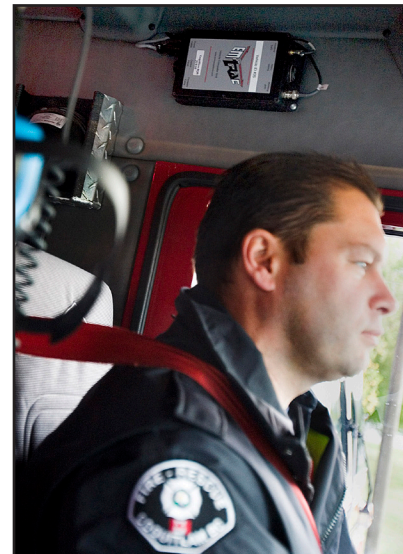# EMTRAC

Emergency Vehicle Preemption (EVP)

The EMTRAC system utilizes precise positioning and secure 900 MHz FHSS radio to enable first-response vehicles to request priority through signalized intersections.

EMTRAC-equipped vehicles transmit a priority request to equipped intersections when passing through GPS-defined detection zones. The traffic cabinet at the intersection contains an EMTRAC Priority Detector, which relays the priority-request call to the traffic controller. The system is completely automatic and requires no driver interaction.

EMTRAC Vehicle Computer Unit

EMTRAC Priority Detector

Coquitlam Fire & Rescue using EMTRAC, Coquitlam, British Columbia

EMTRAC priority control has produced the following results:

- **Sunnyvale, California**: After installing the EMTRAC system, the average response time decreased 20 percent in one fire district and 25 percent in another.

- **Coquitlam, British Columbia**: Emergency vehicle response times decreased 20 to 25 percent.

- **Novato, California**: After installing the EMTRAC system on all fire engines and ambulances, response times improved 45 percent.

Dual-System Detection (RF/Optical)

The EMTRAC system responds requests from all major optical systems as well as the EMTRAC RF-based system, enabling agencies to upgrade selected optical components as budgets allow.

EMTRAC Priority Detectors support up to 16 standard inputs, allowing for requests to be received for multiple phases from both systems. They also plug into the same input files as optical phase selectors (or may be housed in shelf-mount enclosures in NEMA cabinets).
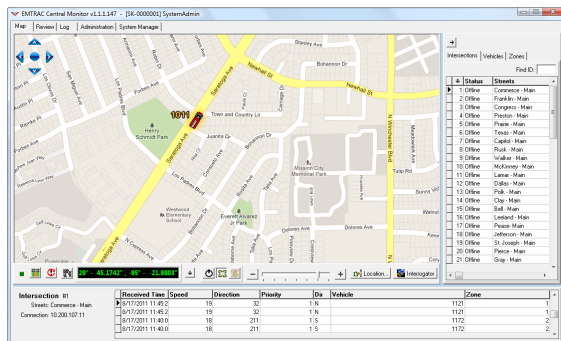
Central Monitoring (AVL)

EMTRAC Central Monitor Software

The EMTRAC Central Monitor software enables dispatch and department personnel to remotely monitor vehicle activity in real time.

The components used for the AVL system are the same as those used for basic EMTRAC EVP/TSP functionality, making it both a simple and cost-effective way to implement an accurate and reliable AVL system.

Vehicle Interrogator

As EMTRAC-equipped vehicles return to station, the Vehicle Interrogator wirelessly transfers vehicle activity logs and forwards the log data to the Central Monitor server, where the data may be viewed by monitoring personnel. The EMTRAC software may also be set to automatically e-mail periodic activity logs to specified personnel.

The Vehicle Interrogator is also capable of loading database and firmware updates to vehicles as needed.

Vehicle Interrogator Kit

Onboard Control Head

EMTRAC Control Head

The Control Head is a dash-mounted interface that enables responding personnel to monitor system activity and progress in real time. In addition to other features, drivers may be alerted when priority requests have timed out and when there is potential for collision with another equipped vehicle.

Other EMTRAC Applications

Because the EMTRAC system is capable of requesting multiple levels of signal priority, many metropolitan traffic departments coordinate sharing of the system with various city agencies, including:

- **First Response**: Utilized for traditional EVP functions as well as complementary functions, such as collision-avoidance alerts and real-time remote monitoring.

- **Transit**: Utilized for both transit bus and rail with the ability to assign differing priority levels to different vehicles or vehicle classes. Additional capabilities include *Conditional Priority*, *Adaptive Priority* (based on ETA), *Actuated Priority* (by lane), and automated activity logging and reporting.

- **Municipal**: Utilized for lower-level signal priority, as well as AVL monitoring and real-time diagnostic monitoring. Equipped municipal vehicles may include *snowplows*, *waste-management* vehicles, and *auxiliary-maintenance* vehicles (such as street sweepers).

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