Over Their Heads

Flood Response in Kansas City

by Slim Ray

Just about everything that could go wrong in Kansas City the night of October 4th, 1998, did. By the time flash flood waters receded, twelve people were dead in Kansas City and the surrounding area. In one incident, flood waters from a rain-swollen creek swept seven people in three cars off a bridge to their deaths while horrified onlookers watched. How did this happen, and what lessons can be drawn from it?

It began with a weather system headed for Kansas City. Predictions called for over two inches of rain in an area where just 1.2 inches was enough to cause flash flooding. The storm came in on schedule Sunday afternoon, dropping between 2 and 7.7 inches on the city in less than 4 hours, producing the worst flash flooding in 21 years.

The previous flood, in 1977, took the lives of 25 people. But flood control improvements after the disaster, such as concrete channels downtown and in the Country Club Plaza areas, had taken care of the problem, or so many thought. The city also had a $275,000 rainfall monitoring system given to it by the federal government in 1995. The monitors would radio information from the upper part of various watersheds back to an alarm system in the dispatch office, warning of any flash flooding.

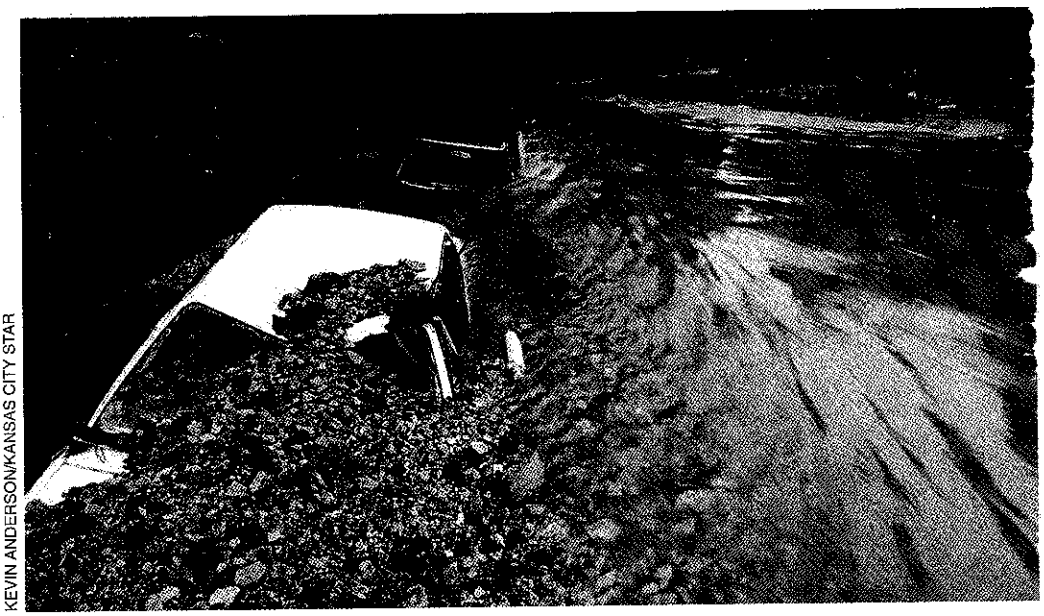
But the gauges hadn't been maintained. Fewer than half of them were still working. Only two of six were operational on Brush Creek, and those were not working properly. The responsibility for monitoring and fixing them was dispersed among a number of agencies and departments.

At 2:58 PM the National Weather Service issued a flash flood warning for the Kansas City area. The rain began in earnest early that evening, soaking the Chiefs game. By 7:00, the nearby Lee's Summit Underwater Rescue and Recovery Team had put itself on standby and informed Kansas City dispatch. They were the only emergency unit in the area with any swiftwater rescue training. At 7:12 the weather service reissued the flash flood warning, adding that "residents living along streams and creeks should take immediate precautions to protect life and property."

Between 7:00 and 8:00 PM the two operational rain gauges on Brush Creek radioed back their message. The rainfall for that single hour was 2.95 inches—three times enough to cause flash flooding in the watershed. But no one heard it. The warning system was silent, having been unplugged three months earlier in favor of an AM/FM radio.

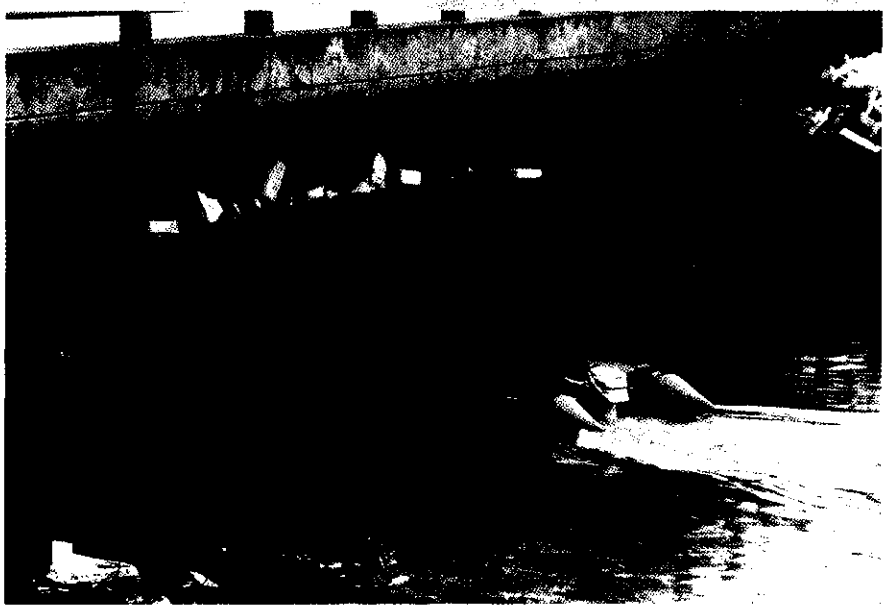
The three harried dispatchers might not have heard it anyway. They were overwhelmed with calls stacked seven to ten deep. Some people were calling to complain about flooded basements. Others were in mortal danger. Over the evening the number of dispatchers would rise to five, supplemented by firefighters, but they would never really catch up.

Kansas City did not have a flood reaction plan, nor had potential flooding areas been identified, nor did the dispatchers have much familiarity with handling a flood emergency. Dispatchers and incident commanders played a des-



KEVIN ANDERSON/KANSAS CITY STAR

October 4th, 1998, brought severe flash floods to Kansas City, Kansas. Uncontrollable waters killed 11 people, submerged dozens of cars like these in a swollen Turkey Creek, and found local emergency responders seemingly unprepared.



FRED BLOCHER/KANSAS CITY STAR

Under the Cleveland Avenue bridge on brush Creek, rescuers Eric Howard and Tim McClellan search for victims.

perate game of catch-up, sending rescue units from one incident to the next, trying to separate the serious from the trivial, until they ran out of resources. The Lee's Summit team called again, but got no reply.

The waters of Brush Creek were rising fast now, up toward the Prospect Street bridge, a scant dozen feet above. By about 8:15 PM muddy, debris-filled water was flowing over the bridge. Three cars - a Cutlass, a Mercedes, and an Explorer - stalled in the swiftly flowing water. There were seven people in them. Around 8:30 the Cutlass washed into the torrent, carrying the two people in it to their deaths. The man in the Mercedes, Orlando Hudson, climbed on top of it. As his car began to float he made his way to the Explorer, joining four other people on its roof. They yelled for help. Frantic bystanders tried to throw them a power cord, but it wouldn't reach.

At 8:45 Pumper 35 from the Kansas City Fire Department arrived at the bridge, across the river from the Explorer. Fire Captain George Boyd heard the shouts and called for a company to come from the other side of the river, but none were available. About 9:00 the Explorer began to move, throwing everyone on it into the churning water. Pumper 35 moved downstream to the Benton Street bridge to try to help. At 9:26 dispatch put out the alert. "Forty-seventh and Prospect - we've got reports of cars floating away. They need help." Units were dispatched to other bridges downstream. The police had to be sent, too, because the crowd who'd seen the cars wash away was getting ugly. "We've got some unhappy citizens."

At 10:00 the Lee's Summit team called again. This time they threatened to go home. At 10:30 dispatch sent them to the Prospect Street bridge to investigate a report of cars floating in the water. They arrived at 11:05 and began searching the river. By 1:00 am the water had dropped enough for firefighters to begin searching the banks. They found Hudson's body in a tree a short distance downstream from the bridge, along with that of one of the people from the Explorer.

The flood was over in less than a day. In spite of not having any swiftwater training and equipment, and losing a truck, the Kansas City Fire Department rescued 30 people without losing any of their own.

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Communications

Dispatch is a crucial function in a disaster that often comes and goes in less than 24 hours. The first few hours are the most critical. When the water starts to rise the call volume jumps exponentially, jamming the dispatch center. These calls must somehow be triaged so that rescue units are not sent on minor calls, but instead to genuine emergencies. Both dispatch and incident command need to have a ramp-up capability for times like this, as well as enough training in flood and swiftwater rescue to be able to make informed decisions.

Time is as much an enemy as water in flash floods: the swift unfolding of events means that there is seldom enough time to deploy units from outside the affected area. Whoever is there, no matter what their equipment or training, will do the rescues. Thus the best solution, if possible, is pre-dispatch, i.e. to have rescue units already in or near known trouble spots. Modern weather forecasting now allows enough time to deploy before the event.

In Kansas City, for example, there was about four hours between the first flash flood warning and the onset of heavy rains, and about thirty minutes warning of the flooding in the Brush Creek watershed. This is a critical period, one which allows incident commanders time to deploy city workers and police to block off streets and bridges, and to mobilize and stage rescue units at potential trouble spots. The people kept out of these areas are the ones who don't have to be rescued.

A good preplan is also essential. An analysis of potential flood areas by hydrologists and storm water managers will tell managers in advance which areas need to be evacuated, which bridges closed, and which barricades manned. This knowledge in turn helps dispatchers and incident commanders to differentiate flooded basements from life-threatening emergencies. Kansas City, where floods are infrequent, had made extensive flood control improvements after the 1977 floods. Unfortunately, these lulled many into believing that the flooding problem

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ture between the thermometer placed on the dashboard and the one sitting on top of the closed computer lid underneath the cover.

3. A notebook PC on the Fire Line may not come back. All wildland firefighters are trained to drop their packs and deploy fire shelters on the run in the event of a burn over. We would be very interested in obtaining information on a lightweight, heat-reflecting, waterproof, insulated, fire-resistant computer case with quick release buckles on the straps!

Conclusion

One of the best explanations why BLM was conducting a prescribed fire in the area was delivered by a local miner on a news broadcast the third day of the fire. It wound up on the web site. Information was not easily accessible by the news media, but we believe web sites of the future will provide everyone, including the news media, with photos, video, statistics, and other valuable real-time information as fire occurs. The F-Project turned out to be a real test of communication innovations.

Addendum - Stonewall Wildland Fire

Since the initial pilot, the F-Project crew was dispatched on August 4, 1998, to the Stonewall Wildland Fire in the Pinnacles National Monument, California. Suppression efforts were under the command of an Interagency Incident Management Team consisting of CDF, US Forest Service, and local county agencies. The fire camp was established 25 miles north of the fire, and the F-Project crew was stationed there, directly under the Fire Information Officer. On this fire, the F-Project crew worked indoors, complete with electricity, and a data line.

The NPS Pacific West Regional Office approved a public web site, to which media callers were referred to by the Fire Information Office (www.ca.blm.gov/fire/stonewall/Stonewall.htm). The number of incoming media calls dropped significantly after news media were directed to the web page for updates.

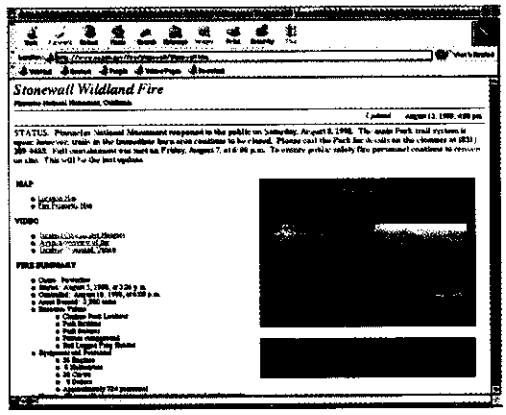
Because the F-Project field crew was located in the Fire Information Office, updates to the web page were steady. However, being located 25 miles from the Fire Line, digital photos and video were not readily accessible.

The web site was used in a formal presentation during the post-fire closeout session between the incident management team and the Pinnacles park staff. There was favorable discussion on the benefits of information dissemination using the World Wide Web, and a description of the F-Project has been included in the permanent documentation of the incident.

While we work to make advancements with web technology, the F-Project is beginning to make a difference in communicating emergency incidents such as wildland fires to the news media and public. ■

Tom Patterson, Fire Management Officer, Joshua Tree National Park (Tom_Patterson @nps.gov), worked jointly for the Bureau of Land Management and the National Park Service since 1990. Tom holds a bachelor's degree in administration of justice from Virginia Commonwealth University, and has experience in law enforcement, search and rescue, emergency medical services, fire suppression, and other ranger duties.

Mary Lou West, Internet Program Coordinator, Bureau of Land Management (mwest@ca.blm.gov), oversees development, implementation and maintenance of BLM web sites in California, and is responsible for BLM-California training, policies, and procedures related to web publishing. Mary Lou is also a member of the BLM's National Internet Work Group.



www.ca.blm.gov/fire/stonewall/Stonewall.htm

The F-Project's web page from the Stonewall Fire in August, 1998, was used successfully to relay situation updates by incident managers as well as the media.

Flood Response...

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had been solved, when in fact it had simply been moved from one area of the city to another.

Interagency and interdepartmental coordination is also a must. Weather predictors, storm water managers, development officials, and rescuers must all sit down together to define and solve problems. Quite often vital pieces of information are "out there," but never get to the right people. In Kansas City emergency planning devolved on a mid-level administrative assistant, designated the "Emergency Management Coordinator." She worked in the basement of City Hall and was not in the chain of command. The city had no specific flood emergency plan.

Outside resources also need to be identified beforehand. In this incident, the only rescue agency with swiftwater rescue capability was not activated until very late in the game. Local rescuers, particularly firefighters, need to be trained to at least an awareness, and preferably to technician level in swiftwater rescue. The public needs to be educated about the dangers of floods and told why they should not drive through moving water. In short, there is much that can be done.

Kansas City is not alone in the problems it faced in the October 4th storm. You could probably find at least a dozen other large cities with a similar level of preparedness. Flood rescue, unfortunately, often gets a low priority compared to "hot" issues like terrorism. However, Kansas City, having felt the wrath of the flood, is now undergoing a thorough and at times painful review of flood response and swiftwater rescue procedures. Many cities could benefit from their example. ■

Slim Ray is an internationally recognized authority on flood, swiftwater, and whitewater safety and rescue, with 20 years experience in swiftwater rescue. Slim co-authored River Rescue *(with Les Bechdel) and has written numerous articles on recreational river safety, including* Swiftwater Rescue. *The author wishes to thank the staff of the Kansas City Star for their help in compiling this report. For an overview of the storm and its aftermath, see www.kcstar.com/standing/storm98.htm.*