TECHNOLOGY IMPROVES TRAFFIC FLOW
ON STATE'S HIGHWAYS

by Jenny Mangelsdorf

Client: Maryland State Highway Administration
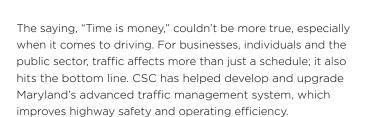- Industry: Transportation
- Number of Employees: 3,091

Challenge:
- Improve real-time operations of Maryland's intelligent transportation system
- Expand data sharing to more than 30 state agencies and the public
- Improve scalability and flexibility of the system, which manages more than 900 traffic devices and distributes video to 300 monitors

Solution:
- Engineer and integrate network and systems
- Provide systems analysis and administration
- Develop software and business area architecture

Results:
- Improved highway safety and operating efficiency
- Better emergency weather operations and environmental quality
- Improved movement of people and goods

The saying, "Time is money," couldn't be more true, especially when it comes to driving. For businesses, individuals and the public sector, traffic affects more than just a schedule; it also hits the bottom line. CSC has helped develop and upgrade Maryland's advanced traffic management system, which improves highway safety and operating efficiency.

Managed by Maryland's State Highway Administration (SHA), the Coordinated Highways Action Response Team (CHART) system covers more than 500 miles of roadway. An analysis of the system in 2010 determined that its services reduced delays by 45.57 million vehicle hours and cut fuel consumption by 9.52 million gallons that year. CSC began work with SHA in 1997 when we analyzed the original system's telecommunications capabilities.

Since then, we've supported CHART's development, enhancement and implementation, providing the full range of IT services for the traffic management system, which was one of the nation's first statewide intelligent transportation system (ITS) deployments.

Intelligent transportation
When CSC helped launch the redesigned CHART system in 1999, we established our reputation for innovation in ITS. CSC enabled the system to deliver video to traffic operations center locations, letting operators view and operate closed-circuit television (CCTV) traffic-surveillance cameras and destination monitors. The ITS was one of the first in America that enabled people in different cities to view video from cameras located throughout the state.

A decade later, CSC redesigned the video delivery system to use new technologies that operate over the Maryland Department of Transportation's network, which CSC also designed and deployed.

Today, CHART manages more than 270 controllable CCTV cameras, 320 stationary cameras, 30 mobile cameras, 120 speed detectors, 200 dynamic message signs and 30 highway advisory radios. It also imports weather and road data from the state's weather/pavement sensor system and distributes video to 300 monitors and feeds at more than 80 statewide operations centers, which belong to more than 35 operating agencies.

By distributing video, messaging, system alerts and data to Maryland's Statewide Operations Center and satellite centers, operators can evaluate and post road and weather conditions, provide emergency response, manage traffic flow and provide travelers with real-time information. CCTV video is also streamed to the CHART website, traffic.md.gov.

Systems integration
A key hallmark of CHART's network architecture and software is our integration of the client's existing systems, which lets SHA add new technologies to the system and network, while maintaining compatibility with existing infrastructure.

"As ITS systems get larger and more complex, it's critical to get them talking to and working with other devices and systems," says Mike McGreevy, CSC's CHART project manager. "As a systems integrator, that's one of our strengths."

Because CSC has helped ensure that SHA has a high degree of integration flexibility, the organization is able to easily expand its interagency data-sharing capabilities. A key new improvement, called the data exporter, has enhanced the system's ability to make data even more accessible. Before the exporter was in place, whenever a new group wanted CHART data, CSC had to build a new feed to that group.

"From day one, our goal was to ensure that both highway data and video were available to other agencies and the public, because the more information you can get out there, the fewer people get caught in backups and make bad decisions," says Richard Dye, CHART Systems Administrator. "Today, we probably share more video with the public and other governmental and private sector first responders than any other traffic system."

To further expand data sharing capabilities, SHA recently launched its 511 system initiative, which provides roadway information to the public via a telephone-based, interactive voice-response system. Because the data exporter was already in place, when the SHA decided to add the 511 capability, CSC didn't have to rework the system to make that happen.

"One reason we've been successful is because we try to think ahead and anticipate what capabilities the client will want down the road," says Linda Hanger, CSC CHART program manager. "That way, when they want something, we've already done some groundwork." ∎

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