

Command Decisions and Operations at Rapidly Expanding Incidents



9-Alarms at the Orient Heights Yacht Club

April 8, 2000

BOX 6262

Presented by:

Deputy Fire Chief David Mager (Ret.)

Boston Fire Department

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ABOUT THE AUTHOR

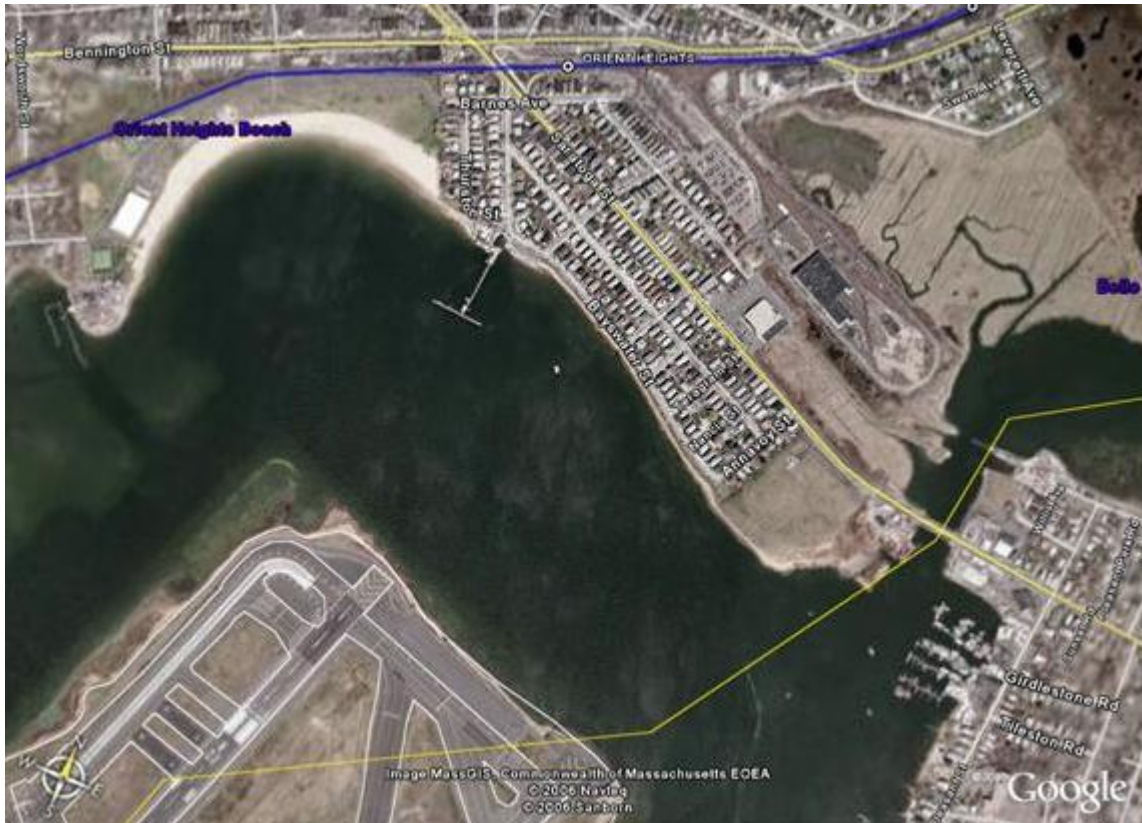
David R. Mager is a 39-year veteran of the fire service. He retired in 2012 as a Deputy Chief with the Boston Fire Department. During his career he served as a Certified State Fire Instructor in Massachusetts, on the faculty at the National Fire Academy, a Nationally Registered EMT, and a member of the National Fire Academy Alumnae Association. He holds a Bachelors Degree in Business Administration and has been conferred a Master of Arts Degree in Fire Science and Administration. He can be contacted at dmager@verizon.net.

The author wishes to express his gratitude to Fire Commissioner (Retired) Paul Christian for his leadership both at the fire and in the preparation of this report, as well as videographers Nat Whittemore and Bob Stella for their outstanding work documenting the progress of the fire.

FIRE TIMELINE

Box 6262, Bayswater & Thurston Streets, April 8, 2000.

- 1547 **Box 6262 Struck for the Orient Heights Yacht Club at #61 Bayswater St.**
- 1550 2nd Alarm by Captain Steven Waldron of Engine 56 on arrival.
- 1555 3rd Alarm by District Chief David Mager of District 1.
- 1558 Division 1 (Deputy Chief John Hasson) on scene.
- 1559 Extra District Chief requested for brand patrol.
- 1607 #54 Bayswater St. ignites.
- 1608 4th Alarm requested by Deputy Chief Hasson of Division 1.
- 1609 Chief of Department Paul Christian on scene.
- 1611 7th Alarm ordered.
- 1614 8th Alarm ordered.
- 1623 9th Alarm ordered.
- 1625 Request for 2 extra ladder companies.
- 1630 Logan/Massport Marine Unit on scene.
- 1643 Request for extra District Chief by Incident Commander.
- 1645 Request to Coast Guard for shallow water craft.
- 1650 Boston Marine Unit on scene.
- 1705 Logan/Massport Foam & Crash Unit on scene.
- 1716 Coast Guard shallow draft vessel on scene.
- 1728 Chief of Department Christian reports all fires contained.
Fire Detail maintained throughout the night.
- 0629 ALL OUT signal sent from Box 6262.



Google Earth view of the Orient Heights Yacht Club on Bayswater St., East Boston.

6262

BAYSWATER & THURSTON STS												
GRID:		30-17										
RESPOND TO FIRE						COVERING ASSIGNMENTS						
ENGINE		LADDER		SPECIAL	CHIEF	ENGINE				LADDER		
1st	56 5 9	21 2	R1	D1	8 - 9	Ch 1-5				1 - 2		
WF	8	1	TC H1 SU	Dv1	3 - 8	50 - 9				15 - TC	17 - 1	
2nd	8 50 10 4	1 24	TC H1 SU	Dv1	3 - 5	21 - 9	22 - 8	33 - 4	15 - TC	17 - 2		
Ch E1					51 - 33				18 - 1	23 - 17		
3rd	21 22	17			14 - 8	18 - 39	39 - 9	49 - 52	14 - 26	18 - 2		
					52 - 14				26 - 1			
4th	3 39				14 - 5	30 - 37	37 - 9	42 - 8				
5th	37 33	18			28 - 14	42 - 9	51 - 4	52 - 8	7 - TC	15 - 2		
					Bk 1-28	Ca 2-33	Qu 4-18		Bk 2-14	Qu 5-7		
6th	14 42				24 - 8	32 - 5	52 - 9	55 - 24				
					Ne 3-30	Nw 6-51	So 2-32					
7th	52 24	15			16 - 39	18 - 8	28 - 9	48 - 14	7 - 2	16 - TC		
					De 1-48	Wn 1-56			Ca 3-15			
8th	32 28				7 - 5	18 - 9	30 - 7					
					Bk 3-37	Ev 2-8	Mi 1-16					
9th	7 51				41 - 4							
					Ma 3-10	Rv 3-5	Wt 4-41					

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Running Card for Box 6262.

SATELLITE VIEW



This picture taken from space prior to the fire shows the density of the neighborhood directly downwind of the fire. Flying brands traveled beyond Saratoga St. The fire was accessible only via a bridge on Saratoga St. (G).

LEGEND

- A. Orient Heights Yacht Club (Building of origin)
- B. #54 Bayswater St. (1st exposure fire)
- C. #52 Bayswater St. (2nd exposure fire)
- D. #60 Bayswater St. (3rd exposure fire)
- E. Boat storage adjacent to yacht club (boats shrink-wrapped for the off-season.)
- F. Logan/Massport Foam Unit approaches fire via the beach.
- G. Staging. Access point for all units.
- H. Marine units' position. Firefighters run attack lines along the dock.

NARRATIVE

EXECUTIVE SUMMARY

On April 8, 2000, a wind-driven 9-alarm fire destroyed an historic yacht club and threatened to consume an entire neighborhood of Boston, MA. The Boston Fire Department overcame a multitude of problems to prevent what could have been a conflagration.

INTRODUCTION

It was a typical spring Saturday for the Boston Fire Department. Sunny skies and comfortable temperatures meant that it would be perfect for equipment maintenance, company training, and the ritualistic spring-cleaning. About 10 AM, the winds increased in velocity as a front moved through New England. Strong southwesterly winds started to buffet the region. Unless you were outside, though, you hardly noticed. The department radio crackled about wires down here and a large tree limb across the road there. OK, so it's windy. If you were monitoring a scanner, you were getting hints that something was brewing. In western Massachusetts, firefighters were trying to contain a large brush fire. The Incident Commander was calling for a Wildland Task Force. In Southeastern Massachusetts, another brush fire was out of control. Extra tankers are requested. Mutual-aid centers are on alert.

EAST BOSTON

The City of Boston is famous for its closely-knit neighborhoods. Both socially and geographically, the neighborhood known as East Boston is a close community. Wood frame buildings, many just feet apart, line the narrow streets that are a Boston trademark. East Boston consists of 32,941 residents within 4.51 square miles. A unique feature of East Boston is that it is only connected to the rest of Boston by two 2-lane auto tunnels under Boston Harbor. It is virtually surrounded by water. The Boston Fire Dept has three fire stations in East Boston. They house 3 engine companies (Engines 5, 9, and 56), 2 ladder companies (Ladders 2, and 21), and a district chief (District 1). This is a standard first-alarm response for a structure fire. Any Boston companies beyond the first alarm must come through the downtown section of the City and then through one of the tunnels. It is not unusual for traffic congestion to extend response times to East Boston. Furthermore, the traffic going to and from Logan International Airport, which is directly connected to East Boston, can impact the congestion to nightmare proportions.

THE BUILDING

The Orient Heights Yacht Club, built in 1901, was a 2 ½ story, 50' by 70' wood frame building. It extended out over the water on pilings and heavy timbers. Side 1 rested on the seawall. A 100' pier with 80 storage lockers extended out from side 3 and the boat slips extended out 300' beyond the pier. (See diagram).

THE FIRE

At mid-afternoon on that Saturday, a few yacht club members were socializing in the lounge. When they smelled smoke, they thought that they smelled exhaust from the jets that were landing and taking off on Runway 22 just across a small inlet from the yacht club. The smell of smoke continued and upon further investigation, the occupants found a fire burning under the first floor. While they attempted to extinguish the fire, a call was made to 911. The time was 1546.

Back to the weather. At the time the fire started, the wind was out of the southwest at a sustained speed of 30 mph with frequent gusts to 50 mph. This was straight across the water and down Runway 22, unimpeded for 4 miles. The wind now fanned the flames horizontally under the building until they hit the seawall and started to envelop the building on sides 2 and 4.

At 1547 Box 6262 was struck. Just a half-mile away, Engine 56 and Ladder 21 arrived one minute later. On arrival, fire and heavy black smoke was showing. Captain Steve Waldron of Engine 56 sized up the existing conditions and immediately ordered a 2nd alarm. The companies were assured that all occupants had escaped from the building. They then began to run 2 ½” and 1 ¾” hand lines in an attempt to cut off the fire and protect the exposures. The second and third

“This was one of the most difficult and toughest fires we’ve had in Boston.”

Chief of Dept. Paul A. Christian

due engine companies were still two minutes away. I arrived shortly after the 2nd alarm and found rolling black smoke and heavy fire starting to blow across Bayswater Street towards neighboring homes. Large flaming brands were being carried into the neighborhood by the strong, steady wind. Incoming units were given access routes and Engine 56 and Ladder 21 were positioned away from the threatening flames. At 1555, I ordered the 3rd alarm. This was now a defensive operation. My incident action plan: save the neighborhood. This would require placing multiple hand lines into operation around the many homes in the path of the flying brands. As second alarm companies arrived, they were directed to run lines for exposure protection of the homes in the greatest danger. Engine 4, Ladder 24, Rescue Company 1, and Chelsea Engine 1 (mutual aid) operated hand lines and an aerial ladder pipe in this blast-furnace corridor of smoke, heat and flames. Deputy Chief John Hasson of Division 1 arrived at 1558 and after he was briefed on the status of the incident, command was transferred. Due to the extraordinary brand problem, an extra District Chief was requested to respond. Every activity centered on cutting off the spread of the fire. But before the third alarm companies had arrived, the situation took a turn for the worse. The building at #54 Bayswater street was on fire. A flaming brand had landed in a wooden gutter and the fire was quickly fanned by the wind into the soffit and up into the attic. At 1608, a 4th alarm was struck. Deputy Chief Hasson now had three main goals: establish a sufficient water supply to contain the main body of fire and protect the most severely exposed buildings; launch an interior attack on the attic fire in a 2 ½ - story wood frame building; extinguish the many spot fires starting downwind in the neighborhood. Shortly thereafter, Chief of Department Paul Christian arrived and assumed command of the incident. The 5th through 9th alarms were struck in rapid succession as two adjacent 2 ½ story buildings were ignited by the flying brands. Incoming engine companies were ordered into strategic positions throughout the area to protect the closely spaced homes in the neighborhood. Even residents used their garden hoses to extinguish small outside fires.

The yacht club was now fully involved and fire was extending into the boatyard on side 4. Twenty-eight boats of various sizes were stored for the off-season in a 60' by 60' chain-link fenced area. The wind-whipped flames were rapidly consuming the fiberglass boats. The combustible shrink-wrap material, which encased many of the boats, added to the ease of ignition. Six hand lines, four of them foam, were required to cut off the flame spread in the boatyard. In addition to 3 Boston foam engine companies, Massport/Logan Airport Fire-Rescue dispatched an Oshkosh T-3000 foam unit to the scene. Captain Paul Moore, of Massport, maneuvered the unit along the shoreline on side 4 and supplied the boatyard with an additional foam hand line. However, before the fire in the boatyard could be contained, 15 of the closely spaced boats had been destroyed. The largest boat destroyed was 42'.

The incident commander treated the three adjacent buildings that sustained major fire damage as separate fires. A District Chief (see ICS chart) commanded the fire attack for each building. Three other buildings were damaged on their exteriors by flying brands. Fire companies patrolling the neighborhood quickly extinguished these fires. Many other homes were damaged by the creosote-laden smoke, which enveloped the downwind area. A total of 18-2 ½" hand lines, 11-1 ¾" hand lines, 3 master streams, and 4 foam hand lines were used during the 15 hour incident. Two hundred thirty-five firefighters responded on 29 engine companies, 15 ladder companies, and 24 other support units. Chief of Department Paul Christian stated after the fire, "This was one of the most difficult and toughest fires we've had in Boston."

PROBLEMS ENCOUNTERED

- **WIND** – With the wind sustained at 30 mph and gusting to 50 mph, the initial fire, which started on the upwind side of the building, was quickly fanned beneath the structure's open support columns. During the early stage of the fire, windows also on the upwind side of the building blew out from intense heat. This allowed the wind to blow throughout the structure and like a bellows on a campfire, the building was quickly consumed. Also, the wind was directly into the only access side of the building. Any attack had to come from flanking positions. And even the strongest stream was easily broken up by the wind. Smoke blown horizontally by the wind created an almost untenable situation for firefighters attacking the three major exposure fires. An aerial ladder truck, which was positioned downwind, stalled due to oxygen starvation and could not be restarted. The high winds also carried flaming brands into the neighborhood of closely spaced homes. Most of them landed harmlessly without further ignition. Many, however, ignited combustibles such as porches, fences, and sheds. One of the buildings, which sustained major damage, was ignited in two different places. Four firefighters received burns of the face and neck caused by the flying brands.
- **ACCESS TO FIRE BUILDING** – The yacht club was built on pilings and heavy timbers extending out over the beach and water. At high tide, the building was surrounded by water on three sides. When the fire started, it was high tide. Only side 1 allowed access. However, this placed firefighters directly in the path of the wind driven flames.
- **OVERHEAD WIRES** – Directly in front of the building, overhead electric wires ran between two wooden poles. Within minutes of our arrival, these live wires came down adding another serious safety hazard to deal with. Firefighters moving around the fireground under hectic conditions and limited visibility were subjected to this hazard until the utility company could cut the power to the affected area.

- **WATER SUPPLY** – The geography of the neighborhood resembled a peninsula. The water mains were looped but only 8” in diameter. With a total of 36 lines being used during the height of the incident, water needs often exceeded supply as lines were opened and closed at various sites on the fireground. Four-inch feeder lines were used in conjunction with Hydrant Assist Valves (HAV) to improve water supply. Connecting pumps to the HAV increased the water pressure dramatically.
- **DISTANCE FROM CENTER CITY** – With the exception of the 5 companies assigned to East Boston, all other responding units must use a tunnel or a bridge to access East Boston. From the Boston side of the Callahan Tunnel, its 3.5 miles to Orient Heights in the Northeast corner of the city. All second alarm companies use this tunnel when responding to East Boston. On a normal day, it’s an eight-minute response. A sudden influx of emergency apparatus converging on one location can create a traffic nightmare.
- **ACCESS TO NEIGHBORHOOD** – Again, the peninsula factor comes into play. With only 3 narrow streets leading toward the yacht club, apparatus lined the streets. Ground ladders and hand lines had to be carried in long distances. Extra 5-gallon foam containers were carried in by hand.
- **COMMUNICATIONS** – Understandably, a tremendous amount of radio traffic resulted from this incident. Three different radio channels were used during the incident. One channel was used to direct incoming units as to access routes. Many assignments were given to units en route. On the fireground, one channel was used for the yacht club fire, the boat yard fire, and marine operations. The third channel was used for the exposure fires and units involved with brand patrol in the neighborhood.

LESSONS LEARNED

Most firefighters realize that a great deal of what we learn in our careers is due to practical experience. Some types of fires occur frequently and we become highly skilled at fighting these fires. The three-story wood framed dwelling fire, i.e. the 3-Decker, can be a routine fire. However, other types of fires can occur less frequently and we must take every opportunity to learn from them. Some lessons learned from this fire are:

- ✓ **UNPREDICTABILITY OF FLYING BRANDS** – Exposure fires from radiant heat are quite predictable. Exposure fires from flying brands are not. The exposure fires at this incident started when a brand landed on or became lodged against a combustible surface. This usually happens where a vertical surface meets a horizontal surface. Gable windows, dormers, porches, and chimneys are common areas to watch.
- ✓ **APPARATUS STALLING DUE TO BLOWING SMOKE** – As mentioned earlier, an aerial ladder stalled when heavy smoke entered the air intakes. Although it was in an ideal position to reach the roofs of two of the exposure fire buildings, its use was lost until much later in the incident when the air filters were changed. This meant that more ground ladders had to be raised to these buildings. This is very time consuming and labor intensive. Proper apparatus placement should take into consideration smoke movement as well as fire growth.

- ✓ **COMMAND STRUCTURE** – The use of the Incident Command System (ICS) can simplify the management of a widespread incident such as this. Initially, the command structure consisted of an overall Incident Commander (Deputy Chief) and Operations (District Chief). As the incident escalated and successive alarms were rapidly struck, the ICS chart expanded. Geographical sectoring allowed the Chief of Department (IC) and Division 1 Deputy Chief (Operations) to effectively manage the resources committed to the incident. A District Chief was assigned to each of the six separate fire areas.
- ✓ **ANTICIPATE FUTURE NEEDS** – In a rapidly escalating event, staying ahead of the fire can be very challenging. In reality, the planning function is on the shoulders of the IC. This requires action in the present while thinking in the future. In this case, early requests for extra foam supplies and an extra chief officer to coordinate brand patrol in the downwind neighborhood are examples of anticipating future needs.
- ✓ **USE OF FOAM ON BOAT FIRES** – Efforts to extinguish the boat fires were futile until foam lines could be moved into position. The combination of the fiberglass hulls, the combustible shrink-wrap covering, and the fuel tanks made the ordinary water attack ineffective. One safety problem encountered in the boat yard was the danger of other boats toppling on firefighters in “domino” fashion due to a burning boat collapsing off its storage supports. With the minimum spacing between boats, a firefighter could have easily been crushed in such a collapse. A boatyard Safety Officer was delegated to monitor this hazard.
- ✓ **FIRE GROUND RADIO CHANNELS** – In order to ease the congestion of radio traffic on the fireground, the IC established two dedicated channels. One channel was used for operations at the initial fire building (the Yacht Club), the adjoining boatyard, and all marine units. The other channel was used for operations at the 3 major exposure fires and to coordinate the units operating at the spot fires in the surrounding neighborhood. The Communications Network Chief located in the Mobile Command Post monitored all channels. This procedure facilitated message delivery between channels.



Photo: Orient Heights Yacht Club

COMMAND CHART

BOX 6262

IC

PIO

OPERATIONS

SAFETY

52
BAYSWATER

54
BAYSWATER

60
BAYSWATER

YACHT
CLUB

BOAT
YARD

BRAND/EXPOSURE
PATROL

Dist 6

Dist 4

Div 1

Dist 1

Dist 3

Dist 7

E 3
E 8
E 22
E 39
L 24
L 17

E 14
E 50
E 32
R 1
Ch E1
E 21
E 7
E 42
L 2
L 18
L 1
L 15
L 23

E 33
E 22
E 4
L 2

E 56
E 9
E 5
E 51
L 21
L 2

E 16
E 9
Massport
Foam
Tower Co
E 37
E 5

E 10
E 28
E 52
E 24
L 23

RESOURCES AT BOX 6262

- 29 Engine Companies
- 15 Ladder Companies
- 26 Other Fire Department Units
 - 12 Command Staff
 - 9 Support Units: (Rehab Unit, Air Supply, Mobile Command Post
Public Information Officer, Fire Investigation Unit, etc.)
 - 3 Marine Units (1 U.S. Coast Guard)
 - 1 Rescue Company
 - 1 Tower Company
- 235 Firefighters (the fire service's greatest and most valuable resource)
- 8 Fire Alarm Office (on-duty at 59 The Fenway)
- 5 Ambulances (BLS)
- 1 Ambulance (ALS)
- 5 Other EMS Units
- 0 Faltalities
- 8 Injured firefighters
- 2 Injured civilians
- 5 Mutual Aid to the Fire
 - 1 Engine Company from Chelsea
 - 1 Engine Company from MassPort Fire/Rescue
 - 1 Foam Unit from MassPort Fire/Rescue
 - 1 Marine Unit from MassPort Fire/Rescue
 - 1 shallow-water boat from U.S. Coast Guard
- 15 Cities/Towns that sent Mutual Aid coverage to Boston stations.
 - 14 Engine Companies
 - 4 Ladder Companies