Coachella Valley Mosquito and Vector Control District

Field Technicians Work Smarter—Data Access Increases Efficiency

CASE STUDY

CHALLENGE

The Coachella Valley Mosquito and Vector Control District needed to coordinate field operations to

- **Improve field data collection efficiency.**
- **Reproduce and control existing workflows.**
- **Centralize data sources and establish modifiable forms and reports.**

RESULTS

- **Saved 80 hours per week by no longer requiring data entry staff to convert technician reports into digital forms.**
- **The mobile system saves 40 hours of training for new technicians by providing annotated digital maps for field use.**
- **Supervisors can prepare daily, weekly, or monthly reports in minutes compared to multiple hours previously required for support personnel to gather data.**

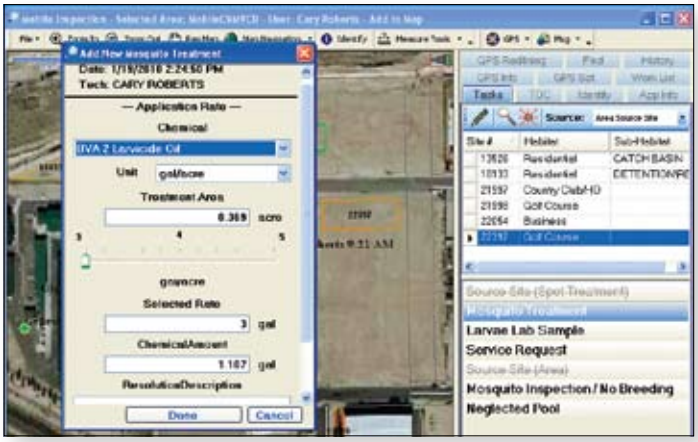
"With the enterprise solution, we were able to bring all our scattered data into one single repository. That was one of the key benefits of the application."

Edward Prendez, IT Analyst, Coachella Valley Mosquito and Vector Control District

The Coachella Valley Mosquito and Vector Control District controls pathogen-carrying vectors in southeastern California to reduce the transmission risks of diseases such as the mosquito-borne West Nile virus. The district covers a 2,400-square-mile area where a dozen resort and residential communities provide ample vector habitat with more than 1,400 swimming pools and 100 golf courses. Twenty-four field technicians take care of site inspections, surveillance, and preventive chemical applications and, when appropriate, use biocontrol measures such as releases of mosquito-eating fish. They also execute scheduled and call-requested inspections for controlling red imported fire ants, eye gnats, and flies and provide site inspections with advice on rodent-proofing properties and suppressing rodents and other nuisance and vector species.

The Challenge

The district needed to more efficiently perform vector control operations. It had software for keeping track of field activities, but because the system was proprietary, changes to it were time-consuming and costly. In addition, the proprietary system stored information in separate datasets, which obstructed data retrieval and analysis. It was difficult for field technicians to access information about previous inspections, and some information existed only in the unwritten, historical knowledge of employees. Field technicians were using paper maps to navigate the community and using paper forms to record field notes. This required office personnel to type field notes into an electronic database format, which increased time, labor costs, and chances for error.



Field technicians have access to aerial photos, maps, and task-oriented forms such as this one, which calculates a larvicide treatment for a golf course.

The Solution

The district needed a fully electronic system that was easy for nontechnical employees to use; could reproduce existing workflows; and could quickly transfer field data to a central database equipped with data retrieval, analysis, and reporting capabilities. The district chose a geographic information system (GIS) solution based on the Esri® ArcGIS® system. The solution uses ArcGIS Mobile software to integrate office and field data collection workflows and ArcGIS Server to maintain a centralized database that receives and shares information through an online connection. New business rules reproduce existing workflows and established control over work order task sequences. Mobile operations now run on GPS-enabled rugged notebook computers that provide technicians with a digital district map for navigation and

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Coachella Valley Mosquito and Vector Control District

ESRI SOFTWARE

ArcGIS Desktop
ArcGIS Server
ArcGIS Mobile

OTHER SOFTWARE

Microsoft® SQL Server®
Microsoft Windows 2003
Crystal Reports®

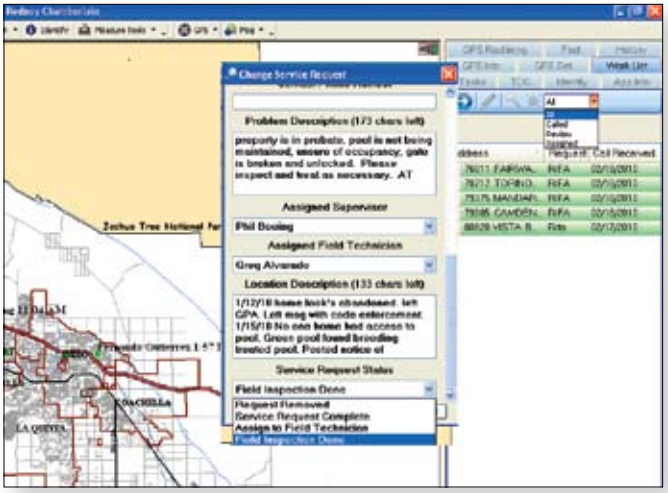
DATA

Aerial photography, 1-foot resolution
Riverside County GIS data (parcel, centerline, etc.)

HARDWARE

Panasonic® CF30 Toughbook® with touch screen and GPS enabled
HP® ProLiant Server

give them access to work orders, historical data, and customized data entry forms. To improve data accuracy and standardization, the forms use task-based drop-down menus so technicians can make selections from predefined lists instead of having to type repetitive information. Both the data entry and report forms can be modified in-house. Once collected, field data is relayed over a wireless Internet connection to the office, where ArcGIS Server handles automatic updating of the central database. Supervisors have access to the mobile system as well as on-demand reports from the central database.



Supervisors improve efficiency with a centralized database and this at-a-glance view of each service request and its corresponding status.

The Results

Mosquito control operations are now paperless and rely on an automated reporting system for daily work reports and monthly summaries of chemical usage that support inventory and supply needs.

The mobile application's fast and accurate data collection system helps technicians work smarter—for example, calculations of acreage and chemical applications are more exact, and local information is now recorded for others to use. Technicians can annotate digital maps or aerial photographs by drawing on their computer touch screen, access digital maps for road navigation, see where other field teams are located, and review inspection site histories. "The site history tells them who already applied what chemical and how much," said Cary Roberts, Coachella Valley Mosquito and Vector Control District GIS specialist. "That's a great benefit, because they can make decisions based on what may or may not have worked in the past."

Data entry error, labor, and bottlenecks are reduced with the mobile application, and supervisors have an efficient way to monitor daily progress. "Before, it would take up to two extra days to process one day's worth of data," said Edward Prendez, IT analyst for the district. "Now we are seeing it in real time as it comes in from the field."

An additional, unexpected benefit is that the district now uses its Web portal to share records on neglected swimming pools (potential mosquito breeding sites) with the local government offices that are responsible for enforcing sanitation codes.

FOR MORE INFORMATION

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