Item #16-11-3

Land Use & Natural Resource Committee — Action

October 27, 2016

Approve Request for Qualifications and Contract for Sustainable Groundwater Management Strategy Project

Issue: Should SACOG issue a Request for Qualifications (RFQ) for the contractual study component of a 2015 Specialty Crop Block Grant focused on sustainable water management strategy for specialty crop expansion in the Sacramento Valley?

Recommendation: That the Land Use & Natural Resources Committee:

1) Recommend that the SACOG Board of Directors authorize the SACOG Chief Executive Officer to release an RFQ for the contractual study component of the "Sustainable Water Management Strategy for Specialty Crop Expansion in the Sacramento Valley"; and

2) Recommend that the SACOG Board of Directors authorize the SACOG Chief Executive Officer to negotiate and execute a contract with the selected contractor.

Discussion: In 2015, SACOG's Rural-Urban Connections Strategy (RUCS) program received a California Department of Food and Agriculture (CDFA) Specialty Crop Block Grant to conduct a study on sustainable groundwater management strategies for specialty crop expansion in the Sacramento Valley. Specifically, the CDFA grant project will examine scenarios that consider optimal locations for strategic flooding of cropland, as related to opportunities to maximize groundwater infiltration and improve water supply reliability for continued specialty crop production and related economic activities, in addition to providing habitat benefits. The project will provide much-needed data, tools, practices, and strategies to support specialty crop growers and enrich the analytical capacity of the RUCS toolkit by integrating a range of new factors that will deepen the region's understanding of how to leverage and enhance the assets of these rural lands for current and future use. The Land Use & Natural Resources Committee was briefed on the project at its December 2014 meeting, at the time of application, and in December 2015 as part of a general RUCS program workshop.

The CDFA awarded grant project identified a contractual study component to complement RUCS staff work and build upon in-kind services from industry stakeholders, including specialty crop stakeholders, and water resource managers. The selected consultant will augment project deliverables by providing technical support and subject-area expertise in groundwater recharge science. This will include the collection of environmental data to underpin scenario analysis and enhance the RUCS toolkit; including regional water balances and other factors that impact recharge (e.g. soil type permeability). The consultant work will identify attributes in our regional environment that facilitate infiltration and those that limit recharge. Identified data will be integrated into the RUCS spatial analysis platform. Drawing on this work and stakeholder input, SACOG staff will then examine scenarios that strategically choose crops and locations for winter flooding, or flood irrigation, to provide habitat and maximize potential for recharge to maintain

adequate groundwater supplies for specialty crop production. Attachment A outlines the tasks identified in the scope of work.

Grant funding for this contractual work is included in the OWP for $150,000. SACOG staff will convene a panel of local partners with relevant expertise to review the statement of qualifications, evaluate submissions, interview applicants as needed, and select a vendor, in accordance with SACOG's standard RFQ procedures to ensure a competitive selection process. The final scope of work and total budget for this contract will be negotiated by the CEO.

Given the grant-funded nature of this project, work must be completed by the end of FY17/18. The project team would benefit greatly from progression of this contractual work, which will be foundational to the overall project goals, to ensure conclusion within the grant program's constraints. Additionally, an acceleration of this project would be beneficial to coincide with other complementary efforts, such as parallel investigations currently progressing in the San Joaquin Delta. To ensure the timely completion of the project, staff is seeking Board authorization for the Chief Executive Officer to negotiate and execute an agreement with a contractor for the Sustainable Groundwater Management study.

Approved by:

Mike McKeever
Chief Executive Officer

MM:LO:RDO:ts
Attachment

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Attachment

DRAFT SCOPE OF WORK/SERVICES

Statements of Qualifications ("SOQs") should be submitted for all numbered tasks identified below. The final scope of work will be negotiated with the selected consultant. SACOG is not obligated to contract with a consultant for all of the tasks or task elements. The identified tasks are:

Tasks:

1. **Analysis of Regional Hydrological System.** The contractor will conduct a review of the hydrologic setting and water management system in Sacramento Valley, including an overview of the watershed that feeds the valley floor and how climate change may impact the function of the watershed. This review will document depth to groundwater across the study area, existing conveyance infrastructure, and areas of potential access to available floodwater in permitting conditions. To the extent possible, the contractor will evaluate agricultural water use in the region, evaluate recent shifts in irrigation techniques, and compile metrics for irrigation strategy, applied acre-feet, and water source (where available) for major specialty crops. Additionally, the contractor will evaluate the hydrogeological dynamics of the study area, including reporting geological suitability for water percolation into the groundwater table, identifying aquifers, reporting subsurface flow dynamics, and localizing agricultural areas that would benefit from increased groundwater deposition if other sites across the study area were flooded in targeted recharge efforts.
2. **Inventory Recharge Suitability by Soil and Crop Type**. The contractor will evaluate crop compatibility by specialty crop type, identifying which crop types tolerate flooding, and the effects of flood irrigation and seasonal winter flooding on crop production (dwell time, planting cycle, yield impacts, etc.), as well as the impact on nutrient load transport (ex. effects of flood infiltration/recharge on nitrate delivery to underlying soil & aquifer, etc.). Additionally, the selected contractor will report infiltrative capacity of soil types identified in the study area at various soil horizons, identify various specialty crop types' impact on infiltration rate (roots loosening soil, plant & leaf litter cover preventing compaction, etc.), and evaluate potential advantages or disadvantages of various soil and crop type combinations, particularly those with the highest infiltrative potential or pairings with the most study area acreage. The contractor will then synthesize this inventory into per acre metrics for groundwater recharge potential by soil and specialty crop type for spatial dataset integration.
3. **Outreach & Feedback.** The selected contractor will outreach with regional growers, agronomists, water purveyors, and other relevant specialists to garner feedback on the results of their research and validate their results. The contractor will then incorporate this feedback into their study findings.

4. **Assist with Scenario Development.** The final component of the project is to assess how various potential targeted irrigation strategies could result in changes in recharge capacity throughout the region. The selected contractor will assist SACOG staff in validating base case model results, and setting parameters on feasible expected changes to applied water use, irrigation techniques, etc., as well as integrating other model constraints based on suitability data collected in earlier tasks. The selected contractor will also aid SACOG staff in identifying possible scenarios to analyze and how best to model the scenarios to maximize desired scenario outcomes and model quantified indicators, such as groundwater recharge and ecosystem services, in addition to base outputs of economic value and return. In particular, the project will investigate scenarios to maximize groundwater recharge benefits for specialty crops grown in the region. Further examples of scenario events could include testing "boundary" conditions, such as minimized groundwater demand; testing cropping patterns that balance recharge potential with specialty crop water demand, examining in particular the acreage changes needed for both water "supply" and "demand" for this balance; etc.

5. **Prepare Final Report.** In conjunction with SACOG staff, the contractor will prepare a final report that documents the base hydrological conditions of the study area; describes the metrics for identifying infiltrative capacity by soil and crop type; details findings on hydrogeological dynamics, including identified areas with the greatest recharge potential and areas likely to benefit from increased groundwater deposition; and summarizes any other findings from their project research. Part of this task will be determining the deliverables that best communicate the project results to target audiences, including a full technical report, summary material, graphical representations, and/or presentations.

The contract deliverables will be negotiated with the selected consultant as part of the development of scope. Potential deliverables include: Regular deliverables reporting work progress; technical memoranda detailing hydrological system assessment, methodology and findings for recharge suitability of crop and soil types, and other project analyses; spatial and tabular datasets displaying per-acre infiltration metrics for the study area; and a final technical report, summary materials, and graphic representations that communicate project findings.