The City of Palo Alto Uses GarrettCom Ethernet Products in Its Advanced Transportation Management System (ATMS)

A Traffic Control Application

TECHNOLOGY TODAY

The City of Palo Alto, Calif., with more than 95 traffic signals had a 15-year-old Multisonics traffic system using serial connectivity that was no longer being fully supported by the manufacturer. Rather than continuing to maintain an out-of-date system, the city chose to take advantage of current traffic signal control technologies and the products that support them. As the city considered its options, it identified factors such as expandability, interoperability, and affordability as key to the ideal system.

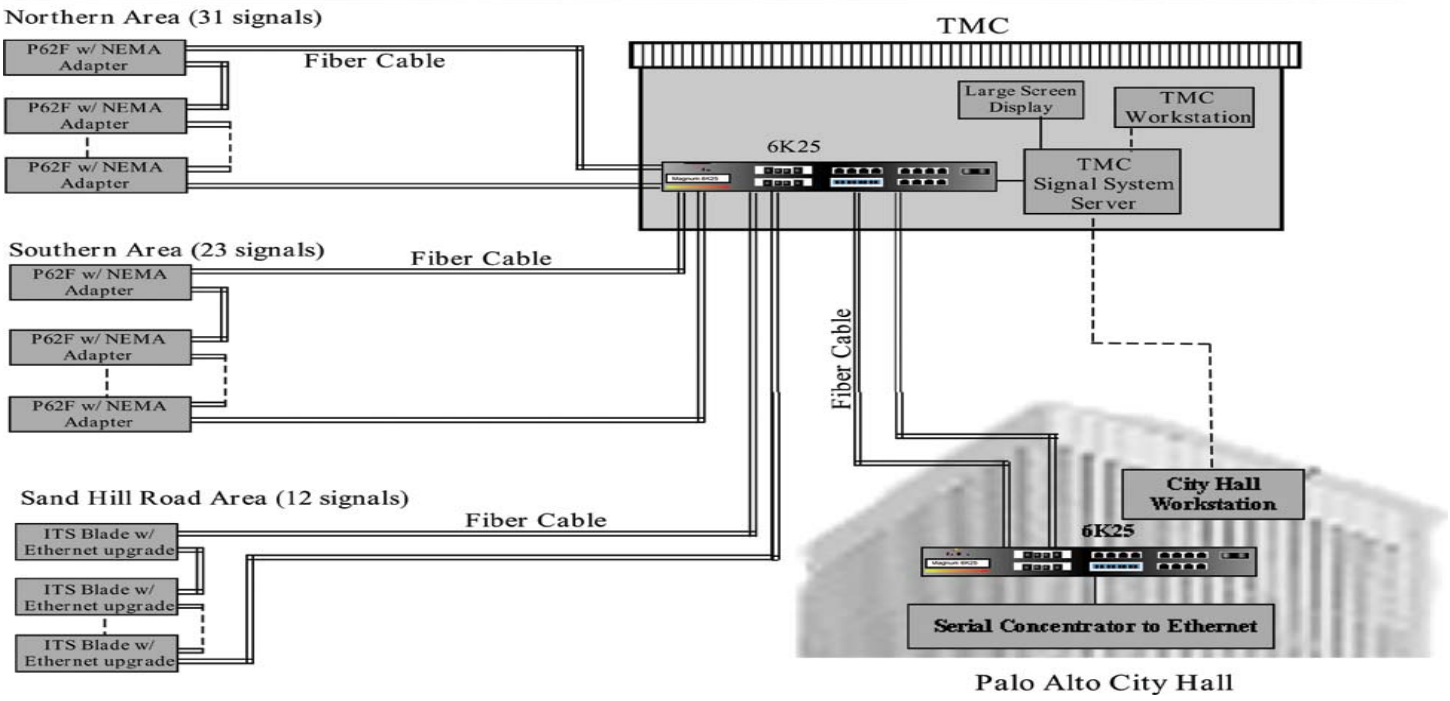
ABOUT THE CITY OF PALO ALTO

Located in the heart of Silicon Valley where the development of the Ethernet networking standard took place, the City of Palo Alto took a close look at how the newer 100 Mb and 1 Gigabit Ethernet technologies could provide a cost-effective, comprehensive traffic solution that could be upgraded easily as technology and bandwidth demands increased. The Utilities Department had recently installed a fiber-optic network which was available for lease to the Traffic Department, providing a ready-made, high-availability, noise-interference-free communications system.

THE CHALLENGE

Armed with a new Federal grant for updating the traffic system, the city looked to Kimley-Horn and Associates to help develop a more modern system. The city wanted a new turnkey signal system with ATMS (advanced transportation management system) capability such as DMS (dynamic message signs), CCTV (closed circuit television) and vehicle detection, as well as NTCIP (National Transportation Communications ITS Protocol) compliance. In addition, it required adaptive traffic control capability and redundant 2-way communications between the central traffic management complex and all controllers in the field.

The city had a variety of configurations of the 2070 controller box that needed to be accommodated. In addition, the communications system used by the traffic department was a combination of twisted-pair copper downtown and coax cable in other areas. The city was experiencing reliability problems with the aging coaxial cable, and it was clear that new technologies such as CCTV would require bandwidth up to 100 times greater than the capability of the current serial system.



Palo Alto City Hall

Traffic Management System

THE SOLUTION

The city selected McCain/BI Tran for the traffic management system, and GarrettCom's Ethernet-outdoors products for Ethernet connectivity. Ethernet's ability to operate in a daisy-chain configuration versus the serial line's point-to-point requirement would allow the city to dramatically reduce the amount of cabling required, which could both decrease costs and increase reliability. In addition, hardened Ethernet equipment, such as that available from GarrettCom, makes it possible to implement an Ethernet solution that can survive the rigors of temperature-uncontrolled outdoor conditions.

GarrettCom provided a combination of Magnum ITS-Blade cards, which slide neatly into McCain's 2070L controllers to provide Ethernet connectivity, and Magnum P62F Premium-rated Switches for outdoor use in the older 2070 boxes that did not accommodate an Ethernet card. GarrettCom Magnum 6K25 switching hubs in City Hall and in the TMC complete the Ethernet package.

THE RESULT

The City of Palo Alto has a traffic management system it can grow with, and the immediate benefits of improved reliability and performance. The Ethernet system is easily expandable to allow more signals to be added to the network in the future. The higher number of drops per circuit meant that it required less than 30 percent of the cabling that the serial cabling strategy would have demanded, resulting in fiber-leasing-cost savings, over $60,000. The system will currently support up to 5 CCTV circuits as well as DMS. Ethernet over fiber can be easily upgraded to 1 Gigabit Ethernet in the future as more CCTV is added and higher bandwidth is required.

ABOUT MAGNUM PRODUCTS

The **Magnum P62F Hardened Switch** is specifically designed to operate in temperature uncontrolled environments. It has six 10/100Mb switched RJ-45 ports and two 100 Mb fiber ports that allow daisy-chained configurations of the P62Fs to be deployed over long distances.

The **Magnum ITS Blade** is an Ethernet Switch-on-a-Card with 6 10/100 copper ports and 2 100 Mb fiber ports that fits into a 2070 Traffic Controller to provide Ethernet connectivity in curb-side traffic control boxes. Its ambient temperature range of -40° to 75°C allows it to function in all weather conditions.

The **Magnum 6K25 Managed Fiber Switch** offers a new level of configurability for industrial Ethernet LAN applications. Designed to offer up to 24 built-in fiber ports with optional 1Gigabit fiber uplink capability, the Magnum 6K25 allows industrial users to take advantage of fiber's inherent noise immunity and extended distance support without the need for expensive, space-consuming media converters. The 6K25 Managed Fiber Switch come with Managed Networks Software (MNS) that provides basic switch management, monitoring, and security, including the company's S-Ring™ redundancy management software product that allows fast recovery in ring topologies while working in conjunction with standard Spanning Tree Protocol algorithms for fast fault recovery.

ABOUT GARRETTCOM

GarrettCom, Inc., is the leading manufacturer of industrial and carrier-class Ethernet LAN products. GarrettCom offers a comprehensive line of hardened switches and media converters as well as hubs for use in telecommunications, industrial, and automated factory environments. GarrettCom markets its products through a network of resellers, OEMs, system integrators, and distributors worldwide. For more information on GarrettCom and its products, visit **www.GarrettCom.com**.

1/04

GarrettCom™
Ethernet at Its Best™

GarrettCom, Inc.
47823 Westinghouse Drive • Fremont, CA 94539, USA • PH: (510) 438-9071 • FAX: (510) 438-9072
Email: mktg@garrettcom.com • Web: www.GarrettCom.com