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PROJECT HIGHLIGHTS

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DENVER FIRE DEPARTMENT GOES FROM MESSY PAPERWORK TO ELECTRONIC EFFICIENCY IN ONE EASY STEP WITH RUGGED HANDHELD COMPUTERS

This article by Jim Moore first appeared in Fire Chief magazine, in March 2006. (<http://firechief.com>) Jim Moore is a freelance writer in Portland, Ore., who covers a wide variety of topics.

Most of us experience advances in technology as a fairly gradual progression. Take music, for example: If you're a Baby Boomer, over your lifetime you probably started with stacks of vinyl albums, survived the bulky horrors of 8-tracks, enjoyed the relative portability of cassettes, and moved on to the superior sound quality of compact discs. But then there are those who get to experience single quantum leaps in technological innovations. When the Denver Fire Department (DFD) recently acquired rugged Trimble Recon handheld computers, they made a jump equivalent to going from a player piano to MP3s.

A paper-intensive inspection process

One of the principal duties of the fire department is to perform fire safety inspections—in DFD's case, up to 20,000 a year. It's a valuable process, but it can also be a tedious one, bogged down in paperwork. The procedure in place for the department's inspectors was a paper-intensive one: For each inspection, the inspector had to gather old-fashioned three-part carbonless inspection forms, manually bind them together, and then laboriously fill out each section by hand before handing them off at the end of the day to a data-entry worker who typed all the information into a central computer.

It's no surprise someone in the department thought there had to be a better way.

"It wasn't just the paperwork aspect," says Mike Stutz, information technology manager for the department. "We wanted to accomplish more with each inspection. The way we were doing it, our guys would go to each inspection site and look for violations and other concerns. But each time they went out, they had very little information available to them beforehand. Things like building occupancy, number of floors, sprinkler system data and other information would be very helpful to have easily at hand. So we were looking for a way to gather and keep that information so inspectors could have easy access to it over time."

And Stutz and his colleagues also saw the possibility to go beyond their minimum needs, with just a single technology step.

A solution that could "survive the firehouse"

"We thought if we could find a device that ran Pocket PC software, we could both gather data and streamline the process in other ways," he says. So the department worked with Firehouse Software to



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Denver Fire Department – Making the leap to handhelds

find a solution that would meet their needs. First DFD tried a device Firehouse offered, but it was basically limited to data gathering. Then they tried an iPAQ and a Dell product, but they weren't rugged enough.

"We needed a handheld that would survive the firehouse, so to speak," he says. "There were a number of ruggedized handhelds available, but we wanted one with the versatility of Pocket PC."

Then DFD came across the Recon, a handheld from Trimble that's rugged enough to meet stringent military standards for drops, vibrations and temperature extremes. Its IP67 rating means it's impervious to water and dust, and it runs Windows Mobile software. It was the exact fit DFD was looking for, and the department ordered 70 units.

Streamlining the on-site process

With DFD's input, Firehouse was able to easily adapt its specialty software for the handheld. As a result, now inspectors start their day by downloading information on the day's schedule and inspection sites. Then they do a quick backup to the handheld's Flash storage, so the information can't be lost even if the handheld resets or runs out of power—although the standard rechargeable battery life of 15 hours is plenty for a day's work.

Instead of three pages of forms, inspectors now carry their handheld, entering data directly into it by using the color touchscreen. At the end of an inspection they can even record and store the site manager's signature directly on the device.

But as helpful as their handhelds are on site, the benefits extend far beyond the actual inspection. For one thing, the inspectors can gather all that site information Stutz mentioned. So, the first time through a site, the inspector might take as much time to enter extensive data as the old paper-based inspection took just to cover the basics. But on subsequent inspections at each site, the inspector only has to validate or update the data (occupancy, sprinklers, etc.) and look for any new concerns. "It will give the inspectors a much better idea up front of what they're dealing with," says Stutz, "and really cut down on time for future inspections."

Improving data management

The second major benefit of the handheld comes when inspectors return to the firehouse. Using PeopleServe, a database server, they can download their day's data from the handheld to a computer at their station, validate the data and send it to the department's central server—a process that takes only about 10 minutes per inspector. Better yet, it eliminates having a data entry worker type in each inspection's information at the central station, resulting in a labor savings Stutz estimates at 4,000 hours or more a year.

Two DFD districts began using the new system full-time in 2004, and its performance warranted expansion to the point that now every inspector in all six districts is using a handheld—150 units in all including spares. Stutz estimates his department will perform more than 17,000 inspections this way in 2005.

In addition to the district-allotted inspections, the central fire bureau currently performs more than 3,400 inspections a year on more complex sites such as chemical facilities, warehouses and high-rises.

The department is currently planning to equip the bureau inspectors with handhelds as well. "The biggest plus of using these handhelds is that it's still a start-up process," says Stutz. "We're looking at ways we can broaden uses by customizing the software—adding new fields and other capabilities that will allow us to accomplish even more."

Wireless possibilities ahead

And, not content with a single giant step in technology, DFD is already eyeing the possibilities offered by wireless communication. Their new handhelds feature two CompactFlash slots to accommodate peripherals such as wireless cards and GPS, so they're certainly ready for more. "We know the wireless capabilities are there," says Stutz, "so why not look at other ways to use the technology?"

Just as you're not likely to dig up that old box of cassettes in the closet to listen to some music, DFD is embracing its technological progression—and moving forward into the handheld future.

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