



Firemen help a woman and her family after they were evacuated from their Lacombe, LA home on Aug. 29, 2005. The flood surge from Lake Ponchartrain reached two miles inland.

Safeguarding Independent Living

Emergency Evacuation of the Elderly and Disabled

By Clare Cahalan and John Renne

Living independently, especially for seniors and the disabled, is a freedom enjoyed by a growing segment of the population. However, the catastrophic flooding in the New Orleans area revealed that

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our society is ill-prepared to respond to people with mobility restrictions. An estimated 1,800 persons died in Hurricane Katrina and its aftermath. The fatalities were

disproportionately elderly, with 71 percent of the victims older than 60, and 47 percent over the age of 75. Of the elderly affected by Katrina, most lived independently, and many were disabled and mobility-restricted. Yet existing evacuation plans focus on residents with automobiles, or on seniors living in group homes.

Those individuals living on their own — who most prize the self-sufficiency our culture holds in such high esteem, who are most vulnerable in an emergency — are the most difficult to locate and assist. This article examines ways government can work with families and the non-profit sector to see that the tragedy that occurred in New Orleans is never repeated.



Scores of Hurricane Katrina victims were evacuated to buses from the New Orleans convention center on Sept. 3, 2005. Hundreds of people were eventually transported from the city by bus and helicopter.

A National Crisis

Hurricane Katrina focused the nation's attention on the need for emergency planning that includes the most vulnerable members of our communities. Failure to plan evacuations accessible to all citizens left thousands of elderly and disabled New Orleanians stranded in flooded homes, with hundreds dying, while tens of thousands suffered in crowded and chaotic shelters of last resort. Unfortunately, the lack of accessible evacuation

planning is not limited to the New Orleans area. According to the 2000 U.S. Census, there are 35 million Americans over 65, a large number of whom live alone -- 19 percent of men and 40 percent of women. In addition, more than 54 million Americans have disabilities. Yet there are very few cities that have comprehensive plans to ensure their evacuation in an emergency.

Prior to Katrina, hurricane-vulnerable Gulf Coast states led the nation in planning, coordinating, and executing evacuations. However, the Report to Congress on Catastrophic Hurricane Evacuation Plan Evaluation (2006), by the U.S. Department of Transportation (USDOT) and U.S. Department of Homeland Security (USDHS), found that their plans were inadequate to deal with the massive scale of evacuations during the hurricane. Regarding special-needs evacuation, most plans were underdeveloped, and none were judged to be very effective.

The increased attention to evacuation for the elderly and disabled in the wake of Katrina has led to promising research and legislation intended to better protect the health, safety and welfare of all Americans.

Plans and Policies

Evacuation accessibility is mandated under the Americans with Disabilities Act. The law requires local government programs for emergency preparedness and response to address access for people with disabilities and their service animals.

Communities that receive federal aid, such as USDOT funding, must ensure that transportation facilities are accessible to people with disabilities even in an emergency.

To supplement this law, the President issued

"I had to wait for someone that I knew to get me . . . to help me," said Yvonne Hookfin, 68, who was stranded in her apartment for five days after the storm. She said a broken leg prevented her from leaving sooner, but she had learned a crucial lesson: "Leave before the storm gets here."

From: Los Angeles Times. "In New Orleans, Self-Sufficiency Is the Theme" by Ann M. Simmons. April 21, 2006

Evacuations in the Great Flood of 1927

The Great Flood of 1927, like Hurricane Katrina in 2005, required massive evacuations to avert the consequences of breaking levees. But officials in 1927 had more time to plan and organize their efforts. Unlike the days of intense crisis faced during Katrina, the 1927 flood unfolded over several months.

It began in summer 1926 when rains inundated the central Mississippi basin. Rainy weather continued on and off through the fall, causing flooding in many areas. Then in spring, a series of heavy thunderstorms hit, causing levees to fail.

It was one of the nation's greatest national disasters. An area of 27,000 square miles in Arkansas, Illinois, Kentucky, Louisiana, Mississippi, and Tennessee were flooded, in some locations to a depth of 30 feet. It resulted in the death of 246 people, the destruction of 137,000 buildings, and the displacement of 700,000 people.

Herbert Hoover, then Secretary of Commerce, was credited with averting an even greater disaster. It helped him later capture the presidency. According to the book, *Rising Tide: The Great Mississippi River Flood of 1927 and How it Changed America*, "Hoover had earlier told the 105,000 people in the area to evacuate. Few had. But Hoover and the Red Cross had prepared. Thousands of trucks

rolled into the area just ahead of the first wave of water. Four trains carrying boats, motors, and now-experienced rescuers headed in from different directions, and the rescue fleet entered just behind the first wave of water. All 105,000 people, along with most of their cattle, horses, and mules, were evacuated with crisp efficiency and few deaths."

As with Katrina, those who suffered the most were black residents and the poor. The flood prompted the first major migration of blacks from the South to Chicago. Preferential relief assistance provided to whites later prompted many blacks to vote against Hoover for reelection, contributing to the break down in the historic allegiance of black voters to the Republican party.

Executive Order 13347 in 2004 requiring federal agencies to address the needs of the disabled in their emergency preparedness plans and assist state, local, and tribal governments in doing the same. It also created the Interagency Coordinating Council on Emergency Preparedness and Individuals with Disabilities, and charged it with "ensuring that the Federal government appropriately supports safety and security for individuals with disabilities in situations involving disasters."

The failures during Katrina — and, on a smaller scale, during Hurricane Rita, centered on the Texas coast a month later — exposed the weaknesses of these existing requirements. Lawmakers have been compelled to respond to

the clear need for improvement and to mounting public pressure. Both the U.S. Senate and House of Representatives are reviewing bills to ensure the evacuation of people with special needs in times of emergency, while the Senate's Post Katrina Emergency Reform Act of 2006 requires the development of specific standards to accommodate people with disabilities in the provision of all disaster services.

Many states, including New Jersey, California, Kansas, Wisconsin, Hawaii, Oklahoma, Texas, Louisiana, Virginia, North Carolina, and Florida are also reviewing their evacuation plans and policies and considering legislation to increase protections for the elderly and mobility restricted.

Rescue personnel move Hurricane Katrina evacuees by boat to a highway on-ramp in New Orleans as floodwaters continue to rise on Aug. 30, 2005.



My mother had sent my younger sister and her family up north, and she was evacuating herself and her elderly charge, the bedridden Mrs Camilla, to the Superdome. It was a mandatory evacuation — but her husband wasn't budging . . . Mom had tried to get into the Superdome with Camilla, but they weren't accepting the elderly and infirm. So, she joined a slow convoy to Baton Rouge, finally settling on the floor of a room in a nursing home sharing with eight other people, including three that were bedridden. One of them saw angels the first night. Jesus, she said, was calling her home. She died early the next morning . . . My mother's husband and the dog went missing. . . Mom moved into a house in Baton Rouge with Camilla's family. They told her she could stay as long as she liked.

From: The Guardian (London). "Family: Blood is thicker than floodwater." by Daneeta Loretta Saft. August 26, 2006

Evacuation Challenges

Creating accessible evacuations requires identifying and accommodating community members with special needs. Among the elderly, special needs include: lack of mobility, both

in terms of personal mobility and the inability to use autos; dementia, with estimates that up to half the population over 85 may suffer from Alzheimer's; language difficulties; age-related hearing and vision loss; fear of institutionalization; anxieties about being uprooted from routines and familiar surroundings ("transfer trauma"); and a tendency to react more slowly than younger persons to crises ("delayed response syndrome").

Natural disasters by definition involve the breakdown of electrical systems and transportation facilities that make dealing with these special needs difficult if not impossible. This includes the inability to obtain critical medication, refill oxygen bottles, recharge electric wheelchairs — or even find wheelchair-accessible vehicles.

A 2005 survey for the AARP found that 15 percent of adults age 50 or older, and 25 percent over the age of 75, require assistance from another person to evacuate from their home in the event of a natural disaster. The survey also reported,

Emelda Skidmore, an elderly resident of the Lower 9th Ward in New Orleans, recounted the failed levees flooding the home she was born in. "Water rolled from under my wheelchair. My head was hitting the ceiling of my kitchen. The water came so fast, 50 miles per hour. I told my daughter, 'Don't worry honey, Jesus is in the House.' " She waited in six feet of water for six hours before she was rescued.

"Women, minorities, people living alone, and persons with lower incomes or less education are more likely to say they need help evacuating and are less confident in their ability to evacuate than are their counterparts."

Creating Accessible Evacuations

The most important step in addressing the special needs of the elderly and disabled is to include them and their service organizations in developing and implementing evacuation plans. Early client involvement increases both the effectiveness and acceptance of emergency preparedness and response programs.

Many community partnerships have produced voluntary registries for people with special needs. The Florida ADA Hurricane and Disaster Center partnered with the Center for Independent Living of Southwest Florida and emergency preparedness officials in four counties in the No Person Left Behind program whose mission is "100 percent accountability of all persons with disabilities." The registries include information about the residents' location, disability, health conditions, family members,



A man is rescued from his New Orleans home on Aug. 29, 2005. In the aftermath of Hurricane Katrina's landfall, rescue crews worked frantically to save hundreds of residents trapped by rising floodwaters; dozens of others were killed in Louisiana, Mississippi, and Alabama.

service animals, and equipment resources and requirements. Inclusion of legal waivers that allow the information to be shared when necessary and give rescue workers permission to enter the home are crucial to protecting privacy rights and speeding response times.

Other communities have used existing social services networks maintained or administered by health-care providers, area councils on aging, and senior centers to create registries and craft individual evacuation plans for residents with special needs. In St. Louis, the Office on the Disabled works with the city social services departments, along with area clinics and hospitals, in coordinating special-needs evacuation and sheltering. Cooperation among community organizations is essential to maintain and update the registry information and to handle the surge in registry requests which occurs with an approaching threat.

Communications

Once people with special evacuation needs are identified, those needs must be addressed through communication of all emergency and evacuation information in all possible formats, including large print, Braille, closed captioning, sign language inter-



Hurricane Katrina survivors head toward a rescue helicopter in New Orleans on Sept. 3, 2005. Many people had to wait several days to be evacuated.

preters, TTY/TDD (TeleTYpewriter-Telecommunications Device for the Deaf) and any languages commonly spoken in the area.

Hernando County, Florida uses the Code Red Emergency Telephone Calling System, an automated telephone dialing system that also accesses the TTY/TTD phones, increases the speed and coverage of evacuation communication, and can deliver messages tailored to geographic and demographic groups. Many communities also operate 2-1-1 systems which provide callers with general information, answers to common

questions, and referrals to relevant agencies and organizations.

While most local governments provide emergency information in some formats, few use all available transmission methods. Television and computer access is usually limited during such emergencies, requiring great cooperation and communication with local radio stations. Regularly updated information, displayed on electronic signage, improves efficiency in coordinating evacuations. It reduces uncertainty and associated mental and physical stress by inform-

They were left behind in the rising brown lake that was once New Orleans' 9th Ward — and it was up to them to find a way out . . . Larry Sims swam to the high ground and prayed for a way to get his family and neighbors there too. Just then, a punching bag floated by . . . the 4-foot-long kind boxers use to practice their body blows . . . Sims, a 37-year-old truck driver, knew instantly what to do with the punching bag, and why it appeared at just that moment. “God brought that punching bag right to me,” said Sims . . . He snatched the bag and swam across the street with it. One by one, he got the trapped people across. He swam and pulled the punching bag while each person clung to it. One elderly woman refused to leave her deathtrap of a house, so Sims

had to drag her out and then coax her into hanging on to the bag. Another elderly woman was too disabled to hold the bag, so Sims put her on his back and walked and swam her across. He picked up a roofing nail in his bare foot on that trip, and it was days before he'd get a tetanus shot . . . The punching-bag ferry was only the beginning of their evacuation ordeal. Sims shepherded the group throughout the three days and two nights that it took them to escape from the 9th Ward. He doesn't call himself a hero, but the people he saved certainly do.

From: The Atlanta Journal-Constitution “A hero's tale; With help from God, punching bag . . .” by Bill Osinski Pg. 1 September 26, 2005



Rescue workers bring Hurricane Katrina evacuees to a waiting helicopter on Sept. 3, 2005. The chopper will take them to a temporary hospital at the New Orleans airport.

ing evacuees and transportation providers of the location and availability of shelters, healthcare facilities, fuel, and food. St. Charles Parish, Louisiana created a low frequency radio station to broadcast emergency information, and installed devices which allow emergency officials to control existing public and commercial electronic message boards to relay recorded alerts.

Redundancy is the key to effective communication strategies, requiring the availability and use of as many methods as possible, including portable speaker systems, ham and marine radios, fax machines, and land, cell, and satellite phones. As Lu Marie Polivka-West of the Florida Health Care Association testified before the National Transportation Safety Board, “The fatal weakness of every failed emergency plan is the assumption that communications and public service infrastructure would

still be in place in the aftermath of a disaster.”

Training & Outreach

Effective evacuation of elderly and disabled people requires specialized and coordinated training between transportation providers, healthcare personnel, and emergency managers. The American Red Cross, FEMA, and the National Fire Protection Association offer training on accommodating special needs in emergencies. Once participants have been trained, they also must be given opportunities to practice and evaluate their skills in a setting requiring them to coordinate activities with partner agencies.

During a recent hurricane drill in Jefferson Parish, LA, evacuation workers had to provide direction to a man who only spoke German, get police assistance for a belligerent person and a registered sex offender, deal with evacuees with pets, and determine which evacuees required greater medical attention at a hospital or special-needs shelter. Participants learned that they needed more ushers to assist evacuees in line, as well as more wheelchairs to ease the transfer of elderly and disabled people from local to state buses.

A successful special-needs evacuation plan cannot occur unless transportation planners build relationships with other organizations—including service providers, healthcare and senior agencies, libraries, and social and civic associations—and learn to coordinate efforts.

Expanding outreach efforts is critical to effective evacuation plans. Partnerships with faith-based organizations show great promise. To increase options for those without transportation, the City of New

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Kimberly Cook, a 24-year-old paraplegic with cerebral palsy. . . placed a desperate call to the nurse's aide who looked in on her every day. Patricia Williams had for a year been bathing and dressing Cook and tending to a hundred other details. . . Williams and her two daughters raced to Cook's apartment, packed a bag of clothes and a teddy bear and loaded her into the car. The electric wheelchair didn't fit, so it stayed behind . . . Williams figured they would be safe at her house in the Lower 9th Ward . . . Their 9th Ward home, like those of all their neighbors, flooded past the rafters . . . When it rose around Cook's bed, Williams' son-in-law, Derek, picked her up and waded through chest-deep water to a nearby house. They thought they would be safe in a building with a second floor. They were wrong. The water rose up around their knees . . . a Coast Guard vessel came by. They lifted Cook

through a second-story window on a blanket . . . The group was dropped at what passed for high ground in post-Katrina New Orleans: a highway overpass at Elysian Fields Avenue. With only cookies to eat, they waited 10 hours as they contemplated their flooded homes and uncertain futures...An Army truck finally hauled them off to the Superdome, which was quickly filling with flood victims from all over New Orleans . . . Williams had a decision to make: stay with Cook or go into the Dome with her own family. It wouldn't be the last time she put the well-being of her patient over her own. . . Eventually, Williams persuaded an ambulance driver to take them the hour north to Baton Rouge.

From: Times-Picayune (New Orleans), "Two women who faced fear and floodwaters together are honored for their courage," By Bill Walsh, Washington bureau, September 29, 2006

Emergency Transportation, *continued from page 12*

Orleans, the American Red Cross, Total Community Action, and the University of New Orleans began Operation Brother's Keeper, a campaign that works with many congregations to reach out into the community. These churches are better able to track and serve individuals in need of assistance at the grassroots level, varying their approach according to what works best for their members. Many churches have made arrangements with congregations in other areas to accept evacuating members.

The Church of Jesus Christ of Latter-day Saints uses an automatic phone dialer to call every area family, telling them of available shelter and services. Rev. Kevin Lee of Edgewater Baptist Church subdivided members into small groups, with leaders who check in on members under their care. Other congregations, including Celebration Church led by Rev.

Clarence Fleming, 64, had two amputated legs, but still told each of his family members he was riding with someone else and stayed in his home in the Lakeview section of New Orleans. Hannah Polmer said her 64-year-old mother, Rachel Polmer, simply felt safest in her own home. "Elderly syndrome," the daughter called it. Not including hospital patients or nursing home residents, two-thirds of those who did not leave were over 60. Thirty were ill or disabled.

The New York Times. Louisiana's Deadly Storm Took Strong as Well as the Helpless. Pg. 1 By Shaila Dewan and Janet Roberts, December 18, 2005

After several days in or above the water, often with little or nothing to eat or drink, and with many still unaware that it is not just their own little neighbourhood that has sunk — but a whole city — some are losing their minds . . . Harvey Schindler, fire chief for Jefferson parish arrived at 444 Forshey Street with two of his men to find an elderly couple . . . Inside, the couple are sitting blithely at their kitchen table, water up to their knees. Ornaments, lamps and family photographs are floating around them, along with the contents of their overflowing lavatory. Yet they are arguing with their rescuers. "They're fighting us in there," says a firefighter. Eventually, they are persuaded. Their pet dachshund, who had sought refuge on the table, is put

into a basket and settled on the boat and the white-haired man follows suit. He perches on the edge of the boat, takes off his spectacles, hangs his head and cries quietly.

His wife is still indoors, refusing to budge until she has put on a dress. Eventually she settles for a pink robe, but insists on scooping up the contents of her dresser drawer, including a rosary and a picture of the Virgin Mary, before she will let the firemen carry her out. She is pale, frail and has to be lifted into the boat. "Those guys might never see that house again," sighs Mr Schindler. "It's hard for them to comprehend, it's hard for us to comprehend."

South China Morning Post "Desperate to hang on in drowned city" by Jacqui Goddard Pg. 11 September 6, 2005

Dennis Watson, have created databases, matching members needing rides with families with cars, or asked members to provide copies of evacuation plans and emergency contact numbers. Coordinating and integrating these efforts allows many more elderly and disabled people to evacuate within familiar support networks.

Useful Tools

Transportation planners have growing access to technologies which can improve evacuations of people with special needs. In Florida, special-needs and shelter registries are integrated with Geographic Information Systems, allowing emergency planners and responders to immediately map locations where assistance is needed against places where help is available to respond. The federal government has sponsored the development of a variety of modeling tools to help communities design and implement realis-

tic evacuation plans. Among other purposes, these models help predict storm surges and flooding, guide route selection, calculate evacuation times and monitor evacuation processes.

While research and experience are leading to better evacuations of the elderly and disabled, many areas still need significant improvement. The Report to Congress on Catastrophic Hurricane Evacuation Plan Evaluation found that preparing for disasters on the massive scale of Katrina will require intergovernmental cooperation and assistance between many more agencies, with a need for coordinated regional and multi-state emergency planning and exercises. Few evacuation plans made full use of all available modes of transportation, with most relying on cars and buses, excluding potentially effective options such as trains, ships, and planes.

As the scale of an evacuation



An elderly Hurricane Katrina evacuee from New Orleans is transported to a Dallas shelter on Sept. 1, 2005. Dallas opened schools, hospitals, and sports arenas to some of the hurricane's most desperate refugees as they regrouped.

Conference on Carless Evacuation

A National Conference on Disaster Planning for the Carless Society was held on February 8-9 in New Orleans. University of New Orleans Assistant Professor John Renne (co-author of the article in this issue of *InTransition*) served as event chair. The following is an excerpt from his summary remarks:

On February 8 & 9th, 2007 folks from government, non-profits, universities and others discussed the importance of creating plans that will effectively evacuate those without cars. People across the country talked about issues that were brought to the forefront of national attention in the days after Hurricane Katrina when thousands were stranded at the Superdome and Convention Center with no way to evacuate. The evacuation of Hurricane Katrina was one of the most successful evacuations in U.S. history, with about 1.2 mil-

lion people evacuating the city in cars. Unfortunately those without access to a car were not able to leave. A key outcome of the conference was that it was one of the first opportunities for the disabled and those from non-profits to be able to have their voice heard directly by government officials, emergency managers and planners and to be able to discuss these complex problems. We learned that we have a lot of work and a long way to go to be able to come up with effective plans — and not just plans but implementation strategies— so that the people who are most in need and vulnerable are able to leave a city when a disaster occurs. A podcast of these remarks is available at www.planetizen.com. More materials from the conference are available at www.carlessevacuation.org.

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grows, the supply of transportation vehicles, especially accessible vehicles, is dwarfed by demand, making use of other transportation modes essential. As witnessed in the evacuation of New Orleans, buses were underutilized, allowing unfolding events to leave hundreds of buses flooded and thousands of people stranded in extremely dangerous conditions.

Most plans lack provisions to return evacuees to their homes after a disaster. Repopulation plans are necessary to ensure that transportation of people with special needs avoids traffic gridlock associated with the mass return of evacuees.

As the Baby Boom generation begins to retire and the nation's elderly population grows, it becomes all the more important for researchers and practitioners across the fields of transportation, emergency management, and health care to strengthen collaboration to safeguard independent living through accessible evacuations of the elderly and disabled. □

This article with references and additional resources is available at www.intransitionmag.org.

Evacuation Best Practices

In facing the shared challenges of evacuating the elderly and disabled, transportation planners have access to many educational, organizational and technological resources. Communities with effective special needs evacuation plans serve as examples of best practices, providing basic strategies which only require small adjustments for local conditions.

- The “No Person Left Behind Project” offers registry information and applications in English, Spanish, Braille, tape, or large print, through the website for the ADA Advisory Board of Southwest Florida,

www.adaboardswfl.org/hurricane



in the Management of Elderly Disaster Victims (2006), which is available online, www.bcm.edu/pdf/bestpractices.pdf.

- AARP also has publications including *We Can Do Better: Lessons Learned for Protecting Older Persons in Disasters* (2006), and consumer and preparedness guides for older adults, available through their website, www.aarp.org/katrina.



- The National Consortium on the Coordination of Human Services Transportation provides strategies and checklists for transportation planners through the USDOT website www.dotcr.ost.dot.gov/asp/emergencyprep.

- The Terrebonne Parish Readiness and Assistance Coalition (TRAC) (www.trac4la.com) provides hurricane preparedness information which is tailored to South Louisiana. They have versions in English, French, Spanish and Vietnamese. TRAC also provides information for children, the elderly, and the mobility restricted, as well as a guide for implementing community “buddy systems” to assist neighbors with special needs.

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gram met with reluctance.

Government programs meant red tape, and skeptics wondered if, after all the effort, it would work.

New Approaches, New Promise

So, city leaders proceeded to eliminate obstacles real and perceived. Interested property owners could make quick project proposals in 15-minute meetings with the City of Stoughton Façade Improvement Committee, which met monthly, and get on-the-spot approval of matching

grants. Guaranteed reimbursement, owners invested in renovation without any nagging uncertainty over repayment. The process minimized paperwork because most business owners hired the same local rehab specialist.

Even then, Becker says, it was difficult to get business owners to front the money to match the grant, but that once a few people opted in, others followed. “Once things started happening, there was a snowball effect,” he says.

John Neal, Finance Director and Treasurer for the City of Stoughton, agrees. “We went door-to-door talking to business owners, and sold them on the idea that with the street torn

up, business would be slow, and it would be a perfect time to take advantage of the façade improvement grants from Dane County.”

Ed Biono saw it too. “When the first guy did his, you know his neighbor saw the contrast with his own building right next door. He could see the difference – that it worked – so he did his too. Once it got started, it went right up the street.”

It was the model, more than the relatively modest amount provided, that was enough to push the business community to strong participation. The BUILD program had awarded façade improvement grants totaling \$225,000 as of 2005, meaning the