COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

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IN REPLY PLEASE
REFER TO FILE: BRC-1

April 22, 2021

REQUEST FOR PROPOSALS - ADDENDUM 1
GEOGRAPHIC INFORMATION SYSTEM - CENTRIC ENTERPRISE ASSET
MANAGEMENT SYSTEM (BRC0000203)

Thank you for participating in our Proposers' conference for Geographic Information System (GIS) - Centric commercial-off-the-shelf (COTS) Enterprise Asset Management System (EAM System) (BRC0000203) held on Tuesday, April 13, 2021, via Microsoft Teams Meeting Online Events.

Please note that the deadline for proposal submission via BidExpress has been extended to **Monday, May 24 2021, at 5:30 p.m.**

As stated in the Request for Proposals (RFP), submission of proposals will only be accepted electronically using BidExpress. Submission of hard copy proposals or any other format such as e-mail will not be accepted.

All addenda and informational updates will be posted at http://pw.lacounty.gov/brcd/servicecontracts. Please check the website frequently for any changes to this solicitation.

Please take note of the following revisions to the Request for Proposals (RFP). (Note that the changes that have been added are in **boldface** and deleted languages are ~~strikethrough.~~) Section A is the Addendum and Section B is the Questions and Answers.

A.   Addendum

Attachment 6 (Performance Requirements Summary) of the RFP is deleted in its entirety and replaced with a revised form entitled Attachment 6.1 (Performance Requirements Summary), attached hereto as Enclosure A.

B.   Questions and Answers

The questions presented in the clarification section of this addendum represent the questions asked by the Proposers in the form and context submitted.

1. **Question**: Can the County go into more details about the reluctance of using a 3rd party for citizen requests? Is using Citizen Problem Reporter from Esri in conjunction with an off-the-shelf CMMS solution considered a 3rd party solution?

    Response: The RFP does not call for 3rd party Citizen Problem Reporter.

2. **Question**: The quoted $250,000 initial contract term stipulated in the cover page of the RFP. It is stated that this amount is for implementation. What is the estimated budget for software for this same initial term? How was this number arrived at? Is it just for the SMD (as this is the division that the study was completed for), or does it include implementation of all five desired divisions?

    Response: The $250,000 initial contract term includes implementation cost and first year subscription fees for software and support/maintenance. This amount is only an estimate for implementation of all six desired divisions (SM/RM/WW/OS/SWM/TBD). It is the County's goal to have all six divisions participate in the project. However, the County reserves the right to curtail divisions and task as needed. The Contractor is not guaranteed any work or minimum payment and will be paid for actual work performed whatever that may be.

    Note that the estimated $250,000 for implementation and $60,000 for annual subscription fees were provided for reference purposes only and they do not represent the minimum or maximum budget for this project. Proposer's prices can be higher or lower than these amounts and will be scored accordingly per Section 9.5, Pricing Proposal Evaluation Criteria of the RFP, which states, "The maximum number of possible points will be awarded to the lowest cost proposal in Exhibit B, Pricing Schedule. Other Proposals will receive a prorated score calculated as follows: divide the lowest Total Proposed Price by each other Total Proposed Price and multiply the result by the maximum possible points for this evaluation criterion. The Proposal with the lowest Total Proposed Price may not necessarily be awarded a Contract."

    Therefore, please thoroughly review Exhibit A, Scope of Work and provide the itemized pricing for each task on Exhibit B, Pricing Schedule for your bid and do not use the estimated amounts to justify your pricing. The maximum budget will be based on the highest rated winning bid.

3.   **Question**: Will all proposer's bidding price higher than the estimated cost identified in the first paragraph be automatically eliminated?

       Response: Please see response to Question 2. These are only estimated costs.

4.   **Question**: Rather than issuing an RFP, did the County consider contracting with their preferred vendor directly off of an existing contract vehicle such as CMAS or Onvia?

       Response: The County does not have a preferred vendor list for an EAM System.

5.   **Question**: The RFP does not allow for subcontractors. Does this mean that only firms that are software developers and implementors of their own software are allowed?

       Response: The RFP does allow subcontractors; however, subcontractors are not allowed to meet the Minimum Mandatory Requirements. The Minimum Mandatory Requirements must be met by the prime proposer. In addition, please see Section A of Addendum 1 and response to Question 8.

6.   **Question**: The RFP is requesting a SaaS solution, yet the first paragraph indicates that there is an estimated cost of $60,000 for "annual maintenance" This statement seems to conflict with the SaaS requirement. Can the County please clarify?

       Response: The "annual maintenance" in this RFP is subscription support and maintenance. It is understandable that most SaaS companies do not charge additionally for maintenance and support. However, some companies have additional charge for higher level support and faster response times, etc.

7.   **Question**: Exhibit A states that the contractor shall act as the single point of contact for the County. Does this mean that only software developers can respond?

       Response: No. In addition, please see response to Question 8.

8.   **Question**: Page 4, paragraph 2 states: "The Contractor is expected to serve as the single point of contact for County. Should Contractors find it necessary or desirable to include subcontractors in their proposal, it will be the successful Contractor's responsibility to serve as the single point of contact for the duration of the project. Corporate background information on all subcontractors and resumes of sub-contractor personnel should be included in the proposal." Per instruction earlier in the RFP, subcontractors are not allowed. Can the County please clarify this?

     Response: Please see Section A of Addendum 1. A subcontractor can be used but a subcontractor cannot be used to meet any of the Minimum Mandatory Requirements.   The proposer must fully meet this RFP's Minimum Mandatory Requirements and will be solely responsible to perform this contract's work and obligation; however, if a proposers wishes to use a subcontractor, they may do so, subject to identifying such subcontractor on its proposals and submitting all necessary information and subcontractor forms. The Contractor is to serve as the single point of contact for the duration of the project.

9.   **Question**: Can the County please provide the Maintenance Management Business Process document and Pilot Software Selection Evaluation Report developed for the County by HDR?

     Response: Please see Enclosure B.

10. **Question**: The RFP requires that the initial implementation shall not take more than 1 year from the notice to proceed. If the awarded contractor does not succeed in a successful go-live, will their contract and software subscription be canceled for lack of performance/contract violation? If not, what consequences are there for not meeting this documented timeline?

     Response: Failure to meet contract specifications and deadlines are subject to, but not limited to, liquidated damages, CARD placement, suspension, and/or termination. Please review RFP, Attachment 6 – Performance Requirements Summary, which states there will be a $200 deduction for each calendar day that the Contractor fails to complete work within the time specified in this contract

11.   **Question**: Why is ESRI Partner Network Gold tier or higher required?

Response: Public Works' GIS infrastructure is based almost exclusively on ESRI technology. The ESRI Gold Partner level allows the County to recognize proven ESRI solution providers and demonstrates the company's high level of commitment and investment in implementing GIS-centric solutions using ESRI technology. In addition, the ESRI Gold Partner level has access to developer API's, SDK's, etc., and can provide complete implementation, integration, data conversion, training and maintenance using the latest ESRI technology.

12.   **Question**:   Integrations Granite.net – what version of Granite.net is currently in use? When did it go live? Is it integrated with the County's (SMD and/or SWMD) GIS? If no, what are the plans for integration? What is the timeline? Is the Granite / GIS integration expected be done as part of the integration efforts scoped in this RFP?

Response: The County's current version of Granite.net is 3.6.5. The County is in the process of updating all CCTV trucks and office computers to this latest version. Granite.net is integrated with Sewer Maintenance's (SMD) GIS.

13.   **Question**: SCADA – what SCADA historian solutions are currently in use by the County (versions and go-live dates)

Response: The County's historian solution is ClearSCADA version 2015 and went live approximately in 2011.

14.   **Question**:   CIS – what CIS is in use? Versions and go-live dates. Any immediate plans for upgrades or replacements that would impact this project?

Response: The County's current CIS is North Harris Corp, Advanced Utilities Systems, Customer and Billing Information System, version 4.1.55. Version 3 went live on January 13, 2011. Version 4 went live on September 6, 2016. The County is considering upgrading to version 5.

15.   **Question**:   Please identify the number of users per division to be implemented

Response: When fully implemented, the estimated user count from each maintenance division are as shown below:

Division	Estimated Users
RMD	122
SMD	60
WWD	50
OSD	160
SWMD	120
To Be Determined	Estimated 120

16.   **Question**: The Tier 1 software subscription pricing is asking for up to 60 users (with Tier 2 and Tier 3 costing being for informational purposes only). How does the 60 named users align with the user count by division?

Response: The 60 named users align with the user count of SMD, which is the most committed division of all listed. The other division's may or may not participate.

17.   **Question**: If the software costing is to be provided for up to 60 users, can the proposers assume the implementation services are to be scoped around the same number of users?

Response: No, the Proposers should itemize the cost for implementation services for each division as listed in Exhibit B, Pricing Schedule 60 users is the base case scenario in which SMD is the only participant.

18.   **Question**: Integration services – is the County envisioning these services to be costed out as part of Task 3: Development / Setup, Installation, and Configuration? If not, where do you want us to include these services?

Response: Yes, integration services are part of Task 3 - Development / Setup, Installation, and Configuration

19.   **Question**: Section 4.4 (Task 4: Migration) – "The Contractor is expected to ensure the availability of necessary reference data and asset data within the new EAM System." What is the intended meaning of reference data? Please provide examples.

Response: The EAM system is expected to access reference data from external systems. For example, inspection data, images, and videos from GraniteNet for Sewer Maintenance Division or customer data, service orders, meter data, etc., from Waterworks Customer Information System.

20.   **Question**: Did HDR generate the technical specifications included in the RFP? If no, who did?

    Response: No, HDR did not generate the technical specification on this RPF. Public Works IT division generated the technical specifications for this RFP.

21.   **Question**: Who will be acting as the County's project manager on this contract? Will this be managed out of Public Works or IT?

    Response: Staff from the lead divisions (RMD and SMD) will manage this contract. It will be managed from Public Works.

22.   **Question**: How many persons comprise the selection committee? What is the make up of the selection committee?

    Response: The selection committee will comprise of three Public Works staff who will evaluate the proposal's Qualification/Experience and Work Plan section. The members will be subject matter experts in this field or have knowledge on the work being requested. The Price and Reference scoring component will be evaluated by the Contract Analyst in the Contracting Section.

23.   **Question**:   Will you make the HDR report available to proposers to review?

    Response: Please see response to Question 9.

24.   **Question**: Please identify the different GIS-centric solutions the County has seen demonstrated in the last 5 years

Response: The County has seen the following demos:

Cityworks
DataSplice
Atom
Maximo Spatial
Elements XS
Spatial Wave

25.   **Question**:   During the pre-proposal conference yesterday the County meeting participants provided conflicting answers to the question about the $250,000 budget. The first answer provided indicated this budget amount was estimated for ONLY the Sanitary Sewer Division. A second answer was provided by a different participant indicating the estimated first year amount of $250,000 was for any and all divisions that would be implemented. In as much as the pricing is 30% of the total scoring on the proposal submittals, it is imperative we understand what we are bidding on. Please provide clear and unambiguous direction on what the first year implementation scope entails (i.e. – what departments, what integrations, what data migration, # of users to be trained in year 1) and what the County's allocated budget for the total year 1 implementation services is. Along these same lines, please update the pricing sheet to align with the County's anticipated year 1 scope of services.

       Response: The Contractor is responsible for assisting the County with the design and implementation of the GIS-centric EAM, including all necessary integrations and data migration, to meet the County's business requirements as described in Task 2: Review, Analysis, and Design of the Exhibit A – Scope of Works. Please see response to Questions 2, 15-17, and 27.

26.   **Question**: Exhibit A, Section 1.1 lists the following responsible areas of responsibility for LA County Public Works: roads, traffic signals, bridges, airports, sewers, flood control, water supply, water quality and water conservation facilities.   Are these the asset classes we should be expected to provide a fully implemented solution for?

       Response: Yes, the desired GIS-centric EAM system will be used to manage these asset classes. See Section 2.c of Exhibit A.1 – Functional Requirements for more details.

27. **Question**: Exhibit A, Section 4.2, Task 1, Item d & e lists data migration. What data is to be migrated? What format is current data in? In order to accurately develop a price to migrate your existing data, can we get a sample or see the current database to understand what will be required to successfully migrate the data?

Response: The data and data formats to be migrated vary from one division to another. The Contractor will need to conduct sessions or workshops with each division to review their business requirements and process in order to determine what data need to be migrated into the new GIS-centric EAM. In general, the County's GIS data is in ESRI formats. Other data is in table format stored in Oracle database, Microsoft SQL, or Access database, etc.

28. **Question**: Exhibit A, Section 4.3 notes "The installation shall include all software needed to make its EAM system fully functional on workstations including laptops, tablets, or other devices that may be used for filed activities". As a SaaS solution is desired there will 1) be no "installation" – rather a website will be navigated to and 2) it should the County's responsibility to ensure end-user devices meet minimum requirements of the SaaS solution – we have no way of knowing if each end-user device will be compatible. Can this requirement be dropped?

Response: No, this requirement cannot be dropped. Per Exhibit A.1, Section 4j states "the mobile application shall be native application to the latest version of iOS and Android or a responsive and fully mobile-aware website". In addition, Exhibit A.1, Section 4l states "the EAM System shall be compatible with Internet Explorer 11, Edge, Chrome, Firefox, and Safari". The contractor can specify the minimum requirements for end-user devices of their SaaS solution. Unless the SaaS solution requires extremely high hardware specs, we believe that most if not all County issued devices will meet the minimum requirements of the SaaS solution.

If you have any questions concerning the above information, please contact Mr. Eric Fong at (626) 458-4077 or Ms. Anna Leung at (626) 458-4072, Monday through Thursday, 7 a.m. to 5 p.m.

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Very truly yours,

MARK PESTRELLA, PE
Director of Public Works

E. Manovic   for

JOSE M. QUEVEDO
Assistant Deputy Director
Business Relations and Contracts Division

EF
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Enc.

bc: Information Technology Systems & Applications (Libid)
      Road Maintenance (Daly w/o enc, Dang)
      Sewer Maintenance (Winter w/o enc, Villarama)

PERFORMANCE REQUIREMENTS SUMMARY

The items listed under this Performance Requirements Summary (PRS) are not all encompassing, and any conflict or discrepancy between the requirements specified in Exhibits A through B, inclusive, of this Contract (Exhibits A-B) and this PRS, Exhibits A-B shall control. The County reserves the right to modify this PRS at any time consistent with the requirements set forth in Exhibits A-B, to clarify Performance Requirements, or to monitor of any part of this Contract.

Required Service/Tasks	Performance Indicator	Deductions for Failure to Meet Performance Indicator*	Compliance	Comments
A. SCOPE OF WORK				
1. Fines by Regulatory and Governmental Agencies	Fined by a local, regional, State, or Federal regulatory or governmental agency as a result of the Contractor's negligence or failure to comply with any Federal, State, or local rules, regulations, or requirements.	$500 per occurrence plus any fine(s) charged to the County by a regulatory or governmental agency.	☐Yes ☐No ☐N/A	
2. Project Schedule	Contractor fails to complete work within the time specified in the project schedule.	$200 for each calendar day that the Contractor fails to complete work within the time specified unless otherwise provided in this Contract.	☐Yes ☐No ☐N/A	
3. Change in Project Manager	Contractor shall notify the County in writing of any change in name or address of the Project Manager.	$100 per occurrence.	☐Yes ☐No ☐N/A	
4. Respond to complaints, requests, and discrepancies.	Contractor fails to respond within 24 hours of a reported complaint, request, and/or discrepancy.	$100 per complaint not responded to within the time frame outlined in the specifications.	☐Yes ☐No ☐N/A	

*Deductions may be imposed in addition to the Liquidated Damages at the sole discretion of the Contract Manager.

PERFORMANCE REQUIREMENTS SUMMARY

The items listed under this Performance Requirements Summary (PRS) are not all encompassing, and any conflict or discrepancy between the requirements specified in Exhibits A through B, inclusive, of this Contract (Exhibits A-B) and this PRS, Exhibits A-B shall control. The County reserves the right to modify this PRS at any time consistent with the requirements set forth in Exhibits A-B, to clarify Performance Requirements, or to monitor of any part of this Contract.

Required Service/Tasks	Performance Indicator	Deductions for Failure to Meet Performance Indicator*	Compliance	Comments
5. Respond to bugs or security incidents.	Contractor fails to respond within 24 hours of a reported bug or security incident.	$100 per complaint not responded to within the time frame outlined in the specifications.	☐Yes ☐No ☐N/A	
B. CONTRACT ADMINISTRATION				
1. Insurance Certifications	Certifications submitted before implementation of contract and on a timely basis there-after.	$200 per day; work/contract suspension; possible termination for default of contract.	☐Yes ☐No ☐N/A	
2. Record Retention & Inspection/Audit Settlement	Maintain all required documents as specified in contract.	$200 per occurrence.	☐Yes ☐No ☐N/A	
3. Use of Subcontractor without Approval and/or Authorization.	Obtain County's written approval prior to subcontracting any work.	$500 per occurrence; possible suspension; possible termination for default of contract.	☐Yes ☐No ☐N/A	
4. License and Certification	All license and certifications required to perform the work, if any.	$200 per day; suspension; possible termination for default of contract.	☐Yes ☐No ☐N/A	
5. Assignment and Delegation	Contractor shall not assign its	$200 per day the County	☐Yes	

*Deductions may be imposed in addition to the Liquidated Damages at the sole discretion of the Contract Manager.

PERFORMANCE REQUIREMENTS SUMMARY

The items listed under this Performance Requirements Summary (PRS) are not all encompassing, and any conflict or discrepancy between the requirements specified in Exhibits A through B, inclusive, of this Contract (Exhibits A-B) and this PRS, Exhibits A-B shall control. The County reserves the right to modify this PRS at any time consistent with the requirements set forth in Exhibits A-B, to clarify Performance Requirements, or to monitor of any part of this Contract.

Required Service/Tasks	Performance Indicator	Deductions for Failure to Meet Performance Indicator*	Compliance	Comments
	rights or delegate its duties under this Contract, or both, whether in whole or in part, without the prior written consent of County.	is not informed of this change; suspension; possible termination for default of contract.	☐No ☐N/A	
6. Safety Requirements	Comply with all applicable State of California Occupational Safety and Health Administration (Cal/OSHA).	$500 per occurrence; suspension; possible termination for default of contract.	☐Yes ☐No ☐N/A	

*Deductions may be imposed in addition to the Liquidated Damages at the sole discretion of the Contract Manager.

HDR

Pilot Software Selection Evaluation

**Los Angeles County Department of Public Works
Sewer Maintenance Divisions**
Maintenance Management System

June 11, 2019

Contents

List of Tables

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1 Executive Summary

This report documents the selection of technology tools to be configured and evaluated during a pilot implementation project for the Los Angeles County Sewer Maintenance Division (SMD or the Division). This selection of technology tools was an objective decision, based upon SMD's business requirements, the technology improvement recommendations from evaluating the Division's business processes, industry best practices, and applicable County policies.

The most expedient approach to achieving the Division's objectives for applying information technology will use Commercial Off-the-Shelf (COTS) maintenance management system (MMS) software as a foundation for pilot implementations of the recommended solutions. This approach will minimize the Division's cost and risk, and will incorporate extensive tailoring of the software configuration and associated business processes. The selection described here determined the most advantageous software to use as the foundation for the pilot implementation.

To focus on the most critical SMD needs, move rapidly, and be considerate of suppliers' cost of responding, HDR issued a concise Request for Information (RFI) which solicited potential suppliers' ability to meet critical SMD business requirements. The RFI was sent to 26 MMS suppliers, of whom 10 provided responses. During the creation of the RFI, the team identified specific supplier responses that were essential to meet SMD's current and future business requirements.

The evaluation of the responses placed maximum weight on the requirements that SMD had determined were critical to the success of its information technology improvements. Secondary attention was given to the cost of implementing and using the system over a ten year period. The SMD project management team determined that compliance with the Division's business requirements should be 80% of the final ranking and the ten year cost should be the remaining 20%. Based on the information provided in the RFI process, Azteca Cityworks was selected, and Lucity was designated as the alternate in case a contract with the selected supplier cannot be agreed upon.

2 Purpose and Approach

This report documents the selection of technology which will be modified, configured, pilot tested, further refined, and evaluated to satisfy the Los Angeles County Sewer Maintenance Division's need for specialized wastewater industry information technology functionality. The need for technology tailored specifically for the complex requirements of a wastewater utility, as well as SMD's unique functional requirements, are described in the "Evaluation of Maintenance Management Business Processes", a technical memorandum which was delivered during Task Order 3. During that Task Order, SMD's existing business processes – including the supporting technology – were documented and assessed. This assessment identified "gaps" in information technology capabilities, which are described in Sections 3 and 4 below.

The selection of technology tools was an objective decision, based solely upon the SMD's business requirements, the technology improvement recommendations from Task Order 3, and industry best practices. This document is designed to confirm that this selection process followed applicable policies for fairly selecting products and services that are most economically advantageous to Los Angeles County.

In addition to an objective decision process based upon industry best practices, SMD's business requirements, and applicable County policies, the selection was designed to confirm that the selected products and services are capable of accomplishing the following:

- Empowering SMD to comply with applicable regulatory provisions

- Enabling SMD to conform to state and federal reporting requirements

- Supporting SMD's mission and business requirements to protect public health and the environment at a total cost and level of effectiveness that is more economically advantageous to the County than the existing business practices.

The selection process involved (1) identifying sources of technology solutions that potentially address the Task Order 3 technology improvement recommendations, (2) developing a Request for Information (RFI) to solicit potential suppliers' ability to meet key SMD business requirements, (3) evaluating the responses to the RFI, and (4) determining the most advantageous supplier and an alternate. The details and results of these steps are described in Sections 4 and 5 below.

3   SMD Business Requirements

SMD expends considerable effort accumulating data on paper and entering it into an IBM Maximo maintenance management system (MMS). Despite this significant effort, it is difficult for staff at all levels in the organization to retrieve useful information, obtain answers to important questions, and perform analyses.

As a result of the complexity and inflexibility of SMD's current MMS, SMD staff has created many paper forms, along with extensive paper files, to capture and compile essential asset and work management data. The existing processes include numerous instances where the same data is written in multiple places to document work and asset data. SMD has not had – nor does it expect to have – any influence on modifying the current MMS to meet its business requirements.

To address these constraints with the Division's existing systems, investments in improved information technology capabilities are recommended. The recommended improvements will improve the consistency, performance, and efficiency of the Division's services. Specific improvements include the following:

- Equipping each crew and supervisor with mobile computing hardware (which may be tablet, smart phone, or laptop computers)

- Simplified data entry tailored to SMD's unique requirements

- Reusing data as much as possible

- All stakeholders accessing the same, most current information

- A full complement of off-the-shelf reports, with flexibility and support for wastewater utility industry and asset management best practices

- Integrations with related systems including GIS, CCTV, SCADA, and the existing MMS.

The most expedient approach to achieving SMD's objectives for applying information technology to its operations will use COTS software as a foundation for pilot implementations of the recommended solutions. These pilot implementations will minimize the Division's cost and risk, and will include the extensive tailoring of the software configuration and associated business processes. During each pilot implementation, COTS software will be adapted to meet the requirements of specific SMD business requirements through configuring that software, constructing integrations, acquiring and organizing data, implementing the desired workflows, deploying the result, and assessing the benefits.

The criteria for selecting the specific COTS software product(s) to be evaluated during these pilot implementations was based upon reducing risk and satisfying critical SMD business requirements. These business requirements include the following:

- Firm stability, as evidenced by how long it has been in business and whether it is of sufficient size to service Los Angeles County

- Experience providing the same products and services to other large wastewater agencies, particularly on the west coast

- Functionality that is critical to the Division, including a functionally rich integration with GIS, extensive capabilities for both horizontal and vertical infrastructure, complete disconnected mobile capabilities, flexible reporting and dashboards, and integrations with leading SCADA and CCTV products.

- If hosted, backups that meet the Division's emergency management requirements

- Support for SMD's pilot implementations and capacity to integrate with custom entry screens developed by the Division.

By basing the pilot implementations on COTS software that fulfills these requirements, SMD's resources and attention will be concentrated on refining the technology to very closely fit its business requirements.

4 Gap Analysis

The comparison of SMD's essential field operations business requirements (summarized above) with the capabilities of the existing IBM Maximo MMS revealed a list of "gaps", or functional business requirements that MMS is not fulfilling. These functional requirements reflect the complexity of managing a contemporary wastewater collection maintenance organization, with continually increasing challenges that include environmental sensitivity, aging infrastructure, and limited funding. SMD is one of the

largest, most dispersed wastewater collection utilities in the United States, and requires tools to continue delivering the level of service expected by the citizens of Los Angeles County.

The existing MMS is failing to meet very basic and essential business requirements for managing a contemporary wastewater collection operation. In general, MMS requires considerable data entry into complicated screens, which SMD has no influence to change. It is difficult for SMD staff at all levels to retrieve useful information, obtain answers to important questions, and perform analyses. As a result of these difficulties, SMD staff has created many paper forms and extensive paper files to capture and compile essential asset and work management data. While it is possible that individual SMD functional requirements could be addressed through modifying the existing MMS (at a cost estimated at several million dollars), it will be more effective at all levels to build upon a product that already aligns closely with the necessary business processes.

The IBM Maximo software package is generally used by organizations with significant vertical (plant and facilities) infrastructure. Maximo has far lower market penetration among organizations whose sole responsibility is horizontal (or underground) infrastructure (including wastewater collection utilities). The latter require richly functional integrations with GIS, field entry and data access for crews who may be working more than 50 miles away, and specialized regulatory and service level reporting. To obtain those capabilities, wastewater collection utilities typically select GIS-centric packages (e.g., Azteca Cityworks, DTS VUEWorks) or packages with extensive GIS integrations (e.g., Lucity, Cartegraph, Infor Public Sector (formerly Hansen)).

Some specific SMD functional requirements that are not being delivered by Maximo are listed below. All gaps listed in Numbers 1 through 4 will be addressed during the pilot implementation project. Some of the capabilities in Numbers 5 and 6 will not be implemented until SMD-wide usage is initiated.

1. Customized field data entry screens that include:

    a. 100% field data entry on tablets, smart phones, and/or laptops

    b. Point on map to select an asset

    c. "One click" entry of inspections when no problems are found during an inspection

    d. "One click" entry upon job site arrival and/or departure, which captures labor and equipment duration

    e. "One click" to issue work order(s) if exceptions found during inspection; select from lists to identify action required, priority, and whether work order was completed while at the site

    f. Optimized entry of service request investigation findings tailored to SMD's "To Be" business processes

    g. Optimized entry of work order data tailored to SMD "To Be" business processes; include resource requests (e.g., material, tools, equipment, confined space permit, overtime approval, etc.)

     h. Defaults to data already known to the system (e.g., date, time, user, activity code, hydrant owners)

     i. Maximizes the use of pull-downs, check boxes, and pointing at maps

     j. Flexible group entries including batch status updates, clone work orders, entries that apply to a group of assets, routes, projects, and incidents

     k. Select groups of assets by drawing a polygon on a map

     l. Flexible validation and analysis of numeric entries to identify (1) probable entry errors and (2) flag entries that indicate operational problems

2. Field data access on tablets, smart phones, and/or laptops

     a. Asset attributes

     b. Maintenance history (including costs and who performed)

     c. Preventive maintenance schedules

     d. Pending work orders and/or service requests

     e. Asset management data (e.g., condition, criticality, remaining useful life, replacement cost)

     f. Pump station log sheets

     g. All data related to an incident

     h. Reference documents (electronic O&M manuals, SOPs, checklists, work plans, shop manuals, record drawings, parts lists, and parts sources)

     i. CCTV inspection data and videos

3. Reporting and queries

     a. Automatic compilation of monthly Equipment Usage report from work order entry data

     b. Reports on schedule compliance, work orders resulting from inspections, findings from service request investigations

     c. Reports on resource utilization by City and General Fund Department

4. General functionality

     a. All work orders tracked by asset

     b. All data accessible from a map interface

     c. Multiple status choices for "in process" work orders

     d. Groupings of work orders for incidents, projects, and routes

5. External integrations and interfaces

     a. Integration with GraniteNet and other CCTV inspection systems

     b. Integration with preventive maintenance frequency optimization systems (e.g., COTools)

     c. Integration with Esri Insights and other spatially-focused business intelligence products

     d. Integration with condition analytics systems and criticality analysis (e.g., InfoAsset Planner)

     e. Direct integration with GIS, to support real time access and reporting on field activities

     f. Integration with electronic O&M manuals, SOPs, checklists, work plans, shop manuals, record drawings, parts lists, and parts sources

     g. Interface to receive SCADA data

     h. Interface to receive results of predictive analyses and flag indications of operational problems

6. Analytical support for SMD's planned asset management practices

     a. Reporting against level of service objectives (e.g., miles of failed pipe which is defined by a policy that uses maintenance history data)

     b. Analysis of results of predictive analyses and performance data, for the purpose of triggering follow-up action based upon results

     c. Integration with applications for prioritizing renewal alternatives, optimizing investment value, and comparing with resource constraints

     d. Projections of future trends

     e. Comparison of alternative scenarios

     f. Support for business cases for renewal investments

The analytical capabilities listed in #6 above are currently emerging among wastewater collection utilities. SMD's usage of these analyses builds upon the integrations and interfaces in #5. These analyses are already being enhanced with machine learning and other predictive methods. It is essential that SMD is positioned to utilize these tools to keep future service levels high while addressing the complex challenges of managing a large wastewater collection utility.

5   Request for Information Process

The Request for Information (RFI) developed for this selection process was a short written questionnaire (shown in Appendix 1). This was developed to focus on the most critical SMD needs, move rapidly, and be considerate of suppliers' cost of responding. These requirements addressed the following broad topics:

- Firm background

- Firm experience in similar utilities

- Ability to meet key SMD functional requirements

- Costs

- SMD-specific data entry requirements

- SMD pilot implementation requirements

During the creation of the RFI, specific supplier responses required to meet SMD's business requirements were identified.

HDR maintains a list of suppliers and contacts for firms that market asset and maintenance management systems. This list was refined to focus on those suppliers most suitable for the Division. HDR emailed each of the suppliers on this list with a request for participation. (The supplier list is included as Appendix 2, along with a log of responses.) The RFI form was sent in Microsoft Word format as an attachment. To preserve the Division's anonymity, the request was stated to be made on behalf of HDR's public sector client which "operates a large wastewater collection system on the West Coast". Suppliers were asked to estimate nonbinding unit prices for a projected number of users, for planning purposes.

The initial email solicitation was sent to twenty-six (26) suppliers, with a read receipt requested. All but one of these emails was delivered, and a telephone follow-up with that supplier resulted in subsequent delivery to an alternative contact. Four (4) of the suppliers explicitly declined to participate, either because they no longer participate in this software market or because they insisted on knowing the potential buyer before responding. Ten (10) suppliers provided a response, though one (1) response was too incomplete for comparison to other responses.

A second solicitation was sent to the twelve (12) suppliers which had not responded one way or the other to the original request. Ultimately, despite some initial expressions of interest, only one supplier responded to this second contact and they declined to complete the RFI.

6   Evaluation of Responses

The responses to the RFI were evaluated to select potential solution providers that most closely fit SMD's current and future business requirements. A set of criteria for evaluating the RFI responses against SMD's business requirements had been generated during the creation of the RFI questionnaire. For each responding supplier, Consultants reviewed the complete response and determined a score based on compliance with the Division's evaluation criteria.

The summary scores were loaded into a spreadsheet to facilitate comparisons. The structure of the questionnaire made it relatively easy to refer back to the supplier response when more detail was needed for comparisons.

6.1   Evaluation Criteria

The RFI questionnaire (the full text of which is given in Appendix 1) contained three classifications of questions. Some were simply informational, and had no significant weight on the evaluation of the proposed solution. Others were mandatory, but once answered had limited further impact on the evaluation. Most questions, however, had a

desired response – based on SMD's specialized business requirements – which were the basis for the objective functional score. The goal of defining the desired responses was to recognize products which were most robust in meeting SMD's current and future specialized functional requirements, and offered company stability and size that would minimize SMD's risk.

Table 1, below, summarizes these desired responses, and whether the criteria were "preferred" or "required".

Table 1: Evaluation Criteria

RFI Question	Desired Response
Years providing this product to public sector agencies	>5 preferred
Years firm has been in business	>5 preferred
Employees	>25 required
a. Number of developers supporting this product	The higher the better
b. Number of customer support staff for this product	>5 required
c. Support hours	8am-5pm Pacific Time preferred
Number of wastewater collection system agencies using your CMMS/EAMS in production	>10 required
a. Number of these agencies are on the West Coast (defined as Alaska, Hawaii, California, Oregon, & Washington)	>1 preferred
b. Number of miles of collection system pipeline this agency maintains	>1,000 required
Level of bi-directional integration of the CMMS/EAMS with Esri's GIS	"Extensive" required
Is it necessary to synchronize your product's asset registry and the GIS asset registry	"No" required
How does your CMMS/EAMS manage an asset registry for horizontal assets in the wastewater collection system?	Must prove GIS-centric approach
How does your CMMS/EAMS manage an asset registry for vertical assets in the wastewater collection system?	Must prove GIS-centric approach
Provides mobile (field crew) access and data entry	"Yes" required
Mobile access and data entry works in disconnected mode	"Yes" required
Include a "built-in" dashboard for reports	"Yes" required
With which specific third party report writing/BI products (e.g., Crystal Reports, Power BI, Tableau) is your CMMS/EAMS integrated in production?	At least one leading product required

RFI Question	Desired Response
With which specific SCADA systems (e.g., Wonderware, Intellution iFIX, Cimplicity) is your CMMS/EAMS integrated in production?_____	Integration with at least one leading product required
Integrated with CUES GraniteNet in production	"Yes" required
• How many hours of customization is required to integrate with CUES GraniteNET?	The lower the better
If you provide your CMMS/EAMS as a cloud-hosted service, do you provide periodic backups to the utility (for the purpose of continuing operations in the event of a communications interruption)?	"Yes" required
• How frequently?	"At least daily" required
Describe whether custom data entry screens using Survey123 and Collector (Esri products) could be used to enter data into your CMMS/EAMS	"Yes" required
After integration, what would be the impact of new releases and enhancements of your CMMS/EAMS?	No impact preferred
What is the cost per screen for the integration approach?	The lower the better

6.2 Scoring and Ranking of Supplier Submittals

Each response was scored in a two-step process. The results of the individual scoring against the Division's evaluation criteria were compared, and the most advantageous ten-year cost was assessed.

The first step in the scoring was to evaluate compliance with required capabilities, as documented in Table 1 above. The number of required capabilities for which a response failed to comply was counted. These raw counts were then converted into an index of compliance, in which 100 points were allocated to a response that was most fully compliant with all required criteria and 0 points were allocated to the response that was least compliant. All other responses were allocated points based on the percentage of compliance within that range. (Preferred criteria were not used in the formal scoring, since almost all responses were fully compliant with the County's preferences.)

The RFI also included questions about implementation costs. The ten-year cost was used as a second scoring step. If a supplier provided costs for both hosted and on premises solutions, the lowest was used in the evaluation. The supplier with the lowest total cost over ten years was allocated 100 points, and the supplier with the highest ten-year cost – as well as suppliers which did not provide any cost data – received 0 points. All other responses were allocated points indexed against that range of costs.

The final step was to merge the two scores to derive an overall ranking. This was calculated as a weighted score, in which the SMD project management team assigned compliance to be 80% of the final ranking and costs the remaining 20%. This weighting reflects the judgment that a solution that satisfies most of the MMS requirements at a

higher cost is mare advantageous than a cheaper solution that doesn't meet many of the Divisions' business needs.

The final step was to sort the weighted scores in descending numeric order, where the highest score designates the solution that best meets SMD's business needs.

6.3   Evaluation Results Summary

Table 2, below, summarizes the calculations used to rank the nine responses. Based on the information provided in the RFI process, Azteca Cityworks was ranked first. Lucity was second ranked.

Table 2: Summary of RFI Evaluation

COMPLIANCE & COST SUMMARY		AZTECA	FIIX	Infor EAM	KLOUD-GIN	LUCITY	MAIN-SAVER	MOBILE MMS	NEXGEN	SPATIAL-WAVE
Required, Not Met		0	10	14	5	4	7	6	8	6
Preferred, Not Met		0	0	0	1	0	1	0	0	0
On Prem 10 Yr. Cost		663				430	492			470
Hosted 10 Yr. Cost		757	420		916	695	970	723		
Lowest 10 Yr. Cost		663	420		916	430	492	723		470
Compliance Score		100.0	28.6	0.0	64.3	71.4	50.0	57.1	42.9	57.1
10 Year Cost Score		51.0	100.0	0.0	0.0	98.0	85.5	38.9	0.0	89.9
OVERALL RANKING										
Compliance Points	80%	80.0	22.9	0.0	51.4	57.1	40.0	45.7	34.3	45.7
Lowest 10 Yr. Cost	20%	10.2	20.0	0.0	0.0	19.6	17.1	7.8	0.0	18.0
TOTAL POINTS		90.2	42.9	0.0	51.4	76.7	57.1	53.5	34.3	63.7
RANK		1	7	9	6	2	4	5	8	3

Appendices

1. RFI Text

REQUEST FOR INFORMATION – COTS CMMS PROVIDERS

HDR is coordinating a Request for Information on behalf of one of our clients, which operates a large wastewater collection system on the West Coast.

FIRM
1. Company Name: _____
2. Computerized Maintenance Management System (CMMS) / Enterprise Asset Management System (EAMS) Product Name: _____
3. How many years has your firm been providing this product to public sector agencies?: _____
4. How many years has your firm been in business? _____
5. How many people does your firm employ?: _____
     a. How many are applications developers supporting this product?: _____
     b. How many provide customer support for this product?: _____
     c. What is your support hours?:_____

REFERENCES
1. How many wastewater collection system agencies are using your CMMS/EAMS in production?: _____
     a. How many of these agencies are on the West Coast (defined as Alaska, Hawaii, California, Oregon, & Washington)?:_____
2. What is the largest wastewater collection system agency, measured in miles of collection system pipeline, using your CMMS/EAMS in production?: _____
3. How many miles of collection system pipeline does this agency maintain?: _____
4. Please list 5 wastewater collection system agency CMMS/EAMS customers which are currently in production, and someone we can contact at each?:

AGENCY	CONTACT	PHONE	EMAIL

FUNCTIONALITY
1. Does your CMMS/EAMS come with a bi-directional integration with Esri's GIS that maximizes benefits to be derived from clients' existing GIS tools and data?: (NONE/PARTIAL/EXTENSIVE).
     a. Please describe the more important functions provided by the GIS integration (add additional detail if relevant):
          1) _____
          2) _____
          3) _____

2. Is it necessary to synchronize your product's asset registry and the GIS asset registry?: _____

      a. Explain:

      _____

3. How does your CMMS/EAMS manage an asset registry for horizontal assets in the wastewater collection system?: _____

4. How does your CMMS/EAMS manage an asset registry for vertical assets (e.g., pump stations) in the wastewater collection system?: _____

5. Does your CMMS/EAMS provide mobile (field crew) access and data entry?: _____

6. Does your mobile access and data entry work on a disconnected mode?: _____

7. Does your CMMS/EAMS include a "built-in" dashboard for reports?: _____
      a. With which specific third party report writing/BI products (e.g., Crystal Reports, Power BI, Tableau) is your CMMS/EAMS integrated in production?: _____

8. With which specific SCADA systems (e.g., Wonderware, Intellution iFIX, Cimplicity) is your CMMS/EAMS integrated in production?:

    _____

9. Is your CMMS/EAMS integrated with CUES GraniteNet (CCTV software package) in production?: _____
      a. How many hours of customization is required to integrate with CUES GraniteNet?: _____

COST
1. Range of initial cost for 50 users (non-binding)?:

	On Premises	Cloud-Hosted
• Software licensing:		
• Professional services:		
• Hosting & maintenance:		
• Other costs:		

2. Annual cost (service, maintenance, hosting, etc.)?: _____

3. If you provide your CMMS/EAMS as a cloud-hosted service, do you provide periodic backups to the utility (for the purpose of continuing operations in the event of a communications interruption)?:

    _____

4. How frequently?: _____

5. Please identify instances in which your CMMS/EAMS has recently been selected through a competitive solicitation process conducted by a local government, other public agency, non-for-profit agency, or state/Federal government which our client might utilize as a procurement vehicle: _____

Scenario A: Custom Data Entry Screens
Our client has developed custom data entry screens, specific to its operation and business processes, using Survey123 and Collector (Esri products).
A. Describe whether these entry screens could be used to enter data into your CMMS/EAMS, either (1) by integrating the Survey123 screens and Collector with your CMMS/EAMS, (2) by custom programming identical screens for your CMMS/EAMS, (3) by another approach, or (4) it cannot be done: _____

B. Following implementation of the approach you described in A. above, what would be the impact of new releases and enhancements of your CMMS/EAMS?: _____

C. Is the cost per screen for the approach described in A. above in the range of (1) less than $25,000, (2) $25,000 to $100,000, or (3) more than $100,000?: _____

Scenario B: Pilot Implementation

It is most advantageous for our client to obtain successful results from one or more pilot implementations, each of which addresses a limited functional and organizational area, prior to committing to enterprise-wide usage. Assume that each pilot would involve approximately 20 users and require 6 to 12 months for configuration and pilot usage.

    A. Describe the intellectual property licensing and services (professional services, hosting, etc.) that our client would need to purchase from you to support the first pilot implementation: _____

    B. What is the cost range for the licensing and services described in A. above?: _____

    C. Describe the licensing and services that our client would need to purchase from you to support a second pilot implementation, and its cost range: _____

    D. Describe the licensing and services that our client would need to purchase from you to support a third pilot implementation, and its cost range: _____

2. List of MMS Suppliers and Response Summary

Current CMMS Product Name	Historic Names	Company	Delivered?	Response?
ABB Ability Ellipse EAM	ABB Ability Ellipse	ABB	Y	Declined
Accela	Accela	Accela	Y	Declined
AllMax	AllMax	AllMax Software, Inc.	Y	N
Antero Maintenance Data Management	Antero	AllMax Software, Inc.	Y	N
Aveva EAM	Avantis	Aveva	Y	N
Cartegraph OMS	Cartegraph	Cartegraph	Y	N
CityWorks AMS	Azteca Cityworks	Azteca Systems, LLC	Y	Y
Dude Solutions CMMS	Dude Solutions	Dude Solutions	Y	N
elements xs	N/A	Novotx	Y	N
Fiix CMMS	Fiix	Fiix Software	Y	Y
Grid Automation	Indus / Ventyx	ABB	Y	Declined
IBM Maximo Asset Management	Maximo / IBM	IBM	Y	Y
Infor EAM	Datastream	Infor	Y	Y
Infor Public Sector	Hansen / Infor Public Sector	Infor	Y	N
Intelligent Asset Management Cloud	N/A	Kloudgin	Y	Y
iWorQ Asset Management	N/A	iWorQ Systems, Inc.	Y	N
Lucity EAMS	GBA MasterSeries / Lucity	Lucity	Y	Y
Mainsaver	Mainsaver	Mainsaver Software Inc.	Y	Y
Maintenance Connection CMMS	Maintenance Connection	Accruant	Y	N
ManagerPlus CMMS	ManagerPlus	ManagerPlus	Y	N
Mobile MMS	N/A	Websoft Developers, Inc.	Y	Y
NEXGEN AM	N/A	NEXGEN	Y	Y
Oracle Utilities Work and Asset Management (WAM)	Synergen / SPL	Oracle	N	N
RJN Asset Management Platform	RJN Cassworks	RJN Group, Inc.	Y	Declined (discontinued)
SAP EAM	SAP	SAP Inc.	Y	N
Spatial Wave	N/A	Spatial Wave, Inc.	Y	Y