

REQUEST FOR PROPOSALS

Site-Specific Probable Maximum Precipitation and Inflow Design Flood for Gross Dam

Summary of Request for Proposal

Denver Water (DW), owner of Gross Dam and Reservoir in Boulder County, Colorado, is soliciting proposals to provide civil engineering and hydrometeorological services for development of site-specific probable maximum precipitation (PMP) and inflow design flood (IDF) as part of the Gross Reservoir Expansion Project. The PMP and IDF must be developed in compliance with Federal Energy Regulatory Commission (FERC) and Colorado Office of the State Engineer (SEO) regulations and guidelines. The SEO released updated requirements regarding development of site-specific extreme precipitation studies in their revised Project Review Guide published February 17, 2016. The updated SEO requirements shall be satisfied in addition to those set forth by FERC. The selected consultant will support Denver Water in coordinating with an independent Board of Consultants (BOC), FERC, and the SEO to ensure that the initial scope and resulting work product are acceptable to the regulatory agencies and BOC.

Introduction and Background

The existing Gross Dam is an on-stream facility located on South Boulder Creek in Boulder County, Colorado, and in the Arapahoe-Roosevelt National Forest. The dam is owned and operated by Denver Water and provides raw water storage from both west slope transcontinental diversions and from the South Boulder Creek watershed upstream of Gross Dam. The dam structure is a curved concrete gravity dam formed with a structural height of 345 feet. Denver Water proposes to raise Gross Dam by 131 feet to a final height of 471 feet, increasing storage volume from 41,811 acre feet to approximately 119,000 acre-feet. The facility is regulated by FERC and the SEO.

Gross Reservoir has a tributary watershed area of approximately 93 square miles at an average elevation of approximately 9340 feet above mean sea level. The watershed extends from the continental divide, at elevations above 13000 feet, to Gross Dam at an approximate elevation of 6955 feet. The watershed is characterized by rugged mountainous terrain, coniferous tree-covered slopes, and little urban development.

The PMP and IDF resulting from this project will be submitted for review and approval by FERC and the SEO, and will serve as design criteria for the dam raise project.

Qualifications of Consultant

To be qualified to respond to this RFP, the consulting team must be led by a Licensed Professional Civil Engineer registered in the State of Colorado with at least 10 years of applicable project experience including projects requiring similar regulatory approval by FERC and the SEO. The team must also include hydrologists, meteorologists, and hydrometeorologists with applicable project experience. The Engineer may include proposals from multiple PMP subconsultants for Denver Water's consideration. Denver Water reserves the right to dictate the organization of the final consulting team.

All consultants interested in proposing on the project must not be in a conflict of interest position regarding the ongoing work related to the Project's 404 permit application managed by the U.S. Army Corps of Engineers. It is the responsibility of the proposers to determine their conflict of interest position. Please contact Casey Dick at casey.dick@denverwater.org, or 303-628-6534, with questions regarding eligibility.

Consultant Selection Process and Project Schedule

DW may elect to follow the proposals with a formal questionnaire and/or interview to assist with the proposal evaluation. Final selection of a Consultant will be based upon the selection criteria detailed on page 5.

The anticipated project schedule is summarized below:

- February 25, 2016 – Advertise Request for Proposals
- March 25, 2016 – Proposals Due
- April 6, 2016 – Consultant Interviews
- April 13, 2016 – DW Board Approval of Selected Proposal
- April 22, 2016 – Notice to Proceed Issued to Consultant
- May 13, 2016 – Project Execution Plan Technical Memorandum
- June 9, 2016 – Project Execution Plan Review Workshop
- July 14, 2016 – PMP Review Workshop #1
- August 5, 2016 – PMP Technical Memorandum
- September 8, 2016 – PMP Review Workshop #2
- October 7, 2016 – Hydrologic Routing Technical Memorandum
- November 11, 2016 – Draft IDF Report to DW
- December 23, 2016 – Draft Final IDF Report to SEO/FERC
- January 25, 2016 – IDF Review Workshop
- February 22, 2016 – Final IDF Report

The schedule above is based on a two-week review period by DW following submittal of all draft deliverables. All deliverables shall be submitted to the BOC and regulatory agencies two weeks prior to review workshops.

Scope of Services

The analyses and selection of the IDF will be completed by the Consultant with input from DW engineering staff. The Consultant's responsibilities include providing, monitoring and maintaining a project management work plan and schedule, preparation of initial scope and detailed project execution plan, development of local and general storm PMPs, hydrologic routing of local and general storm PMPs, selection of design rainfall and resulting IDF, thorough reporting on project work, assisting DW in coordination with regulatory agencies, and providing professional services through completion of the project. The consultant is required to meet the requirements of DW's Capital Projects Procedures Manual (CPPM).

Task 1 – Project Execution Plan

Prepare a Project Execution Plan documenting the proposed approach for each component of the project contributing to development of the IDF. The Project Execution Plan shall describe in detail the specific methodologies, technical references, and parameter selection criteria to be used.

Provide draft and final technical memoranda presenting the Project Execution Plan. The Final Project Execution Plan Technical Memorandum shall address comments from the BOC and regulatory agencies.

Deliverables:

- Draft Project Execution Plan Technical Memorandum
- Final Project Execution Plan Technical Memorandum

Task 2 – Storm Development

Develop local and general storm PMP values for the Gross Reservoir watershed using both HMR-55a and site-specific methodologies. Develop 25-year, 50-year, 100-year, 500-year, and 1,000-year, 24-hour frequency storm events. Assign temporal and spatial distributions for each of the frequency storm and PMP values specific to the Gross Reservoir watershed and in compliance with NOAA, FERC, and SEO guidelines as appropriate. Clearly describe in the proposal the detailed methodologies that will be used for determining the site-specific PMP depths and spatial and temporal distributions.

Provide draft and final technical memoranda documenting the detailed methodology, parameter values, results, conclusions, and recommended rainfall values (including precipitation depths and temporal and spatial distributions) for the frequency storms and local and general storm PMPs to be carried forward into the Hydrologic Routing Task.

Deliverables:

- Draft Probable Maximum Precipitation Technical Memorandum
- Final Probable Maximum Precipitation Technical Memorandum

Task 3 – Hydrologic Routing

Perform computer-based hydrologic routing of selected frequency storms and local and general storm PMP events to determine the critical event (design rainfall) and associated IDF. Prepare all input parameters in compliance with FERC and SEO guidelines. Hydrologic routing shall account for (or justify not accounting for) the effects of snowmelt and baseflow in the watershed. Clearly describe in the proposal the detailed methodologies and computer models that will be used for hydrologic routing.

Provide draft and final technical memoranda documenting the detailed methodology, parameter values, results, conclusions, and recommended IDF hydrograph to be presented to the regulatory agencies.

Deliverables:

- Draft Hydrologic Routing Technical Memorandum
- Final Hydrologic Routing Technical Memorandum

Task 4 – IDF Report

Prepare draft and final reports documenting the development of PMP values, hydrologic routing, and selection of design rainfall and IDF. Document all parameters, assumptions, methodologies, results, conclusions and recommendation. Provide basis for selection of specific methodologies, parameter values, and interpretation of results. Sufficient detail shall be provided to justify acceptance of the PMP and IDF by FERC and the SEO.

Deliverables:

- Draft Inflow Design Flood Report
- Draft Final Inflow Design Flood Report
- Final Inflow Design Flood Report
- Analysis and Modeling Files in Native Electronic Format

Task 5 – FERC, SEO, and BOC Coordination

Support DW in coordinating with FERC, the SEO, and the BOC to the extent necessary to ensure final work product will be acceptable to these agencies. Facilitate four workshops to

review the initial scope/approach, design rainfall, and IDF with the SEO, FERC, DW, and the BOC. Assume the workshops will be full-day in-person meetings held in Denver, CO. Prepare and distribute meeting notes summarizing key decisions and action items resulting from workshops with regulatory agencies and BOC. Provide written responses to comments from the BOC and regulatory agencies. Anticipated agency coordination workshops are as follows:

- Project Execution Plan Review Workshop: to be held following submittal of the Project Execution Plan to review approach with the agencies and BOC prior to initiating IDF development.
- PMP Review Workshop #1: to be held during development of PMP to review short list of storms, new technologies, storm adjustments, etc. with the agencies and BOC.
- PMP Review Workshop #2: to be held following submittal of PMP Technical Memorandum to review the PMP results and recommendations with the agencies and BOC.
- IDF Review Workshop: to be held following submittal of the Draft Final IDF Report to review IDF results and recommendations with the agencies and BOC.

Deliverables:

- Agendas for Agency/BOC Coordination Workshops
- Presentations for Agency/BOC Coordination Workshops
- Meeting Notes from Agency/BOC Coordination Workshops
- Written Response to Agency/BOC Comments

Task 6 – Project Management, Meetings, and Coordination

Manage and coordinate the project work including invoicing, progress reporting, earned value tracking, and quality assurance reviews. Participate in coordination and milestone meetings with DW. Prepare and distribute meeting minutes for coordination and milestone meetings with DW. Maintain a project schedule for the design work. This task does not include coordination or meetings with the regulatory agencies. Anticipated meetings are as follows:

- Kickoff Meeting: to be held at the beginning of the study to identify key issues and familiarize the Consultant with DW personnel.
- Biweekly Progress Meetings: to be held with DW Design Project Manager and key personnel every 2 weeks to coordinate project personnel, identify action items, and keep the project on schedule.
- Milestone Meetings: to be held following submittal of the PMP Technical Memorandum, Hydrologic Routing Technical Memorandum, and IDF Report.

Deliverables:

- Monthly Progress Reports and Invoices including Earned Value Tracking
- Meeting Minutes from Kickoff, Biweekly, and Milestone Meetings with DW

Task 7 (Optional) – Annual Exceedance Probabilities

Consultant may propose an optional task to develop annual exceedance probabilities for each of the PMP rainfall depths resulting from Task 1. In the proposal, provide a detailed description of the proposed approach for developing annual exceedance probabilities and describe their anticipated reliability and overall usefulness. Paleohydrologic studies (e.g., tree ring analyses) are not desired. DW will determine whether or not this optional task will be included as part of the project.

Proposal Requirements

The proposal shall outline the proposer's scope of services, which at a minimum must include the criteria set forth within this request for proposal, and the proposer's approach to administer and complete the project. A detailed project approach will assist DW in understanding the proposers' understanding of the project and the opportunities and constraints that a project of this complexity may contain. At a minimum, the proposal shall include:

- Cover Letter.
- Project approach including any unique solutions and clearly identifying all assumptions.
- Tailored 2 page resumes for key project personnel, including projects similar in nature and complexity to the Gross Reservoir Site-Specific PMP and IDF Project, shall be provided for key personnel shown within the project organization chart. All key personnel proposed for the project must remain available for the entirety of the project, a change of project personnel will only be permitted in extreme circumstances.
- Manpower labor estimate (work breakdown structure) by labor type/hours for the following major project tasks and the corresponding hourly rates (11-inch by 17-inch format is acceptable).
 - Task 1: Project Execution Plan
 - Task 2: Storm Development
 - Task 3: Hydrologic Routing
 - Task 4: IDF Report
 - Task 5: FERC/SEO Coordination
 - Task 6: Project Management, Meetings, and Coordination
 - Task 7: (Optional) Annual Exceedance Probabilities
- Detailed schedule with any deviations from the schedule included herein clearly identified.
- Written statement regarding the consultant's eligibility to perform the work without a conflict of interest.
- Proposals shall be limited to 10 single-sided pages not including resumes or PMP consultant proposals.
- No MWBE goals have been set for this work.

Selection Criteria

DW will review the proposals and make a selection based on the following criteria. The criteria will be the basis for evaluating the written proposals.

Weight	Criteria	Standard
5	Project Personnel and Firm Qualifications	Do the assigned personnel have the skills and experience to provide a detailed and complete study? Does the firm have the appropriate support capabilities to meet the demands of the project? Has the firm done previous projects of this type of scope?
3	Proposed Approach	Does the proposal show an understanding of the project objectives and the results that are desired from the project? Does the firm offer alternatives within the proposal?
2	Cost and Work Hours	Do the work hours presented accurately reflect the level of effort required to complete the project? How do unit labor and overhead costs compare to other firms?

The scale of the criteria is from 1 to 10, with 1 being a poor rating, 5 being an average rating, and 10 being an outstanding rating. All criteria will be multiplied by the associated weight to give a weighted criteria score. The weighted criteria scores will be summed for a cumulative score. The maximum possible cumulative score is 100.

Proposal Submittal

Selection of a Consultant will be based on the selection criteria described above. The proposal shall address all the selection criteria.

Costs associated with proposal preparation, pre-proposal meeting attendance, interview attendance and so forth shall be borne entirely by the proposing consultant. Proposal information becomes property of DW. The Consultant shall identify any information that is intellectual or proprietary property to be kept confidential.

Firms are recommended to access and become familiar with a copy of the most recent version of DW's CPPM at no cost to DW. DW's CPPM can be found at: <http://www.denverwater.org/DoingBusinesswithUs/EngineeringOverview/Capital Projects ProceduresManual/>. Consultants will be responsible for meeting the requirements of DW's CPPM.

Four hard copies and one electronic copy (pdf on a CD), of the Consultant's proposal shall be submitted by 10:00 a.m., local time, on March 25, 2016 to Mr. Casey Dick, P.E., Design Project Manager, Denver Water, 1600 West 12th Avenue, Denver, Colorado 80204. Please contact Mr. Casey Dick at 303-628-6534 or Mr. Jeff Martin, Gross Reservoir Expansion Program Manager, at 303-628-6508 with questions regarding this request.