FAST BULLETIN TRAC

FAST-TRAC

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Letter from RCOC's Managing Director

# Southeast Mich. could be world ITS center

***Brent O. Bair***

I was fortunate enough to be one of more than 8,000 who attended the 15th World Congress on Intelligent Transportation Systems (ITS) in November in New York City. The largest ITS-related gathering yet in the United States, this amazing event confirmed for me that ITS is definitely a growing field that holds tremendous promise for the future, particularly for our region.

ITS encompasses a wide range of transportation-related technologies that are saving time, lives and money across the country. Our largest ITS effort at RCOC is our FAST-TRAC system of "smart" traffic signals, although we're also involved in a number of other ITS efforts. On the vehicle side, ITS technologies are allowing cars to communicate with each other and directly with the infrastructure, potentially reducing the likelihood of collisions and providing more efficient traffic flow.

One of the most encouraging aspects of the World Congress was its emphasis on the fact that more of the ITS concepts that have been discussed at previous World Congresses are now being put into practice (including some testing taking place in Oakland County). This is a field that is clearly moving from concept to reality, as made evident by the many technology demonstrations on display in New York.

This made me more convinced than ever that Southeast Michigan has the potential to be a national or even international center for ITS development. We have the expertise in both the automotive and infrastructure arenas as well as the experience.

The domestic auto companies and their suppliers have been international leaders on the vehicle side of ITS for years. On the infrastructure side, the Michigan Department of Transportation (MDOT) and RCOC are nationally respected ITS leaders, and other agencies are getting into ITS.

In fact, there is nowhere in the nation that has more ITS experience or capability than Southeast Michigan. I firmly believe ITS could be a key growth industry for our state and region, and one of the tools that could help us maintain a position of national technological prominence.

# FAST-TRAC provides constant traffic counts

For years, the Road Commission for Oakland County (RCOC) has operated FAST-TRAC adaptive traffic signals in the county, reading traffic volumes and patterns at intersections and using that data to determine the most efficient signal timing for each intersection in real time.

Since the introduction of FAST-TRAC, however, RCOC engineers have envisioned a broader use of the data collected at FAST-TRAC intersections. Now, the agency is able to much more easily use that data to provide traffic counts on many roads.

This may not seem like a big deal, but for a road agency that makes many significant decisions based on traffic volumes and patterns, it's huge.

RCOC Traffic-Safety Department Director Gary Piotrowicz explains that in the past, RCOC would take several 24-hour traffic counts on a road every three years. It was based on these counts that the agency would make decisions about widening the roads, traffic signal timing and other critical issues. "Now," Piotrowicz explained, "we can easily access counts for every day. We have much broader data on which to base our decisions."

This development is possible thanks to new software that allows the agency to filter out the traffic count data from the information collected by the FAST-TRAC system, and provide that data in a usable format.

Here's how it works: At each FAST-TRAC intersection, video-imaging devices continuously identify how many cars are traveling through the intersection in each direction. This data is fed to a computer at the intersection that runs algorithms to determine the best signal timing to most efficiently move the traffic at the intersection at that moment. The signal timing is re-adjusted constantly as traffic patterns change.

As part of this process, the computer at the intersection is "counting" the cars traveling through the intersection. Until now, RCOC was unable to harness these traffic counts.

In addition to using the traffic-counts itself, RCOC is making the data available to the public through the Southeast Michigan Council of Governments (SEMCOG) Web site. The traffic counts are on the SEMCOG site at http://www.semcog.org/data/Apps/trafficcounts.cfm.

SEMCOG found the data so valuable it agreed to split with RCOC the cost of creating software to "mine" the FAST-TRAC data -- an $11,000 contribution.

"This is arguably the world's largest traffic-count database," Piotrowicz said. "It is equivalent to about 2,300 permanent count stations."

## What is *FAST-TRAC*?

FAST-TRAC, an integrated technology system utilizing computers and video, reacts to the traffic flow and adjusts traffic signals accordingly.

# Who is FAST-TRAC?

*The Road Commission for Oakland County's FAST-TRAC adaptive traffic signal system doesn't just happen. It takes a carefully orchestrated team of professionals to keep it operating smoothly. At the FAST-TRAC Bulletin, one of our goals is to share the human face of North America's largest high-tech traffic signal system.*

One of the key operatives behind the technology that powers RCOC's FAST-TRAC system, as well as many of the other high-tech initiatives the agency is involved with, is Glenn Davies, electronic communications specialist.

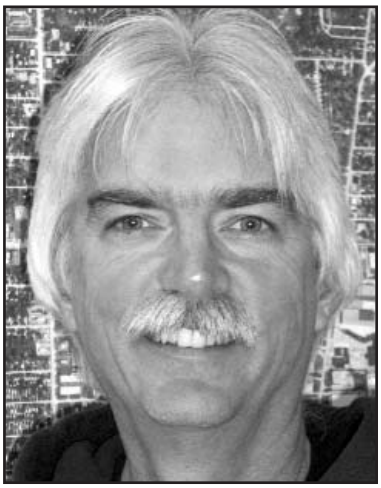
When Davies started at the agency in 1991, his primary job was to install and repair the radios used to communicate between RCOC's trucks and its garages. While that is still part of his job description, with the many other tasks he has assumed, today he has very little time for that activity.

These days, Davies is working on the creation of a wireless communications system to link RCOC's FAST-TRAC adaptive traffic signals with the regional computers that control them and with the agency's Traffic Operations Center in Pontiac. In fact, it was Davies who led the push to convert the communications backbone for the system from traditional phone lines to wireless communications.

"For years, we have had difficulty with the telephone lines," Davies explained. "We frequently lose communications, and then it takes a long time for the phone company to repair them. Also, they are quite expensive." So, Davies thought, there had to be a better way.

With that thought in mind, Davies has led the agency to the cutting edge of signal technology by installing what is believed to be the first wireless communications system for adaptive traffic signals in the nation. So far, Davies has set up four areas around the county where the wireless technology is being tested. Ultimately, RCOC hopes to install wireless communications for all of the more than 700 FAST-TRAC signals installed to date countywide.

Davies has also been heavily involved in RCOC's Vehicle-Infrastructure Integration (VII) initiatives. VII is a new field of technology that is linking the technology in vehicles with that in the road infrastructure with the goal of preventing crashes and providing drivers with significantly more information about the transportation system.



*Glenn Davies*

Davies has spearheaded the selection and installation of technology components for various VII projects, including a collision-avoidance test conducted with auto manufacturers, a VII installation project on the Chrysler Headquarters campus and the US Department of Transportation's VII Proof of Concept (POC) project, which was based in southwest Oakland County.

The POC equipment is installed in the Novi and Farmington Hills area at 55 intersections.

Additionally, Davies has been involved for the last two years with the setup and installation of VII demonstrations at the annual meetings of the Intelligent Transportation Society of Michigan (ITS Michigan) at the Rock Financial Showplace in Novi. These demonstrations were among the first in the nation to verify that as many as eight software applications could run simultaneously on a live wireless network linking a moving vehicle with other moving vehicles and with the roadway infrastructure.

When not solving high-tech communications problems, Davies enjoys riding his motorcycle and traveling to exotic destinations with his wife, Sharon and their two adult daughters, Cindy and Kathy.

**FAST-TRAC fast fact:**
RCOC maintains nearly 1,500 traffic signals around Oakland County, including those on county roads and state highways and many on city streets.

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**FAST-TRAC:** Advanced Technology
To Keep You Moving

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