

The fire service is slowly but surely embracing new technology to expedite fireground operations. One type of technology that can greatly improve overall response: digital pre-plans. Digital pre-plans can be used while en route to the scene and while on the scene. They allow responders to have updated building plans at their fingertips—information that can alert firefighters to pre-existing hazards and save lives.



PHOTO RYAN BABROFF

# MAKING NEW-AGE PLANS

Department's emergency response is transformed by digital pre-plans

*By James Langdon*

In October 2008, the North Charleston (S.C.) Fire Department (NCFD) implemented a mobile digital pre-plan system as well as a dispatching and mapping program. The technology, called CommandScope, has made a major difference in how we respond to emergencies. We no longer need to rely on the pre-plan binder stored in the truck, which is usually outdated. (At times, it took us up to an hour to find crucial information at the scene of an incident.)

Now, we have all the information we need before we even leave the station. It takes just seconds to locate a building and pull up its digital pre-plan, which typically includes floor plans, hazardous materials, photos and much more vital information.

## THE SIGNIFICANCE OF GOING DIGITAL

Firefighters at the NCFD advocated for a digital pre-plan system for 6 years before it was implemented. Why? One night, an elementary school in North Charleston caught fire. No students were present, but about an hour into the situation, we finally located the pre-plan and discovered it was 2 years old and useless.

## EARLY RESISTANCE

Despite the obvious need, many people initially resisted the idea of switching from paper to ►

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digital pre-plans. In our department, many firefighters were “old-school”; they weren’t used to working with computers and thought that our paper plans were adequate.

In reality, they were anything but. As I mentioned, our paper plans were often outdated and difficult to locate once on scene. In addition, the NCFD had a policy to keep paper pre-plans to one page per building. As a result, critical information was often missing or excluded.

### BINDER VS. COMPUTER

I was an advocate of moving to a digital system, but we couldn’t make the move unless we had the money to do so. So I took the idea to a member of our city council. Once I showed her the importance of switching to digital, she allowed me to present the idea to the other city council members during an arranged meeting.

At the meeting, I brought both the paper pre-plans and the pre-plan software on the mobile computer. I gave the huge binders to the council and told them we were both going to look up a building pre-plan by address, me via the computer and the council via the binders. Of course, I found my address within seconds, so it didn’t take much longer for the committee to be convinced. The NCFD got the funding it needed.

### HOW IT WORKS

Before using digital pre-plans, we’d try to listen for the address number and street name as they were announced over the PA system. Of course, the tones were going off at the same time, so getting the address correct was much more of a challenge.

Now, as soon as we get a 911 call, our dispatchers send the address and map directly to the mobile computers on our vehicles and apparatus. At this point, the digital system kicks in. En route to the incident, we can pull up a pre-plan and get a complete overview of the building’s layout, allowing us to immediately respond to the conditions at the scene upon arrival. Overall, we have access to so much more information than we ever did before. The electronic pre-plans give firefighters details on everything from whether we should use offensive or defensive tactics when fighting a fire, to the type of material a building is made of, to what’s inside a building. There’s even a detailed hazmat section, which is invaluable.

### KEEPING THE SYSTEM UPDATED

Because the software is mobile, our crews are often out in the community, taking photos, making drawings, inspecting buildings and entering information directly into the database from mobile tablet

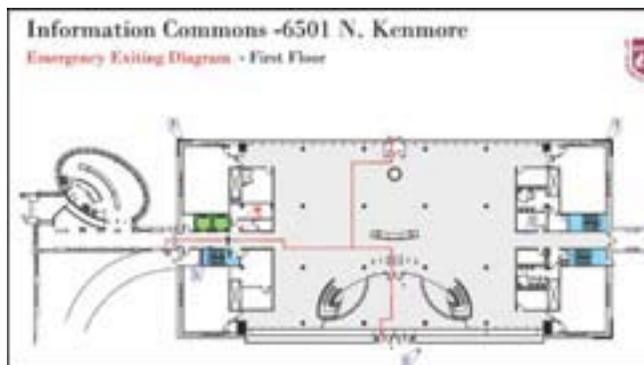


PHOTO COURTESY REALVIEW

En route to an incident, fire departments can pull up a pre-plan and get a complete overview of a building’s layout, interior and exterior. As this photo shows, responders can view the interior of Loyola University Chicago’s first floor commons area.



IMAGE COURTESY REALVIEW

Digital preplans can be as detailed as you make them. Here, our department not only uploaded an aerial shot of the Sheraton Hotel North Charleston Convention Center, but it has also marked the locations of hydrants near the building.

computers. They specifically look for structural details that can create unsafe conditions for firefighters. For example, we make note of which structures are truss buildings and which ones aren’t, and what the trusses are made of.

As a result, crews have the opportunity to become familiar with each property and analyze how they’d respond to an incident involving specific structures. It also allows us to know before we step into a situation whether there are trusses inside a given building, and if so, approximately how much time we’ll have before a truss fails, and whether or not we should fight the fire defensively or offensively. When these updates are uploaded, they’re available to all of our computers within minutes.

But we haven’t totally abandoned our old paper pre-plans. Our light-duty firefighters have taken our paper pre-plans and input the information into the digital system on desktop computers at the stations. Although the information is generally insufficient, it provides a starting point to the crews performing the on-site inspections.

### IMPACT ON COMMAND

So far, our chiefs say that the system has impacted them primarily by enabling them to have information right at their fingertips. In addition to the overall speed of the system, there’s no paperwork, so there’s nothing to file, copy or distribute.

It’s also much easier for command to coordinate on scene. The first officer on scene can pull up the necessary pre-plan. Then when the battalion chief arrives, there’s much less explaining to do and it’s much easier to transfer command. By the time both officers arrive on scene, both have seen the same critical information about the building’s structure and hazards, so they can immediately start focusing on and discussing what’s taken place since the department first arrived.

### A WORK IN PROGRESS

Although we’ve completed a lot of digital pre-plans in a short time, we still have a ways to go. There are more than 6,000 businesses in the North Charleston area, and thus far, there are about 1,200 business pre-plans in the system.

Currently, 12 fire stations and 22 vehicles are equipped with this new technology, but we hope to roll out the system county-wide

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so dispatch services and other emergency services will have access to the same information. Our police department has shown particular interest in the system. Having the same pre-plan information will help them in multiple emergency situations.

The NCFD continues to work with the city council to open a Web portal that will require businesses to submit pre-plan information in order to get their business licenses; homeowners will also be required to give information about their residences. This would of course add a great deal of valuable data to the system. The technology is there; at this point, it's just a matter of working with the city council to implement and promote it.

As a department, we continue to learn how best to use the system. Every day we discover a new way to enter information or new types of information. But we're also constantly thinking of ways to improve the software. One of our firefighters suggested that we add information about fire flow, which will be included in the next version.

### CONCLUSION

Although the idea was difficult to push through at first, and we still have challenges with staff members adapting to the technology, the NCFD's move from a paper-dependent pre-plan system to a mobile, digital one has resulted in a dramatic decrease in time spent locating, using and updating pre-plans. For that reason alone, we

## Factors to Consider

If your department is thinking of implementing a digital pre-plan system, consider the following tips:

- Realize that there will be people who resist moving to a digital system. Some people won't want to abandon the way they've always done things.
- Find advocates in your department and in your city council or a funding source.
- Show potential advocates how easy it is to use the program—don't just tell them. My demonstration to the North Charleston City Council was critical in getting our funding.
- Create an action plan for uploading data into the system. In our case, the light-duty firefighters and field crews have made a large dent in entering pre-plan information for our city's buildings.

could recommend purchasing a digital system.

But it's more than that. We don't yet have statistics on the number of people who've been rescued, or how many dangerous situations we've prevented or how much time we've saved by decreasing the amount of paperwork. But we do know that if a digital system had been in place during certain incidents, such as the Sofa Super Store Fire, the tragedies surrounding those incidents might never have occurred. ☹

James Langdon is a captain with the North Charleston (S.C.) Fire Department. He's happy to provide additional insight and advice on implementing a digital pre-plan system and can be contacted at [fflangdon@yahoo.com](mailto:fflangdon@yahoo.com).





### Ask about COMMANDSCOPE & REVENUE GENERATION \$\$\$

CONNECT for Data Collection

#### FIRE/EMERGENCY PRE-PLAN PROGRAM

### DEDICATED TO SAVING LIVES AND PROTECTING PROPERTY

- VIEW CRITICAL PRE-PLAN DATA EN ROUTE TO INCIDENTS
- IMPROVE SAFETY OF FIRST RESPONDERS AND YOUR CITIZENS
- REDUCE RISK & LIABILITY
- INTEROPERABLE BETWEEN DEPARTMENTS (FIRE/POLICE/DHS/MUTUAL AID)
- UNLIMITED USERS WITHIN YOUR DEPARTMENT

ACCURATE AND DETAILED PRE-PLANS HELP YOUR FIRST RESPONDERS ARRIVE AT THE SCENE READY TO PROTECT YOUR COMMUNITY'S MOST VALUABLE ASSETS LIVES AND PROPERTY

#### BUILDING HAZARDS

Caution / Warning

Lightweight Truss Roof  
100 gallons Muratic acid  
55 gallons Chlorine located  
area adjacent to indoor pool  
See Site Map

VIEW HAZMAT  
VIEW CRITICAL  
VIEW FIRE PRO

#### MSDS

MSDS SHEET

#### PHOTOS



#### FLOOR PLANS

Lobby  
Floor Plans



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