Spectacular Views
Sharing Closed Circuit TV Between Operations Centers

The Challenge:

Advanced communications technology is the engine that continually moves AZTech closer to its goal of integrating transportation systems throughout the region. At the heart of this technology is a state-of-the-art Closed Circuit Television (CCTV) system that provides motorists and public agencies with real-time views of traffic conditions.

While state freeways have been equipped with CCTV through the Arizona Department of Transportation's (ADOT) Trailmaster freeway management system, video surveillance has not extended to the arterial network of city streets. For AZTech to successfully integrate individual transportation systems, it would need to identify a method of effectively linking the Traffic Operations Centers (TOCs) of its municipal partners with ADOT's TOC. Most of the area's municipalities, however, aren't equipped with the kind of fiber-optic infrastructure that supports the Trailmaster system.

Without access to a fiber-optic cable network, establishing a CCTV traffic-management system could be a rather expensive proposition. The challenge was to find a cost-effective alternative for shuttling video signals from roadside cameras back to each city's respective TOC, where the signals would then be relayed to ADOT's TOC, acting as the AZTech hub. Accomplishing this task would require AZTech to establish a multifaceted telecommunications network.

The Solution:

Rather than undertake the expense of laying its own telecommunications cable to link the various TOCs, AZTech addressed each individual municipality on a case-by-case basis. The result is a combination of technologies that relay video images back to 13 separate traffic, emergency services and transit operations centers, all of which are linked with the ADOT TOC, which serves as AZTech's telecommunications hub. A majority of the sites use microwave technology to communicate between video cameras and the TOC. Several, including Mesa, Tempe, Glendale and Scottsdale, are linked directly via AZTech's fiber-optics cable. The city of Paradise Valley negotiated to use a cable owned by Arizona Public Services for their connection to the traffic cameras.

The AZTech project expands existing CCTV systems in Phoenix and Scottsdale, and delivers CCTV capabilities to several cities previously lacking systems, including Glendale, Mesa, Paradise Valley and Tempe. Traffic cameras, which were installed at strategic locations on surface streets, allow the TOCs to monitor the flow of traffic and verify incidents.

Operators at each TOC monitor the CCTV transmissions and other information provided by traffic detectors. Should an operator detect a potential incident, the nearest camera (regardless of which jurisdiction the camera belongs to) can be directed toward the trouble spot. After confirming the incident

and determining its severity, the operator can implement the appropriate response, such as summoning a fire truck, an emergency services vehicle or a tow truck. Emergency services and transit dispatchers have access to the same functionality at their respective operations centers.

"The CCTV system provides us with a set of eyes that helps provide a higher degree of efficiency on the roadway and a higher degree of safety for travelers," said Jim Decker, AZTech smart corridor coordinator. "When something does happen, we can direct a response that's as appropriate and expeditious as possible. The ultimate goal is to clear the incident as quickly as possible so it has the minimum effect on the flow of traffic."

Video images also are transmitted to travelers through resources such as the ADOT home page on the Internet, local television stations and AZTech kiosks. Plans call for real-time video to also be shown on local cable television outlets.

The Benefits:

AZTech's CCTV system effectively extends the reach of the functionality of the ADOT Trailmaster system beyond the limits of its own physical infrastructure. And by integrating diverse systems, efficiency is increased across the board. Reciprocal sharing of video transmissions and control between various municipalities, and with ADOT, improves each partner's capacity for monitoring and responding rapidly to traffic conditions. Particularly valuable is the ability to view conditions on roadways in neighboring cities and adjacent freeways. Not only can each city monitor the CCTV transmissions of the other municipalities, they also can control them. "We're sharing different resources for the benefit of all," said Dan Powell, AZTech chief administrator.

In addition to increasing efficiency by facilitating the exchange of information between agencies, AZTech's CCTV initiative saves both time and money. Significant cost savings are achieved by sharing resources and developing a single integrated system as opposed to several disparate systems among the various jurisdictions. Ultimately, travelers are the true beneficiaries, as more-efficiently managed roadways means less congestion. In addition, having greater access to real-time video of traffic conditions makes it easier for motorists to choose optimal routes and cut down on commute times.

As an international showcase for state-of-the-art Intelligent Transportation Systems, the AZTech Model Deployment Initiative has documented numerous success stories. To learn more, visit the AZTech home page on the Internet at *http:www.azfms.com*.