Emergency planners must consider traffic, among other factors, in rethinking evacuation plans. (Photo by Mark Abraham)

Like numerous other cities, Pittsburgh saw a frenzied mass exodus on 9/11: Traffic on bridges was locked at a standstill, light-rail transit vehicles were packed four-deep and it took an hour to drive out of downtown.

But if terrorists struck in similar fashion again, officials in Pennsylvania's second-largest city would lock down parking garages, put dozens of extra buses and rail cars in service and ferry commuters to safety by boat.

Pittsburgh is one of a growing number of local governments that have been rethinking evacuation strategies to deal with terrorism. Emergency response experts say such efforts -- in the spotlight with the federal government raising the national threat level to orange, the second-highest alert -- are overdue.

"Terrorism gives communities even more of an incentive to..."
develop sound evacuation plans that are based both on sound engineering principles as well as what we know about how people behave in emergencies," said John Sorensen, director of the Emergency Management Center, a scientific research unit at Tennessee's Oak Ridge National Laboratory.

Studies have shown that -- contrary to the chaos often portrayed on television and in movies -- most people do not panic in an evacuation, even when they are frightened. Nevertheless, local officials are discovering that terrorism poses formidable evacuation challenges.

There are obvious hurdles: traffic congestion, interagency coordination, emergency communications and linking separated parents and children.

Planners also have had to balance letting the public know what they are doing with withholding details that could assist would-be attackers.

"How much can you tell people to make them feel safe without giving away too much in terms of security?" asked Catherine Beahn, Pittsburgh's project manager for emergency operations, noting that specifics of the city's evacuation plan have been left off its Web site.

Another issue -- especially for those dealing with biological and chemical attacks -- is deciding whether evacuation could make things worse. Keeping individuals together or "sheltering-in-place" may limit their exposure.

"For a chemical event or a bomb, unless it's in your presence, you should go in your house and seal yourself and await instructions," said Dr. Ken Shine, director of the Center for Domestic and International Health Security at the RAND Corp., a national security think tank. "That's very hard for people to do -- people's natural reaction is, `I want to get out of the area.'"

"The problem," said David Simpson, a University of Louisville professor of urban and public affairs who specializes in
disaster preparedness, "is educating the local officials to the point where they can make the decisions. School principals aren't trained to make sophisticated threat assessments."

Even experienced emergency planners acknowledge it can be difficult coming to grips with terrorism's inherent unpredictability. Communities can't always deal with it by developing blueprints based on past experience with tornadoes, hurricanes or volcanoes.

The Federal Emergency Management Agency (FEMA), which is becoming part of the new Homeland Security Department, doesn't want to dictate a solution. Agency officials are encouraging communities and counties to develop "all-hazards" plans that take into account the widest range of possible catastrophes.

"If you already have an evacuation plan, you're going to use the same roads, the same bridges" for terrorism as for any other disaster, said Ken Burris, director of FEMA's regional headquarters in Atlanta. "I think the challenge for most officials becomes, how do you take a hazard-specific plan and modify it to become an all-hazards plan?"

Such modifications have been made in Gresham, Ore., a city of 90,000 in Portland's eastern suburbs. Officials have devised building evacuation procedures for city workers, divided by type of emergency: fire, hazardous materials, explosion, armed or dangerous intruder and earthquake.

"Most of it was done prior to Sept. 11, and we've recognized it would take care of most emergencies," said Gresham emergency management coordinator Gene Juve. "Subsequent to that, we've taught point persons that they might get some additional instructions (for terrorist attacks) -- `Do not go to the parking lot, avoid being a visible target.'"

Other localities have gotten more specific.

In Pittsburgh, officials saw a need for a comprehensive strategy when United Airlines Flight 93 passed just south of
the city on 9/11 before it crashed 80 miles southeast, killing all 44 aboard. The city evacuated a few buildings, and local businesses followed suit.

The City Council approved a plan last fall to require evacuation drills at high-rise buildings. Managers of the more than 300 buildings at least seven stories tall must evacuate at least half the occupants twice a year.

And Mayor Tom Murphy would like to conduct a large-scale exercise.

"You're never totally sure how it's going to work until you try it," said Beahn, the emergency operations official.

She acknowledged that some elements of the evacuation plan are "kind of a tough sell," such as the possibility of putting evacuees on buses or boats instead of letting them have access to their cars.

But she added, "We want to try to instill confidence that we're trying to do the best for everyone."

In the Washington, D.C., area, officials have developed a similar large-scale plan that seeks to avoid the problems after the 9/11 attack on the Pentagon, when train platforms were clogged and commuter routes impassable.

"We're much better prepared than we were a year and a half ago," said Dave Snyder, who chairs a panel on emergency transportation for the Metropolitan Washington Council of Governments, a regional planning agency.

Meanwhile, at Oak Ridge and elsewhere, scientists are trying to make local officials' jobs easier by improving computer models of where traffic bottlenecks are likely to occur during emergencies. The computers would be fed data from on-the-ground traffic sensors. "We're moving toward real-time evacuation modeling and the built-in concept of trying to predict what's going to happen 20, 40, 60 minutes out so you can tailor your management strategy," Sorensen said.
But one expert who has studied disasters believes that planners should not rely too much on an organized, bureaucratic response to a terrorist attack.

Rutgers University sociologist Lee Clarke said people often follow their own instincts rather than instructions in an emergency because of a lack of trust in government. As a result, he said, planners need to be flexible.

"It's rare after an evacuation that people will go to official Red Cross centers," Clarke said. "They'll go to somebody's house, whether it's their family or friends. We live our lives in social networks, and people will evacuate in the same way. We know that people organize their lives in terms of families, communities, churches and social networks, and we need to find ways to incorporate those units into planning rather than just `educate' them about official response plans."

(Chuck McCutcheon can be contacted at chuck.mccutcheon@newhouse.com)