

## Customer

A fire department with numerous stations spread out over a large metropolitan area

## Customer Requirement

Add vehicle detection capabilities to Fire Department dispatch and reporting systems

## Banner Solution

R-GAGE™ QT50R-RH radar-based sensors

## Why Banner?

**Object Differentiation** – Solid objects return radar to the sensor in a distinct way, enabling differentiation between vehicles and people

## Customer Benefits

**Asset Management** – Vehicle detection capabilities provided dispatchers with access to reliable vehicle availability information

**Reduced Insurance Rates** – Documenting turnout times demonstrated department effectiveness and led to reduced insurance premiums for businesses and residents



R-GAGE™ QT50R-RH  
radar-based  
retroreflective sensor

## R-GAGE QT50R-RH Features

- Easy setup and configuration of range, sensitivity and output with DIP switches
- Detects moving & stationary objects
- Ignores objects in the background beyond the retroreflective target

## Learn More

Visit [www.bannerengineering.com](http://www.bannerengineering.com) for product information and to locate a distributor

- [R-GAGE QT50R-RH overview](#)

## Radar Sensors Help Fire Department Measure Turnout Times, Improve Asset Management



R-GAGE™ retroreflective radar sensors installed over vehicle stalls in a fire station detect vehicle presence and record departure and arrival times for fire trucks

## Background

In an emergency every second counts. Turnout time, an aspect of total response time, is measured from the moment a fire station is notified of an emergency until the departure of the first responding vehicle. The National Fire Protection Association (NFPA) has set the standard for turnout time to a fire at 80 seconds.

## Challenges

A large metropolitan fire department wanted to integrate vehicle detection capabilities into their dispatch and reporting systems. This would enable the department to better document turnout times and improve asset management. Photo eyes were tested for this task, but their inability to differentiate between human and vehicle movement in the drive bays resulted in incorrect outputs.

## Solution

Single R-GAGE™ retroreflective radar sensors were installed above each vehicle bay in the fire stations. Using the on-board DIP switches, the parameters of the sensing area of each R-GAGE was adjusted to optimize detection of the emergency vehicles and ignore objects outside of the sensing area.

The sensors emit beams of high frequency radio waves. A fire truck will absorb fewer radio waves and have a different amplitude signal than a person. Vehicle presence inside the sensing area alters the time delay of the return signal in a recognizable way, enabling the R-GAGE to differentiate vehicles from people.

Arrivals and departures of emergency vehicles are detected by the R-GAGE. The time of each event and vehicle availability status is recorded and sent to the dispatch system where it is linked to the alert notification time. Dispatchers access this information to determine how many vehicles a station has available for a fire call. Documentation confirmed turnout times consistently met NFPA standards and led to reduced insurance premiums for homes and businesses throughout the city.