

DELAWARE DEPARTMENT OF TRANSPORTATION

REQUEST FOR INFORMATION



**Delaware Department
of Transportation**

LABORATORY INFORMATION MANAGEMENT SYSTEM (LIMS)

RFI - 1102

RESPONSES DUE DATE/TIME: November 29, 2011 2:00 p.m. (local time)

Responses are to be delivered to:
Contract Administration
Delaware Department of Transportation
800 Bay Road, Dover, Delaware 19901

Issued: October 10, 2011

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1. Overview and Authority

1.1 Purpose

The Materials & Research Laboratory (M&R Lab) in the Delaware Department of Transportation (DelDOT) would like to implement a web-based Laboratory Information Management System (LIMS) to streamline its data collection, test analysis, and report distribution process for state and federally funded highway construction projects. At this time, test results are distributed through multiple stand alone Access databases, Excel spreadsheets, and handwritten documents. Interconnectivity of information between the various Units in the M&R Lab would result in expedited analysis reporting to other sections of the Department and to the contracting community.

This Request for Information (RFI) seeks to gather information and evaluate the functionality of available LIMS to manage our material and collected test data.

1.2 Intent of this Request for Information

The intent of this RFI is to obtain information regarding LIMS software from vendors who have prior experience in developing and implementing systems of similar size and scope using client server or web technologies. The information obtained through this RFI may be used to select the technology, develop system requirements, and/or create a Request for Competitive Sealed Proposals (CSP) for the purchase/use and implementation of a LIMS. DelDOT is not obligated to issue or award any contract subsequent to issuance of this RFI nor any CSP request that may result from this RFI.

1.3 Scope & Cost

Vendors shall be responsible for any cost incurred in connection with responding to this RFI, and any subsequent CSP request. Vendors shall fully bear the costs associated with pre-contract activities, including submissions, proposal preparation, demonstrations, and/or communications.

1.4 Inquiries and Communication

Should the vendor have any questions as to the intent or meaning of any part of this RFI, they should contact DelDOT at least ten days prior to the response due date to guarantee a timely reply. Questions and answers will be addressed individually. All inquiries concerning this RFI must be submitted via e-mail to:

Ms. Wendy Henry
Consultant Control Coordinator
Contract Administration section
Delaware Department of Transportation
800 Bay Road, Dover, Delaware 19901
wendy.henry@state.de.us

Please do not contact any other DelDOT section regarding this RFI.

1.5 RFI Schedule

RFI Issued: October 10, 2011

Vendor questions at least ten days prior to the response due date to guarantee a timely reply.

RFI Responses Due by: 2:00 p.m. (local time) November 29, 2011.

1.6 Confidentiality and Delaware Freedom of Information Act

This project is subject to DelDOT's Freedom of Information Act (FOIA). For further information, see "FOIA regulations" under "Information" on DelDOT's Website; www.deldot.gov.

Vendors shall specifically designate those portions of their submissions, which they believe to be proprietary and, therefore, or otherwise, privileged under the DelDOT FOIA. DelDOT shall act accordingly and endeavor to maintain the confidentiality of those portions of vendor submissions marked "Confidential" in accordance with the FOIA regulations.

Vendors shall include a redacted version of their proposal for this purpose. A copy or copies of each submission may be kept as part of the agency file and open to inspection by any person permitted by law.

To protect the competitiveness of this project and encourage responses to this RFI, any RFI responses requested through the FOIA will not be released until after the RFI and subsequent CSP (if any) process has ended and a contract for the LIMS project has been awarded and an agreement is binding.

1.7 Right to Amend

DelDOT reserves the right to amend or supplement this RFI, giving equal information and cooperation by way of an issued addendum to all interested vendors as a result of any such amendment.

1.8 Liability for Errors

While DelDOT has used considerable efforts to ensure an accurate representation of information in this RFI, the information contained in this RFI is supplied solely as a guideline for vendors.

The information is not guaranteed or warranted to be accurate by DelDOT nor is it necessarily comprehensive or exhaustive.

Vendors acknowledge and understand that it is their responsibility to obtain clarifications concerning this RFI if needed.

Nothing in this RFI is intended to relieve vendors from forming their own opinions and conclusions with respect to the matters addressed in this RFI.

1.9 Use of this RFI

This RFI document, or any portion thereof, may not be reproduced or used for any purpose other than the preparation of a response by the vendor.

1.10 Submission

RFI responses need to be received no later than specified in Section 1.5 to guarantee consideration. Responses should be sent to:

Ms. Wendy Henry
Consultant Control Coordinator
Delaware Department of Transportation
800 Bay Road
Dover, Delaware 19901

1.11 Submission Format

An original (marked as such) and three (3) paper copies of the RFI response should be submitted along with an electronic version of the original, and a redacted response in Microsoft Word (if the response contains any proprietary information) on a Compact Disk (CD).

1.12 Oral Interviews, Presentation, and / or Demonstration

During the review of RFI submissions, DelDOT may request a meeting with selected vendors for further clarification and/or demonstration of technology included in the RFI submission. Notification of any request for clarification, demonstration, or further communications will be made by email.

In accordance with Section 1.3 Scope & Cost, vendors shall be responsible for all costs associated with this RFI, subsequent CSP, and any demonstrations or meetings that may be requested by DelDOT during this process. Vendors may participate in demonstrations or meetings in person or via conference calls/webinars.

1.13 Completeness

Although DelDOT prefers that RFI responses are as complete and comprehensive as possible, the vendor may provide partial responses if all the information requested in this RFI cannot be reasonably provided. The vendor may provide additional information regarding the functionality of their Commercial Off-the-Shelf (COTS), Modifiable Off-the-Shelf (MOTS), or Government Off-the-Shelf (GOTS) LIMS software.

2. Background

2.1 Department Organization Overview

Delaware Department of Transportation's mission is to provide a safe, efficient, and environmentally sensitive transportation network that offers a variety of convenient and cost-effective choices for the movement of people and goods. DelDOT has a team of transportation professionals who are dedicated to ensure the safety and clear passage of travelers through the State of Delaware using state of the art technology. The Department is organized into the following divisions: Division of Motor Vehicles (DMV), Finance, Human Resources, Maintenance and Operations, Planning, Technology & Support Services, Transportation Solutions, Public Relations and Delaware Transit Corporation.

2.2 Material & Research Laboratory Services Overview

Transportation Solutions division is responsible for the development and construction of safe, efficient and environmentally-sensitive engineering projects to meet identified transportation needs as guided by the Statewide Long-Range Transportation Plan. Its primary objective is to deliver high-quality projects consistently from concept through construction and ensure projects are completed on time as scheduled.

The M&R Lab is a part of the Transportation Solutions division. The M&R Lab is responsible for approving materials for use and verifying that construction materials meet required contract specifications for all projects. The M&R Lab consists of eight (8) units which test and sample materials and distribute results to internal and external customers. Each of the units has multiple databases and spreadsheets to fulfill needs. A brief description of the Units and what reporting they do is included in this section. Examples of data sheets can be provided upon request.

2.2.1 Soils & Aggregate Unit

The Soils & Aggregate unit performs testing on samples obtained through soil boring, from stockpiles in various locations, and on active construction projects. Information collected is used to approve sources prior to use, determine most suitable construction practices, and evaluate material on site to verify that it meets specification requirements. Reports summarizing the collected information and test results are distributed to other units in Materials & Research, DelDOT construction personnel, and applicable contractors using GeoSystems® software.

2.2.2 Chemical Unit (Cement & Asphalt Laboratory)

The Chemical unit tests a variety of materials including asphalt binders, cutbacks, emulsions, Portland cement, slag, fly ash, water, concrete admixtures and other components used in the production of construction materials. Materials are tested for source approval during construction for conformance to specifications and for investigative purposes after project completion. Results are recorded and distributed to other units in Materials & Research, DelDOT construction personnel, suppliers and contractors utilizing Access databases and Excel spreadsheets.

2.2.3 Quality Assurance Unit

The Quality Assurance (QA) unit is responsible for testing and sampling materials from stockpiles and active construction sites. This unit also performs testing in the field on in-situ stone and soil materials and Portland cement concrete. Material samples are delivered to the Portland cement concrete, Bituminous, Chemical, and Soils and Aggregate units for further testing in the lab. Field test results are reported on handwritten worksheets for all testing and sampling, with the exception of bituminous core samples which are recorded and reported using an Access database.

2.2.4 Portland Cement Concrete Unit

The Portland Cement Concrete unit is responsible for verifying mix properties at production plants and testing concrete materials on active construction sites. This unit performs annual inspections and calibration of concrete producer's equipment at production facilities. Material tests are performed in the field and results are recorded on handwritten worksheets. Samples are obtained and tested in the lab by the Chemical and Soils and Aggregate units. This unit also performs compression testing on cylinders and results are recorded in an Access database for distribution to State construction personnel. Investigative coring is also part of this unit's responsibility and roadway core information is recorded in an Access database.

2.2.5 Precast Concrete Unit

The Precast Concrete unit is responsible for approving precast pieces used on state contracts, performing plant audits of precast suppliers, reviewing standard plant documents in accordance with National Precast Concrete Association (NPCA) standards and sampling precast plant materials such as steel, cement, stone and sand. Samples are brought to the Chemical, Soils and Aggregate, and Portland Cement Concrete Units for further testing. This unit also inspects grass seed and other miscellaneous materials used in construction. The Precast unit uses an Access database to create final reports and track data from information gathered in the field and recorded on handwritten worksheets.

2.2.6 Bituminous Unit

The Bituminous unit is responsible for sampling and testing bituminous materials (hot/warm mix) at production facilities and the central lab. Asphalt samples obtained at production facilities are given to the Chemical unit for further testing. Results from hot mix /warm mix testing are recorded in an Access database. Mix design approvals are stored in the database and used to determine if materials meet specification requirements. The Access database in this unit is used to track data, distribute material test results to contractors, calculate pay factors based on material quality and generate pay sheets for distribution to state construction personnel and contractors.

2.2.7 Independent Assurance Unit

The Independent Assurance unit performs verification testing for all units in the Materials & Research Lab in accordance with federal requirements. Test results are stored in an Access database for comparison to tests performed by the Bituminous, Portland Cement Concrete, Soils and Aggregate, Chemical, and Quality Assurance units.

2.2.8 Materials Administration Unit

The Materials Administration unit is responsible for processing source of submittal letters from contractors on active construction projects. This unit determines the protocol followed to determine whether a source of material meets contract specifications. Materials samples are obtained and tested by various units in Materials & Research. Results are compared to specification requirements by the applicable testing unit and are approved or rejected for use.

2.3 Office of Information Technology Services Overview

The Office of Information and Technology (OIT) is a part of the Technology & Support Services division. Its primary responsibility is to support the department's information technology including; information technology project management; application development, implementation and maintenance; management of network operations, processes, mobility, use, and the physical state of the network.

3. Project Goals

3.1 Vision

DelDOT envisions that a LIMS will help unify and expedite data analysis and reporting. Currently, M&R Lab uses a multitude of Access databases and Excel spreadsheets to accomplish this task. Some information is repetitive as there are multiple locations data must be recorded for reporting purposes.

DelDOT is interested in an integrated system that will utilize modern technologies, which will support a service-oriented architecture with built in security and user activity audit functionality. DelDOT is interested in a web based platform that will provide lower risk core architecture while supporting current and future needs.

3.2 Integrated System

The system envisioned will be an integrated and automated tool to track, barcode, analyze and share material test results, generate material pay sheets when necessary and allow M&R Lab personnel to perform business functions electronically.

The system will use a single sample record for each item delivered to the M&R Lab and provide the ability to track sample status in real time.

It should have scheduling and document processing (workflow/chain of custody) functionality to provide integration among different tests on the same material or project. It should track data, generate barcode, reports, forms and worksheets, track schedule and notify appropriate personnel for tasks/test assignments and results. It should be capable of tracking labor and scheduled equipment calibration and maintenance.

3.3 Real Time Processing

The system should provide real-time processing and access to data. Information and transaction outputs should be available as soon as the transaction has been completed.

It should perform rule based data validation for complex data analysis and to stop transactions when certain conditions are met.

3.4 Data Access

The system should have a data store with the ability to access information through ad hoc, statistical and standard reports. It should keep historical information for audits, performance comparisons/review, analytical, statistical and decision supporting needs. It should have complex and partial search support capabilities.

3.5 Data Security

The system should limit access to data, fields and values, screens and system processes to users with various levels of authorization. It should approve user authentication, segmenting and tracking access based on user roles and responsibilities (role-based security). The controls and information should be available based upon individual user security profile and duties. User levels and security should be table-driven and not utilize Active Directory.

It should have reliable security features to protect confidentiality, data integrity and system availability. It should have audit trails of information update/modification activity for the key business requirements.

3.6 Relational Database

The system should use an industry standard relational database. Minimal de-normalization for performance considerations should be used. The database will be able to exploit hardware capabilities. DelDOT's preferred databases are Oracle and SQL.

3.7 Interfaces

The system must communicate with system users by providing a consistent method to interface and a consistent message format for exchanging data. Web services are preferred. Additionally, the system must have interfacing capabilities for internal and external applications including Microsoft applications/tools.

3.8 Maintenance and Modifications

The system must be easy to maintain and modify to accommodate frequent specification parameter changes, American Society of Testing Material (ASTM) standard changes, American Association of State Highway and Transportation Officials (AASHTO) directives, federal directives and needed enhancements. Application logic should be effective dated and/or table driven where feasible and meet system and business and performance requirements. Some

business rules will be parameters and/or table driven, allowing permitted M&R Lab personnel to maintain and override information.

Programs should be structured, well documented and easily support changing business rules. The system should be modular with programs organized to maximize the re-use of common logic. Programs will be designed for ease of maintenance and impact analysis. A business rules engine is preferred.

3.9 System Failover and Disaster Recovery

The system must have application and data recovery points in case of system failure. The system should support failover redundancies. Any proposed system must document the critical resources that must be recovered in the event of disaster that would prevent system processing either in the batch or online environment.

3.10 Scalable

It has been estimated that approximately 40 central users, 35 remote users (30 concurrent users) including state employees, contractors and federal officials will access the system. However, the number of users will vary depending on the number of construction contracts and the construction season. An increase in the amount of data and/or users must not degrade the system performance and response time.

4. Project Conditions

4.1 Project Oversight

DelDOT will provide project oversight and subject matter expertise during the course of the LIMS implementation project.

4.2 Software Technology

A web based platform utilizing proven technologies such as .Net or Java is preferred. An industry standard relational database such as SQL Server or Oracle is preferred.

4.3 Responsibilities

DelDOT will be responsible for data cleansing. The Vendor will be responsible for data mapping, normalization and conversion from existing Access databases and Excel spreadsheets.

The corresponding data will be owned, hosted and maintained by DelDOT.

5. Information Requested

5.1 Vendor Information

5.1.1 Vendor's Offerings

Explain your company's role in this field including software design experience, software sales, implementation experience etc. Describe how your company's products/services add value to this project.

5.1.2 Vendor's Organizational Overview

Provide a description of your company including the organizational structure, number of years providing similar services, number of employees and physical location(s). Include information for any sub contractors you are likely to use for this project.

5.1.3 Vendor's Experience with LIMS and Data Conversions

Provide a brief description of your company's familiarity and experience with LIMS software and implementation including data conversions. List any LIMS implementation projects with functionality similar to that being requested in this RFI where your firm has been involved and explain your firm's role.

5.1.4 LIMS Software Market

In your company's opinion describe how many different LIMS software products with this type of functionality are available including, but not limited to, Commercial Off-the-Shelf (COTS), Modifiable Off-the-Shelf (MOTS) or Government Off-the-Shelf (GOTS) LIMS software products.

5.1.5 LIMS Implementation Market

In your company's opinion estimate a rough percentage of software vendors providing products meeting our functionality requirements that can also perform the implementation.

5.1.6 Solicitation Recommendations

Please share the method of solicitation you feel would be most beneficial to a successful project. For example, should the software be purchased separately from the implementation services, as a complete package or allow future proposers to price their products/services and DelDOT decide the best selection(s) for the project.

5.2 Vendor System Implementations

5.2.1 Project Description

Provide the following information for each of your LIMS implementation projects;

5.2.1.1 Client:

- Name of the jurisdiction and client organization for which the LIMS project was implemented
- Name and contact information for a client reference knowledgeable about the project

5.2.1.2 Time Line:

- Provide the timeline for project implementation by major phases such as requirements, design, development, implementation and maintenance
- Provide actual project plans if available. Provide reasons for any significant delays

5.2.1.3 Scope:

- Detail which of the following functional systems / modules were implemented:
 - Sample tracking
 - Numbers of Samples tested
 - Inventory
 - Correspondence / Notifications
 - Security
 - Interfaces to external entities
 - Number of transactions per day
 - Test information tracking
 - QAQC
 - Reporting
 - Printing
 - External website
 - Interfaces to internal entities
 - Central / field offices, workstations

5.2.1.4 Types of Technology replaced or being replaced:

- Explain the extent of the system that was replaced
 - Technology that was replaced (servers, workstations / clients, middleware, etc.)
 - Type of application architecture replaced (Mainframe, web-based, client-server, etc.)
 - Database / data store that was replaced

5.2.1.5 Types of Implementation:

- New technology implemented
- Custom development, customization of existing implementation, COTS, MOTS, GOTS, or other
- Type of system/application architecture such as mainframe, client-server, web-based
- Technologies used for the servers, workstations / client machines, middleware, etc
- Database / data store

5.2.1.6 Other Tools or Software:

- List of any COTS tools / software used for specific functions such as reporting, printing, MS Office suites, PDF maker, etc.

5.2.1.7 Miscellaneous Activities:

- Please identify if your company performed any of the following:
 - End user training
 - Data migration / conversion
 - Communication
 - New process design and documentation

5.2.1.8 Project and Software Cost:

- Please identify cost of the following:
 - Licensing Cost
 - Cost of System Implementation (by project activity / phase if possible)
 - Project Management cost
 - Cost for external COTS tools/software such as PDF Maker, Crystal Reports, etc
 - Annual cost of maintenance (if your company is providing maintenance)
 - Pricing model used such as fixed fee, time and materials, etc
 - Any alternative pricing / funding models

5.3 Technical Solutions for Potential DelDOT System**5.3.1 System Description****5.3.1.1 System Architecture Diagram(s):**

- Provide a graphical representation of the major system components and their interaction. Multiple diagrams can be included

5.3.1.2 System Description:

- Provide a narrative describing the system. Include brief descriptions of major system components and their technical specifications

5.3.1.3 Type of Implementation:

- Describe the type of development effort required: custom development, customization of existing implementation, COTS, MOTS, GOTS or other

5.3.1.4 Application Architecture:

- Identify the type of application architecture such as, client / server, browser based
- Provide a brief description of application architecture / data flow. An application architecture diagram can be included

5.3.1.5 Technology Used:

- Identify the technical platform (.NET, Java, etc) and list the technologies that will be used by servers, workstations, middleware, database, etc. List any COTS tools that will be part of the system

5.3.1.6 Hardware Requirements:

- Identify the hardware infrastructure required to support the system

5.4 Functionality of the Potential DelDOT System

5.4.1 The vendor should demonstrate how each of the LIMS implementation goals will be met by the system.

5.4.2 Functionality - The vendor should identify all functionality available through the vendor's system. Based on the information provided, the vendor should identify any functionality or services that are not available through the vendor's system.

5.4.3 Interfaces - The vendor should identify any internal or external interfaces that would be available through the system, or that could be developed by the new system.

5.5 Implementation Approach for the Proposed System

5.5.1 General Approach

Describe the methodology and general approach for completing the LIMS implementation project. Based on the information provided, include a list of project tasks that would be completed for this project as well as estimated timelines for it. The vendor's approach to data conversions should also be included.

5.5.2 General Risk

List possible problems / risks that may be incurred during the LIMS implementation effort to include data conversion and identify the approach to mitigate each problem / risk.

5.6 Cost for the Proposed System

5.6.1 Estimated Cost

Based on the information provided, estimate a non-binding cost required to complete the LIMS implementation project. Please show estimated costs for the following tasks:

- Software licensing cost (if applicable)
- Project Management cost
- Third party COTS software cost (such as PDF maker, Crystal Report)
- Requirements gathering
- Design, development, and / or customization
- Data conversion
- System testing and acceptance
- End user training
- Product implementation
- Post implementation support
- Travel and miscellaneous administrative expenses
- Five years of annual maintenance and support per year

5.6.2 Alternative Pricing Models

Identify the vendor’s preferred pricing model as well as any alternative pricing models for the LIMS implementation project that would be acceptable to the vendor. Some of these alternative pricing models may include: per module / product, long-term payment options, milestone based.

5.6.3 High Cost Mitigation

DelDOT is also interested in identifying high risk and cost factors. Information regarding avoiding high cost specification or requirements is encouraged. Proponents may identify from past experience, certain factors that adversely affect cost.

5.6.4 Recommendations

DelDOT welcomes any recommendations, suggestions or improvements regarding this potential project, whether they relate to direct cost, system performance or any other aspect of this project.