

Public Information and Awareness



One of the most effective long-term ways a community can cope with localized flood problems and prevent future ones from occurring is by educating its residents about why such problems occur outside the Special Flood Hazard Area (SFHA) and what they can do to help prevent them.

A community can choose from numerous avenues to build awareness of and knowledge about localized flooding and remedies. The following public information activities serve community residents, property owners, insurance agents, lenders, and real estate agents by advising them about the flood hazard, flood insurance, ways to prevent or reduce flood damage to buildings, and the natural benefits and functions of floodplains.

Answer Questions

Virtually all communities provide residents with information about flooding and preventive measures if they ask for it, perhaps when they inquire whether a property is in the floodplain or they request an elevation certificate. National Flood Insurance Program (NFIP) communities are required to make public documents available, such as the current Flood Insurance Rate Map (FIRM), or permit records, so that residents can consult them as needed.

Communities with drainage problems or other types of localized flooding should be ready to explain that the issue is more complicated than simply being inside or outside the SFHA, or 100-year floodplain. The community's program for providing map information could be expanded to offer information about low-risk areas as well as about the 100-year flood. Local staff should provide information about all known flood hazards, including those not mapped on the FIRM.

The local staff should be prepared to provide information and advice about:

- Safety measures that can be taken by individuals, property owners, drivers, and passengers in automobiles;
- Flood risk both inside and outside the SFHA;



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Before a permit is issued, permit officials should review all information known about drainage and local flooding problems in the area.

- Retrofitting techniques to make buildings safer;
- Building techniques and standards (or regulations, if applicable) to make a new structure resistant to shallow flooding (such as placing utilities above the flood level);
- Sources of help in taking action to reduce flood damage;
- The availability of flood insurance and insurance for sump pump failure and sewer backup, even outside the floodplain; and
- Special flood-related problems in the community, such as streambank erosion or subsidence.

A community's technical staff—building department personnel, code enforcement officers, public works staff—have expertise and experience in construction. Although they cannot assume responsibility for the design or construction of a property owner's project, they can answer inquiries about flood protection measures, point people in the right direction, explain what won't work, and identify licensed companies or experienced contractors who can do the work. Some building department or public works staff, such as those of the St. Louis, Missouri, Metropolitan Sewer District, visit properties on site and offer suggestions.

Credit is provided by the CRS under Activity 360 (Flood Protection Assistance) for visiting a problem site and giving the property owner advice appropriate for the situation, such as retrofitting techniques and names of qualified contractors.



Provide Resources for the Public

People who set out to learn more about localized flooding and its possible remedies are far more likely to follow through if they find resources within the community that help them with their mission. A community can help by making sure that various types of information about local flooding are accessible to the public.

The local library is a logical place to start. A community could have a special section in the library that includes materials on its local flooding history, flood control and drainage projects, success stories, guidance for homeowners, flood maps, and natural resources associated with the streams, such as wetlands or wildlife habitat. Interested property owners can read or check out handbooks or other publications that apply to their situations or log on to the Internet to search for helpful Web sites.

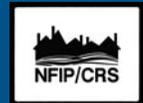
Some communities participating in the Community Rating System (CRS) already have documents on flood risk available in the library, and get CRS credit points for doing so. It would be simple to augment this collection with specific information about local flooding within the community, action to take, and experts to contact for advice.

A community can display its maps showing flood risks at various places in town—the city hall, public works offices, library, or other visible locations. If additional information (beyond what is displayed on the community's FIRM) is shown on these maps, the residents are more likely to become interested in flooding problems and remedies. The maps should show not only the 100-year floodplain but also other features relevant to local flooding, such as low-risk flood areas, drainage problems, natural zones along waterways, or wetlands. They could incorporate aerial photographs that show recognizable buildings or landmarks, information about additional hazards (such as landslides); flooding outside the SFHA; natural habitat and parks; or zoning and development regulations.

Not only can the community Web site be a research tool, but it also can be a quick way to stimulate interest or convey ideas to Internet surfers. The Web site could include the same sorts of information housed in the local library, but with the advantage of being displayed in a more attention-getting format. It is not difficult to provide links on the community's Web site to many different sources of information, both public and private, about floods, flood insurance, property protection, and other ways of coping with local flooding.

- Mecklenburg County, North Carolina, has an interactive Web site that allows people to look up their flood zones, as well as obtain educational information (<http://maps.co.mecklenburg.nc.us>).
- The Colorado Foundation for Water Education has an extensive collection of articles, educational materials, and links to other sources (<http://cfwe.org/SchoolPrograms/>).

Under Activity 350 (Flood Protection Information), the CRS credits making references and technical information available through the community's library and/or Web site.



- The city Web site for Fargo, North Dakota, has local information, flood maps, links to the flood-related collection of North Dakota State University, and to State and Federal agencies and organizations (<http://www.ci.fargo.nd.us/floodemergency.htm>).
- The Federal Emergency Management Agency (FEMA) Web site has a wide array of helpful information geared toward the public.
- The Louisiana State University Extension Center has an extensive flood Web site, a link to the national Extension Disaster Education Network, and online shopping options for retrofitting products, contractors, professional services, and examples of installations (<http://www.louisianafloods.org>).

A community could also provide a mapping Web site, available to the public. This can serve several purposes, from enabling users to determine their FIRM zone and other property information to displaying the areas that perhaps are not mapped on the FIRM but that the community considers prone to localized flooding. This can be automated through the community's geographic information system (GIS), if it has one. Users who locate their properties in localized flooding areas could then be offered links to other information appropriate to that type of flooding. Palo Alto, California, has a Web site that lists all flood-prone properties in the city, and allows users to see current stream levels at certain monitoring sites (<http://www.city.palo-alto.ca.us/cgi-bin/floods.cgi>).

Deliver Flood Information

Instead of waiting for residents to try to find out about localized flooding and its remedies for themselves, a community can reach out in various ways to its residents, businesses, and property owners to help them become aware of and concerned about flood problems and what they can do to protect themselves and their property. This is also a way of letting people know what the community itself is already doing to combat nuisance flooding and drainage problems.

Such efforts on the part of local government or community groups are often called "outreach projects," and they can take almost any form imaginable. Outreach projects are designed to encourage people to seek out more information, take steps to protect themselves and their property, and help them understand the natural processes and benefits of flooding.

Special outreach projects can be undertaken to reach residents subject to local flood problems, or outreach projects that are underway or ongoing can be expanded to specifically target those people and their particular needs. For example, many communities do an annual mailing to owners of property in the floodplain, reminding them of their flood-prone location, the availability of flood insurance, and steps they can and should take to protect themselves. Residents outside the SFHA but still subject to flooding could be added to this

The annual mailing to owners of flood-prone property has targeted the people who need to have this information. ... Connecting with the local Association of Realtors® has also heightened awareness.

Linda Wheeland
Sangamon County, Illinois

Credit is provided by the CRS under Activity 330 (Outreach Projects) for different types of projects designed to inform people about the flood hazard, about flood protection measures, and about the availability of flood insurance. The special publication, *CRS Credit for Outreach Projects*, includes many examples of things that communities have done.



mailing and/or an insert tailored to localized flooding could be included in their mailings.

Any of the topics discussed in this guide could be included in outreach projects to residents subject to localized flooding, such as measures to protect a property from flood damage (retrofitting, grading a yard, correcting local drainage problems, moving furniture, using sandbags) and drainage system maintenance (rules against dumping in stream channels, how to report violations, and why it is important to maintain the drainage system).

- **Brochures or flyers** with pertinent flood information can be mailed directly to flood-prone properties, displayed in public places, enclosed in utility bills, or distributed door-to-door by scouts or other service groups. This is a good way to reach the people who need to know, because it can be done only in those neighborhoods subject to localized flooding.
- **Presentations** can be made by community staff or other experts to neighborhood associations, civic groups, or business organizations.
- **Signs** posted in appropriate places in town can show the height of the water during previous floods, or remind residents that a storm drain leads to the river.
- **Media packets** delivered to local radio and television stations compile basic flood facts, information about protective measures, names of local experts willing to be interviewed and/or quoted, and sound bites to help the media convey accurate, helpful, and straightforward information, especially during flood or hurricane season.
- **Displays** can be set up in public buildings showing maps of flood-prone neighborhoods, historical flooding, photographs of houses that have been retrofitted, and other information. This can be expanded to a booth for special events in shopping malls, staffed by a person who can answer questions.
- **Awareness campaigns** spread the word throughout the whole community, and some can be tailored to localized flooding problems. For example, the Turn Around Don't Drown™ national campaign, which communities can use free, has particular applicability to drainage problems, because the danger of driving



Fred Block

In the spring of 2003 the **Illinois communities of South Holland, Calumet City, and Lansing** declared Flood Awareness Week and hosted multiple events to raise public and official awareness of local flood problems.

One such event was a floodproofing open house, held on a mid-week evening at a local grade school. It was arranged so that participants first checked in at a registration table, viewed a slide show about local flooding, and were invited to view a new video, “Keeping Your Home Out of Deep Trouble,” in a separate room. They then browsed the gymnasium at will, visiting multiple booths and exhibits prepared by public agencies and private firms involved in various aspects of flood loss reduction.

Reponses from the participants were favorable. Most had heard about the open house through the local newsletter, and less than half had experienced flooding in the past.

into flooded intersections is its main message. A “stream cleanup day” could emphasize keeping waterways clear of debris, to minimize drainage problems. A poster contest could feature things people can do to their own homes and yards to make them more resistant to flood damage.

- **Videos** can be produced by the community or local organizations, explaining how, why, and where local flooding occurs, and what can be done about it. The videos can be loaned to groups, shown on local cable TV shows, or used as part of presentations made by community staff. An example of a video prepared by a community college with local retrofitting examples can be viewed at <http://www.southholland.org/Resources/flood%20resources.htm>.
- **Feature articles** in newspapers or stories in local newsletters can highlight local flooding and send messages about what people can do. These are usually more effective if they are issued at the onset of the rainiest season.

Educate to Build Community Capability

Educating the community’s leaders and future residents is an even longer-term approach to preventing flood problems. People who have a thorough understanding about local floodplain resources and the potential for flooding and damage permanently change their attitudes from one of helplessness to one of knowing how to take care of the problems. Over time, this education and changed attitude result in residents who are able and willing to take responsibility for managing the flood hazard. The community will have built the capability to cope with flood risks without relying on State or Federal help. This is never more true than with smaller watersheds and the localized flooding that results in less-than-disastrous damage. More details about building capability among the local government staff can be found in Chapter 3.

Local Staff

Training for community staff who deal with flooding, zoning, permits, engineering, and public works is readily available through FEMA, the States, and professional associations. The national Emergency Management Institute (EMI) in Emmitsburg, Maryland, offers numerous courses on its campus, and some courses are offered throughout the country to address specific issues. Attending or hosting floodplain management workshops and conferences gives local staff members an opportunity to learn more about their fields, network with other communities about their programs, and trade successes and lessons learned.

Elected Officials

Keeping elected officials informed and knowledgeable about ongoing programs and projects is very important. Something as simple as a presentation to City Council every few months can keep decision makers abreast of progress. Inviting elected officials to be present (and visible) at a stream cleanup or an open house on floodproofing gives them an opportunity to deepen their understanding of (and commitment to) flood issues in their districts.

113 Calhoun Street: A Center for Sustainable Living

This building in **Charleston, South Carolina**, is used as a learning center to demonstrate various sustainable building techniques, including flood mitigation. The 125-year-old building, located in the historic downtown district, was already abandoned when it was further damaged by Hurricane Hugo in 1989. The 113 Calhoun Street Foundation, a private, non-profit organization established by the South Carolina Sea Grant Consortium, Clemson University Extension Service, and the City of Charleston, decided to transform it into a real-life example of sensible building practices and use it as a demonstration project. Funding for floodproofing was obtained from FEMA. People can tour the house, and it also is a focal point for hazard-related education and research.

- All renovations and improvements had to comply with the historic district rules, but a variance to the substantial improvement requirement allowed the house to remain close to street level (elevating to the 100-year flood level would have meant raising it 4 feet, destroying its historic appearance).
- A benefit-cost analysis conducted with FEMA's software showed that raising the structure one foot would protect it from shallow, more frequent localized flooding. It was calculated that the probability of flood damage would be reduced by 60%.
- The original foundation was completely replaced with concrete footings reinforced with steel rods. This prevents it from floating off its foundation in a severe flood. The original brick from the foundation was re-used as a veneer over the concrete block to preserve the historic character.
- The crawlspace is insulated with non-water-absorbing foam insulation.
- All electric, telephone, and computer outlets and furnace, air conditioning, and other ductwork are located above the 100-year flood elevation. There are no splices or connections below that elevation.
- Wooden panels, called wainscoting, were installed up to the 100-year flood elevation. These panels are less water-absorbent than wallboard and can be removed after a flood, allowing both the panels and the wall space to dry thoroughly.
- Other protection measures for wind, hurricane, and other hazards were also incorporated.



Photo courtesy of 113 Calhoun Street Foundation

More information, including a virtual tour, can be found at <http://113calhoun.org>.

Children and Youths

Environmental and safety education programs can teach children about flooding, the forces of nature, the factors that cause flood problems, and how important it is to protect natural drainageways and the many resources of watersheds. Such

The Milwaukee Metropolitan Sewerage District and the Milwaukee Public Schools have a partnership to develop an environmental education curriculum focusing on water quality and addressing such issues as floodplain management, flooding, and stormwater runoff.

programs operate to influence future property owners and elected officials and foster a sense of stewardship for the land and water. Educational programs can be presented through schools, summer camps, parks and recreation departments, conservation groups, and youth organizations.

Sponsoring special workshops for teachers helps them learn more about flooding and gives them ideas and materials for passing that knowledge on to their students.

Professionals

A community whose professionals have an accurate understanding of the flood situation and about rules, requirements, and remedies will be closer to resolving its flood problems.

For floodplain managers and local ordinance administrators, the Association of State Floodplain Managers administers the Certified Floodplain Manager (CFM[®]) Program to ensure that floodplain management staff are trained and that they keep their skills and knowledge up-to-date through continuing education. Some States operate their own nationally approved certification program for floodplain managers. New Mexico and Oklahoma have state laws requiring that all local floodplain administrators be accredited.

These certification programs connect their applicants and members with numerous training and continuing education opportunities.

Some States license their building inspectors and code officials, and specify the type of training, skills, and abilities that are required to effectively perform those roles.

Other professionals, like real estate agents, insurance agents, and surveyors, are links between flood information and the public. It is in their best interest to have accurate information to pass along to their clients; providing updates, speaking at their regular meetings, keeping them in the loop through their publications, and inviting them to meetings or workshops is a good informational strategy.

Where to Get Help

- Local public information campaigns are underway in many communities, sponsored by the county emergency manager, the local chapter of the American Red Cross, the utility company, school district, parks department, youth groups, and others. Finding a way to combine their projects with information that will raise flood awareness is an inexpensive way to get started.

- The community's webmaster may accept contributions to focus attention on local flooding.
- The local library may welcome displays about flooding, lecture series, and special flood-related collections.
- The Web sites of most Federal agencies with flood mitigation or water resources missions have numerous floodplain and flood protection references that can be ordered, downloaded, or linked to a community's Web site.
- Many State, Federal, and non-profit Web sites have special sections for school children, with downloadable materials, posters, and projects. Some examples are the National Wildlife Federation's Kidzone at <http://www.nwf.org/kids/>; FEMA for Kids at <http://www.fema.gov/kids>; or Environmental Kids Club at <http://www.epa.gov/kids/>.
- The Web sites of cities, such as Fort Collins, Colorado, and Tulsa, Oklahoma, are examples of sites that provide extensive outreach materials to educate their residents about local flooding and floodplains.
- The StormReady program provides proven methods for educating citizens and preparing the community to be ready to handle a storm at <http://www.stormready.noaa.gov>.
- The CRS publication *CRS Credit for Outreach Projects* has lots of ideas and examples for reaching people with information about flood problems. See <http://training.fema.gov/emiweb/CRS/>.
- Training courses in floodplain management, flood insurance, the CRS, building protection, and other matters are offered by the Emergency Management Institute. Tuition is usually free to local staff. The schedule and course descriptions can be found at <http://www.fema.gov/emi/>.
- Information about the CFM[®] Program of the Association of State Floodplain Managers can be found at <http://www.floods.org>.
- Project WET (Water Education for Teachers) provides guides and workshops for teachers on many water resources issues. See <http://www.projectwet.org/>. Educating Young People about Water maintains a catalog of almost

Maryland Residents Watch Their Streams

The Stream Teams program is a way for residents of **Prince George's County** to work together to protect the over 1,500 miles of streams in the county. Stream Teams are groups of friends, work colleagues, families, school classes, scout troops, church organizations, or others who want to work together to protect and restore streams. Each team adopts a stream of its choice and agrees to carry out one or more activities.

There are three levels of Stream Teams involvement, coordinated by the county Department of Environmental Resources.

- A Stream Reporter conducts stream surveys by periodically walking along the adopted stream, observing and reporting problems such as unusual discharges, trash dumps, fish kills, algae blooms, sewage leaks, or sudden sedimentation.
- Stream Activists do stream cleanups, tree plantings, storm drain stenciling, or public education.
- Stream Water Quality Monitors collect and identify certain aquatic insects that are indicators of the water quality in a stream. All Stream Teams attend a free half-day training workshop.

Additional information may be found at the Stream Teams page on the Prince George's County Web site at http://www.co.pg.md.us/government/agencyindex/der/ppd/community/stream_teams.asp.

200 curriculum materials on water resources topics at <http://www.uwex.edu/erc/ey paw/>.

- The State emergency management agency can be contacted for schedules of technical training for local staff.
- If there is a State-level professional association for floodplain managers, wetlands managers, stormwater managers, or others, it can be a resource for technical training opportunities for local staff. Floodplain management associations can be found at <http://www.floods.org/StatePOCs/stchoff.asp>.
- Many soil and water conservation districts have staff assigned to help prepare and present educational programs.
- The Turn Around Don't Drown™ campaign, sponsored by the Federal Alliance for Safe Homes (FLASH) and the National Weather Service, has a Web site with safety tips and downloadable brochures, signs, and other outreach materials about the danger of driving during flood conditions at <http://www.nws.noaa.gov/os/water/tadd/>.

Funding

- Many of the public education and awareness ideas discussed here can be added to or integrated with ongoing initiatives, making the cost of implementing them fairly low and possibly within the operating budgets of many local government agencies.
- Floodplain management messages can be included in other publications and mailings, for example, articles on flood protection in a citywide newsletter, in the water bill, or with the annual tax bill.