

Seminar Talk

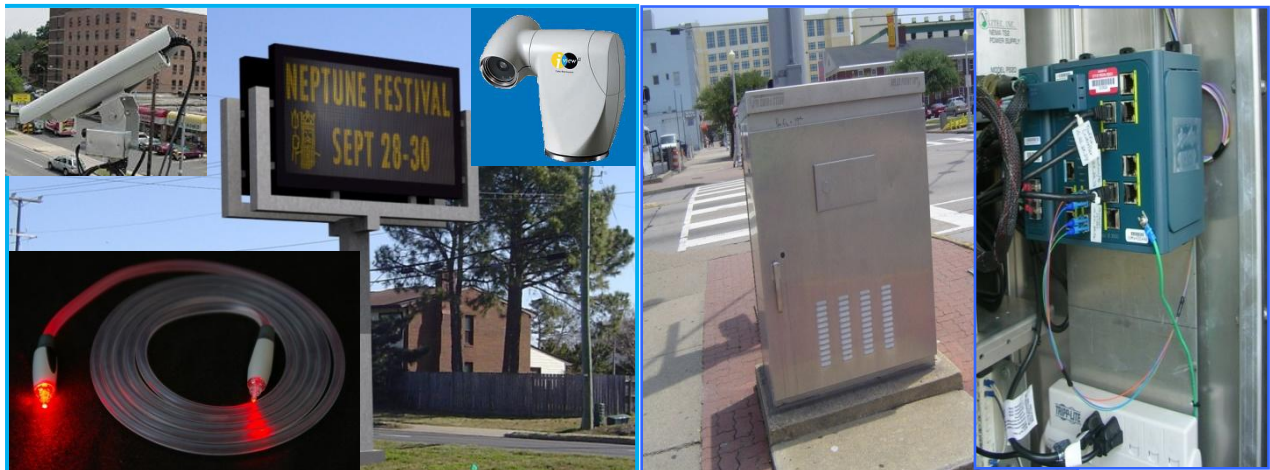
Jim Harrington
Senior Electrical Engineer
Professional Engineer, AECOM Corp.

Friday, February 13, 2015
3:00 p.m. KH 224

Title: The Virginia Beach Signal Integrator

Abstract:

Transportation engineers are continually seeking to coordinate traffic signals with the goal of improving vehicle flow. Over the past several decades the City of Virginia Beach has installed a web of twisted copper pairs to form a communication network linking 435 traffic signals within the City. The copper network allowed adjustments to signal timing from the centralized Traffic Operations Center, but it could not support streaming video from closed circuit television cameras (CCTV), nor could it support advanced vehicle detectors or display of messages on dynamic message signs.



Ten years ago, the City embarked on a project to develop a master plan for a new fiber optic communication system that would provide effective monitoring and control of traffic flow throughout the City. Upon securing funding for the project, an expansive network was installed utilizing Ethernet protocol to form an advanced communication system. The complete system linked the existing traffic signals and CCTV's to a 500-square-ft video display wall. The new network also allowed distribution of the streaming video feeds to conference rooms. The system's capabilities have allowed the network to expand well beyond its initial objectives.

This presentation will describe the project's objectives, an overview of the communication techniques and a description of the construction methods and financial issue involved with installing a communication system that will eventually encompass all the City's roadways.

Bio:

Jim graduated from the Virginia Military Institute (VMI) in 1979 with a BS degree in electrical engineering. His experience includes a significant amount of intelligent transportation system design (ITS) involving installation of Ethernet fiber optic communication networks for municipal and State traffic operation centers. This work includes installation of dynamic message signs, traffic signals and CCTV's.

Over the past 15 years, Jim has developed considerable experience in design of roadway lighting systems for interstate highways and urban areas. Much of this work has been provided through contracts with the Virginia Department of Transportation (VDOT), but his project experience has extended to Minnesota, Michigan, North Carolina and New Jersey DOT's. His lighting designs have included site lighting using LED light fixtures for a variety of vehicle and pedestrian tunnels, bridges, parking lots and other facilities.

His experience in design of electrical systems has included interior lighting and emergency generators systems. This work has extended to installation of photovoltaic systems includes a 700 kWAC solar package for GE-Aviation facility in Durham, North Carolina and installation of new 400-hp motors and variable frequency drives for a water treatment plan in Chesapeake, Virginia.

Jim's is currently working to obtain a Masters of Engineering degree focusing on computer architecture, wireless video transmission, and power generation & distribution.

Prior to joining AECOM and entering into the field of electrical design, Jim worked for seventeen years on three continents as project engineer/project manager in the evaluation of oil and gas wells to determine their production potential. He has also served in the US Army as a mechanized infantry rifle platoon leader and rifle company executive office in West Germany during the Cold War.