

LESSONS FROM CAMP FIRE

HOW ALERT SYSTEM FAILED; WHAT’S NEXT FOR EVACUEES

Experts weigh in on how to prevent another Paradise-like catastrophe

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Even as smoke chokes the sky and shrouds the sun, millions of Bay Area and other California residents remain unprepared for the next inferno.

More than half of us still haven’t signed up for official evacuation alerts. We don’t practice our escape routes — or perhaps there aren’t any. Parked cars crowd narrow streets. Too few of us have “to go” kits. We trust fallible Wi-Fi, cable TV and cellphones for lifesaving information.

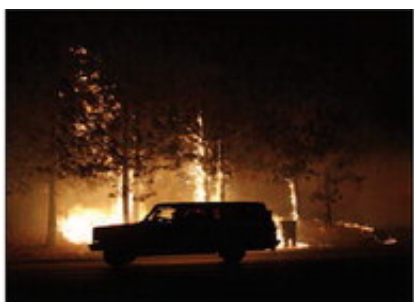
“If you’re not paying attention, you’re really screwed,” said geographer Gregory Simon of the University of Colorado Denver, who studies the impact of fire in established communities, like the Oakland Hills. In extreme conditions, he said, “Fire moves several football fields a minute.”

Satellite images reveal the fury of the Camp Fire. Wind-blown flames raced 12 miles and hit Paradise within four hours of ignition, just as residents were just waking up. Flying embers flew 2.5 miles ahead of the advancing fire front, according to UC Berkeley Landsat analyses. Temperatures exceeded a scorching 1,150 degrees, melting the aluminum alloy of cars’ engine blocks.

City officials raced to keep up, yet many residents never received evacuation orders. The first orders were issued through the city’s “opt in” CodeRed system via landlines, cellphones, text messages, email, Twitter and Facebook and a mobile app. Only about a quarter of the town’s 26,000 residents had signed up to receive them. Of the estimated 6,000 cellphone calls completed in the first 10 minutes of the initial evacuation, 60 percent, or 3,600, connected to a person or voice mail, according to OnSolve, the company that operates CodeRed. There was a significantly higher number of busy signals, it said.

Evacuation orders were never issued for large sections of the city — three zones on its western edge, and one in the center — until a citywide

How you can help Camp Fire victims. **B1**



A motorist drives through midday darkness while evacuating Paradise and the raging Camp Fire on Nov. 8.

Emergency

order was issued in the late morning, when much of it had already burned, according to a review of Twitter records.

The Butte County Sheriff's Department decided not to trigger the federal government's Wireless Emergency Alert system, which sends very simple Amber Alert-style warnings to cellphones within the entire county. As a result, local TV and radio stations did not initially learn that Paradise was burning.

Then the communications network failed. Evacuation alerts rely, in large part, on cell sites — and Paradise quickly lost its equipment, the California Public Utilities Commission confirmed on Thursday. Cell sites fail in several ways: burning or falling of antennas, radios or other essential tools; burning or falling of the “backhaul wire” into the network, or cut power to the sites from utilities, like PG& E.

Paradise residents Zachary Byrd and his friends lost both AT& T and Verizon service around 10:15 on the morning of the blaze. These reports overlap with when evacuation orders were issued between 8:03 a.m. and 1:37 p.m, depending on location.

Only much later did Paradise resident Jani Christine see an evacuation notice on Facebook, “a notice we never got because we had no power and no cell service,” she wrote on the social media platform.

Fearful and confused, fleeing drivers quickly hit traffic. Some died at deadends. Others ran out of fuel. In Butte Meadows, stranded evacuees waited in line at an empty gas station, praying that a promised fuel tanker would reach them before the flames did.

“Send a blaster out! Why not?” said Byrd, 34, who learned of the fire only when awakened by his girlfriend. “Why wait? Then everybody could get out. It would have saved lives.”

Paradise had prepared for peril long before the Camp Fire. City leaders had created an evacuation plan after the 2008 Humboldt and Lightning wildfires forced the evacuation of one-third of the town's residents.

But with prescient concern, town council candidate Julian Martinez warned in an election forum in September that the plan might not work.

“I think we're prepared for minor disasters regarding wildfires — but in a worse-case scenario, I don't think we are,” he said. “The amount of overgrowth that's inside of this town is dangerous. ... We've got a lot of elderly people in this town, we've got a lot of people who don't have cars or even worse, cars that aren't reliable, and you get people breaking down in emergency situations.”

Martinez warned: “I think maybe we're prepared for what fires looked like 10 years ago, but I don't think we are prepared for this season or next season.”

Dr. Irwin Redlener, director of the National Center for Disaster Preparedness at Columbia University, agreed. “It is really very difficult to develop a system that could outpace the speed and ferocity of this fire,” he said.

Like Paradise, 187 other California communities have been classified “very high risk” by Cal Fire, based on local factors like wind, climate and topography, according to Rebecca Miller of Stanford's Program in Environment and Resources.

They include neighborhoods such as Los Gatos, Saratoga and Morgan Hill in the

Santa Cruz Mountains and Oakland, Berkeley, Danville and Orinda in the East Bay. In the Sierra foothills, small wooded towns like Auburn, Colfax, Jackson, Nevada City and Grass Valley are as dry as kindling, with limited escape routes.

Far more places are at lesser risk, but still very vulnerable, with a Paradiselike landscape of grasses, shrubs and forest patches littered with downed and dead

woody debris, said Stanford historian Richard White.

To alert residents, California's counties have created emergency notification systems, such as Paradise's CodeRed. These alerts offer detailed information and are geographically targeted, connecting with landlines and voluntarily submitted cellphones and emails.

But compliance has been lackluster, ranging from around 10 percent of residents in San Mateo and Contra Costa counties to one-quarter percent in Alameda and Santa Clara counties and 46 percent in Santa Cruz County.

The federal Amber Alert-style system goes to everyone in the county, and is far more attention-grabbing. It has limits: Messages are only 90 characters, so it can't tell you where the fire is, or where to go. The Los Angeles Times reported that a city emergency official said the county did not use the alert because it initially wanted to stagger the evacuations by neighborhood.

"You can only pour so many cars into different arteries at the same time," said J. Keith Gillespie, a professor and dean emeritus at UC Berkeley's College of Natural Resources.

And it only takes one bottleneck — a downed wire, burned power pole or a parked car, for instance — to create a "choke point" on an entire road, blocking transit and forcing people to flee on foot, said the University of Colorado's Simon.

Broader and better lit roads, illuminating a route even in deep smoke, could help prevent accidents, experts agreed. And despite the most well-intentioned plans, exit routes aren't always well maintained. "No parking" zones on narrow winding roads are designed to allow quick escape in places like the Berkeley Hills and the Peninsula's Emerald Hills — but a glimpse of Google Maps shows how rarely they're enforced. Some subdivisions, like Atherton's leafy Lindenwood, have exits only on two sides, not four.

Homes once again dot the narrow, curvy streets in the Oakland Hills where a 1991 fire killed 25 people who could not escape erratic, fast-moving flames. In Orange County's Yorba Linda, elected officials just approved Esperanza Hills, a development of 340 multimillion-dollar homes on a gated, dead-end street where 381 homes burned down only a decade ago.

Picturesque Laguna Beach has only three routes to carry traffic out of town — and they're lined with utilities on wooden poles. Residents just defeated a sales tax increase that would have buried the roads' wires.

Watching Paradise burn "is the nightmare that I live with for our community," said Laguna Beach Councilman Bob Whalen.

Columbia's Redlener said it's time to reassess our approach to fire safety. He recommends audible alarms that tell us we're in danger, followed by texts, emails or other more detailed messages that tell us what to do.

"If I thought I saw a glow of orange, I would not go to my computer to look at Twitter," agreed Jane Mobley, who co-authored a National Academies of Sciences paper on natural disaster response. "Here in Kansas, when you hear

sirens, you take cover.”

Communication has to be universal and accessible to everyone, “maybe with alarms and lights, for the hearing-impaired,” added Deborah Matherly, co-author of the NAS paper.

Menlo Park, whose fire chief, Harold Schapelhouman, is a leader in disaster preparedness, keeps its oldfashioned siren — but also just bought a \$150,000 mobile Long Range Acoustic Device that can transmit voice messages at a deafening 150 decibels, as loud as a jet takeoff, more than a mile away.

Experts say cities can do more to keep streets clear and help evacuations, but residents should be prepared to save themselves. Everyone should have a “to go” kit of essentials, and keep their gas tanks at half full.

“Fewer than half of families in our area have taken the time to sit down, write out an emergency plan, discuss it with family members and maybe even do a practice run,” said UC Berkeley’s Gilles.

“The one silver lining of this tragedy is we’re thinking hard about planning,” he said. Fire is no longer something you think about in the future. It’s in our face, year after year.” *Staff writer David DeBolt contributed to this report.*



Camp Fire evacuees covered with blankets provided by the Red Cross sit at an evacuation center at the Neighborhood Church in Chico on Nov. 8.

RAY CHAVEZ — STAFF PHOTOGRAPHER