City of Sacramento
City Council

915 I Street, Sacramento, CA, 95814
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Meeting Date: **11/27/2012** **Report Type:** Consent

Title: Lower American River Flow Management Standard Environmental Impact Report

Report ID: 2012-00888

Location: Citywide

Recommendation: Pass a motion authorizing the City Manager, or his designee, to execute a Supplemental Professional Services Agreement with HDR Engineering, Inc. for an amount not to exceed $215,000 for work on the Environmental Impact Report necessary for the Water Forum Successor Effort's ongoing effort to update the lower American River Flow Management Standard.

Contact: Tom Gohring, Executive Director, CCOMWP, (916) 808-1993; Kathy Howard, Administrative Analyst, (916) 808-1995, Department of Utilities

Presenter: None

Department: Community Support
Division: CCOMWP
Dept ID: 80004101

Attachments:

1-Description/Analysis
2-Background
3-Contract

City Attorney Review
Approved as to Form
Joe Robinson
11/6/2012 4:13:09 PM

City Treasurer Review
Reviewed for Impact on Cash and Debt
Janelle Gray
10/18/2012 9:03:38 AM

Approvals/Acknowledgements

Department Director or Designee: Tom Gohring - 11/5/2012 10:46:10 AM

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Description/Analysis

Issue: This report identifies the need for additional professional and technical services for the City-County Office of Metropolitan Water Planning (CCOMWP), which staffs and manages the Water Forum Successor Effort (WFSE). The lower American River Flow Management Standard (FMS) update project is an essential element of the Water Forum Agreement (WFA). The proposed supplemental agreement with HDR Engineering, Inc. is for additional professional and technical services necessary to develop the Environmental Impact Report (EIR) for the WFSE's proposal to update the lower American River FMS.

Policy Considerations: This report is submitted in compliance with the policy direction provided by the Sacramento City Council and Sacramento County Board of Supervisors in forming the CCOMWP, approving its work plan, and supporting the efforts of the Water Forum (C2001-005).

Economic Impacts: None

Environmental Considerations:

California Environmental Quality Act (CEQA):
Approval of this supplemental agreement will allow completion of the technical work, which is required for completion of an EIR for the proposed Lower American River FMS.

Sustainability Considerations: Approval of this supplemental agreement is consistent with the City of Sacramento's Sustainability Master Plan Goals. Pursuit of a Flow Management Standard for the lower American River that is more protective of fisheries and aquatic resources is a fundamental element of the Water Forum Agreement, which is supported by the City's Sustainability Goal No. 7 - Parks, Open Space and Habitat Conservation.

Commission/Committee Action: None

Rationale for Recommendation: Funding for the Lower American River FMS EIR was approved with adoption of the FY2012 and FY2013 CCOMWP budgets. Approval of this supplemental professional services agreement is consistent with the approved budgets. In July 2009, CCOMWP staff developed a scope of work for the professional services needed for this effort and solicited Qualifications Statements from consulting firms. A selection committee reviewed the qualifications received and selected HDR Engineering, Inc. as the top ranked firm to lead the project and prepare the EIR. The City Council authorized the original HDR Engineering, Inc. agreement on September 1, 2009, for an amount not-to-exceed $1,285,993, with the adoption of Resolution No. 2009-568. Since that time, the project team has identified additional services needed from HDR Engineering, Inc. to complete the project.

Financial Considerations: This contract has no impact on the City's General Fund. There are sufficient resources for the proposed supplemental agreement in the amount of $215,000 in Fund 7103 for the Water Forum Successor Effort (WFSE). This change will increase the agreement's total not to exceed amount to $1,500,993. The WFSE is funded by a cost share agreement among the City of Sacramento, County of Sacramento, and other cost share partners including the City of Roseville, City of Folsom, Placer County Water Agency, Sacramento Municipal Water District, San Juan Water District (Placer County Service Area), and the El Dorado County Water Agency.

On June 30, 2011 the undesignated fund balances were: Fund 7103 $478,000 and Fund 7104 $1,241,000. As of the date this report is submitted, the Financial Reports identifying undesignated fund balances for the period ending June 30, 2012 are pending review and approval by Finance Department Management.

Emerging Small Business Development (ESBD): HDR Engineering, Inc. is not a certified ESBE.

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Background Information:

- The City and County of Sacramento created the City-County Office of Metropolitan Water Planning (CCOMWP) in 1991 to pursue a joint water planning effort in the greater Sacramento Metropolitan area.

- In 1993, a diverse group of business and agricultural leaders, citizens groups, environmentalists, water managers, and local governments formed the Sacramento Area Water Forum.

- In 1999, Water Forum members approved a comprehensive Water Forum Agreement (WFA) (C1999-222). The WFA consists of integrated actions necessary for providing a regional solution to water shortages, environmental damage, groundwater contamination, and limited economic prosperity.

- The CCOMWP has been charged with staffing the effort to implement the WFA, known as the Water Forum Successor Effort (WFSE) (C2001-005).

- Implementation of a revised flow standard that is more protective of the aquatic resources of the lower American River (LAR) is one the WFA's seven elements and is an essential task of the WFSE. These activities include preparation of an Environmental Impact Report (EIR), and submittal of a petition to the State Water Resources Control Board by the U.S. Bureau of Reclamation to add conditions to Reclamation's Folsom Reservoir water right permits that provide for flow releases to the LAR in accordance with the proposed LAR Flow Management Standard (FMS). In FY2009-2010 the CCOMWP, on behalf of the WFSE, began work on the environmental documentation, including defining the scope of work and developing a project description and project alternatives.

- In July 2009, CCOMWP staff developed a scope of work for the professional services needed for this effort and solicited Qualifications Statements from consulting firms. A selection committee reviewed the qualifications received and selected HDR Engineering, Inc. as the top ranked firm to lead the project and prepare the EIR.

- Sacramento City Council authorized the original HDR Engineering, Inc. agreement on September 1, 2009, for an amount not-to-exceed $1,285,993 (City Agreement No. 2009-0804). Since that time, the project team has identified additional services needed from HDR Engineering, Inc. to complete the project, requiring a reallocation of funding in the original agreement, plus additional funding of $215,000, as explained below.

- The Agreement's original scope of services included 5 Phases/Tasks:

    1. Task 1: Pre-Modeling and EIR Planning Activities
    2. Task 2: Hydrologic Modeling and Impact Analysis for Water-Related

Environmental Resources
3. Task 3: Impact Analysis for Other Environmental Resources and Preparation of Administrative Draft EIR
4. Task 4: Public Draft EIR
5. Task 5: Final EIR

- As a result of unanticipated regulatory changes and ongoing technical, political, and strategic changes, significant additional services are necessary to complete the hydrologic modeling and impact analysis for water-related environmental resources through the preparation of the Administrative Draft EIR. To accomplish this, two new Task Orders have been developed to replace the scope of services for Task 2:

    1. Task Order 5: Water-Related Environmental Resources Through Administrative Draft EIR
    2. Task Order 6: Hydrologic and Water Temperature Modeling

- In addition, the Task 3 services (Impact Analysis for Other Environmental Resources) will no longer be performed under this Agreement, but will be performed by Ascent Environmental pursuant to a Professional Services Agreement that was approved by the City Council on October 23, 2012 for an amount not-to-exceed $264,000.

- To provide funding in this Agreement for the additional services in the new Task Orders 5 and 6, it is necessary to reallocate funds from Task 3, Task 4, and Task 5, and provide additional funding in the amount of $215,000. The proposed Supplemental Agreement accomplishes this by (1) replacing Task 2 with the new Task Orders 5 and 6, (2) deleting Task 3, Task 4 and Task 5, and (3) adding $215,000 to the Agreement, bringing the Agreement's total not-to-exceed amount to $1,500,993.

- When the Administrative Draft EIR is completed (anticipated to occur approximately March 2013) staff plans to return to the City Council to request approval of additional services necessary for completion of the Public Draft EIR and Final EIR, as well as the additional funding required for these services.

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SUPPLEMENTAL AGREEMENT

Project Title and Job Number: EIR for Lower American River FMS **Date: 11/15/2012**
Purchase Order #: 18317 **Supplemental Agreement No.: 2**

The City of Sacramento ("City") and HDR Engineering, Inc. ("Contractor"), as parties to that certain Professional Services Agreement designated as Agreement Number 2009-0804 including any and all prior supplemental agreements modifying the agreement (the agreement and supplemental agreements are hereafter collectively referred to as the "Agreement"), hereby supplement and modify the Agreement as follows:

1. The scope of Services specified in Exhibit A of the Agreement is amended as follows:

   A. Tasks 2.1 through 2.5 specified under Phase II (Hydrologic Modeling and Impact Analysis for Water-Related Environmental Resources) in Attachment 1 to Exhibit A are replaced in their entirety with Task Order 5 and Task Order 6, attached hereto and incorporated herein by this reference. The budget remaining for Phase II is reallocated for the performance of Task Orders 5 and 6.

   B. Phase 3 (Impact Analysis for Other Environmental Resources and Preparation of Administrative Draft EIR), Phase IV (Public Draft EIR), and Phase V (Final EIR) in Attachment 1 to Exhibit A are deleted in their entirety. The budget for Phases III, IV, and V is reallocated for the performance of Task Orders 5 and 6.

2. To provide additional funding for Task Orders 5 and 6, the maximum not-to-exceed amount that is specified in Exhibit B of the Agreement for payment of Contractor's fees and expenses is **increased** by $215,000 and the Agreement's maximum not-to-exceed amount is amended as follows:

Agreement's original not-to-exceed amount:	$1,285,993
Net change by previous supplemental agreements:	0
Not-to-exceed amount prior to this supplemental agreement:	1,285,993
Increase by this supplemental agreement:	215,000
New not-to exceed amount including all supplemental agreements:	$1,500,993

3. The budgeted amounts for the tasks included in Task Orders 5 and 6 are shown in Table 5-1 and Table 6-1, respectively, included in the attached Task Order 5 and Task Order 6.

4. Contractor agrees that the new not-to-exceed amount specified in section 2, above, shall constitute full compensation for the performance of all services under the Agreement, as amended by this supplemental agreement, and shall fully compensate Contractor for any and all direct and indirect costs that may be incurred by Contractor in connection with such services, including costs associated with any changes and/or delays in work schedules or in the performance of other services or work by Contractor.

5. Contractor warrants and represents that the person or persons executing this supplemental agreement on behalf of Contractor has or have been duly authorized by Contractor to sign this supplemental agreement and bind Contractor to the terms hereof.

6. Except as specifically revised herein, all terms and conditions of the Agreement shall remain in full force and effect, and Contractor shall perform all of the services, duties, obligations, and conditions required under the Agreement, as supplemented and modified by this supplemental agreement.

SUPPLEMENTAL AGREEMENT

Approval Recommended By:

Project Manager

Approved By:

Contractor

Approved By:

City of Sacramento

Approved As To Form By:

City Attorney

Attested To By:

City Clerk

Attachment 1

TASK ORDER 5 AND TASK ORDER 6
SCOPE OF WORK

FOR THE

CITY OF SACRAMENTO
CITY-COUNTY OFFICE OF METROPOLITAN WATER PLANNING

LOWER AMERICAN RIVER FLOW MANAGEMENT STANDARD
ENVIRONMENTAL IMPACT REPORT

PREPARED BY
HDR ENGINEERING, INC.

Introduction

HDR Engineering, Inc. (formerly referred to as HDR|SWRI) has been requested to prepare a Scope of Work and Cost Estimate for Task Order 5 and Task Order 6 to provide environmental support and regulatory compliance services to the City-County Office of Metropolitan Water Planning (Water Forum) for the processing and preparation of documentation required under the California Environmental Quality Act (CEQA) for the Lower American River Flow Management Standard (FMS) Environmental Impact Report (EIR).

HDR Engineering, Inc. (HDR) received a contract during 2009 for development of the FMS EIR, which included project planning and initiation activities, including coordination with lead, responsible, trustee and cooperating agencies, and key stakeholder representatives; and preparation of a Public Scoping Summary, Administrative Draft EIR, Public Draft EIR and Final EIR, including project team coordination activities necessary to prepare the responses to public and agency comments received on the Public Draft document. HDR's project management activities, including oversight of other environmental team members' administrative, team coordination, strategic, and report preparation activities related to the development and completion of the EIR, were incorporated into the Scope of Work and Master Contract No. 2009-0804.

Through August 15, 2012, HDR has performed work activities under this master contract pursuant to four previously issued task orders. Task Order 5 and Task Order 6 identify additional work activities to be performed by HDR to support the Water Forum in the CEQA process for the FMS EIR. Due to the complex nature of Lower American River issues, as well as unanticipated regulatory changes affecting the integrated operations of the Central Valley Project (CVP) and the State Water Project (SWP) system, several new and previously unforeseen task activities, as well as increases in the previously anticipated level of effort associated with identified tasks, have arisen as a result of ongoing technical, political, and strategic actions that have occurred since 2009.

Changed conditions since 2009 will necessitate an additional level of effort to complete several activities related to:

(1) The development and narrative characterization of the CEQA Existing Condition, the No Project Alternative, the Proposed Project Alternative, and other Action Alternatives;
(2) Lower American River hydrologic and water temperature modeling;
(3) The identification and appropriate characterization of assumptions used to characterize CVP/SWP system-wide hydrologic modeling conducted for the FMS EIR;
(4) The use and application of new modeling and analytical tools (e.g., SALMOD) to evaluate potential impacts to fisheries and aquatic resources in the Sacramento River and the Delta;
(5) The development of impact assessment methodologies, impact indicators and significance criteria corresponding to the new analytical tools, and evaluation of potential impacts to fisheries and aquatic resources;
(6) Expanded scope regarding the number of alternatives to be evaluated in the resource-specific impact assessments presented in the CEQA document; and
(7) Strategic process and project management activities.

Therefore, the Scope of Work for these task orders (Task Order 5 and Task Order 6) supersedes the level of activity and Scope of Work identified in the 2009 Master Contract.

Tasks to be completed by HDR under Task Order 5 and Task Order 6 include those tasks and project activities up to and including completion of the Administrative Draft EIR. Task Order 5 includes strategic process, impact assessment methodologies, environmental consequences, and cumulative impact assessment for water-related, resource-specific environmental resources. It also includes project management activities and other specific activities, as described in the following Scope of Work. Task Order 6 specifically addresses, and is limited to, hydrologic and water temperature modeling activities.

HDR Contact Information:

Paul Bratovich or Dianne Simodynes
2365 Iron Point Road, Suite 300
Folsom, CA 95630
Phone: (916) 817-4700
Fax: (916) 817-4747
Paul.Bratovich@hdrinc.com or Dianne.Simodynes@hdrinc.com

TASK ORDER 5 – WATER-RELATED ENVIRONMENTAL RESOURCES THROUGH ADMINISTRATIVE DRAFT EIR

Client Name: City of Sacramento, City-County Office of Metropolitan Water Planning

Project: Lower American River Flow Management Standard Environmental Impact Report

Agreement: Professional Services Agreement for Design Services between the City of Sacramento and HDR Engineering, Inc., City Agreement No. 2009-0804, as amended.

Task Order Name: Task Order 5 – Water-Related Environmental Resources through Administrative Draft EIR

HDR Task Manager: Dianne Simodynes

Statement of Work and Schedule: As directed by the City Representative(s) under the above Agreement, HDR shall perform the following tasks as described below. The budget for these subtasks is provided in Table 5-1. The period of performance for Task Order 5 is through June 2013.

Task 5.1 Strategic Process

The Project Management Team (also referred to as the Technical Team) is convened by the Water Forum Executive Director on a regular basis and consists of Water Forum staff, legal counsel, HDR staff, and other consultants to the Water Forum. The Project Management Team oversees and directs the FMS Program process, including review of project deliverables and completion of the FMS Program documentation and approval processes. Through preparation of the Administrative Draft EIR, HDR's Principal Scientist will attend eight (8) Project Management Team meetings, and HDR's Principal Hydrologist and HDR's Senior Modeling Engineer also will attend eight (8) Project Management Team meetings each.

The Steering Committee comprises key representatives from each caucus of the Water Forum. The Steering Committee will receive information from, and provide direction to, the Project Management Team. Steering Committee activities focus on resolving policy issues that may arise related to FMS Program implementation regulatory compliance. Steering Committee meetings are anticipated to be held approximately once a month through preparation of Administrative Draft EIR. HDR's Principal Scientist will attend eight (8) Steering Committee meetings, and HDR's Principal Hydrologist and HDR's Senior Modeling Engineer also will attend eight (8) Steering Committee meetings each.

Task 5.2 Prepare Impact Assessment Methodologies and Environmental Consequences Sections for Water-related Environmental Resources

For the purposes of this task, water-related environmental resources include: (1) fisheries and aquatic resources; (2) hydrology and surface water supply; (3) hydropower; and (4) flood control. The impact assessment methodology and environmental consequences sections will include the following:

- Technical evaluation guidelines and significance criteria for use in the assessment of potential impacts
- Analytical methodology (quantitative and qualitative, as appropriate for each resource) for each of the impact topics and analysis guidelines/criteria
- Resource-specific information and data analyses
- Environmental consequences and levels of significance utilizing the technical evaluation guidelines and significance criteria

The identification of resource-specific environmental consequences will be developed through use of the technical evaluation guidelines and significance criteria to enable determination of the significance of potential impacts. For the identified resource topics (i.e., fisheries and aquatic resources, water supply, hydropower, and flood control) the impact analyses related to river system and reservoir hydrology will be supported by the hydrologic modeling and post-processing results. Impact assessment will include: (1) a quantitative comparison of the lower American River and other CVP\SWP potentially affected areas with implementation of the FMS to evaluate potential impacts; and (2) assessment of the modeling result comparisons relative to the technical evaluation guidelines and significance criteria. This Task Order 5 assumes four action alternatives. The resource-specific impact assessments to be conducted under Task Order 5 include the following.

Fisheries and Aquatic Resources Assessment

It is presently anticipated that the Fisheries and Aquatic Resources assessment will include, but not necessarily be limited to, the following:

- Species of Focused Evaluation
  - Lifestage Timing
  - Habitat Use in Each of the Geographic Areas
- Technical Evaluation Guidelines and Impact Indicators
  - Physical Habitat
  - Water Temperature

- Impact Assessment
  - Model Output Application
  - Metrics Application
- Significance Criteria
  - Establishment and Rationale
  - Application and Impact Determination

Specific methodologies will be developed to apply to evaluation fish species in each of the study areas (primary, secondary, and extended). In addition, specific methodologies will be developed to apply water temperature index values and metrics for their application to the impacts analysis supported by the focused Lower American River flow and water temperature modeling. It is presently anticipated that water temperature index values (e.g., upper optimal and upper tolerable) will be applied to focused Lower American River water temperature modeling for identified evaluation species in the Lower American River. Metrics for water temperature index value application will be identified including consideration of duration of exposure and consistency with State Water Resources Control Board (SWRCB) and U.S. Environmental Protection Agency (EPA) applications. Potential metrics include MWAT (maximum 7-day running average of daily mean temperature), and LC50 or LC10 (lethal concentration 50 or 10% of the population). Additional activities include preparation of narrative descriptions of the various metrics and analytics used to evaluate fisheries resource impacts, including incorporation of specific lifestage and habitat considerations. Most of the specific activities associated with development of fisheries impact assessment methodologies will be completed under Task Order 4. However, it is anticipated that a restricted level of effort will be necessary under Task Order 5 to finalize impact assessment methodologies and to develop a consistency of presentation with other water-related resources (e.g., hydrology and water supply, hydropower, and flood control).

Water Supply, Hydropower, and Flood Control

Implementation of the FMS has the potential to affect CVP/SWP deliveries, power generation, project power use, and flood control operations. Task Order 5 will include development of the impact assessment methodologies and determination of environmental consequences for the water-related resources of water supply, hydropower, and flood control [*Note: actual modeling will be conducted under Task Order 6*]. It is presently anticipated that the water supply and power supply sections will include, but not necessarily be limited to, the following.

- Impact Indicators
  - CVP/SWP Contractor Deliveries
  - American River Basin Purveyor Allocations and Deliveries
    [Note: Water supply impact analysis within the American River Division will include water quality issues for deliveries within the American River Division resulting from Folsom Reservoir water levels]
  - CVP/SWP Power Generation
  - CVP/SWP Pumping Power Use
  - CVP/SWP and Lower American River Specific Flood Control

- Impact Assessment
  - Model Output Application
  - Metrics Application
- Significance Criteria
  - Establishment and Rationale
  - Application and Impact Determination

Development of the fisheries and aquatic resources, hydrology and surface water supply, hydropower, and flood control chapters of the Administrative Draft EIR will specifically include preparation of the environmental setting, presentation of the regulatory framework, description of the impact assessment methodology, identification of technical evaluation guidelines and significance criteria, and assessment of potential resource-specific impacts of the Proposed Project and Alternatives (direct, indirect, short-term, long-term, project-specific and cumulative), and identification of appropriate mitigation measures for any identified potentially significant or significant impacts.

In addition to development of the previously described water-related environmental resources chapters, Task Order 5 also includes completion of the Alternatives Screening Process and Project Description chapter of the Administrative Draft EIR.

Task 5.3 Project Management

Subtask 5.3.1: General Project Management Activities

HDR's Project Manager, under direction of the Principal-in-Charge, will continue to oversee the management of Task Order 5, including the strategic process and preparation of the impact assessment methodologies and environmental consequences sections for Water-Related Environmental Resources through preparation of the Administrative Draft EIR. These activities include management of the project scope, budget and schedule as specified in the task order.

HDR will provide the Water Forum with the following:

- Monthly Project Status Reports
- Monthly Invoices

Included in these activities will be confirmation of billing codes and identification of the level of detail required to support all invoices (e.g., level of detail in work activity descriptions by all staff members, expense report receipts, etc.).

Subtask 5.3.2: Prepare and Maintain Project Files and Administrative Record

HDR's Project Manager will oversee the set-up and maintenance of project files/administrative record for correspondence, work products, and related documentation related to the analyses of water-related environmental resources chapters, as specified in this task order, through preparation of the Administrative Draft EIR.

Task Management: Dianne Simodynes will serve as HDR's Task Manager for this task order (Task Order 5).

Invoice Preparation and Payment: For this task order (Task Order 5), activities associated with monthly invoice preparation will be provided by the HDR Folsom Office. Invoices associated with services provided will be addressed to:

Tom Gohring, Program Manager
City-County Office of Metropolitan Water Planning
Water Forum
660 J. Street, Suite 260
Sacramento, California 95814

Payment for HDR's professional services provided in support of the FMS EIR shall be directed to HDR at the address shown below.

HDR Engineering, Inc.
PO Box 3480
Omaha, NE 68103-0480

Schedule of Charges: For Task Order 5, billing rates used by HDR staff providing professional services will be based on the 2009 Schedule of Charges for HDR's Folsom Office, previously submitted to the Water Forum on July 21, 2009.

Authorized Compensation: The total overall budget for completion of activities described in this Task Order 5 is not to exceed **$626,641,** unless this maximum amount is amended in writing by the City Representative. HDR may adjust the budget allocations for individual tasks, as long as the total budget for this Task Order is not exceeded.

City Authorized Representative:	**Consultant Authorized Representative:**
Tom Gohring Executive Director City-Country Office of Metropolitan Water Planning	Robert Boling Senior Vice President HDR Engineering, Inc.
By: _____	By: _____
Date: _____	Date: 8/28/2012

Table 5-1. Budget Summary for Task Order 5		
Task No.	**Task Description**	**Budget**
5.1	Strategic Process (Technical Team and Stakeholder Meetings)	$92,209
5.2	Prepare Impact Assessment Methodologies and Environmental Consequences Sections for Water-related Environmental Resources	
5.2.1	Develop Water-Related Resource-Specific Environmental Setting & Regulatory Setting Sections	$86,954
5.2.2	Develop Water-Related Resource-Specific Impact Assessment Methodologies, Impact Indicators and Significance Criteria	$55,882
5.2.3	Develop Water-Related Resource-Specific Cumulative Impact Assessment Methodologies, Impact Indicators and Significance Criteria Sections	$34,540
5.2.4	Conduct Water-Related Resource-Specific and Cumulative Analyses	$212,062
5.2.5	QA/QC Results of Water-Related Resource-Specific and Cumulative Analyses	$41,540
5.2.6	Complete Alternatives Screening Process and Develop Project Description Chapter	$21,400
5.3	Project Management	
5.3.1	General Project Management Activities	$46,488
5.3.2	Prepare and Maintain Project Files and Administrative Record	$35,566
	Task Order 5 Total	**$626,641**

TASK ORDER 6 – HYDROLOGIC AND WATER TEMPERATURE MODELING

Client Name: City of Sacramento, City-County Office of Metropolitan Water Planning

Project: Lower American River Flow Management Standard Environmental Impact Report

Agreement: Professional Services Agreement for Design Services between the City of Sacramento and HDR Engineering, Inc., City Agreement No. 2009-0804, as amended

Task Order Name: Task Order 6 – Hydrologic and Water Temperature Modeling

HDR Task Manager: Dianne Simodynes

Statement of Work and Schedule: As directed by the City Representative(s) under the above Agreement, HDR shall perform the following tasks as described below. The budget for these subtasks is provided in Table 6-1. The period of performance for Task Order 6 is through June 2013.

Task 6.1 Hydrologic and Water Temperature Modeling

Modeling activities performed under this task will be used to assess potential impacts of the Proposed Project and Alternatives. This task includes activities related to model output development for application to resource-specific analyses in subsequent chapters of the Administrative Draft EIR. This task assumes four Action Alternative scenarios, in addition to the Existing Condition and No Project scenarios.

Subtask 6.1.1 Finalize Modeling Approach and the Modeling Technical Memorandum

HDR modeling specialists will lead preparation of a Technical Memorandum in which all surface water modeling tools, applications, and assumptions to be used in the assessment of the Proposed Project and Alternatives will be described. HDR will coordinate with modeling specialists at cbec, Inc. regarding HEC-RAS modeling applications and methodology. The Technical Memorandum will be presented to the Project Management Team for review and comment. One review cycle and response to comments is anticipated for this task. Development of the Technical Memorandum materials will include incorporation of information or analysis direction provided by lead, responsible and trustee agencies, as well as resource agency specialists (e.g., USFWS, NMFS, and CDFG), upon approval by the Project Management Team, to be obtained during project coordination and meeting activities.

Subtask 6.1.2 System-wide Modeling

Modeling activities performed under this subtask will result in development of materials to be used to assess potential reservoir storage and elevation, and river flow-related aquatic and surface water resources impacts of the FMS Proposed Project and Alternative scenarios. These analyses will support the impact conclusions presented in the Administrative Draft EIR.

This subtask includes model input file set-up utilizing the most recent and appropriate CALSIM II studies (i.e., the Long-Term CVP Operations Criteria and Plan [OCAP] Biological Assessment [BA] Studies with appropriate updates or refinements to be determined in consultation with the project agencies) data files, individual simulation and post-processing application development, preliminary review and assessment of modeling output, model refinement, one iterative re-simulation, as necessary, and development of model output. Models and related procedures or applications to be utilized as part of the post-processing and output template development are described below.

The following elements are included in this subtask:

- Coordination between technical and modeling team members regarding refinement of the simulation characterizations, as agreed to with USFWS, NMFS, CDFG, and other key stakeholders
- Finalize modeling approach
- Coordinate regarding specific data output, content, and format
- Develop, review, and modify model output
- Develop and review comparative matrices for resource impact assessments

The Scope of Work and Cost Estimate assume that the specific assumptions, simulations, and comparisons will be reviewed, approved, and made final, as a result of input from the Project Management Team. Additional simulations or comparisons may be identified as part of these meetings. Should this occur, HDR and/or cbec, Inc. (depending upon the subtasks affected) will prepare a scope and cost amendment for any additional modeling activities not already covered by this Scope of Work and Cost Estimate.

The modeling activities and anticipated progression are described in detail below, followed by a listing of the individual subtasks.

HDR will conduct computer simulations (modeling) of the CVP/SWP surface water systems to provide data to evaluate the potential changes in water system characteristics, including reservoirs and waterways of the Lower American River and regional study area, including Delta operations.

Multiple modeling tools will be utilized to generate data for the resource analyses. Models and related procedures/applications to be utilized include:

- Most recent CALSIM II OCAP studies
- Reclamation's American River Temperature Model and Automated Temperature Selection Procedure

- Reclamation's Sacramento River Temperature Model
- Reclamation's Shasta Reservoir Temperature Model
- Reclamation's Folsom Reservoir Automated Temperature Selection Procedure (ATSP) Model and Coldwater Pool Management Model (CPMM)
- American River Salmon Mortality Analysis
- Feather River Salmon Mortality Analysis
- Sacramento River Salmon Mortality Analysis

Work to be performed for the indicated budget includes model input file set-up of CALSIM II data files, individual simulation and post-processing application development, preliminary review and assessment of modeling output, model refinement, one iterative re-simulation, as necessary, and development of model output.

Subtask 6.1.3 Focused Lower American River Modeling

Monthly mass-balance storage, flow, and water temperature models do not provide a fine enough temporal scale to identify potential impacts on a weekly, daily, or diurnal time scale. These monthly models provide boundary condition information and general operational guidelines over an extended period of record, applicable to a more focused, detailed model application. It is presently anticipated that the flow and water temperature output for evaluation of potential impacts will be facilitated by utilization of the hydrodynamic HEC-RAS water temperature model for the Lower American River, by cbec, Inc., under separate contract with the City of Sacramento, City-County Office of Metropolitan Water Planning. For this Task Order 6, the models and tools identified in Subtask 6.1.2 will be used to simulate Folsom Reservoir and Lower American River conditions on a monthly time step, as boundary condition inputs to the HEC-RAS model. It will be used to evaluate various scenarios by changing boundary condition assumptions. This Subtask 6.1.3 provides for HDR modeling support to refine boundary condition inputs and model outputs to be incorporated into the HEC-RAS modeling conducted for the Lower American River by cbec, Inc.

Subtask 6.1.4 Produce Model Output

HDR's modeling process includes the production of charts and tables with output for use in environmental impact determination for several resource disciplines within the CVP/SWP system.

HDR will produce modeling output for each simulation and impact analysis comparison required to conduct the resource-specific impact analyses for each of the CEQA alternatives comparisons identified above. The model output also will be compiled into template format to provide graphic and tabular representation of the data used by resource experts to evaluate the potential project-specific impacts relative to baseline conditions. It is expected that the modeling output will be provided on a DVD for inclusion as a technical appendix to the Administrative Draft EIR.

Task Management: Dianne Simodynes will serve as HDR's Task Manager for this task order (Task Order 6).

Invoice Preparation and Payment: For this task order (Task Order 6), activities associated with monthly invoice preparation will be provided by the HDR Folsom Office. Invoices associated with services provided will be addressed to:

Tom Gohring, Program Manager
City-County Office of Metropolitan Water Planning
Water Forum
660 J. Street, Suite 260
Sacramento, California 95814

Payment for HDR's professional services provided in support of the FMS EIR shall be directed to HDR at the address shown below.

HDR Engineering, Inc.
PO Box 3480
Omaha, NE 68103-0480

Schedule of Charges: For Task Order 6, billing rates used by HDR staff providing professional services will be based on the 2009 Schedule of Charges for HDR's Folsom Office, previously submitted to the Water Forum on July 21, 2009.

Authorized Compensation: The total overall budget for completion of activities described in this Task Order 6 is not to exceed **$218,609,** unless this maximum amount is amended in writing by the City Representative. HDR may adjust the budget allocations for individual tasks, as long as the total budget for this Task Order is not exceeded.

City Authorized Representative:	**Consultant Authorized Representative:**
Tom Gohring	Robert Boling
Executive Director	Senior Vice President
City-Country Office of Metropolitan Water Planning	HDR Engineering, Inc.
By: _____	By: _____
Date: _____	Date: 8/28/2012

Table 6-1. Budget Summary for Task Order 6		
Task No.	**Task Description**	**Budget**
6.1	Hydrologic and Water Temperature Modeling	
6.1.1	Finalize Modeling Approach and the Modeling Technical Memorandum	$45,839
6.1.2	System-wide Modeling	$114,331
6.1.3	Focused Lower American River Modeling [Task Includes Development of Iterative Water Temperature Modeling Process & Preliminary Interpretation of Results]	$12,062
6.1.4	Produce Model Output	$46,377
	Task Order 6 Total	**$218,609**