing Body Name) of the (Agency Name) Authorizing a Proposal for funding from the Department of Water Resources and Designating a Representative to Execute the Agreement and any Amendments thereto, for the (Project Name) Project

WHEREAS, the (agency name) is a California Public Agency with responsibility for flood management and authority over land use in the area protected by the facilities of the State Plan of Flood Control and is willing to participate in, coordinate, and collaborate with other interested parties that are participating in the development of the (agency name) flood management planning activities;

WHEREAS, the (agency name) is authorized to enter into an agreement with the Department of Water Resources and the State of California;

THEREFORE, BE IT RESOLVED by the (Local Governing Body Name) of the (agency name) as follows:

1. That pursuant and subject to all of the terms and conditions of the Disaster Preparedness and Flood Prevention Bond Act of 2006 (Pub. Resources Code, § 5096.800 et seq.), the (agency name) shall submit a proposal to obtain funding for the (project name) Project from the Department of Water Resources.

2. That the (Local Governing Body Name) authorize the (title of authorized representative), or designee, to execute the funding agreement with the Department of Water Resources and any amendments thereto.

3. That the (title of authorized representative), or designee, shall prepare the necessary data, make investigations, and take other such actions as necessary and appropriate to obtain funding for the (project name) Project.

CERTIFICATION
I hereby certify that the foregoing Resolution (#) was duly and regularly adopted by the (Local Governing Body Name) of the (agency name) at the meeting held on (date), motion by (member name) and seconded by (member name), motion passed by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

_____
Chair, (Local Governing Body Name)

Attest:

_____
Name and Title

Appendix 4: Attorney's Certification

(The applicant's attorney shall answer the following questions regarding this proposal and where indicated, shall cite statutory authority or other references.)

- Is the Applicant a political subdivision of the State of California? ( )Yes ( )No
  Citation:_____

- Does the Applicant have legal authority to enter into a funding agreement with the State of California? ( )Yes ( )No
  Citation:_____

- What steps are required by law for the Applicant to contract with the State?

  _____
  _____
  _____

  Citation: _____

- What is the statutory authority under which the Applicant may obtain funds for the purpose, amount, and duration requested?
  Citation:_____

- What is the statutory authority under which the Applicant was formed and is authorized to operate?
  Citation:_____

- Is the Applicant required to hold an election before entering into a funding contract with the State? ( )Yes ( )No
  Citation:_____

- Will a funding agreement between the Applicant and the State be subject to review and approval by other governmental agencies? ( )Yes ( )No
  Identify all such agencies:_____

  _____

  Citation: _____

- Describe any pending litigation that impacts the financial condition of the Applicant or the operation of flood management facilities. If none is pending, so state.

  _____

  _____

- Does the Applicant have legal authority and jurisdiction to implement a flood control program and the authority to make land use decisions at the Project site and in the protected area? ( )Yes ( )No
  Citation:_____

I certify that I am a duly qualified and licensed attorney in California representing the applicant agency and that I have answered the questions on this page and the preceding page to the best of my knowledge.

By_____ Date_____
(Signature of Applicant Agency's Attorney)

_____
(Printed Name of Applicant Agency's Attorney) *(Title) (Bar No.)*

_____
(Name of Applicant Agency)

Appendix 5: DWR Environmental Information

Funding recipients are responsible for complying with all applicable laws and regulations for their projects, including the California Environmental Quality Act (CEQA) and, the National Environmental Protection Act (NEPA), if applicable.

Feasibility studies are statutorily exempt from the requirements of CEQA pursuant to California Code of Regulations, title 14, section 15262. That section states:

> A project involving only feasibility or planning studies for possible future actions which the agency, board, or commission has not approved, adopted, or funded does not require the preparation of an [environmental impact report] or negative declaration but does require consideration of environmental factors. This section does not apply to the adoption of a plan that will have a legally binding effect on later activities.

As such, applicants that have been awarded funding for completion of a feasibility study will be required to file a Notice of Exemption (NOE) with the applicable County Clerk prior to the execution of the funding agreement and receipt of any grant funds. A copy of the NOE must be submitted to DWR's SCFRR Program. See the Proposal Submittal information for contact information.

If a funding recipient wants to prepare environmental documentation in support of a completed feasibility study using Proposition 1E funding, the funding recipient must contact and consult with DWR. Work that is subject to CEQA shall not proceed until and unless approved by DWR. Such approval is fully discretionary and shall constitute a condition precedent to any work for which it is required.

Appendix 6: Project Ranking Table

		Total Points
Improve Flood Risk Management (50 points)	**<u>People and Property at Risk</u>** Reduce flood risk to people and property in small communities within floodplains protected by the SPFC. Flood threats to small communities were characterized in the CVFPP using attributes related to flood frequency, potential flood depth, and proximity to the nearest river. Along with population, these characterizations are used to prioritize the small communities into four categories: ***Up to 30 Points Group A (High Hazard)*** Includes potential alternatives to improve flood protections for communities subject to high flooding frequency (greater than 1 percent per year) and also subject to deep flooding conditions (potential flood depths exceeding 3 feet on average). ***Up to 20 Points Group B (Moderate to High Hazard)*** Includes potential alternatives to improve flood protections for communities subject to high flooding frequency (greater than 1 percent per year), subject to sheet flooding conditions (potential flood depths of less than 3 feet on average), and less than three miles from a major flooding source. ***Up to 10 Points Group C (Low to Moderate)*** Includes potential alternatives to improve flood protections for communities subject to high flooding frequency (greater than 1 percent per year), subject to sheet flooding conditions (potential flood depths of less than 3 feet on average), and more than three miles from a major flooding source. ***Up to 5 Points Group D (Low Hazard)*** Includes potential alternatives to improve flood protections for communities that are not subject to high flooding frequency (less than 1 percent per year).	**30**
	<u>Lives and Assets at Risk</u> Includes potential alternatives to improve flood protections for communities with high-density housing, with presence of state and local assets such as highway, hospital, farming and agricultural manufacturing, etc.	**10**
	<u>Floodplain Management</u> Manage floodplains protected by the SPFC. Includes potential alternatives that will not increase urbanization of rural agricultural areas in deep floodplains. Manage and address residual risks, particularly in areas of deep or rapid flooding.	**10**

Promote Multi-benefit and Ecosystem Functions (30 Points)	**<u>Conservation Strategy Goals</u>** (See Appendix 7, METRICS FOR ECOSYSTEM PROCESS, HABITAT, AND STRESSOR OBJECTIVES) *The 2016 Draft Central Valley Flood System Conservation Strategy* provides specific targeted metrics for each ecological objective and ecosystem goal within a Conservation Planning Area (CPA). Feasibility studies should consider alternatives that contribute to the objectives identified in the report. Points will be based on demonstrating understanding of the targeted metrics and intent to consider alternatives that contribute to objectives as specified in the 2016 Draft *Central Valley Flood System Conservation Flood Strategy*. See Metrics for Ecosystem Process, Habitat, and Stressor Objectives Table. **Ecosystem Processes** – Improve and enhance natural dynamic, hydrologic, and geomorphic processes**.** **Habitats** – Increase and improve quantity, diversity, quality, and connectivity of riverine aquatic and floodplain habitats. **Stressors** – Reduce stressors related to development and operation of flood management systems that negatively affect at-risk species (e.g., reduce revetment, amount of disconnected floodplains, fish passage barriers, and invasive plants). **Species** – Contribute to the recovery and stability of native species populations and overall biotic community diversity. ***Up to 30 points*** Potential alternatives that significantly contribute to measurable objectives for targeted metrics in 2 or more goals (e.g., multiple metrics within Habitats and Stressors) OR significantly contribute to measurable objectives for multiple targeted metrics under 1 ecosystem goal (e.g., riparian, marsh, and SRA cover within Habitats). Potential alternatives that promote integration of other resource needs (water supply, recreation, open space, effective flood emergency response, protection of State facilities, groundwater, storage etc.), where feasible. ***Up to 20 points*** Potential alternatives that moderately contribute to measurable objectives for a targeted metric under multiple ecosystem goals (e.g., riparian within Habitat and river meander within Ecosystem Processes) OR projects that moderately contribute to measureable objectives for several targeted metrics of 1 goal (e.g., riparian and marsh within Habitats). Potential alternatives that promote integration of other resource needs (water supply, recreation, open space, effective flood emergency response, protection of State facilities, groundwater, storage etc.), where feasible. ***Up to 5 points*** Potential alternatives that contribute to measureable objectives for at least one targeted metric under one goal.	**30**
Improve O&M (10 Points)	**<u>Long-Term Cost of O&M</u>** Consider potential alternatives that reduce maintenance and repair requirements by modifying the flood management systems in ways that are compatible with natural processes, and contribute to streamline regulatory and institutional standards, funding, and practices for operations and maintenance, including significant repairs.	**10**
Improve Institutional Support (10 Points)	**<u>Improve Institutional Support</u>** Consider potential alternatives that contribute to stable institutional structures, coordination protocols, and financial frameworks that enable effective and adaptive integrated flood management (designs, operations and maintenance, permitting, preparedness, response, recovery, and land use and development planning). Contribute to consolidation of local maintaining agencies.	**10**
	Total	**100**

Appendix 7: Metrics for Ecosystem Process, Habitat, and Stressor Objectives[1]

Goal	Targeted Ecosystem Process, Habitat, or Stressor	Metric
Ecosystem Processes. Improve dynamic hydrologic and geomorphic processes.	**Floodplain Inundation**	**Inundated Floodplain—total amount (acres) of 50-percent flows (i.e., a 2-year event) with 14-day or longer duration during December–May:** This is a metric of the amount of inundated floodplain benefiting riverine ecosystems and, in particular, target fish species. These amounts are derived from hydraulic modeling using data developed for planning flood management projects.
	Riverine Geomorphic Processes	**Natural Bank—total length (miles):** Natural bank is a component of SRA cover and bank habitat and is necessary for migration of a river channel. Its length is related to the area of floodplain potentially reworked by channel migration (river meander). The length of natural bank can be readily measured from imagery, topographic data, and DWR-maintained inventories of revetment.
		River Meander Potential—total amount (acres): Movement of a river channel across its floodplain regenerates channel and floodplain habitats. River meander potential is the area of floodplain that has the potential to be reworked by the meandering channel because it is within the river's natural meander zone, not underlain by substrates resistant to erosion, and not isolated by revetted banks or levees. Areas with river meander potential can be cost-effectively mapped using aerial photography, inventories of revetment and levees, and existing geologic/soils data.
Habitats. Increase and improve quantity, diversity, quality, and connectivity of riverine aquatic and floodplain habitats.	**Shaded Riparian Area Cover**	**Natural Bank—total length (miles):** See natural bank description under "Riverine Geomorphic Processes."
		Riparian-Lined Bank—total length (miles): Riparian-lined banks are natural or revetted banks bordered by trees and shrubs. Riparian-lined banks are an attribute of SRA cover and because SRA cover exists only along channel margins, length is a direct measure of its quantity. Mapping of riparian-lined banks is related to the mapping of riparian vegetation, natural bank, and revetment, all of which DWR inventories for multiple purposes.
	Riparian	**Habitat Amount—total amount (acres) in floodways:** The area of riparian vegetation (i.e., riparian forests, woodlands, and scrub) is a direct measure of its quantity. DWR has mapped this vegetation in the Sacramento and San Joaquin Valleys.
	Marsh (and Other Wetlands)	**Habitat Amount—total area (acres) in floodways:** The area of marsh and other wetlands is a direct measure of their quantity. DWR has mapped this vegetation in the Sacramento and San Joaquin Valleys.

Goal	Targeted Ecosystem Process, Habitat, or Stressor	Metric
	Floodplain Agriculture—Wildlife-Friendly	**Habitat Amount—total amount (acres) of wildlife-friendly agriculture in floodways:** The area of floodplain agricultural land with wildlife-friendly agricultural practices is a direct measure of its quantity. Wildlife-friendly practices are those increasing habitat value for target wildlife species; fish habitat provided by inundated agricultural land is addressed under inundated floodplain. Areas implementing wildlife-friendly practices have not yet been mapped.
Stressors. Reduce stressors related to the development and operation of the SPFC that negatively affect at-risk species.	**Fish Passage Barriers**	**Fish Passage Barriers—number of high-priority barriers remediated:** This metric documents the number of high-priority barriers modified to improve passage. DWR has inventoried and prioritized barriers in the Sacramento Valley and inventoried barriers in the San Joaquin Valley (DWR 2014a). (San Joaquin Valley barriers have not yet been prioritized.) This inventory will be updated to support multiple programs. (It is important to recognize that, even among high-priority barriers, there is a range of effects on fish migration.)
	Invasive Plants	**Invasive Plant–Dominated Vegetation in Channel Maintenance Areas—total area reduced (acres):** Land identified as Channel Maintenance Areas in the SPFC Descriptive Document (DWR 2010) include areas dominated by invasive plants. For species prioritized for treatment, this metric measures reduction in the extent of infested areas that impact both ecosystem targets as well as O&M of the SPFC. DWR has mapped this vegetation in the Sacramento and San Joaquin Valley.

1 Target species needs were a basis for process, habitat, and stressor objectives and thus are not represented by separate objectives. Amounts of levee and revetment modification would be determined during project and plan formulation as a means of provided needed improvements, habitats, and other stressors: thus, objectives were not established for these two stressors.

See the 2016 *Draft Central Valley Flood System Conservation Flood Strategy* for additional information,http://www.water.ca.gov/conservationstrategy/docs/cs_draft.pdf .