

OVERVIEW

When a disaster is imminent, often the safest course of action is to evacuate people from harm's way. Evacuation can help communities -- especially vulnerable populations in those communities -- avoid the impacts of natural disasters such as floods, severe storms, hurricanes, and tornadoes. Unfortunately, not all evacuations run smoothly. This Promising Practice outlines methods to evacuate safely and efficiently.

A 1997 study found 10% of those who did not evacuate attributed their behavior to inadequate social or economic resources.¹ Language barriers, physical or mental disabilities, and [special medical needs](#) may also make evacuation of certain communities more difficult.

In addition, research has found that household size and the presence of [older adults](#) can decrease the probability of evacuation before disasters. An example of this can be found in a December 2005 analysis of mortality in the wake of Hurricane Katrina, which found that 66% of 705 dead identified at the morgue in St. Gabriel Louisiana were over 60 years of age, and 44% were over 75.²

Risk perception, social influence, and preparedness are important predictors of an individual or family's intentions to evacuate, and these can be influenced by factors including race, age, gender, or economic resources.³ Knowing who is at higher risk for not evacuating -- and why -- could direct early intervention strategies and help these individuals evacuate successfully.⁴



Residents of Baton Rouge practice evacuation procedures, May 2006.

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[Special Needs](#)
[Older Adults](#)
[Children](#)

REDUCING VULNERABILITY TO DISASTERS

Vulnerable populations are often less likely to evacuate prior to a disaster due to lack of access to personal transportation, health conditions that make mobility difficult, jobs that require them to remain, or misperceptions about their level of risk.⁵ Individuals and families in these communities require extra attention in the evacuation planning stage to ensure that they are both prepared and willing to evacuate.

PREPAREDNESS

Increasingly, local governments are developing emergency management plans to reduce the threats posed by disasters. This section focuses on evacuation planning for communities. Evacuation planning for individuals and families is discussed in the Promising Practice on “Individual Preparedness.”

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Such plans should identify the vulnerable populations in a particular community, the types of disasters that could occur, and the strategies that can be adopted to reduce the threats from disasters. Such plans should involve key stakeholders in the community including county government, hospitals, school district and housing authority personnel, nonprofit organizations, local social service agencies, and local, state, and federal emergency agencies such as the Coast Guard, the Red Cross, or the National Weather Service.

In addition, the stakeholders should identify the resources available to assist people in preparing for, and responding to, disasters and how the stakeholders could pool their resources during a disaster to enhance the effectiveness of the plan's implementation.

Emergency management plans should specify who will be responsible for evacuation during an emergency, where people should go and how they should get there. The plan should include agreements with local and regional transportation authorities and others such as the school district that may be able to provide transportation such as buses.

Plans also should include agreements with neighboring cities or municipalities to provide shelter during an emergency. Shelters should be stocked with food, water, blankets and medical supplies. By coordinating ahead of time with other local governments an evacuation can operate more efficiently.

Some communities are instituting voluntary, confidential registries of persons with disabilities who may need individual assistance during an evacuation. (See the profile in the Promising Practice on [special medical needs](#) populations.)

A registry should establish procedures to protect members' voluntary participation and confidentiality. The registry should be updated regularly and publicized.

Education

The key to a successful evacuation lies in education, awareness, and training. Residents should be made aware of the possibility of evacuation well in advance of an actual emergency. Local governments should create, review, and practice emergency plans.

Public education and community planning efforts will enhance a local emergency agency's credibility and public profile, making residents more likely to trust that agency during an emergency.

Educational materials and resources should be made available in multiple languages and target areas where language barriers may present a problem.

Residents of a given area should be familiarized with evacuation procedures and convinced of the need to act early in an emergency.

Evacuation plans should be practiced regularly to familiarize both community members and emergency agencies with the evacuation process.



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Residents may choose not to evacuate if they are unsure of where to go or how to get there. Practicing regular drills and providing maps with detailed evacuation instructions prior to a disaster can greatly increase the likelihood of successful evacuation. Practice and drills might include walkthrough procedures, announced drills or surprise drills. Residents should be encouraged to assist vulnerable persons during evacuation.

Evacuation Warnings

Evacuation warnings are the primary means for emergency managers to influence public behavior because they influence people's perceptions of risk.

Elderly persons; the disabled, especially those with vision, hearing, or cognitive impairments; non-English speakers, and low-income persons may not be able to access or comprehend certain types of evacuation warnings.

Evacuation orders should be compulsory, not voluntary. Prior research has shown that people who said they heard mandatory evacuation orders are the most likely to evacuate. Residents respond less frequently to "recommended" evacuations.⁶



School buses evacuate residents of Galveston, TX prior to Hurricane Rita, 2005.

The warning methods should be developed to help citizens take appropriate, responsible action. A combination of warning methods is most effective. Early action should be emphasized to prevent last minute congestion. Warnings should highlight the consequences of not evacuating, including potential loss of life and the loss of services.

Evacuation warnings should be clear, easy to understand, available in multiple languages, and come from trusted sources. If people do not trust, or lack faith in, emergency managers, they will be more likely to ignore calls for evacuation. Messages to the public have to be credible and consistent. Headquarters staff must come across as competent.

Maximize the number of outlets that broadcast evacuation messages including the Internet, television, radio, police loud hailers, and door knocking.

Face-to-face intervention is often the best method for alerting people of an evacuation.

Evacuation Transportation

Emergency planners must plan effectively for the evacuation of individuals who do not own or have access to a personal vehicle. In New Orleans during the Hurricane Katrina evacuations, one in six individuals did not have a vehicle available for personal use.⁷ For people without cars, buses are the most important means of evacuation, including public transit buses, school buses, motor coaches, and paratransit vehicles.

“Contraflow” methods, which involve the reversal of traffic flow in one or more of the inbound lanes or shoulders for use in the outbound direction, may increase road capacity. FEMA estimates that contraflow

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procedures can dramatically increase road capacity from 8% to 70% depending on the number of lanes involved.

Finally, transportation planning should occur in concert with planning for [sheltering](#). Transportation planners as well as drivers should know in advance which shelters are best equipped to accommodate vulnerable populations.

RESPONSE

Implementation of the evacuation plan must occur in a timely manner. Even when a mandatory evacuation is called, some people may be unwilling or unable to leave the disaster area. In this case it may be necessary to move those people to a safer location within the city.

Emergency managers should identify areas where people may not have been evacuated, so that post-disaster evacuation services including the provision of food, water, and medical supplies can quickly be provided to those areas.

Communication and coordination among agencies responsible for evacuation must be maintained throughout the disaster to ensure consistent and efficient provision of emergency services.



Residents of Big Sur, CA get information and await instructions at a Red Cross evacuation center during the wildfires of 2008.

RECOVERY

After the disaster is over, people who evacuated may need transportation back to their homes, assuming their homes are habitable. Vulnerable populations in particular will likely need assistance in the wake of a disaster, and they may need help not only with transportation but in getting resettled.

People will be anxious to return their lives to normal and resume their everyday functions and routines. Agencies and nonprofit organizations will need to help evacuees, particularly the elderly and those with special medical needs, return to their housing or to a suitable place of residence.

Emergency managers and others can learn from the evacuation. When things settle down, emergency planners should take the time to debrief the evacuation to make improvements and adjustments in preparation for the next disaster. This debriefing should include an evaluation of the design and delivery of warning messages, the adequacy of buses and other forms of transportation for those without cars, techniques to reduce traffic congestion, interagency communications, and the number and percent of residents removed from harm's way.

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ADDITIONAL RESOURCES

American Association on Health and Disability published the *Annotated Bibliography on Emergency Preparedness and Response for People with Disabilities*. This document provides numerous useful links to case studies, guides, and other resources for communities and local governments involved in emergency planning for vulnerable communities. The document is available at the following website:

www.aahd.us/page.php?pname=publications/reports&PHPSESSID=38f007d97c55be4515c0d81e5488bc23

The U.S. Department of Justice has prepared a checklist for emergency shelters to ensure that they are fully accessible and in compliance with American's with Disabilities Act. The document is available at the following website: <http://www.ada.gov/pcatoolkit/chap7shelterchk.htm>. A version of the document that is geared toward Florida is available at:

<http://floridadisaster.org/documents/ADA/EmergencyShelterChecklistFlorida.pdf>

U.S. Department of Justice provides the *ADA Guide for Local Governments: Making Community Emergency Preparedness and Response Programs Accessible to People with Disabilities*. The document is available at the following website: www.ada.gov/emergencyprep.htm



PROFILE: EVACUATION STRATEGIES

Program:	SAFELY OUT
Organization:	Citizen Voice, Red Cross Sacramento Sierra Chapter
Keywords:	evacuation, vulnerable communities
Source:	SAFELY OUT Project www.citizenvoice.org/safely_out_home.shtml <i>Summary:</i> www.aarp.org/research/assistance/lowincome/better.html <i>Full Report:</i> http://assets.aarp.org/rgcenter/il/better.pdf
Brief Summary:	SAFELY OUT is a project of Citizen Voice, developed in partnership with the Red Cross Sacramento Sierra Chapter, to ensure that vulnerable citizens -- including the disabled, frail seniors, young children and others -- are protected during a disaster. SAFELY OUT is a "neighbor helping neighbor" evacuation effort, assisting vulnerable populations in reaching safety and relieving the burden on first responders and caregivers.

Some communities are at risk of flooding in Sacramento. The SAFELY OUT Program aims to facilitate evacuation efforts by increasing family preparedness and improving cooperation between localities. The program includes a SAFELY OUT kit. A large door hanger displays whether occupants "NEED HELP," in red, or are "SAFELY OUT," in green. The SAFELY OUT program includes the following:

SAFELY OUT kits

Any resident who may have difficulty safely evacuating receive a kit. A leave-behind alert system allows an individual to call for help and notifies relatives and first responders where that person has been evacuated.

Speaker's Bureau

Provides education and training for the community on the SAFELY OUT project.

Community Outreach Effort

Raises public awareness and creates support from government officials, community leaders, first responders, the business community, service providers, caregivers, and the public at large.

Online resources

Supports outreach, public education, and funds development efforts.

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SAFELY OUT Refrigerator Magnet

Users can store essential evacuation information including contact details for nearby helpers to assist with evacuation.

SAFELY OUT Bag and Information Sheets

The bag is used for storing medications, prescriptions, and insurance information. The information sheets include a simple how-to guide, helper information sheets and a wallet card, plus an erasable pen for use on the magnet, a permanent marker for the door hanger, and adhesive strips, if needed, for placing the NEED HELP door hanger on a window.



PROFILE: EVACUATION STRATEGIES

Program:	Secure Communities: The Galveston Model for Evacuation and Recovery
Organization:	The National Task Force on Community Preparedness and Response
Keywords:	evacuation preparedness, evacuation best practice, response and recovery
Source:	The National Blueprint for Secure Communities www.ciprr.org/nationalblueprint/showarticle.php?articleID=5003
Brief Summary:	The Galveston Model for Evacuation and Recovery is widely considered by emergency managers to be a near-perfect example of an evacuation plan.

Galveston, Texas is sited on a barrier island that has experienced disastrous hurricanes in the past. The hurricane that struck Galveston in 1900 killed over 6,000 people, the most deadly natural disaster to strike the U.S. The National Blueprint provides guidelines on preparing an entire community for evacuation.

Some of the guidelines include:

- α Conduct regular meetings to remind citizens about emergency response protocol and create and regularly maintain a website.
- α Hold special meetings for vulnerable communities.
- α Keep emergency management personnel coordinated.
- α Establish a timeline. In Galveston, the estimated time that the storm would make landfall is called the "zero hour." From hour 24 to 48, the city relocates police, fire, public works, and EMS personnel. Between hour 72 and hour 100, the city council returns control to the mayor.
- α Utilize a "reverse 911" system in which emergency services call citizens with a recorded message about evacuation.
- α Make your communication strategy redundant. Ensure that there are different ways of communicating across agencies and departments.
- α Work closely with local energy companies to prioritize where and when to reestablish electrical services. Galveston has letters of understanding with Wal-Mart and Home Depot and their fuel vendors to quickly reopen after an event.



PROFILE: EVACUATION STRATEGIES

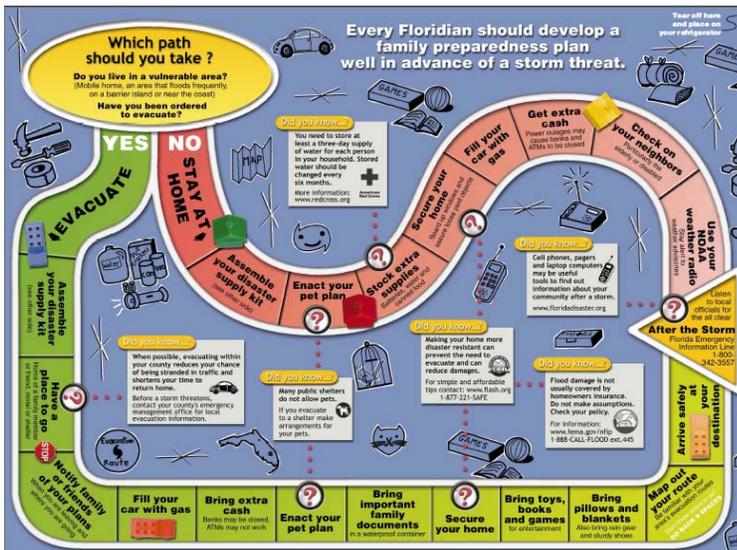
Program: Evacuate or Stay Decision brochure

Organization: Florida Division of Emergency Management

Keywords: evacuation preparedness

Source: www.lakecountyfl.gov/pdfs/Public_Safety/Emergency_Management/preparedness_board_game.pdf

Brief Summary: This resource takes the form of a board game that helps individuals and households make the decision whether to evacuate or to shelter-in-place and then lays out step-by-step directions based on that decision. Available in English and Spanish.



In a whimsical way, this resource helps families make the very serious choice of staying or evacuating during a natural disaster.

Although engaging, individuals will want to consult other resources to maximize their preparedness in an emergency event.

REFERENCES

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- ⁷ Nigg, Joanne, et al. (2006). Hurricane Katrina and the Flooding of New Orleans: Emergent Issues in Sheltering and Temporary Housing. *Annals of the American Academy, AAPSS*, 604: 114.