



## **Request for Offer**

**RFO #: 13-4234**

**SAS Code Support Services  
For the Automated Metadata Project**

**For:**

**Healthcare Information Division (HID)  
Healthcare Information Resource Center (HIRC)**

**RFO Release Date: April 23, 2014**

**You are invited to review and respond to this Request for Offer (RFO). To submit an offer for these goods and/or services, you must comply with the instructions contained in this document. By submitting an offer, your firm agrees to the terms and conditions stated in this RFO and your proposed MA or CMAS contract.**

**Read this document carefully. The RFO due date is May 5, 2014 at 5pm. Responses to this RFO and any required copies must be clearly labeled and submitted by mail or hand-carried, clearly labeled to the department contact noted below:**

**Department contact:**

**Robin Adam  
Office of Statewide Health Planning and Development  
400 R Street, Room 359  
Sacramento, CA 95811  
Telephone: (916) 326-3947  
Email Address: [robin.adam@oshpd.ca.gov](mailto:robin.adam@oshpd.ca.gov)**



## General Information

### 1. Background and Purpose of the Request For Offer (RFO)

The Office of Statewide Health Planning and Development (OSHPD) is requesting SAS® technical services to write program code to execute two stand-alone components of OSHPD's Automated Metadata Project. These are to: 1) support the creation and maintenance of OSHPD's patient-level data set descriptive documentation (i.e. "metadata"); and 2) validate the contents of confidential files prior to their being sent to requesters.

State law allows for OSHPD to provide patient data to qualified researchers and California hospitals and local health departments. This data is used for health services research statewide and nationally and is a prized resource for such investigations. The law requires that only the minimum necessary data be provided for the research project, and the complement of data elements be tailored for each project. The data is submitted by the reporting hospitals to the Patient Data Section's (PDS) Medical Information Reporting for California (MIRCal) system, passed to the Data Management Office's (DMO) Data Warehouse for processing into SAS data sets, and made available to the Healthcare Information Resource Center (HIRC) to provide data sets to requesters, based on data submission periods and requestor eligibility. HIRC manages and processes multiple versions of the patient-level healthcare data sets, each with an associated set of descriptive documentation/metadata. OSHPD has maintained the SAS Patient Discharge Data [PDD], Emergency Department [ED], and Ambulatory Surgery [AS] data sets from 1983 [PDD] and 2005 [ED, AS], onwards. The SAS PDD, ED and AS data sets are additionally linked to these patient level files: Vital Statistics Birth (Linked Birth), Vital Statistics Death (Linked Death), and California Coronary Artery Bypass Graft (CABG) Outcomes Reporting Program. These patient-level data sets, and associated metadata, are available to eligible requestors.

### 2. Key Dates

Event	Date
1. Release of RFO	April 23, 2014
2. Emailed Questions Regarding RFO to OSHPD*	April 25, 2014, 5pm
3. Emailed Responses	April 28, 2014, 5pm
4. RFO Response Due Date (Received at OSHPD)	May 5, 2014, 5pm
5. Anticipated Contract Award	May 9, 2014
6. Contract Initiation	June 21, 2014

All questions regarding RFO are to be emailed to OSHPD department contact by April 25, 2014. Responses to questions received will be provided in writing to all prospective Contractors within three (3) days.

### **3. RFO Response Requirements**

This RFO and the offeror's response to this document will be made part of the ordering department's Purchase Order and contract file. One full copy of your approved CMAS must be provided with the offer.

Responses must contain all requested information and data and conform to the format described in this section. It is the offeror's responsibility to provide all necessary information for the State to evaluate the response, verify requested information and determine the offeror's ability to perform the tasks and activities defined in Attachment A – Scope of Work.

The offeror must submit one (1) copy on digital media in MS Word 2010 format, one (1) printed original and three (3) printed copies of the RFO response to the department contact name and address contained on the cover sheet to this RFO.

### **4. RFO Response Content**

Information required to respond to this RFO is contained in Attachment C – Final Checklist.

#### **a) Response to Attachment A – Scope of Work:**

The offeror's proposal responds to the Attachment A - Scope of Work and will be used to evaluate responsiveness to requirements. The proposal must map each task/deliverable item back to the Attachments. The proposal must include any additional information that the offeror deems necessary to explain how the offeror intends to meet the State's requirements and needs to contain the following as appropriate:

1. Overview of the required tasks and outcomes that demonstrates offeror's understanding of what is being requested.
2. Description of how the tasks will be performed,
3. Work plan for each task, including sub-task description,
4. Samples of work from other projects, or outlines of proposed deliverables,
5. Qualifications of the firm including at least two (2) non-OSHPD references from previous projects that are similar in nature and scope to this project (reference name, title, company/agency, phone number and e-mail address are required),

6. Organization chart that identifies the proposed contract team,
  7. Qualifications of staff including resumes and at least two (2) non-OSHPD references for each proposed project staff person.
- b) Response to the Attachment B – Cost Worksheet details cost per deliverable and will list proposed staff, classification, and rates. These costs must map by each classification to the offeror's Statement of Work.

#### **5. Contractor Minimum Qualifications**

Specific requirements are defined in the Scope of Work, included as Attachment A. All interested firms must be current California Multiple Award Schedule (CMAS) vendors and meet the requirements specified in this RFO. Vendors must have qualified staff on hand for this project and be ready to begin work on the project initiation date specified in the Key Actions/Dates section.

The offeror must:

- a) Be a qualified CMAS Contractor in good standing with the Department of General Services.
- b) Have key personnel with a minimum of 3 years of experience in SAS technical services.
- c) Provide examples of former SAS technical services projects.
- d) Provide examples of projects which required knowledge of metadata concepts and best practices for automating file and variable level metadata.

#### **6. Contractor Desirable Qualifications**

- a) Be certified as a SAS programmer.
- b) Knowledge of healthcare data systems.
- c) Knowledge of SAS Clinical Data Integration and Data Management Software solutions.
- d) Programming experience in the following areas:
  - C#
  - .Net
  - JavaScript
  - CSS3
  - HTML5,
  - XML
  - creating database tables, stored procedures, triggers, views, and functions
- e) Understanding of network architecture and protocols.

## **7. Evaluation Process**

Selection will be based on the best overall value. RFO responses that meet all requisites for a complete response will be considered “responsive.” Responsive RFO’s will be assessed using a two-step method to determine the selected offer.

Step 1 – Each response will be assessed based on the technical review factors/criteria as outlined in the following table. The technical review has a possible 60 points. Prospective offers must receive a minimum of 35 points to be considered “responsive.” Responses that fail to meet the minimum technical points will be rejected. Only the “responsive” offers will be considered in Step 2.

Step 2 – Cost has a possible 40 points. The points will be determined according to the criteria/formula specified in the following table.

**Evaluation Table**

<b>CATEGORY AND CRITERIA</b>	<b>MAXIMUM POINTS = 60</b>
<p style="text-align: center;"><b>EXPERIENCE</b></p> <p>A. Demonstrates at least 3 years' experience in SAS technical services and provides examples of former engagements.</p> <p>B. Demonstrates programming knowledge and experience with applications listed in Section 5 Contractor Minimum Qualifications.</p> <p>C. Demonstrates knowledge of metadata concepts and best practices for automating file and variable level metadata.</p>	<p><i>Possible Points: 24 (8 points each)</i></p> <p>Points are awarded to responses that adequately address experience and knowledge in each area listed (A-C).</p>
<p style="text-align: center;"><b>UNDERSTANDING OF SCOPE OF WORK</b></p> <p>A. Addresses specific services requested.</p> <p>B. Demonstrates clear understanding of and ability to perform scope of work.</p>	<p><i>Possible Points: 20 (10 points each)</i></p> <p>Points are awarded to responses that demonstrate an understanding of the work that is to be provided and adequately addresses the criteria listed for each section. Reason to believe work will be completed and be high quality product.</p>
<p style="text-align: center;"><b>APPROACH CLEARLY STATED</b></p> <p>A. Description of the services and the methodology the firm proposes for this project.</p> <p>B. Preliminary project plan and schedule for project activities.</p>	<p><i>Possible Points: 10 (5 points each)</i></p> <p>Clearly describes the approach, services, and methodology.</p>
<p style="text-align: center;"><b>REFERENCES</b></p> <p>Examples of SAS work for similar engagements comparable in scope to this project or to larger projects.</p>	<p><i>Possible Points: 6</i></p> <p>References for similar engagements demonstrate:</p> <ul style="list-style-type: none"> <li>-Previous work met expectations</li> <li>-Effective communication on issues</li> <li>-Quality of work performed and products delivered</li> </ul>
<p><b>Minimum score of 35 points must be met on the above criteria.</b></p>	

CATEGORY AND CRITERIA	MAXIMUM POINTS = 40
<p style="text-align: center;"><b>COST</b></p> <p>Lowest offer receives maximum points. Points for other responses will be decreased based on the percentage difference in total cost.</p>	<p><i>Possible Points: 40</i></p> <p>Example: Lowest response cost is \$400,000. Next lowest response cost is \$440,000. Percentage difference = 10%. Score is <math>40 - (.1)(40) = 36</math>.</p>

## **REQUEST FOR OFFER**

### **ATTACHMENT A – SCOPE OF WORK**

#### **A. Scope and Description**

SAS® technical services to write program code to execute two distinct components of OSHPD's Automated Metadata Project.

- 1) Support the creation and maintenance of metadata for the OSHPD patient-level SAS datasets (inpatient, emergency department, and ambulatory surgery center), and
- 2) Validate the contents of confidential files prior to their being sent to requesters.

Work can be performed either on- or off-site of OSHPD's Sacramento offices (400 R Street) located in downtown Sacramento.

#### **B. Contractor Responsibilities**

The Contractor shall:

- With OSHPD analysts, finalize the elements to include in the automated Data Dictionaries. Some components will be created by staff, such as file, appendices, and variable definitions. Many components exist in, or can be generated from, the SAS files/data. For example:
  - File Level Details:
    - File creation date
    - File modified date
    - Nobs – number of observations
    - Nvar – number of variables
    - File/universe name
    - SAS statement (inclusion/exclusion criteria) that defines the file/universe.
    - Libname – where file is located
    - File size
    - Owner
    - CHHS Open Data Handbook – Metadata Elements (see Appendix A)
  - Variable and Format Details
    - Variable ID/varnum
    - Variable name
    - Variable label
    - Type – data format: C = character; N = numeric
    - SAS Format
    - SAS InFormat

- Length – variable length
  - Range – Minimum and maximum legal values
  - Mean – Average of values in data set.
  - Format Indicator – 1 = format exists for variable; 0 = no format
  - Values – list of legal values for each variable
  - Value format – labels associated with legal values
  - Frequency (count) of non-missing values
  - Percent (%) of non-missing values
  - Filled - % filled with data
  - MissN – Missing count
  - MissPct – Missing %
  - Unique – Number of unique values
- Develop and annotate a SAS Program for the generation of an automated Data Dictionary Report based on SAS patient-level data sets and the MIRCAL-DMO-HIRC data process. Annotation should include notes at points in the code where OSHPD analysts can modify files, library, variables, etc. The report will be a Microsoft Word document. Planning, documentation, installation, execution, and testing will require collaboration with OSHPD analysts. Examples of reports generated by SAS in the literature are included in Appendix B.
  - With OSHPD analysts, finalize the process for specifying and validating the file contents of the confidential data sets and the validation report contents.
  - Develop and annotate a SAS Program for validating the contents of confidential data sets produced in response to research requests for patient-level data, so as to allow auditing and verification of the data contents released to approved requestors. Planning, documentation, installation, execution, and testing will require collaboration with OSHPD analysts.
  - Develop a SAS format library for the OSHPD patient-level data sets. This will require collaboration with OSHPD analysts.
  - Develop a testing regime for the Data Dictionary code.
  - Develop a testing regime for the Validation code.
  - Assist OSHPD to implement and test the Data Dictionary code until OSHPD can successfully execute.
  - Assist OSHPD to implement and test the Validation code until OSHPD can successfully execute.
  - Comment on and annotate program code produced in the project.
  - Maintain and update, as needed, the technical programmer's and the site administrator's documentation.
  - Develop a project management plan for required tasks. Contractor is responsible for planning task milestones, scheduling tasks, and tracking progress of task completion.

- Provide invoicing that indicates billable hours for each team member and is organized by tasks worked upon during the billing period. Invoicing shall correlate with monthly project reporting.
- Provide a weekly status report on progress towards project task completion via email.
- Provide a written monthly report to include progress towards completion of project tasks; estimated and billable hours for each team member by task; and planned work for upcoming month.

### **C. Deliverables**

The Contractor shall deliver electronically the following deliverables:

- Written project plan, schedule and updates, as needed.
- Written weekly status updates via email.
- Design document for the content and structure of Validation Report and the validation process; edits identified during review by OSHPD staff have been incorporated.
- Design document for contents and structure of Data Dictionary; edits identified during review by OSHPD staff have been incorporated.
- Final annotated SAS Program for validation of the contents of confidential data sets. Execution and Validation Report meet OSHPD acceptance testing and errors identified during acceptance testing have been corrected.
- Final annotated SAS Program for generation of the Data Dictionary. Execution and Data Dictionary meet OSHPD acceptance testing and errors identified during acceptance testing have been corrected.
- Design document for the structure and contents of the SAS format library; edits identified during review by OSHPD staff have been incorporated.
- SAS format library for the OSHPD patient-level data sets. Execution meets OSHPD acceptance testing and errors identified during acceptance testing have been corrected.
- Written test plan and associated test scripts and/or tools for Data Dictionary code.
- Written test plan and associated test scripts and/or tools for Validation code.
- Written SAS administrator documentation and/or documentation of modifications or additions to functionality and/or content of the SAS Data Dictionary program code.
- Written SAS administrator documentation and/or documentation of modifications or additions to functionality and/or content of the SAS Validation Report program code.

### **D. Acceptance Criteria**

It shall be the State's sole determination as to whether a deliverable has been successfully completed and acceptable to the State. There must be a signed acceptance document for each deliverable before invoices can be processed for payment.

Acceptance criteria shall consist of the following:

1. Reports on written deliverables are completed as specified and approved.
2. All deliverables must be in a format that can be used by the State.
3. Execution of deliverables pass OSHPD's acceptance testing criteria.
4. If a deliverable is not accepted, the State shall provide the rationale in writing within 5 days of receipt of the deliverable or upon completion of acceptance testing period.

#### **E. State Responsibilities**

- Provide a Project Manager who oversees all aspects and phases of the project
- Provide a Technical Specialist who serves as the subject matter expert
- Assign the work to be completed
- Assist with testing
- Provide technical guidance and approval of methodologies
- Review interim and completed work
- Accept the completed and approved work
- Provide computers and workspace for the Contractor during normal business hours of 8:00 a.m. - 5:00 p.m. at 400 R Street, Sacramento, CA 95811.

Provide access to business and technical documents as necessary for the contractor to complete the tasks identified in the department's purchase document. Provide space and access necessary to accomplish contract goals/deliverables. Review and give feedback on documents. Review and perform acceptance testing of SAS code.

#### **F. Travel**

OSHPD will not reimburse the Contractor's travel costs.

## REQUEST FOR OFFER

### ATTACHMENT B – COST WORKSHEET

DELIVERABLES	DUE DATE	COST
1. Written project plan, schedule and updates, as needed.		
2. Written weekly status updates via email.		
3. Design document for the content and structure of Validation Report and the validation process; edits identified during review by OSHPD staff have been incorporated.		
4. Design document for contents and structure of Data Dictionary; edits identified during review by OSHPD staff have been incorporated.		
5. Final annotated SAS Program for validation of the contents of confidential data sets. Execution and Validation Report meet OSHPD acceptance testing and errors identified during acceptance testing have been corrected.		
6. Final annotated SAS Program for generation of the Data Dictionary. Execution and Data Dictionary meet OSHPD acceptance testing and errors identified during acceptance testing have been corrected.		
7. Design document for the structure and contents of the SAS format library; edits identified during review by OSHPD staff have been incorporated.		
8. SAS format library for the OSHPD patient-level data sets. Execution meets OSHPD acceptance testing and errors identified during acceptance testing have been corrected.		
9. Written test plan and associated test scripts and/or tools for Data Dictionary code.		
10. Written test plan and associated test scripts and/or tools for Validation code.		
11. Written SAS administrator documentation and/or documentation of modifications or additions to functionality and/or content of the SAS Data Dictionary program code.		
12. Written SAS administrator documentation and/or documentation of modifications or additions to functionality and/or content of the SAS Validation Report program code.		

<b>STAFFING/CLASSIFICATIONS</b>			
<b>NAME OR TASK #</b>	<b>CLASSIFICATIONS</b>	<b>RATE PER HOUR</b>	<b>EXTENDED TOTAL COST</b>

## REQUEST FOR OFFER

### ATTACHMENT C - FINAL CHECKLIST

The offer package must include the following:

- Cover Letter identifying your firm's primary contact, phone number and email address
- Technical Proposal (Section 4, RFO Request Content)
- Cost Worksheet (ATTACHMENT B)
- Payee Data Record (STD 204)
- Contractor Certification Clauses (CCC 307)
- One copy on digital media in MS Word 2010 format; Original and three printed copies of the offer package
- Full copy of your CMAS package

#### ALL OFFERS MUST BE SENT OR DELIVERED TO:

Robin Adam  
Office of Statewide Health Planning and Development  
Request for Offer 13-4234  
400 R Street, Room 359  
Sacramento, CA 95811

**ALL OFFERS MUST BE RECEIVED AT THE ABOVE ADDRESS NO LATER THAN MAY 5, 2014, 5PM PDT. RFO RESPONSES RECEIVED AFTER MAY 5, 2014, 5PM PDT WILL BE REJECTED.**

**APPENDIX A**

**Automated Metadata Project (AMP) for SAS Patient-Level Datasets**  
OSHPD/HID/HIRC Project Concept Statement - February 2014

From the CHHS Open Data Handbook - Appendix B: Metadata Elements

Metadata Element	Description	Dublin Core Value	OSHPD PDD Value
Dataset Name / Title	The name of the dataset as it will appear on the portal.	Title	PDD PUF
Dataset Description	Short description that explains the purpose of the dataset and the data within.	Description	Desc
Category	The general category that the dataset is included in on the site (the categories include: economic development, education, energy & environment, government & finance, health, human services, public safety, recreation, transparency, and transportation).	Type	Health
Tags / Keywords	Keywords about the dataset used for searching purposes	Subject	Discharge
Data Provided By	The department that provided the data	Contributor	PDS?
URL to Dataset Program Web Page	The URL to the program area web page	n/a	Data Request Center
Responsible Organization within Department	The organization that the dataset owner is a part of	Creator	OSHPD
Time Period	The timeframe of the data available in the associated data file (e.g., beginning 2005)	Coverage (temporal)	2010-2012
Create Date	The date the resource was made available in its present form - auto generated	Date	Revision date
Posting Frequency	How often the dataset will be refreshed (e.g., annually, monthly, daily)	n/a	Annually
Contact E-mail Information	The email address the viewers of the data can use to ask questions about the dataset	n/a	HIRCWeb
Coverage	The coverage area included in the dataset (e.g., statewide)	Coverage (spatial)	Statewide
Granularity	The lowest levels of granularity available within the data file (e.g., county)	n/a	Patient
Define any Limitations	Description of any limitations of the dataset or exclusions	Rights	Masking?
URL(s) to additional resources (optional)	URLs to additional resources that may be useful to an end-user	Relation	MIRCal Guide
User Access	What types of users are eligible to access this data set		PUF/AB2876/IPA
<b>Narrative Information</b>			
Overview Document	One to two page document that explains the dataset in greater detail, explains the data collection process, and any limitations in the data use	n/a	
Data Collection Tool / Data Input	Explanation of the data collection methodology	n/a	MIRCal reporting guides
Data Dictionary and/or Data File Layout	Explains the fields within the dataset in terms of their definition, type, size, and any other pertinent information that describes the dataset	n/a	Data Dictionary File Format
Benefit of Using Dataset (optional)	Additional supporting documentation can include a data collection/input tool, a benefits document that describes what can be gained from analyzing the data	n/a	Appendices

## **APPENDIX B**

Examples of reports generated by SAS in the literature.

Using a Data Dictionary to Drive an Automated Tabulations System

<http://www.nesug.org/Proceedings/nesug97/dbinfo/grant.pdf>

Automating the Review and Documentation of SAS® Files

<http://analytics.ncsu.edu/sesug/2010/BB14.Terry.pdf>

Using Dictionary Tables to Profile SAS® Datasets

<http://analytics.ncsu.edu/sesug/2012/BB-06.pdf>

Generic Automated Data Dictionary for Any SAS® DATA Set or Format  
Library

<http://www.wuss.org/proceedings08/08WUSS%20Proceedings/papers/app/app05.pdf>