



Continuing Education  
Course

# Managing Big Fires 101: Divide and Conquer

BY THOMAS DUNNE



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# Managing Big Fires 101: Divide and Conquer

## Educational Objectives

On completion of this course, students will:

- Gain an understanding of the challenges of a wind-driven fire involving numerous buildings
- Describe the role of the first arriving officer as an incident commander
- Describe how large area fires are divided geographically for supervision
- Describe how a strategic plan is developed

BY THOMAS DUNNE

**O**F ALL THE FIRE CHALLENGES THAT MAY CONFRONT an incident commander (IC), two are at the forefront. One is a situation in which high heat and heavy smoke are showing with no visible fire. Under these conditions, firefighters are always in jeopardy until the exact location and limits of fire spread are uncovered.

Lying at the other extreme is a scene where a visibly overwhelming, wind-driven fire is threatening a number of buildings. On May 2, 2008, Fire Department of New York (FDNY) firefighters were faced with this exact scenario.

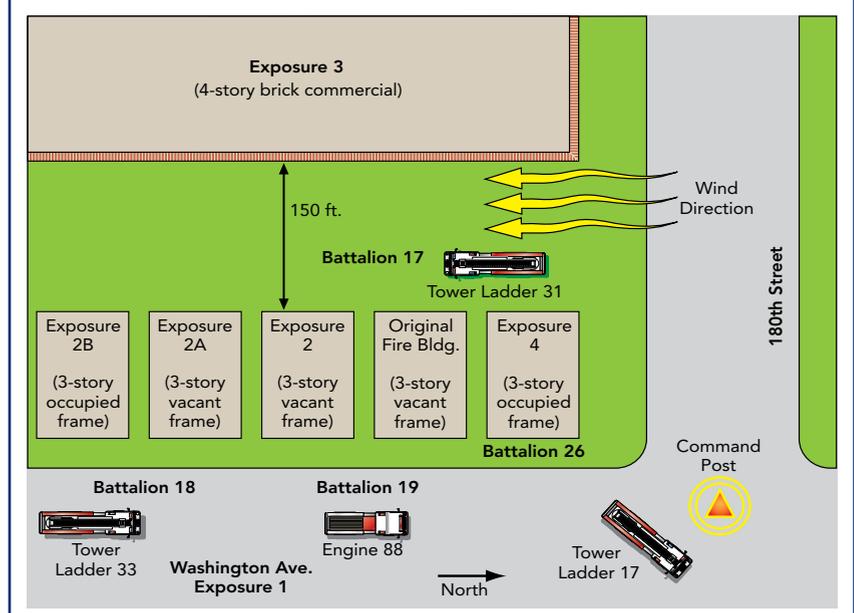
At 1726 hours that afternoon, an alarm was received for a structural fire in the Bronx. The first unit assigned, Engine 88, was confronted with an advanced fire when it arrived at the scene. A heavy body of fire was burning in two adjacent 2½-story wood-frame buildings and was rapidly extending to a third vacant structure on the exposure 2 side as well as to an occupied wood-frame building on the exposure 4 side. Only four feet separated the buildings (photo 1, Figure 1).

At any incident, the first-arriving company officer functions as an IC until a chief arrives at the scene and assumes that role. However, when it comes to calling for additional resources, sooner is always better. Given the magnitude of the fire problem, the officer in charge of Engine 88 immediately transmitted a second alarm and positioned his rig for a heavy-caliber exterior attack.

While the first hoseline was being stretched, an apparatus-mounted “multiversal” nozzle was placed in operation to protect the most serious life concern—the occupied exposure 4 building (photo 2). When the first battalion chief arrived, he continued the dual strategy of using an exterior stream to confine the fire while handlines were stretched into the exposure.



Figure 1. Wind-Driven Fire Scene in Bronx





## ASSUMING COMMAND

I assumed command of the fire about three minutes after the arrival of the first engine. Responding from the west on 180th Street allowed for a clear view of the rear of the buildings and showed the extent of the fire challenge.

A large body of fire, backed by a brisk north wind, had now involved four buildings and was threatening a fifth. Two of the buildings appeared to be occupied and were in severe danger of being overrun by fire and heavy dark smoke. As one firefighter later described it, it looked like a plane had crashed (photo 3).

When faced with an overwhelming challenge, an IC's first task is to keep himself from being overwhelmed. I immediately requested a third-alarm assignment and began to establish a basic command structure to organize the operation. A command post was set up at the corner of Washington Avenue and 180th Street. This location allowed a clear view of two sides of the fire. It was also outside of a possible collapse zone, upwind from the smoke, and didn't interfere with apparatus positioning. A staging area for incoming units was established a block away to control and assign additional units arriving at the scene.

The entire fireground was quickly divided into sections. Battalion chiefs were assigned to supervise activity in the original fire building, the occupied exposure, and the rear yard. This allowed for a manageable span of control and for close supervision of the many concurrent tactics being performed.

In addition to addressing the organizational tasks, an IC must also rapidly decipher the extent of the problem he faces. He must be able to see as broad a perspective of the fire as possible. Understandably, there is a strong tendency for heavily involved individual units to see only a small slice of a large operation. It is the IC's task to ensure that the activity of an individual unit does not place the unit in danger. He must be disciplined enough to temporarily ignore the visible fire and concentrate on where the fire may be heading.

To accomplish this, I took a quick walk down Washington Avenue to exposure 2B, which appeared to be an occupied building. I maintained radio contact with a competent aide, who remained at the command post. He relayed requests for resources from the dispatcher along with my orders for incoming units.

## STRATEGIC DECISIONS

Once an IC has organized and defined the limits of the fire problem, he must ensure that an effective strategy is in place. In a rapidly expanding operation, this strategy often stems from an instantaneous gut reaction to the various stimuli picked up at the scene. Fire volume, weather, life hazards, building construction, and numerous other factors must be quickly assimilated and translated into a plan to confine and extinguish the fire.

The two immediate decisions at this incident were, first, to determine where to make a stand against the fire and, second, how to position the resources needed to accomplish that task. By effectively using an exterior stream, Engine 88 had set the stage for safely advancing hoselines and initiating searches inside exposure 4. However, fire in the vacant buildings still presented a serious threat to the occupied building at the opposite end (exposure 2B). To counteract this problem, the first assigned tower ladder (L 33) responding was instructed by radio to position the apparatus in front of exposure 2B. When it arrived at that location, its bucket was quickly supplied with water to protect that structure (photo 4).

The plan now was to continue to attack the perimeter of the fire with heavy-caliber streams, protect the life hazards, and then extinguish the burning vacant buildings as time and resources allowed. Subsequent tower ladders were positioned at the rear (L 31) and at the corner of Washington Avenue and 180th Street (L 17) to reinforce this strategy.

# ● MANAGING BIG FIRES



protecting the occupied exposures worked well until a mechanical problem temporarily disabled E 88's multi-versal nozzle. Once again, the exposures were in severe danger (photo 5). The engine chauffeur was able to quickly reactivate the nozzle, but the temporary glitch highlighted two important points.

First, it is vitally important to have a second water source in case the initial supply must be supplemented or replaced. Second, an IC must factor in a backup plan in the event his strategy runs into a problem. In this situation, handlines were deployed to afford the

same protection that the multiversal had provided (photos 6, 7).

The square yellow box above the first-floor window in photo 8 shows the FDNY symbol painted on a vacant building that is judged to be structurally stable. Any vacant building's condition is obviously subject to change, and a serious risk analysis is called for when deciding to initiate or continue interior tactics. Given the volume of fire and the questionable safety of the vacant buildings, personnel were withdrawn and set up for an exterior attack.

It eventually took eight handlines, four tower ladders, and the original multiversal to finally confine and extinguish the fire.

## TOUGH DECISIONS

Large-scale fires can present an IC with difficult choices. That was certainly true for this incident. Early in the operation, while all units were actively engaged, we received a

## COMMUNICATE, COMMUNICATE

An incident involving the use of both heavy-caliber streams and handlines at the same time has the potential to create operational problems as well as serious injury. Effective communication proved to be a vital safety factor as the fire operation evolved. The exterior multiversal attack by E 88 was effectively extinguishing fire but represented a threat to personnel operating inside exposure 4. L 31 checked fire spread in the opposite direction but had to be carefully coordinated with firefighters operating hoselines on the vacant buildings. The scenario called for precise coordination and communication among the sector chiefs.

FDNY policy requires that command personnel at a third-alarm operation use a separate fireground radio channel. By placing chiefs on a separate channel, they are removed from the heavily used tactical channel and can communicate more effectively. However, this procedure can take some time to implement. There is also a danger of someone's missing a vital radio transmission while the transition to a command channel is being made.

Because of the rapidly evolving fire situation, all chiefs initially were kept on the tactical channel. This temporarily increased radio traffic on that channel, but it also reduced the possibility that one segment of the operation would adversely affect another area in the early stages of the firefight.

## THE FIREFIGHT

The initial strategy of applying exterior streams on the vacant buildings and



report of a civilian's being trapped in the occupied exposure 2B building. The rapid intervention team (RIT) was the only available unit at that moment, and its members approached me to ask for permission to enter and search that building.

Under FDNY policy, the RIT is specifically assigned to firefighter safety and rescue. When the report about the civilian was received, fire personnel were conducting operations inside exposure 4 under imminently dangerous conditions.

There is, of course, a natural instinct to immediately investigate the possibility of a life hazard. However, allowing the RIT to search exposure 2B for a potential victim would have significantly diminished any chance of rescuing a firefighter who happened to become trapped or disabled inside the far exposure.

Based on this, I ordered the RIT to remain where it was. Although this was a difficult call, it was the right choice. A safety net was maintained for our firefighters and, as it turned out, the report of the trapped civilian proved to be unfounded. Managing a large operation will test an IC in many ways. He must force himself to adhere to the primary role he plays when he makes "big picture" decisions.

## BRAND PATROL

Flying brands are always a consideration when a fire occurs on a windy day. Despite the efficient positioning and operation of the heavy-caliber streams, brands ignited the roof of a building housing railroad power equipment approximately 200 feet from the operation. It is worth noting that this structure was not only south (downwind) but also considerably west of the fire.

Although wind direction is a major factor in determining fire spread, a large body of fire will create thermal updrafts that may send flying brands beyond the immediately exposed area. At a large incident such as this, brand patrols should be assigned, first, to address the most seriously exposed buildings and then to expand their searches beyond the initial area.

The roof fire was quickly extinguished, but there was real concern for a row of closely spaced wood-frame dwellings downwind from the railroad building. The fire potential at this location warranted an additional alarm assignment of three engines, two ladders, and a battalion chief. This entire area was treated as a separate fire branch, and the units involved were placed on a different tactical radio channel to avoid interference with the original operation. Their rapid deployment ensured that the fire did not spread beyond this point.

With the equivalent of a fourth-alarm response and a great deal of difficult work by our units, this fire was placed under control in approximately 2½ hours. The operation highlighted a number of key lessons.

## LESSONS REINFORCED

**Early Decisions.** The decisions made in the first few minutes of a fire will usually determine the success or failure of the operation. Decisions must sometimes be made before the first chief arrives at the scene. The first engine officer was the IC for a very brief period at this fire, but he made several key decisions during that time. By immediately transmitting a sec-



ond alarm and initiating a quick outside attack to protect the life hazard, he implemented an early strategy that established a safe and ultimately successful operation.

**Firefighter Safety.** Firefighters love to put out fires. An IC will never have a problem motivating them at an operation. His challenge lies in making the decisions needed to keep them safe.

Photo 9 was taken the day after the fire. Demolition began within hours of this incident. The three vacant buildings that had caused such difficulty are now just empty lots. Remember this photo the next time you are confronted with a fire in a building of questionable value or life hazard. No empty lot is worth a firefighter's life. Strategy must always be tailored to preserve life (including firefighters' lives). An occupied structure warrants an aggressive attack; a vacant building seldom does.

**Incident Command System (ICS).** The incident command system can sometimes appear to be a bewildering network of interconnected boxes. The key to working with ICS is to remember that it is a system that must work for you rather than you working for it. It is not a series of "boxes" that must be filled out but a method of organizing. The structure and complexity of the organization are entirely up to the IC.

Managing this fire necessitated carving the operation into five separate sections and assigning a chief to supervise each section. In addition, a staging area was established to organize and control the numerous fire units, a resource officer maintained personnel accountability, and two safety officers were used to address the many safety concerns.

The combination of extraordinary work by our firefighters along with the use of an efficient command system allowed us to "divide and conquer" an extremely challenging fire. ●

● **THOMAS DUNNE** is a deputy chief and 28-year veteran of the Fire Department of New York with extensive experience in Manhattan and the Bronx. He has been the incident commander at hundreds of fires in high-rise, commercial, and residential buildings. He has written numerous articles for *Fire Engineering*, has presented at FDIC, and is a regular contributor to the Roundtable column. A Fordham University graduate, he writes and lectures on a variety of fire service topics.

# Managing Big Fires 101: Divide and Conquer

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### COURSE EXAMINATION

- Initial incident fire conditions for Engine 88 as described in the course was/were consuming:
  - a three story tenement.
  - two 2 ½ wood-frame buildings.
  - a large 2 ½ wood frame home.
  - a 2 story building of ordinary construction.
- On exposure 2 was a:
  - 3 story occupied tenement.
  - large one story warehouse.
  - vacant lot.
  - vacant structure.
- Upon arrival, the officer of Engine 88:
  - ordered a second alarm.
  - requested an additional two engines and one truck.
  - requested an additional three engines and a chief.
  - ordered a third alarm.
- Engine 88 used a multiversal to:
  - knock down the main body of fire.
  - protect exposure 2.
  - protect exposure 4.
  - knock down brands.
- The wind was brisk and:
  - northerly.
  - southerly.
  - easterly.
  - westerly.
- Upon arrival of Chief Dunne, the fire involved:
  - 3 structures.
  - 4 structures.
  - 5 structures.
  - 2 structures.
- The command post was placed:
  - outside of a possible collapse zone.
  - upwind from the smoke.
  - so it didn't interfere with apparatus positioning.
  - all of the above
- A staging area was established:
  - at the local; high school.
  - a block away.
  - two blocks away.
  - at Engine 88's quarters.
- Once an IC has organized and defined the limits of the fire problem, he must ensure:
  - that an effective strategy is in place.
  - call in additional resources.
  - set up a staging area.
  - set up a rehab station.
- Which of the following factors are important to assimilate into a plan?
  - fire volume
  - weather
  - building construction
  - all of the above
- FDNY communications policy on a third alarm is to:
  - dispatch a field communications satellite unit.
  - activate repeaters.
  - move chiefs to a separate channel.
  - assign a communications "czar."
- The square yellow box on one building indicated that:
  - the building was not be entered.
  - there are vent holes in the roof.
  - the building is structurally stable.
  - floors are missing.



## Managing Big Fires 101: Divide and Conquer

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| 2. <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D  | 12. <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D |
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| 1. To what extent were the course objectives accomplished overall?                           | 5     | 4 | 3 | 2   | 1  |
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