Istanbul Metropolitan Municipality Traffic Control Center Manages Incidents, Traffic Flow with
IP Cameras and VideoXpert™ VMS from Pelco™ by Schneider Electric™
The Customer

Responsible for the safe and efficient traffic operations in and around Istanbul, Turkey, the Istanbul Metropolitan Municipality (IMM) Traffic Control Center (TCC) was founded in 1997. The TCC’s goal is to manage city traffic flow in the large metropolitan city and provide the public with live traffic information using more than 1,000 cameras installed in nearly 600 different locations. The TCC collaborates with Tunnel Management Center, which manages traffic in urban tunnels in Istanbul.

The Challenge

The Old World capital of Istanbul has a rich history and has been considered home to many civilizations over time, and this is reflected in the city’s architectural designs and high population density. However, Istanbul is considered a “modern” city in its technological advancements, culture and intelligent transportation systems.

The mission and vision of the TCC are to provide world-class, modern, high-quality, safe and accessible transportation in the city, which is executed through an extensive network of sensors, including video surveillance, emergency response systems and much more. The challenge facing the TCC is in bringing all of these systems together, using surveillance video that offers high-quality and extensive reliability, as well as using captured video data to improve traffic flow by directing drivers to less congested routes, which results in an overall decrease in traffic delays in the main arterials of the city.
The Solution

To complete the IMM TCC upgrade, officials worked with ISBAK Istanbul IT and Smart City Technologies Inc., which was established by the IMM in 1986 to provide project design and implementation services through traffic and system engineering. ISBAK specializes in architecting Smart City solutions, and called on Pelco™ by Schneider Electric™ to help build a solution that would provide the means for the city to be safer, more comfortable, and more sustainable using the latest innovative solutions introduced to traffic management.

ISBAK originally selected Pelco’s enterprise-class Endura Video Management System, which brought all of its analog cameras and matrix systems under a single platform that provides operators with the ability to call on and switch seamlessly between live and recorded video on multiple display screens. Officials view feeds on the Endura VMS platform from two separate viewing locations – TCC and the Disaster Coordination Center of IMM (AKOM) – to monitor traffic conditions 24/7.

Now, however, the TCC is taking the initiative to update its analog cameras and adopt a complete IP solution. To streamline IP video viewing even further, TCC is transitioning to Pelco’s latest VMS offering, VideoXpert™ VMS, which is ideal for Safe Cities and large enterprise applications. VideoXpert takes video management even further, providing camera sequencing, the ability to move quickly between camera feeds and greater recording capabilities that are critical during investigations.
Additionally, VideoXpert contains analytics software, such as event/alarm management and license plate recognition that aid officials in gathering more information in the event of an incident. The platform allows officials the flexibility to control more than 1,000 roadside cameras that monitor city traffic flow on roadways, bridges and tunnels, and alert city officials to any possible threats or incidents. VideoXpert also integrates with a variety of third-party systems, which results in a proactive approach to overall traffic management operations.

As the TCC undergoes the transition from a combination of Pelco analog and IP cameras to a complete Pelco IP solution, the result is a fully networked system that is easily controlled from a central location using VideoXpert VMS. Pelco’s latest generation IP cameras provide greater resolution, improved image quality, low-light capability and fog elimination technology, making the cameras ideal for monitoring a city’s busiest roadways in any meteorological condition.

The solution includes more than 200 Spectra and Spectra Enhanced domes, which provides full 1080P and 60/50 IPS. There are also around 800 Esprit pan-tilt-zoom (PTZ) cameras and 167 Esprit HD cameras that provide over-the-horizon viewing that is required for areas that contain hills or elevations. These cameras allow better viewing capability than dome cameras because of the positioning and advanced low-light technology that is built into every camera. Finally, the solution also includes Sarix IP fixed cameras that provide high-quality video data in difficult lighting conditions, which is ideal for areas where bright lights are an issue. All of the tunnels and bridges in Istanbul are connected to this system, containing a total of nearly 600 stationary cameras.

These roadway cameras are used for monitoring and detecting traffic flow and identifying areas where there is traffic congestion. Once a problem is found from monitoring at the TCC, assistance is dispatched to get traffic
moving again once the cause of the congestion is determined. The city’s tunnels are also monitored for ease of traffic flow and to identify threats or problems inside tunnels, as well as find motorists that may be in need of assistance. Various cameras are also used at intersections to monitor traffic flow and call attention to any incidents.

The comprehensive Pelco solution runs over the IMM TCC network via DSL/fiber optic connections established by Turkish Telecom and IMM. The system takes advantage of Pelco’s multicast capability, which is a method of sending data from one device on a network to multiple devices on the same network by sending one copy – thereby conserving bandwidth. Using multicast, officials now have the ability to view the cameras from multiple locations without significant impact on the network’s bandwidth – which is critical, since the TCC has several different buildings and control centers to help easily manage city traffic.

The Future

The IMM TCC continues to grow and strives to provide its citizenry with the latest in traffic management technology to ease traffic congestions. As a part of this world-class system, Pelco works diligently with officials to ensure the needs of the city are met in regards to comprehensive traffic management and protecting the citizens of Istanbul. The scalability and flexibility of the Pelco VideoXpert VMS solution will allow officials to add additional cameras as the city grows or identifies new areas in need of advanced surveillance solutions.