

## JOB AID: FLOODPLAIN AND STREAM RESTORATION



Floodplain and stream restoration (FSR) projects are used primarily to reduce flood risk and erosion by providing stable reaches, and may also mitigate drought impacts. FSR projects restore and enhance the floodplain, stream channel and riparian ecosystem's natural function. They provide baseflow recharge, water supply augmentation, floodwater storage, terrestrial and aquatic wildlife habitat, and recreation opportunities by restoring the site's soil, hydrology and vegetation conditions that mimic pre-development channel flow and floodplain connectivity.

The purpose of this Job Aid is to help communities applying for Hazard Mitigation Assistance (HMA) grants to comply with the technical feasibility and effectiveness, and environmental and historic preservation (EHP) requirements of the application. This Job Aid provides a checklist of information required by FEMA to determine grant eligibility and to complete a thorough review of the application. FEMA must review all applications to ensure that proposed activities comply with all applicable statutory, regulatory, and programmatic requirements. Therefore, certain information must be provided with the grant application for FEMA to make an eligibility determination. Early submission of accurate and complete information by the applicant will facilitate FEMA's review process and the release of HMA funds.

For more information, Applicants and Subapplicants are encouraged to refer to the Job Aid Supplements and FEMA's HMA Guidance.



### PROPERTY INFORMATION

	with App. Submittal	Pre-Award
■ Provide a vicinity map with address and project boundaries	X	
■ Identify project location by latitude and longitude in decimal degrees	X	
■ Provide site photographs documenting impaired or scoured streams, disconnected floodplains, bank erosion conditions, vegetation conditions, and existing stormwater structures	X	
■ Provide current property ownership information, including any easements or covenants	X	
■ Discuss watershed development plans/future land use plans	X	
■ Provide a copy of the flood insurance rate map (FIRM) showing project location	X	
■ Include geologic and hydrogeologic information (e.g., aquifer types, aquifer and vadose zone characteristics, subsurface homogeneity/heterogeneity, hydrologic conductivity, transmission rates, storage coefficients, water temperatures). Include copies of investigation reports.	X	
■ Indicate current land use types (e.g., residential, commercial, etc.) on and near the project site	X	
■ Show on a map all existing surface water bodies, stormwater structures, floodplains, wetlands, woodlands, and riparian habitat information. Indicate which bodies of water (e.g., river, stream, wetland, or pond) are located within 200 feet of the project.	X	
■ Provide historic stream flow, stage, and water quality data (for subsurface, surface, reclaimed water). Discuss the potential ecologic effects due to water quality and provide documentation of completed studies.	X	
■ Include a state or local topographic map where available, otherwise provide a USGS topographic map of the project site		X
■ Include the National Resources Conservation Service soil map for the project site		X
■ Identify permitting requirements, relevant federal and local ordinances. Include status of permit applications, copies of permits obtained.		X
■ Include an underground utilities map or show locations of underground utilities on the project site map		X



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## SCOPE OF WORK

	with App. Submittal	Pre-Award
■ Provide a narrative description of the project scope of work	X	
■ Indicate if any property will be acquired, modified, and/or demolished for the project and show the locations on a map	X	
■ State the estimated current and post project erosion rates	X	
■ Provide characteristics (e.g., size and geographic area) of population that would benefit from flood risk reduction and that would use the retained water. Note any users or potential users of large volumes of water, such as agricultural, public entities, or industry. Explain how the project would affect the quality or volume of water supplied to these users.	X	
■ Identify and show on a map the current water sources, qualities, and capacities that serve the communities that could be impacted by this project	X	
■ Attach hydrology and hydraulics (H&H) and other engineering studies, calculations, and/or models; geotechnical studies; and stream flow and rainfall records. H&H analysis should demonstrate any downstream impacts (positive or negative) and any changes in base flood elevation and discharge rates in the immediate vicinity and downstream of the project.	X	
■ Describe the quantity of flood prone area channel bank and/or in-stream cuts and fills	X	
■ Identify and describe planned in-stream structures	X	
■ State the estimated volume of water to be redirected	X	
■ Provide current and projected flow rates	X	
■ Provide existing and proposed water surface elevations and velocities	X	
■ If project includes measures planned as drought mitigation, provide estimated groundwater recharge volume, and design storm frequency and precipitation rate	X	
■ Include conceptual designs, preliminary design drawings and specifications, including stream channel and bankfull profiles, typical cross-section, limits of ground disturbance, including depths associated with this project (e.g., grading; digging for buried utility lines; new temporary or permanent access roads or staging areas; use of geotextiles, floodwalls, or levees), and erosion control measures		X
■ Indicate the quantity of sediment to be removed from the floodplain area		X
■ Indicate the quantity of excavated sediment to be reused within riparian floodplain wetlands		X
■ Describe the type and source of any fill that will be imported to the project area from an off-site source (e.g., existing borrow pit)		X
■ Describe debris or other materials that will be removed and disposed of off-site. Provide estimates of types and quantities of materials to be disposed and those that could be suitable for re-use. Include information about where debris will be disposed (including temporary staging areas) in accordance with local and State requirements.		X
■ Describe and/or show on a map the type and location of any vegetation that will be affected by implementation of the project		X
■ Provide a tree protection plan if trees are present		X
■ Describe the expected impact on nearby structures		X
■ Describe construction and post-construction adaptive management requirements for nuisance, invasive species and herbivory controls		X



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SCHEDULE, COST ESTIMATES, AND BENEFIT-COST ANALYSIS		with App. Submittal	Pre-Award
■	Include a project schedule, showing start and end dates, milestones, activities, and deliverables. The schedule should be no longer than 3 years.	X	
■	Provide cost information for:		
	• Project development, including site selection, field testing, engineering, public outreach	X	
	• Land acquisition, including site access, permitting, and source water availability	X	
	• Construction, including labor, materials, equipment, and testing	X	
	• Operations and maintenance, including pre-treatment and post-treatment requirements and post-project monitoring, labor, electricity, consulting services, regulatory testing, treatment, and other miscellaneous costs	X	
■	Determine type of damages and losses to be mitigated and choose the appropriate module in the FEMA Benefit-Cost Analysis toolkit	X	
■	The project useful life is 30 years unless the user provides a justification for using a different value	X	
■	If the benefit-cost ratio is greater or equal to 0.75, then environmental benefits can be included in the analysis using the Ecosystems Benefits Calculator available from your FEMA Region. Identify anticipate land use after the project is completed and the number of acres of restored ecosystem.	X	
■	Additional benefits may be available depending on the project's design:		
	• Reduced agricultural/crop losses: provide documentation of past losses or number of acres impacted, yield per acre and market price of crop	X	
	• Reduced loss of function of roadways: provide traffic counts and detour times	X	
	• Avoided costs of stormwater conveyance and treatment infrastructure: provide the amount in millions of gallons of water to be stored by the project	X	
	• Avoided costs of providing alternative drinking water source: provide the amount in millions of gallons of avoided alternative public drinking water supplies	X	
	• Reduced damages due to subsidence: provide documentation of quantified reduction in structural damage to facilities in vicinity of project	X	
	• Avoided costs associated with loss of business for water-dependent sectors: provide documentation of the reduction in loss for businesses in water-dependent sectors	X	



ADDITIONAL INFORMATION		with App. Submittal	Pre-Award
■	Identify at least 2 alternatives, including the Do-Nothing case, and explain why the proposed approach is the preferred option	X	
■	Describe the property history and any studies, investigations, or enforcement actions (such as pending/current litigation) related to the property. Provide details or copies of the documents.		X
■	If a building(s) or outbuilding(s) is within sight of the project, provide the data when the oldest structure was originally constructed. Please note a current aerial photograph or map the year of construction of buildings and structures within sight of the project. Note FEMA is concerned with buildings and structures 50 years of age or older, not more recent ones.		X
■	Identify if the project is located within a designated coastal zone or coastal barrier resource system under the State's Coastal Management Program		X
■	Identify any known contaminated materials located on-site (e.g., asbestos, lead-based paint, underground storage tanks, chemical storage containers) that will require removal prior to construction		X
■	Identify if the project site is located on or within one mile of a site on the National Properties List or State Hazardous Waste Site list. If a Phase I Environmental Site Assessment has been completed, include a copy.		X
■	Identify any soil or groundwater contamination known to exist within a one-mile radius of the project site. Include any naturally-occurring contaminants (e.g., arsenic, selenium, brackish water) that could adversely affect the regional groundwater after the project is implemented.		X



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### ADDITIONAL INFORMATION

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<ul style="list-style-type: none"> <li>Describe any known Federally- or State-listed threatened/endangered species or species of concern and their critical habitat within the project area and any special provisions or measures required to avoid, minimize, or mitigate direct and indirect species impacts</li> </ul>		X
<ul style="list-style-type: none"> <li>Describe anadromous or migratory fish present and known fish passages within the project area, and required special provisions</li> </ul>		X
<ul style="list-style-type: none"> <li>For work on the water side of ordinary high water indicate the time of year work will be performed, and measures to protect, enhance or improved fish habitat</li> </ul>		X
<ul style="list-style-type: none"> <li>Identify if any buildings have been listed or have been determined to be eligible for listing in any local, state, or national historic registers, or if the property is located within 0.5 mile radius of a local, state, or national historic district</li> </ul>		X
<ul style="list-style-type: none"> <li>Describe any known archaeological artifacts, cultural resources, or human remains on or located within a 0.5 mile radius of the property</li> </ul>		X
<ul style="list-style-type: none"> <li>Identify any Native American Tribal lands, Traditional Cultural Properties, or other Native American resources (e.g., traditional fishing areas) that are located on or adjacent to the subject property</li> </ul>		X
<ul style="list-style-type: none"> <li>Describe any public outreach that has occurred related to the project (e.g., public notices issued, notifications published in newspapers, public meetings held, public comments solicited)</li> </ul>		X
<ul style="list-style-type: none"> <li>Enclose copies of any previous coordination, correspondence, or consultation with Federal, State, Tribal, and local resource agencies (e.g., U.S. Fish and Wildlife Service, State/Tribal Historic Preservation Office, U.S. Army Corps of Engineers, State agencies)</li> </ul>		X
<ul style="list-style-type: none"> <li>Describe any other environmental and historic preservation requirements that the project is or will be subject to, such as State/Tribal or local environmental reviews, other agency reviews, etc.</li> </ul>		X

