

TAKING CHARGE

A fabric canopy can protect equipment and provide an easily identifiable reference point at a busy incident scene. Bumperchute made the canopy being used on the command post at this fire in Allentown, Pa.



Bigger incidents that affect more people across many regions of the country translate into a need for specialized command units. By Chris Cavette

Over the past decade, fire departments have shown a growing interest in using specialized command units to deal with major incidents. Along with that interest has come an increased level of sophistication in selecting the vehicles, equipment and technology necessary to handle a wide range of jobs.

One of the reasons for this new interest is the rapid population growth in almost every area of the country. More people means more houses, more businesses, more roads and more potential for major incidents.

A grassfire that might have threatened a few isolated rural homes in the past is now a major conflagration that can destroy thousands of closely packed suburban homes on the edge of the wildland-urban interface. A hazmat release that might have dissipated harmlessly over open fields in the past is now a major health hazard that can sicken or kill hundreds of people in nearby schools and residential areas. A hurricane that might have done no more damage than tear up some swamp land is now a federal disaster that can result in massive evacuations and destroy billions of dollars of property.

More major incidents

The list of potential major incidents facing fire departments is longer today than it ever was in the past, and the public's expectations that departments will deal with those incidents has grown in proportion.

Naturally occurring incidents include hurricanes, tornadoes, floods, mudslides, tidal waves, earthquakes, high winds, lightning-caused wildfires, and extremes of heat and cold. Some

scientists predict that warmer ocean waters in the coming decade will bring a new generation of "super hurricanes" to wreak even more havoc in many parts of the country.

Accidental incidents include railroad derailments, motor-vehicle collisions, pipeline ruptures, building and bridge collapses, hazmat fires and spills, dam and levee failures, and many others. As the nation's infrastructure of bridges, roads, rails, pipelines and waterways continues to deteriorate faster than we can repair it, the stage is being set for an increasing number of major incidents in the future.

Add to that the threat of intentional incidents — fires; explosions; and the release of chemical, biological or radiological substances by domestic and foreign terrorists — and you have plenty of reasons why emergency services across the country see a need to be ready to deal with large-scale incidents.

Back to the basics

The wide range of large-scale incidents a department might face has prompted a move toward specifying dedicated, stand-alone command units rather than trying to incorporate command areas into more specialized units such as hazmats or rescues. To do this, departments have incorporated the latest advances in technology to design vehicles capable of supporting the basic command functions required at many types of emergencies.

One of the most basic command functions is the ability to communicate quickly with everyone involved with an incident. Technology has certainly helped by providing a wide range of new equipment, and many command units now have large communications areas

Bill Cahill

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Robert Milnes



St. Louis, Mo., operates a mobile command post built on a Freightliner MT45 chassis with a Utilimaster body. The interior is divided into two and was outfitted by LDV. This body design maximizes available work space.



Dennis Maag

Miami-Dade Fire Rescue recently purchased 14 of these Ford F-350/Rosenbauer utility trucks for their battalion chiefs. The trucks carry a variety of equipment to support operations at larger incidents.



The Corpus Christi (Texas) Fire Department purchased this command center built on a Pierce Enforcer chassis. It has a five-person work area, conference room, surveillance camera, generator, toilet and observation deck.



E-ONE built this well-equipped command vehicle for the Dumfries-Triangle Volunteer Fire Department, Va. It has communications gear, two extendible camera masts, a weather station and a command area.

with multiple workstations for dispatchers and technicians. In addition to landline, cellular and satellite telephone links, most command units have the ability to communicate by radio to many different agencies on many different frequency bands. Onboard radio repeaters boost signals to allow direct communications between small handheld sets over great distances. (See sidebar below.)

Information acquisition is another basic command function. Without accurate information, commanders can't make informed decisions. Technology has contributed in this area as well, and many command units now use computers, direct satellite links to the

Internet and streaming-video links from helicopters circling over the incident scene. Other sources of information include local-area networks within the command unit, CDs and onboard software, as well as remote access to the output of cameras, weather stations and other equipment mounted outside the vehicle.

Coordination of activities during an event is also an important command function, and most command units have areas where incident command staff can discuss the situation face to face. These areas are separate from the rest of the interior and provide a place away from the noise and activities of the incident scene to reduce stress and let command-

ers make clearer decisions. They usually have access to communications gear, TV monitors and other equipment to facilitate assessment and planning.

And finally, clear identification of the person in command is necessary to let everyone know where to go for information and direction — this is why the chief wears a white helmet. With the advent of multi-person command staffs to handle major incidents, the command vehicle replaces the white helmet for recognition purposes on a busy incident scene. Although most larger command units have enough antennae, light towers and other equipment to make them stand out, smaller

units need to be clearly identified. Bright-colored protective canopies, elevated signs and other devices can help people spot these smaller command vehicles.

Large and small

One of the results of this focus on the basics has been a new generation of large command units. These units are typically built on custom chassis and designed to provide more extensive command functions than their predecessors.

For example, the Dumfries-Triangle (Va.) Volunteer Fire Department operates a 40-foot-long command unit to handle multiple-alarm fires, industrial accidents, explosions,

rescues, pipeline leaks and hazmat spills. Their response area contains a number of busy railroad and highway corridors and is on the flight path of several airports. The command unit has communications workstations in the rear of the cab compartment, plus additional workstations in the forward portion of the body. The interior is equipped with radios, cellular and landline telephones, televisions, computers with touch-screen monitors, a fax, a printer, and a copier. A conference area is located in the rear of the body. Other equipment includes a pair of 40-foot extendible camera towers, an elevating light tower, weather station, satellite dish, galley, toilet and 25kw generator.

Not all command units have to be large, however. Having the right equipment to establish effective command in the early stages of an incident often can prevent little emergencies from becoming big ones. In fact, some departments are now running small command units with specialized equipment on first alarms.

One example of this trend can be found with Miami-Dade (Fla.) Fire Rescue, which recently purchased light-duty utility trucks for each of its battalion chiefs instead of the more common SUV. The vehicles have utility bodies with roll-up compartment doors and carry communications equipment, spare SCBA cylinders, medical supplies, command boards,

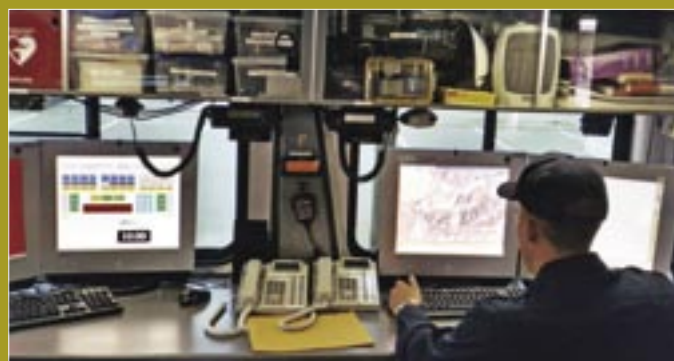
SAN RAMON COMMUNICATIONS UNIT IS JACK-OF-ALL-TRADES

The San Ramon Valley (Calif.) Fire Protection District designed its new communications support unit to function as a mobile command post, communications center and backup 911 dispatch office. It contains four dispatcher workstations, a command/planning room, technical support area, galley and restroom.

"We studied reports from numerous major incidents around the county and found that effective communications were one of the most important elements in determining the success of emergency operations," says deputy chief Chris Suter. "In fact, we discovered that communications breakdowns were one of the leading causes of firefighter deaths and injuries at these incidents. We decided we wanted to design a unit that would provide a wide range of communications capabilities in an efficient manner."

The department protects 155 square miles of high-value residential and commercial areas surrounded by extensive open spaces. Target hazards include a heavily used interstate highway, a 585-acre business park with multiple high-rise structures, a facility housing a low-level nuclear reactor, several nearby earthquake faults and a large wildland-urban interface. The district operates out of 10 stations and maintains an ISO Class 2 rating.

The command unit also functions as a backup dispatch center in case their main center becomes inoperable. "We felt that having a backup dispatch center was important and we discovered that equipping our vehicle to handle that function was less expensive than building a second facility," notes Suter.



The San Ramon Valley Fire Protection District's new SVI communications support unit is equipped with five computer workstations. The stations are interconnected via a local-area network and have Internet access via satellite and the fire district's 802.11 WiFi system.

The communications vehicle is staffed by reserve fire personnel who do not perform firefighting duties but are solely assigned to operating the unit.

"If you have a vehicle like this, you need to know how to use it. That requires a dedicated staff and frequent use," says Suter. The unit is available to emergency service agencies throughout the region and has assisted at fires as far as several hundred miles away.

The command vehicle's specifications include:

- Spartan Advantage chassis
- Cummins ISC 330hp engine
- SVI Trucks body
- Slide-out wall extension
- 36-foot overall length
- 12-foot, 3-inch overall height
- 8-foot, 2-inch overall width
- 32,000 pounds GVW
- Koehler 25kw diesel generator, 240/120-volt AC

- 3kw inverter powered by two isolated batteries
 - Command Light 3kw elevating light tower
 - Six vehicle-mounted and two tripod-mounted scene lights
 - Remote-controlled video surveillance camera mounted on a 40-foot pneumatic extendible mast.
- Communications is a big part of the new command vehicle. Mobile radios include eight VHF, eight UHF, four 800MHz trunking, four low-band, one marine band, one VHF AM aviation band, one VHF/UHF, two HF/VHF/UHF amateur and one scanner.

Portable radios include two Uniden FRS, two caches of 16 Bendix King DPH VHF and one cache of 16 Motorola HT 750 UHF. A JPS ACU-1000 unit can link any combination of 10 radios and one telephone circuit. A portable, battery-powered VHF repeater system

supports radio traffic.

An onboard 24-line digital telephone switch is connected to one satellite and three cellular telephone transceivers. Onboard cabling can be "punched-down" to 12 additional land-line circuits. There are six 20-button telephone sets installed, and another six sets can be plugged into a 100-foot, 25-pair cable.

An automatic-aligning satellite dish provides digital television and two-way Internet access.

Six PC workstations, five with dual flat-panel displays, are interconnected via a local area network and have Internet access via satellite and the fire district's 802.11 WiFi system. The flat-panel displays are capable of showing output from the computers, the roof-mounted camera and digital television transmissions.

Available computer software

includes Microsoft XP Office; DeLorme XMap for California topographic maps, regional aerial photos and more; Thomas Bros. street maps; USFS I-Suite; ICS forms; Motorola and Bendix King radio programming; plus other equipment and system support software.

Five PC-based dispatcher consoles have select/unselect access to 12 radios. Four of the consoles are built into the vehicle, and one can be remotely operated through a cable connection from as far as 750 feet away.

Other equipment includes a refrigerator, microwave oven, coffee pot, sink, water heater, RV toilet, HVAC units, roll-out side awning, folding tables and chairs, electrical shoreline connection and extension cables, portable public address system, and miscellaneous tools.

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NFPA 1901 CONSIDERATIONS

NFPA 1901, Automotive Fire Apparatus, defines command units as special-service fire apparatus designed to provide support services at emergency scenes. Under that definition, the following chapters apply:

- 1] Administration
- 2] Referenced publications
- 3] Definitions
- 4] General requirements
- 10] Special-service fire apparatus
- 12] Chassis and vehicle components
- 13] Low-voltage electrical systems and warning devices

- 14] Driving and crew areas
- 15] Body, compartments and equipment mounting
- 23] Line-voltage electrical systems for generator
- 24] Command and communications

Departments should pay special attention to Chapter 14, which requires approved seats and seatbelts for each person riding in the vehicle. It also defines requirements for SCBA and equipment mounting, means of escape and other considerations. Older command units where part of the crew rode in the

command body without seatbelts and surrounded by loose equipment are no longer acceptable.

Departments also should pay attention to Chapter 24, which defines requirements for interior lighting, climate control, noise levels, working surfaces, seating, communications, computer installations and other considerations within the command and communications area itself.

To purchase a copy of NFPA 1901, call 800-344-3555 or order online at <http://catalog.nfpa.org>.

thermal-imaging cameras and other tools. The decision to use these vehicles reflects the fact that if an incident is serious enough to require the response of a battalion chief, it's potentially serious enough to require some extra equipment to sustain operations until larger support units can arrive.

In another example, the Boston Fire Department has placed a new tactical communications unit in service to bridge the gap between the radios carried on company apparatus and the more extensive communications gear carried on the department's larger mobile command post. The new unit is built on an

suv body and responds to all working structure fires, as well as to fires in subways, tunnels, ships and at Logan International Airport. To coordinate operations, it carries radios and equipment capable of communicating with local and state police, transit authorities, medical services, and other agencies. If the incident continues for an extended period, the department's mobile command post responds.

The possibility of a major emergency incident in your area is greater now than ever before. Many larger cities have already purchased dedicated command units to handle major incidents, and others are in the process of writing specs for them. Smaller departments also can have the advantages of well-equipped command units by purchasing them on a regional or statewide basis. These units are usually stationed in a central location and respond wherever they are needed.

If you have never considered using a command unit, think of all the major incidents that might occur in your area. Are you ready to take command of them? **[FC]**



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