

Integrated Data Management for Materials Testing and Engineering

Location

Statewide, CA

Project Owner

California Department of Transportation

Reference

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Project Duration

Ongoing

Role

Database management,
data collection/analysis

Contract Value

\$30.2 million

Project Description and Scope

Alta Vista provides software development services to assist the California Department of Transportation (Caltrans) with the on-call quality assurance (QA)/independent quality assurance (IQA) contract. Alta Vista's team of software engineers and programmers created and currently maintains a database used to store, transfer, and disseminate material testing data. Using an XML Schema, a system that emphasizes simplicity and usability, the Data Interchange for Materials Engineering (DIME) allows material test results obtained statewide to be stored in a centralized location, and facilitates the seamless flow of results from point of generation through project usage, storage, and reuse. DIME allows clients to ensure record retention, helping ensure compliance by creating a searchable database. Performance history and trends for materials can be accessed more easily, which allows for a more thorough risk assessment.

An integrated data management system opens doors for statistical analysis on both project and program levels, reducing cost and increasing confidence in analytical data. DIME also has the potential to reduce testing needs based on the program-level data that is now accessible, in addition to project-level data alone. DIME is currently used by QA and QC laboratories across California to store test results for a wide variety of materials used in transportation construction projects. With the collection of statewide data and the use of historical information, trends are created to provide engineering analysis and decisions at a statewide level.

Challenges and Solutions

The Job Mix Formula (JMF) Verification Tool is a DIME interface, web-based application, developed by the Materials Engineering and Testing Services (METS) at Caltrans to evaluate asphalt concrete mix designs submitted by contractors. Submitted mix designs are normally evaluated via Caltrans standard specifications, however there are instances where there are deviations from the standard based on contract requirements or mandates from a particular Caltrans' district.

Alta Vista was asked to assist in designing a solution to address the variation in specification requirements when reviewing mix designs. The Alta Vista software team came up with a creative solution that utilizes a database of custom specification requirements that can be easily managed by Caltrans personnel by using a web-based interface. This new feature is currently in use by the client to evaluate JMF submissions saving the client time and resources.

