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INSIDE:

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City of Topeka Traffic Control System Update

The City of Topeka, Kansas is in the implementation stage of the Pyramids Traffic Control System. The Pyramids Traffic Control System is initially being developed as a means to communicate with the City traffic signal controllers and peripheral devices, provide video surveillance of selected locations, and provide a platform for traffic signal records.

The system has evolved through the cooperation of the KDOT and City in the use of ITS Set Aside funding originally applied for in 2000. The scope of the project was to procure, through a competitive bid process, the system software and complete the system development via City furnished hardware, communications system, and peripheral devices. To date the City's project is approximately 43% complete. Within the originally intended concept the City currently communicates with 52 traffic-signalized intersections of the originally intended 120 intersections.

The City's system is comprised of the Pyramids Traffic Control System software by Econolite Control Products, Inc., ATC170-HC11 intersection controllers, 170 E or S controllers with 470I prom modules, Intelligent Communications Modules (ICM), related traffic signal cabinet peripheral equipment including detectors, video camera systems, conflict monitors which are being procured via City funds over a six-year period, and the Traffic Operations control room and related equipment.

Communications for the traffic signal system is accomplished mainly via City and private owned fiber optic communications lines. The City contracted with a private firm, KMC Fiber, through an agreement in which KMC provides the City dark fibers in their plant locations as a component of their system, at no cost, as a part of their franchise to operate within the City right of way. KMC furnishes the City 12 dark fibers at all locations they install their fiber within the City. The KMC system was initially approximately 16 miles in length.

In addition, the City in conjunction with the 501 School District installed a cooperative fiber optic backbone initially approximately 18 miles in length.

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Amber Alert

The Kansas Department of Transportation has the opportunity to partner with the Kansas Attorney General's Office, the Kansas Bureau of Investigation, KBI, and private media partners in the Kansas Amber Plan.

Amber Alert programs have been established throughout the country with the goal of getting information on abducted children out to the public as quickly as possible. There have been several examples throughout the country where this quick dissemination of child abduction information has precipitated the safe return of the child.

In the State of Kansas, the Attorney General's Office is the lead agency. Through the KBI, potential alerts are obtained, verified, and if approved, Amber Alerts are issued. Currently Amber Alerts are disseminated through a partnership between the KBI, Kansas Highway Patrol (KHP) and the National Weather Service (NWS) Office of the National Oceanic and Atmospheric Administration (NOAA). After approving the Amber Alert pertinent information is transmitted from the KBI to the NWS via an existing KHP link that also provides road condition and weather information to the NWS. The Amber Alert then goes directly to the statewide NWS NOAA Weather Radio Network where the alert goes out on the same system that severe weather alerts are sent. Local Broadcasters and owners of weather radios will receive the Amber Alerts and the local broadcaster will then decide if they will issue the alert.

KDOT was contacted about joining the Amber Alert team due to the traveler information systems that we have available and/or are in the process of deploying. In the last month Rex Fleming (KDOT ITS Unit), Barb Blue (KDOT Advanced Traveler Information System or ATIS Coordinator), and Mary Beth Pfrang, (KDOT GIS Project Manager working on Kanroad), have been evaluating how to automatically receive and disseminate the Amber Alerts utilizing KDOT's 511 travel information number, currently in testing, and the KDOT Intranet and Internet systems. In the future, we plan to have the capability to place Amber Alerts on Changeable Message Signs (CMS) throughout the state. Placing Amber Alerts on CMS includes several institutional and organizational issues. One of the issues is that several of KDOT's CMS are incorporated into the Bi-State Kansas City Scout Freeway Management System. Since KC Scout is a joint venture with MoDOT, we will need to work out the policies, procedures and protocol for the Amber Alerts. This will include how to handle alerts that are issued in one state but not the other, what message is to be put on the signs, prioritization of Amber Alerts in relation to traffic information, and determining hardware and software needs so Amber Alerts can be transmitted to the Traffic Operations Center and be posted on the CMS.

KDOT also has CMS in rural western areas along I-70. District staff operate the signs via cellular technology. Before Amber Alerts can be utilized on these signs we will need to work with the Districts and determine how they are to receive the alerts, how they will authenticate the alert and what procedure will be used for getting the message on the CMS and for removing the message.

Currently KDOT is submitting a grant proposal to FHWA. The purpose of the grant is to provide funds for the integration of the Amber Alert program in our state.
Contact Rex Fleming @ 785 296-6356 with questions or visit the web site www.ksamber.org

Kansas City Scout Nears Completion

Ground was broken nearly two years ago in September 2001 when crews began trenching for Scout's fiber-optic backbone and working in MoDOT's Lee's Summit district office building to construct the Traffic Operations Center or TOC. The project has come a long way since then. At that time, work was slow and steady and low profile. This year, with the installation of major field elements, Kansas City-area freeways have taken on a whole new look. Nearly all of Scout's 36 electronic changeable message signs are installed either spanning the highways on the Kansas side or sitting high along the roadsides on the Missouri side. In fact, Scout's Communications Director, Dianna Lopez, says there's been a lot of public inquiry since the signs starting going up last December.

Besides the signs, another noticeable feature of the project is its closed-circuit television cameras. They're mounted on 40-foot minimum-height poles and are placed every mile along the Scout system. Although nearly all of the 75 cameras are already installed, not all of them are sending images back to Scout's operations hub. Crews are working diligently this summer to finish setting field cabinets that house hardware and software to run the cameras -- and other field devices -- and to establish power to those cabinets. Scout is scheduled to be operational by the end of this year.

While contractors work to meet their construction deadlines, Scout staff is managing deadlines of is own. Right now if you visit www.kcscout.net you'll find a project map and several pages of photos and information. That's expected to change when the site becomes more dynamic in the next several months. Scout intends its web site users to be able to click a camera icon on the Scout system to check out traffic. Checking the web site from their home or office, travelers will find usable traffic information that will allow them to plan a safer, smarter route to their destination.

City of Topeka, Kansas Traffic Control System Update continued

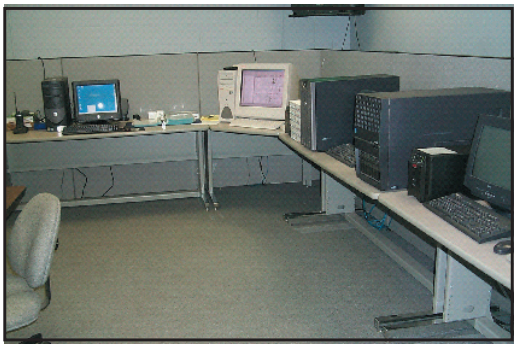
In the City-501 system the City's Traffic Operations Section has access to 12 fibers for use in traffic signal and related communications needs.

From the KMC or City-501 fiber optic backbones, access to local intersections is gained over City installed fiber optic laterals. The City has accomplished the installation of the laterals to date using a combination of means including in-house work, contracted work, and by including designs within City street or traffic signal improvements. The City has also provided all fiber optic modems used for communications needs. In all, the City will utilize six primary data circuits to communicate with the initial 120 traffic signalized intersections. To accomplish this, Communications and Data Concentrators are incorporated within the fiber optic communications system at the Traffic Operations control room.

The system hardware at the Traffic Operations control room includes a Dell 2500 Server for the communications server, a Dell 4400 Server for the system file server, and a Compaq 550 computer which serves as the primary workstation. Secondary workstations operate within the assigned computers for selected Traffic Operations staff.

City staff intends to bring approximately 28 more intersections on line in 2003 for a total of 80 intersections. In addition, the City is in the process of procuring the video (CCTV) module of the Pyramids Traffic Control System from the Econolite project vendor with the intent of working towards two initial video surveillance stations; one located near 21st Street and Wanamaker and one located at Topeka Boulevard and Huntoon. Additional video surveillance locations would include the CBD area, I-70 and Wanamaker vicinity, and 29th Street and Topeka Boulevard intersection, which locations provides the most potential for corridor surveillance opportunities.

Article By:Jack Fultz and Gary Wurdack, City of Topeka



Traffic Operation Control Room

ITS Calendar

August 1	KDOT ITS Steering Committee Quarterly Meeting, KC Scout Traffic Operations Center, Lee's Summit, MO
August 3 – 5	U.S. Department of Justice National Amber Alert Plan Conference, Dallas
August 9 – 10	ENTERPRISE Pooled Fund Committee Meeting, Palm Harbor, FL
August 10 – 13	National Rural ITS Conference (NRITS), Palm Harbor, FL
August 12	KC Scout Coordination Meeting, KDOT Metro Office, KCK
August 25	Operation Green Light Steering Committee, MARC Offices
August 26	KDOT ITS Set-Aside Project Submission Review and Preliminary Funding
September 9	KC Scout Coordination Meeting, KDOT Metro Office, KCK
September 22	Operation Green Light Steering Committee, MARC Offices
September 24 - 26	MOVITE Fall Meeting, Springfield, MO
October	KDOT ITS Set-Aside Letters of Award
October	KAUTC Meeting, date and time TBA
October 7 – 9	National 511 Conference, Fort Mitchell, KY
October 14	KC Scout Coordination Meeting, KDOT Metro Office, KCK
October 27	Operation Green Light Steering Committee, MARC Offices
November	KC Scout Coordination Meeting, KDOT Metro Office, KCK, TBA
November 24	Operation Green Light Steering Committee, MARC Offices
December 9	KC Scout Coordination Meeting, KDOT Metro Office, KCK
March 23 – 24	ITS Heartland Annual Meeting, KCMO, hosted by Missouri
April 26 - 29	ITS America, San Antonio, TX
May	ITS Set-Aside Project Solicitation Mailed Out

Kansas City Scout Evaluation

The deployment of the SCOUT Traffic Management System is an unprecedented example of cooperation across the state line in the Kansas City area. With millions of dollars being invested from both Kansas and Missouri, it is critical that the benefits of the system be measured and documented, not only to justify the investment, but also to provide valuable guidance for system operation, modification, and future expansion. To capture these benefits, a critical effort has been underway during the past two years to collect baseline data—data that describes the condition of traffic without SCOUT, so that it can be compared with data collected after SCOUT is in full operation. In an effort nearly as unique as SCOUT itself, the University of Kansas is teaming up with the University of Missouri to collect, process, and analyze this data. The evaluation of SCOUT will be based on several measures, the most significant of which is travel time. The evaluation is especially focused on travel times during incidents. While SCOUT is expected to improve many aspects of travel, the benefits are expected to be most evident in the reduction of incident-related delay—that is, reduction in the additional travel time caused by incident-related congestion.

To capture travel times, a technique is being employed in which traffic is videotaped at opposite ends of a segment. The video is post-processed to catalogue vehicles in one video, and then reidentify them in the other video, providing the travel time between the observation sites. For example, a blue pickup is seen in the upstream video. Using a custom software package, all the blue pickups found in the downstream video are displayed, and the user can identify which one is the matching vehicle. During 2002, approximately 500 hours of video was recorded. It is expected that approximately half that amount will be recorded this summer, and a similar amount next summer.

One member of the research team—called the rover—monitors commercial radio and police communications for indications of accidents while stationed near the middle of the segment on a side road. When an accident is reported, the rover uses the side roads to maneuver to a position from which they can observe the accident. They note any details that might be pertinent to studying the related congestion, such as the time emergency vehicles arrive, the number of lanes blocked, and the time the lanes are cleared. Once travel times are extracted from the video, the times associated with accidents are compared with those not associated with accidents to get an idea of how much longer, on average, travel times are during accidents. This defines incident-related delay. The incident-related delay before SCOUT is operational will later be compared with the same measure taken from accident and non-accident times after SCOUT is up and running. For accidents with similar characteristics, SCOUT is expected to decrease the resulting delay.

Travel times are also being studied using a floating car technique. During Summer 2002, approximately 100 runs were made with a GPS-equipped vehicle on the three primary corridors under study, I-35, I-70, and I-435. Additional runs are being collected during Summer 2003. These travel times will provide information about how travel times vary from day to day and week to week.

Phase I deployment of SCOUT is scheduled to be completed in late 2003. Comparison data will be collected during the summer of 2004 and, if needed, 2005.

(piece submitted by Eric Meyer for the *ITS Newsletter*)

Recommended ITS Web Sites

www.itsa.org	ITS America
www.itsheartland.org	ITS Heartland
www.its.dot.gov	USDOT ITS Home Page
www.nawgits.com/icdn	ITS Cooperative Deployment Network

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