

## Al Madinah ITS Architecture Embraces Vantage

Al-Madinah Al-Munawwarah (Madinah City's full name) is located in the centre of the western part of the Kingdom of Saudi Arabia, which is called 'The Hijaz'. It is the second of Islam's cities, after Makkah Al-Mukarramah (Mecca) and home to the second of The Two Holy Mosques of Islam.

Madinah recently installed Vantage video detection systems to provide traffic flow control throughout the city's critical corridors. Gulf Factory for Traffic Light Limited, the local Iteris dealer, supplied and installed the systems and they continue to provide service and maintenance for the complete system.



Madinah has been a centre of tradition and heritage since ancient times and holds a distinguished place in the hearts of all Muslims. Madinah is a religious centre and the second holiest place in Islam that attracts Muslims from all corners of the world. Today, visitors number several hundreds of thousands, who remain for just a few days or a few weeks, before journeying home. Madinah's population is normally around 800,000 but swells to more than 2 million during the month of Ramadan and the month of the pilgrimage period.

The city lies approximately 625 metres above sea level. Madinah is 430 kilometres north of Mecca and about 150 kilometres east of the coast of the Red Sea. The climate of Madinah is generally dry, with temperatures ranging between 30-45 degrees C in summer and between 10-25 degrees C in winter.

Traffic congestion is usually busy but worsens during certain months as visitors converge on the city. Therefore, the Municipality; Amanat Al-Madinah Al-Munawwarah contracted Gulf Factory for Traffic Light Limited, a Saudi Arabian company, to implement the "Al-Madinah Al-Munawwarah Intelligent Transportation System" (ITS) to be performed in 5 stages. It included the:



- Upgrade of existing intersection traffic signal controller and cabinet hardware.
- Construction of the Traffic Management Centre.
- Implementation of the traffic management and surveillance system.
- Implementation of the Red Light and Speed Enforcement system.
- Implementation of a Traveller Information System.

A study was conducted prior to the start of the project to help in equipment selection. The city decided to utilize video detection for nearly all of the signalized intersections, and for the system detector stations for the following reasons:

- In-pavement detectors would increase annual maintenance cost owing to the various types of prevailing road surfaces within the city.

- It was not permitted to close the roads for loop installation or maintenance owing to heavily congested traffic flows during many periods of the year.
- Intersections were not equipped with enough conduits to allow the pulling of additional feeder cables required for data collection using inductive loops.
- Continuing improvements and re-surfacing of the road network necessitated the need for a flexible and above surface detection system that would not impact traffic flows.
- Data collection requirements demanded more than what conventional loops could deliver.
- A video image could always verify the actual incident being monitored and could be transmitted to the control centre for central viewing.



The selected traffic controller cabinet was the CALTRANS model 336 built to the NEMA standard therefore allowing for the direct installation and connection of all ancillary equipment. An additional requirement was that the required video detection system had to be simple to install and operate.

All of the above made the Iteris Vantage Edge Detection System a perfect selection that met all the above requirements. A total of more than 80 Iteris Vantage video detection units will be installed by early 2006. By the end of 2005, 40 units had already been installed.

Mohammad Tannir, Executive Director for Gulf Factory for Traffic Light commented, “The selection of the video detection equipment required careful analysis. The climate in the region can become extremely hot during the day and quite cool over night. We needed to install equipment that was not affected by these massive temperature changes and could endure the rigors of continuous operation with the minimum of maintenance. Our experience and knowledge of the Vantage systems in other cities made Iteris equipment the obvious choice.”



Installation began in 2005 and more than 40 detection cameras are currently in operation. The remaining sets are scheduled to be completed before August 2006.