FEMA

September 2002

CRS CREDIT FOR
OUTREACH PROJECTS


Butterfield Creek
STEERING COMMITTEE
Homeowners Guide
to Living on the Creek

NFIP/CRS

National Flood Insurance Program
Community Rating System

Note on this 2002 Edition: This document was revised to reflect the following major change in the 2002 *CRS Coordinator's Manual:*

- Expanded credit for public information program strategy (OPS) if additional criteria are met.

This edition also has

- A revised format,
- More examples of outreach projects from communities participating in the Community Rating System, and
- A new section on the *Guide for Standard Messages* developed in 1999 by the National Disaster Education Coalition.

A community interested in applying for flood insurance premium credits through the Community Rating System (CRS) should have the *CRS Application*. The *CRS Coordinator's Manual* provides a more detailed explanation of the credit criteria. These and other publications on the CRS are available at no cost from

Flood Publications
NFIP/CRS
P.O. Box 501016
Indianapolis, IN 46250-1016
(317) 848-2898
Fax: (317) 848-3578
NFIPCRS@iso.com

They can also be viewed and downloaded from FEMA's website,
http://www.fema.gov/nfip/crs.htm

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Section Page

The communities listed below provided materials as examples for this publication. Their cooperation is appreciated.

Boulder, Colorado
Charleston County, South Carolina
Charlotte County, Florida
Clark County, Nevada
Dare County, North Carolina
Flossmoor, Illinois
Fort Collins, Colorado
Grand Forks, North Dakota
Hilo, Hawaii
Homewood, Illinois
Huntsville, Alabama
King County, Washington
Kingsport, Tennessee
Lake County, Illinois
Lake St. Croix Beach, Minnesota
Lansing, Illinois
Mecklenburg County, North Carolina
Orland Hills, Illinois
Parker, Florida
Phoenix, Arizona
Pima County, Arizona
Sacramento County, California
Skagit County, Washington
Westport, Connecticut
Wrightsville Beach, North Carolina.

Introduction

Objective

The 300 series of the Community Rating System (CRS) provides credit to communities that advise people about the flood hazard, flood insurance, ways to prevent or reduce flood damage to buildings, and the natural and beneficial functions of floodplains. These public information activities serve property owners, insurance agents, lenders, and real estate agents. In most of the activities in the 300 series, the people served have to request the information. For example, they are provided with information after they ask if a property is in a floodplain or request an elevation certificate.

In Activity 330 (Outreach Projects), the CRS provides credit for community projects that take a proactive approach, meaning credit for projects that reach out to people and give them information, even when they do not ask for it. Its objective is to make people aware of the flood hazard, flood insurance, ways to prevent or reduce flood damage, and the natural and beneficial floodplain functions. Outreach projects are designed to encourage people to seek out more information and take steps to protect themselves and their properties.

Flood protection displays at public meetings and shopping malls attract people.

Activity 330 is one of the most popular CRS activities. However, many applications have included materials that receive little or no credit. The objective of this publication is to explain the CRS credit criteria and provide examples of materials that can receive credit.

The CRS

The CRS is a part of the National Flood Insurance Program (NFIP). When communities go beyond the minimum standards for floodplain management, the CRS can provide discounts up to 45% off flood insurance premiums.

Communities apply for a CRS classification and are given credit points that reflect the impact of their activities on reducing flood losses, insurance rating, and promoting the awareness of flood insurance. The Insurance Services Office's ISO/CRS Specialist reviews the community's program and verifies the CRS credit.

A community applies using the *CRS Application*. CRS credit criteria, scoring, and documentation requirements are explained in the *CRS Coordinator's Manual*. Copies of these publications are available free from the office listed on the inside front cover.

Credited Elements

Credit points for Activity 330 are based on four types of outreach projects. To receive credit under this activity, a community may do the following types of projects, which are known by their acronyms:

OPC: Outreach projects to the entire community

OPF: Outreach projects to floodplain residents

OPA: Additional outreach projects

OPS: Outreach projects pursuant to a public information program strategy

Each of these types of projects has specific criteria that must be met to be recognized under the CRS. Under the first three, the credit points are based on the number of outreach projects implemented and their coverage of up to 10 topics. The fourth, OPS, provides credit for the development and implementation of a public information program strategy prepared according to the credit criteria.

Included in this Publication

This publication reviews the four credited elements, the credit points, and the documentation requirements of Activity 330. Guidelines are presented for the development of outreach projects and public information program strategies, including guidance on how to make an outreach project more effective and a description of common problems found in outreach documents.

Sample and example outreach projects are presented for the each of the credited elements. Examples of public information program strategies are also presented.

> i Five other CRS activities require publicity or public information projects. It is recommended that communities review these requirements before they design their outreach projects in order to develop the most efficient method of advising people and making sure the messages are consistent. These requirements are summarized in the "Publicity for Other CRS Activities" section of this publication (page 18).
>
> Some of the community examples shown in this publication include the publicity requirements for some of these other CRS activities, such as map information or flood warning program.

Outreach Topics

There are four elements in Activity 330. They differ based on how the outreach project is delivered and to whom it is distributed. For the first three elements (OPC, OPF, and OPA), however, one or all of 10 possible topics must be presented. CRS credit is totaled within an element based on the number of topics covered in an outreach project.

A brochure on an individual topic is a simple and popular way to provide information.

(Huntsville, Alabama)

When developing a project, the community must decide how much space to devote to a topic. The CRS will not credit minimal attention to a topic with phrases such as "buy flood insurance" or "protect your house from flooding." Normally the more specifically the topic is discussed, the better. Some communities have monthly newsletters that devote one or two pages to a different topic each month.

It must be remembered that the primary objective is to make people aware of some or all of the 10 flood topics. An outreach project does not need to be an encyclopedia. It should introduce the topic and state where and how to get more information or assistance.

The project documentation that is submitted with the CRS application or modification must be marked in the margins to show where the topics are covered. The following guidance is provided to clarify what should be included under each of the 10 possible topics. If not all of these items are covered, partial credit is provided.

1. The Local Flood Hazard: The project should include the names of the rivers, information about past floods, and additional data on local flooding, such as velocities or the possibility of mudflows. If the community provides map or additional flood hazard information as credited under Activities 320 (Map Information) or 360 (Flood Protection Assistance), the service could be publicized under this topic.

Examples of coverage of this topic are on pages 33, 40, and 56.

2. Flood Safety: Emergency precautions, such as turning off the electricity and gas and avoiding running washes or unstable banks, should be discussed. This topic must be covered if the community is applying for credit for emergency warning dissemination under Activity 610 (Flood Warning Program).

Examples of coverage of this topic are on pages 35–37, 41, and 54.

3. Flood Insurance: The project should note that flooding is not covered by standard property insurance but that flood insurance is available in the community. It should include some basic facts, such as types of coverage and the 30-day waiting period before coverage goes into effect. If the community has any undeveloped coastal barriers where insurance may not be available, it should be discussed.

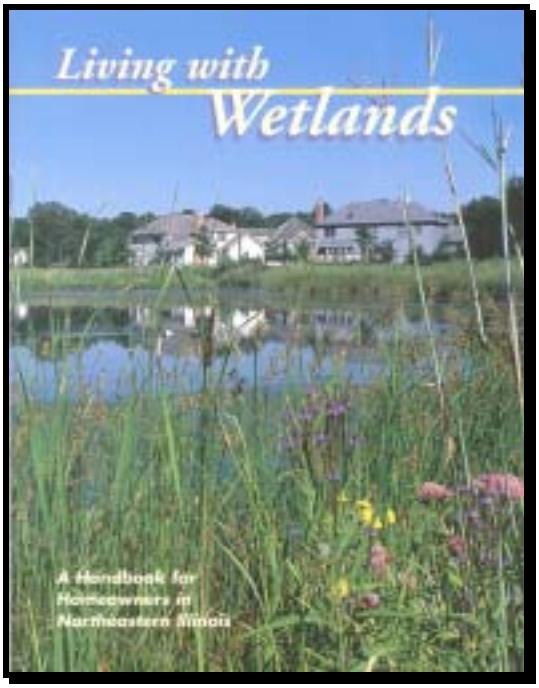
This topic must be covered in the outreach project that is implemented to meet the annual notice requirement for repetitive loss communities (Section 503.c in the *Coordinator's Manual*).

Examples of coverage of this topic are on pages 35 and 41.

4. Property Protection Measures: Measures to protect a property from flood damage include retrofitting, grading a yard, correcting local drainage problems, and such emergency measures as moving furniture and sandbagging. If the community provides property protection or retrofitting advice as credited under Activity 360 (Flood Protection Assistance), the service could be publicized under this topic.

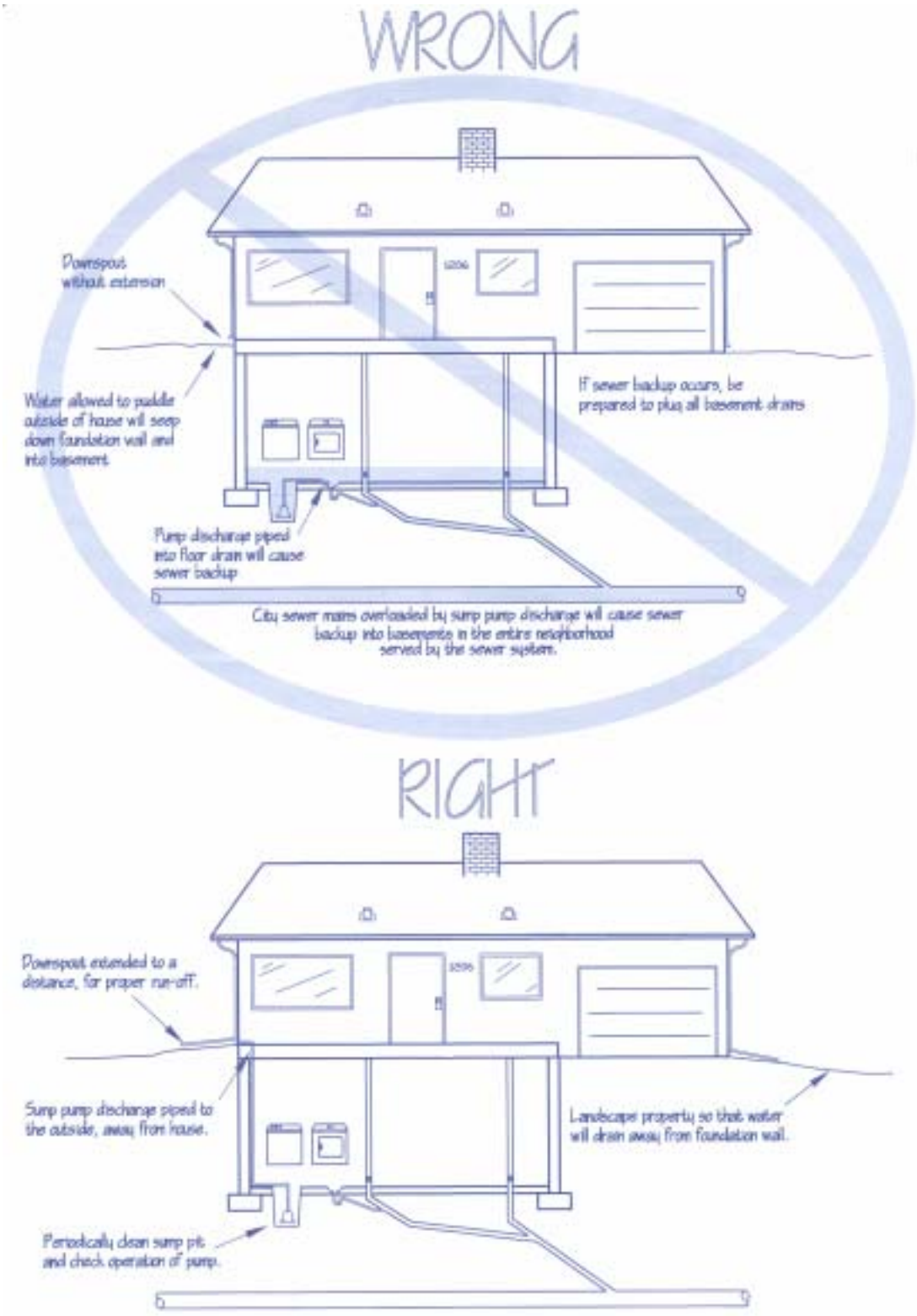
This topic must be covered in the outreach project that is implemented to meet the annual notice requirement for repetitive loss communities.

Examples of coverage of this topic are on pages 5, 34, and 41.



5. Natural and Beneficial Functions: The outreach project should discuss the natural and beneficial functions of local floodplains, any unique local features, the importance of protecting these functions, and how they can be protected. For CRS credit the discussion must address local conditions.

Examples of coverage of this topic are on pages 37 and 59–61.



An illustrated guide to protecting property from local drainage problems

(Grand Forks, North Dakota)

6. Map of the Local Flood Hazard: If the project includes a map of the community's flood hazard areas, it must meet the following criteria:

a. The map must clearly show every street affected, although all streets do not have to be named.

b. The floodprone area must be clearly shown, with shading or some other method.

Examples of coverage of this topic are on pages 8 and 58.

7. The Flood Warning System: Information on warning procedures, signals used, warning time, what radio station(s) to tune to, and similar data should be disseminated. These items must be covered if the community is applying for credit for emergency warning dissemination under Activity 610 (Flood Warning Program). No credit is awarded if the community does not have a flood warning system.

Examples of coverage of this topic are on pages 41 and 55.

8. Floodplain Development Permit Requirements: The outreach project should explain that all developments in the floodplain (not just construction of buildings) need local permits. People should be advised to contact the community's regulatory department before they build, fill, or otherwise develop. They should also be told how to report illegal floodplain development.

Examples of coverage of this topic are on pages 36 and 42.

9. The Substantial Improvement/Damage Requirements: The NFIP requires that if the cost of reconstruction, rehabilitation, addition, or other improvements to a building equals or exceeds 50% of the building's market value, then the building must meet the same construction requirements as a new building.

Substantially damaged buildings must also be brought up to the same standards (e.g., a residence damaged so that the cost of repairs equals or exceeds 50% of the building's value before it was damaged must be elevated above the base flood elevation). The outreach project should summarize the requirement (which is stated in the community's floodplain management regulations) and the local procedures for enforcing it.

An example of coverage of this topic is on page 36.

10. Drainage System Maintenance: The project should discuss regulations against dumping in channels, how to report violations, and why it is important to maintain the drainage system. These items must be covered if the community wants full credit for its stream dumping regulations under Activity 540 (Drainage System Maintenance).

Examples of coverage of this topic are on pages 36, 43, and 62.

Riparian Area Management

A CITIZEN'S GUIDE

From the Lake County Stormwater Management Commission
Prepared with funds authorized by section 104(b)(3) of the Clean Water Act

Successful Stream Management Practices

Take good care of your property

Inside...

The shoreline of a lake or stream and the immediate adjacent area is called the riparian zone. As a riparian landowner, you reap benefits daily from the lake or stream's natural attributes. Not only is your property value enhanced, but wildlife and fish habitat, recreation use and water quality, important to us all, are dependent upon this zone. Proper management of riparian areas can enhance the economic, social, and cultural benefits for communities.

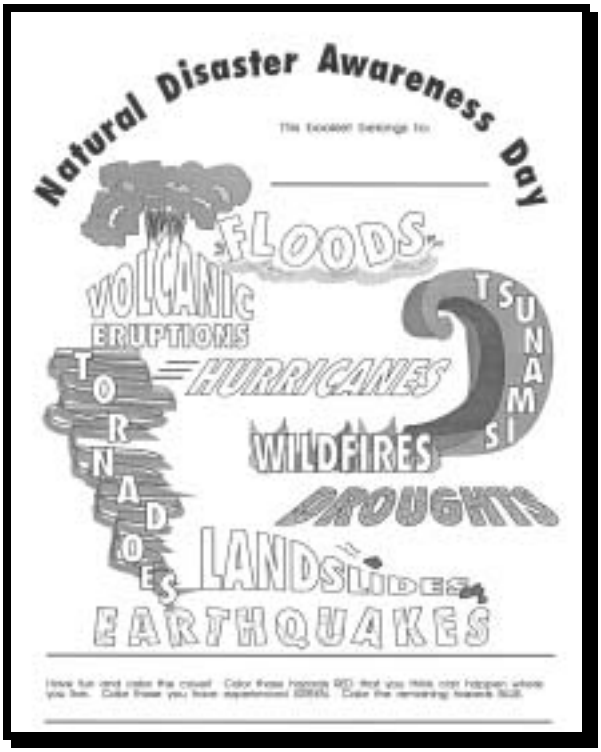
In Lake County, over 400 miles of streams drain into some 170 lakes and rivers throughout 480 square miles of the county. But, nearly every stream and lake has been affected to some degree by shoreline erosion and water quality degradation, often the result of urbanization.

Urbanization results in the addition of hard, or impervious, surfaces including roads, rooftops and parking lots, causing greater stormwater runoff. As runoff velocity and volume increases, streambanks erode, water becomes turbid, and sensitive habitats are degraded. Changes to the natural shape of the stream, or channelization, often accompanies urbanization further disrupting habitat and increasing erosion. Adding to the problem is the removal of native stabilizing vegetation along banks and shorelines and replacement with invasive, less protective species.

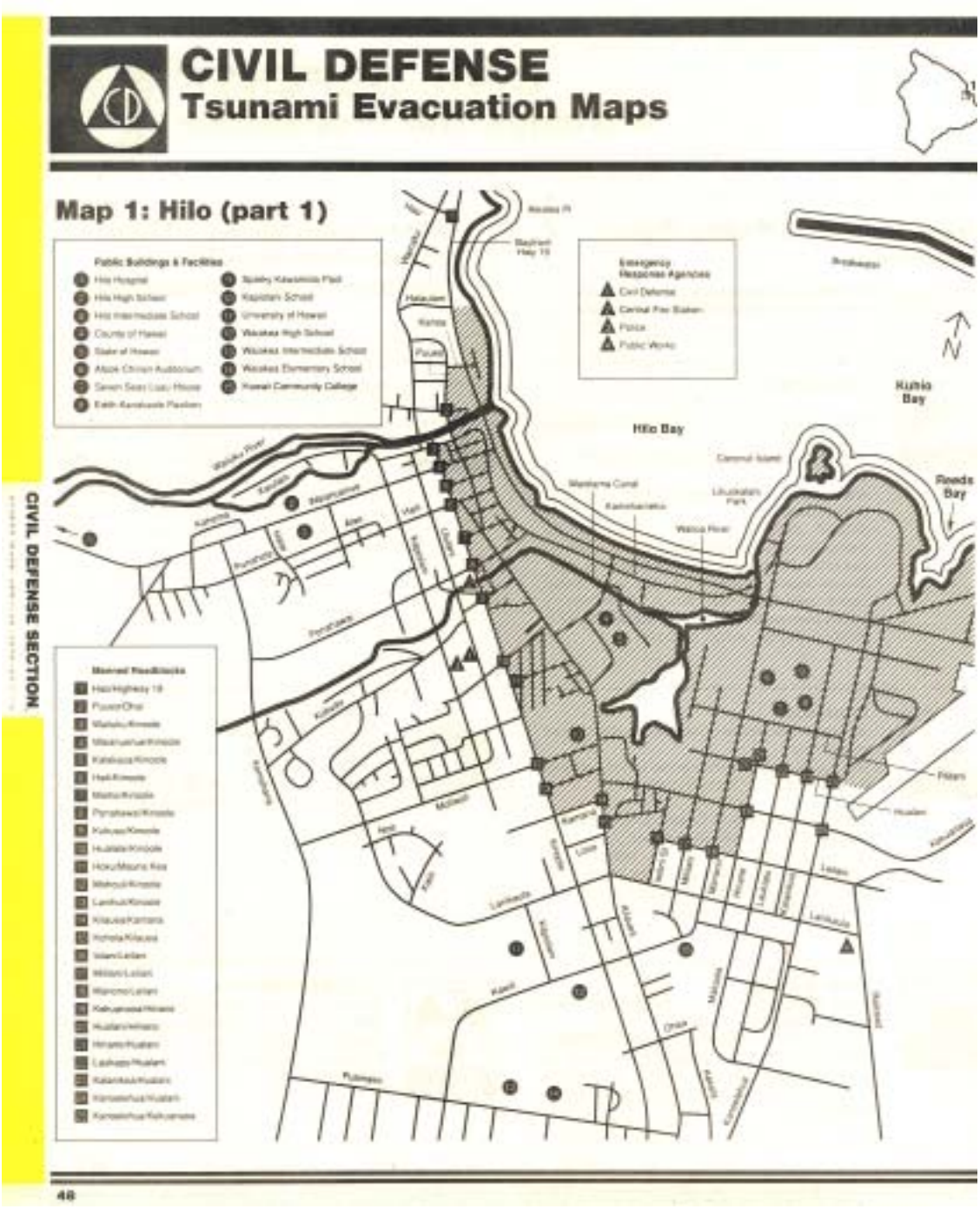
Continued on page 21

Other Hazards: Public information programs should not cover only flood hazards. Outreach projects covering safety, health, and evacuation procedures should recommend actions appropriate for tornadoes, hurricanes, earthquakes, and other hazards as well.

CRS credit is provided for outreach projects that address the special flood-related hazards, such as coastal erosion and land subsidence. These credits are discussed in separate publications for each hazard (see Appendix E of the *Coordinator's Manual*).



Examples of projects that address other hazards are on pages 8, 17, 47, 48, and 49.



Maps and information posted in the local telephone book can qualify as an outreach project to the community (OPC). This example, from the "Civil Defense" section of the Hilo, Hawaii, phone book, shows how a map can show the area inundated by a tsunami.

Credited Elements

Outreach Projects to the Community (OPC)

These projects consist of sending written information through a newsletter, utility bills, or other document that is sent to all residents of the community. For example, publishing flood warning and evacuation instructions in the telephone book would be credited as an OPC (see page 8). Two OPC projects are shown on pages 31–43.

A newspaper may be used, provided that the credit criteria are met and the information is not placed in a legal notice, small classified ad, or similar obscure location. To date, most projects have been either mailings (including enclosures to utility bills) or newsletters published by the local government that are sent free to all residents.

The topics do not all have to be covered in the same distribution, but the distribution must ensure that the topics credited are covered at least once each year. For example, a community with a quarterly newsletter may cover two topics in each edition and be credited for covering eight each year.

Here are the key credit criteria:

1. The project must be distributed to at least 90% of all the properties in the community. "Properties" can be counted as utility customers, tax parcels, or other measure that approximates all of the addresses in the community. Vacant lots need not be counted. Projects that are distributed to every "postal customer" or every water bill customer are credited because such approaches are expected to reach practically all properties.

   Commercial newspaper articles and cable television shows usually are not credited because not everyone subscribes to a newspaper or cable TV. They can only be counted if the community can document that they reach 90% of the properties in the community.

2. The project must be implemented at least once each year. A one-time-only activity is not credited. This requires the community's CRS Coordinator to make sure that the project (or a similar version) is done every year.

Examples of outreach projects to the community (OPC) are on pages 8, 31–43, and 56.

Outreach Projects to Floodplain Properties (OPF)

For this credit, notices must be distributed to residents of the Special Flood Hazard Area (SFHA), which is shown on the community's Flood Insurance Rate Map (FIRM). The notice should also be sent to other areas known to have flooding problems. These include floodprone areas annexed by the community since the FIRM was published, local drainage problem areas, and other areas of surface water flooding that are not shown as floodplain on the FIRM.

Communities are encouraged to advise residents of sewer backup or groundwater problems, but such topics are not required for OPF credit. Often, such subsurface problems affect large areas of a community and methods to protect property from them are discussed in an OPC project.

In most cases, communities that have received OPF credit have mailed a letter or brochure to floodplain residents. This requires an accurate list of floodprone addresses (which is a good thing for any flood protection program to have). Another approach used by some communities has been to have a service organization, such as the Boy Scouts or a citizens flood committee, deliver a brochure door-to-door.

Here are the key credit criteria:

1. An OPF notice MUST clearly explain that the recipient's property is subject to flooding. Credit is provided for statements such as "your property is in or near the floodplain" and "you live in a flood hazard area." Just sending a map of the floodplain is not sufficient for OPF credit because many people have trouble reading maps. The message must be clear: the recipient of the information is at risk of flooding.

2. The project must be distributed to at least 90% of all the properties in the SFHA. The other distribution requirements for an OPC (the first of the OPC credit criteria) apply here. If the community is at least 90% floodprone (e.g., a barrier island) and the OPF is distributed twice each year, the community can receive OPC and OPF credit for distributing the same project to everyone in the community.

3. As with an OPC, the project must be implemented at least once each year.

Examples of OPF projects are on pages 44–45 and 51.

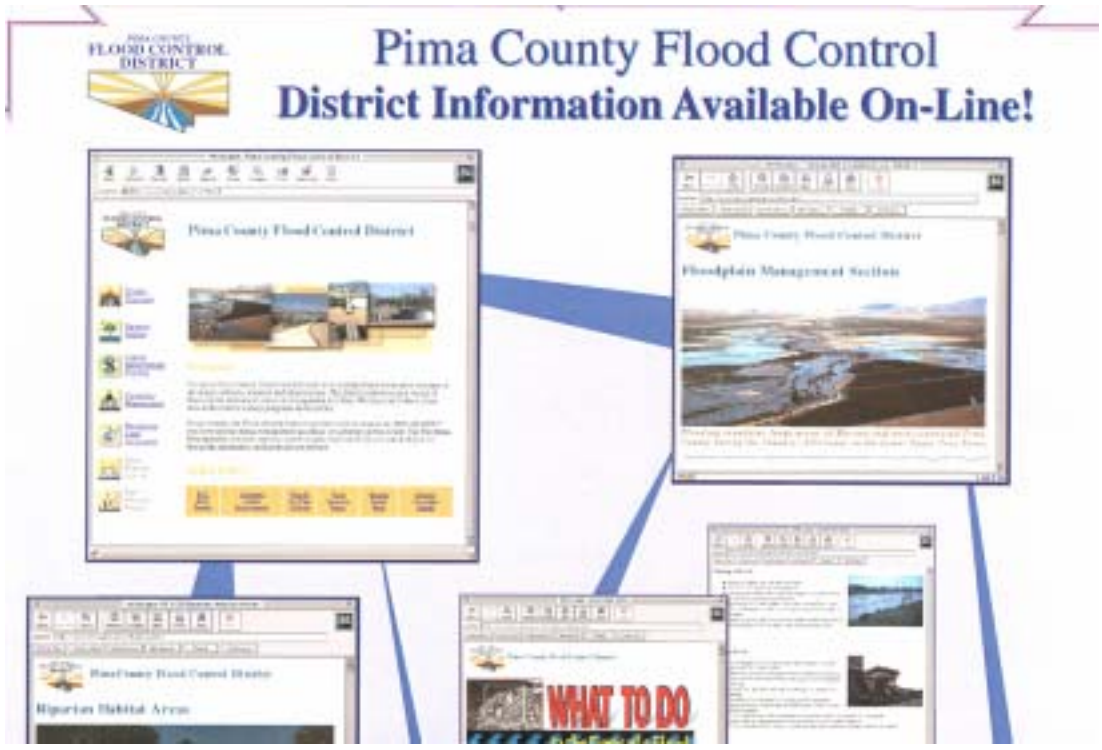
Additional Outreach Projects (OPA)

This element credits other methods of getting the word out to people. Acceptable methods include a "flood awareness week," flyers inserted in local newspapers, public information booths at shopping malls or county fairs, cable television programs on flood protection, and radio call-in shows.

A community's website may receive credit as part of Activity 350 (Flood Protection Information) or as OPA, but not both. More points are provided under Activity 350. To qualify for the higher points,

- The website must be easy to locate by its internet address.
- The link to flood protection information must be clearly noted on the site's homepage.
- The site must include a link to the Federal Emergency Management Agency's (FEMA's) website.
- The site must be reviewed and updated at least once a year.

Projects that do not qualify for OPC or OPF are often credited under OPA. Some OPA projects are discussed or shown on pages 3, 4, 7, 17, 19, 46–55, and 59–62.



More information on CRS credit for websites can be found in Activity 350 (Flood Protection Information), Section 351.c. of the *Coordinator's Manual*.

Public Information Program Strategy (OPS)

This element of Activity 330 is designed to encourage communities to develop their own public information program and to design outreach projects specifically tailored to their own needs. It also encourages public participation in the development of a strategy and outreach projects that address multiple hazards.

Unlike the previous three approaches, it does not matter how many topics are covered in a particular outreach project or whether the same project is implemented each year. The credit is entirely dependent on preparation and implementation of a public information program strategy (OPS). Additional credit is available for strategies that address all natural hazards that pose a major threat to a community.

The benefit of the public information program strategy is that the outreach projects are better thought out and are more appropriate locally than would be the case if the community simply copied national models or designed projects based purely on CRS credit points. This approach assumes that a properly prepared strategy that reviews the problem, identifies the target audiences, determines how to best reach the target audiences, and coordinates with other information programs will produce the best outreach projects for that community.

> i Some communities develop their strategies as part of their floodplain management planning. The separate CRS publication *Example Plans* reviews the plans for Gurnee, Illinois, and Huntsville, Alabama, which used this approach.

It can be seen that what is important for a strategy is the PROCESS that is followed. It is vital that people outside the community's government be involved in order to provide a different perspective and input on how to effectively reach residents and business owners.

Strategy Team: The community must establish a public information outreach strategy team. It need not be a formal organization. The team must have at least three members.

At least one team member must be someone familiar with the community's floodplain management program, such as the CRS Coordinator.

At least one member must be a representative from outside community government. This could be someone from the public schools, a neighborhood association, the Red Cross, insurance agencies, utilities, or other offices involved in education or floodplain management.

Other candidates for the strategy team could be

- The local or county emergency manager
- The community public information officer
- Floodplain residents

- Representatives of utilities or other companies that conduct their own public information programs and are concerned about public safety
- A motel or restaurant owner, in a coastal town dependent on tourism, because explaining flood warning and evacuation procedures to tourists would be important
- The people responsible for employee newsletters, in a community with one or two major employers.

The strategy team can be as small as three people or it can be a larger group that wants to coordinate public information activities in a metropolitan area. Several communities can cooperate or the strategy may be prepared at the county level. In such cases, each community that wants CRS credit would have to have at least one representative on the strategy team.

The strategy may be prepared concurrently with the floodplain management plan credited under Activity 510 and the planning committee for each may be the same. The strategy document may be part of a floodplain management plan or it may be a separate paper.

The strategy team can be a very informal group and need only meet once or twice a year. Existing committees or advisory boards may fulfill the role if they include at least the representation noted above to ensure coordination with groups outside the city or county government.

Including stakeholders means involving more than just those people directly affected by the hazard and those who implement public information activities. "Stakeholders" include business owners, major employers, civic organizations, and similar people or groups that are concerned with the future of the community. As discussed on page 26, more CRS points are provided for including stakeholders on the strategy team.

Strategy Document: For CRS credit, the outreach strategy team must prepare a written document that covers the following points:

a. The local flood hazard. This may already be written in an existing outreach project or floodplain management or emergency management plan.

b. The flood safety and property protection measures appropriate for that hazard. This section should simply identify measures appropriate for the community's situation. It should not be a repeat of a flood safety or property protection outreach project.

c. The flood-related public information activities currently being implemented by the community and by other organizations. This should be an inventory of what is done by the local government, the county emergency management agency, the schools, the state, and others concerned about flooding, such as a sanitary district or insurance agents.

   The objective of this requirement is to identify who is already informing the public. The strategy should capitalize on what is being done, coordinate messages, and develop new projects that fill gaps left by the existing programs.

d. Goals for the community's public information program. These should be locally appropriate goals. If people have been killed in past floods, safety measures may be paramount. On a hurricane-prone coast, evacuation may be the most important goal. In areas of local drainage and sewer backup problems, publicizing self-help protection measures may be the top priority.

e. The outreach projects that will be done each year to reach the goals. Projects are discussed in the following section.

f. The process that will be followed to monitor and evaluate the projects. See "Annual Evaluation" on the next page.

Examples of strategies are on pages 63–72 and 80–105.

Projects: At least one project must be implemented each year. The number and type of projects would be decided by the community, based on its goals and the principles of good public information programs. If the community receives credit for outreach projects to the community and/or to floodplain properties (OPC and OPF), it must do additional projects to receive this OPS credit.

The projects do not have to be implemented by the community government. They can be targeted to the general public or to selected audiences, such as insurance agents and contractors, to help them implement their own outreach projects that work toward the program's goals.

The projects do not have to be the same every year. For example, the strategy may work with the schools to develop a flood safety curriculum the first year and then focus on workshops for insurance agents in later years.

The discussion of each topic must describe where to get more information. Examples of sources of more information could be local staff, the library, a website, another agency, or a CRS-credited activity, such as Activity 360 (Flood Protection Assistance).

Documentation: The community must submit documentation that the strategy will be implemented. This can be something as simple as a letter from the Chief Executive Officer stating that it will be followed. It does not require formal adoption by a city council, although it is recommended that elected officials be involved in the preparation or approval of the strategy.

If a joint strategy is prepared by several communities or at the county level, each community must document that it has adopted it locally in order to receive this credit. King, Skagit, and Dare counties all prepared county-wide strategies. They are described on pages 80–105.

Annual Evaluation: The strategy team must meet at least once a year to evaluate what was done and what, if anything, should be changed. The strategy document must specify when and how this is done. A written report must be included in the CRS recertification that is due October 1 of each year. An example is on pages 73–79.

The annual evaluation report must cover the following points:

- The goals of the community's public information program strategy.
- A list of the projects implemented to meet those goals and their objectives.
- A list of those projects that were not implemented or that did not reach their objectives.
- Revisions to the current projects and new projects to be implemented during the coming year, if they are different from the original strategy.

Communities may opt to use AW-330-3 in lieu of a formal written report. An example is shown on the next page.

OMB No. 3067-0195
Expires February 28, 2005

Community: Floodville

333.e Public Information Program Strategy Evaluation

1. Goals of the community's Public Information Program Strategy:

1) Make residents aware of the flood warnings and safety precautions
2) Make residents aware of flood insurance, and
3) Familiarize residents with appropriate property protection measures

2. Projects implemented to meet those goals and their objectives:

a. Utility bill notices on flood safety
c. Spring flood awareness week radio talk show on flood warning and safety and displays on protection measures in home improvement stores
d. Revised flood control district OPF brochure
e. Working with the school district curriculum committee to develop flood awareness and safety classes
f. Working with the Homebuilders Association on permit requirements and property protection measures
g. OPC flood protection flyer

3. Were any projects not implemented or objectives not reached? If not, why?

b. We intended to have an NFIP workshop for insurance agents. It was scheduled for April 25, but we couldn't get enough insurance agents to sign up for the workshop, so it was cancelled.
d. The flood control district had already printed two years' worth of brochures and would not revise it until they are out of stock. The old ones were distributed instead.

4. What new projects should be implemented and what projects or objectives should be revised?

b. Meet with several insurance companies to determine the best way to get them more informed about and interested in flood insurance.
d. Help school district develop materials for new 3rd grade curriculum on fire and weather safety.
e. Hold workshop for the Homebuilders with state and FEMA help

For more information, contact: Jane Doe Phone: 101/555-1234

Activity Worksheet AW-330-3 Edition: 2002

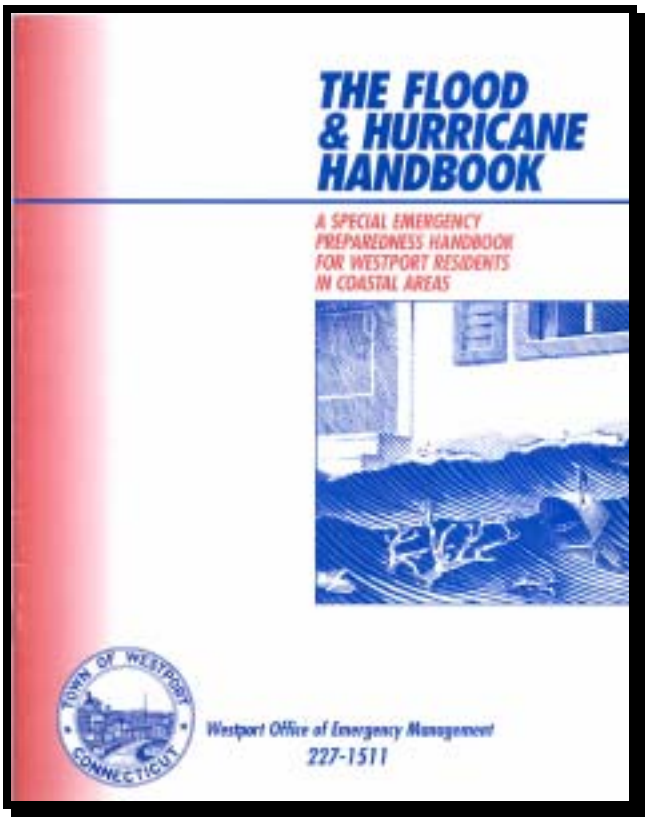
A community may fill out AW-330-3 in lieu of preparing a written evaluation report for submittal as part of its annual CRS recertification.

Multi-hazard Strategies: Most communities face other natural hazards in addition to floods. Additional credit is available under OPS for communities that prepare and implement a multi-hazard public information program strategy. For the additional credit, communities must meet the above credit criteria for a public information program strategy, plus three additional criteria:

a. Several community stakeholders must participate in the preparation or the updating of the strategy. Stakeholders include business leaders, civic groups, academia, non-profit organizations, major employers, managers of critical facilities, and similar groups that are concerned with the future of the community. Again, this is to gain the input and commitment of people outside the community's government.

b. The strategy must address all the natural hazards that pose a major threat to the community, along with a discussion of the appropriate safety and property protection measures for those hazards. If these descriptions are within other documents, they can be attached to the strategy.

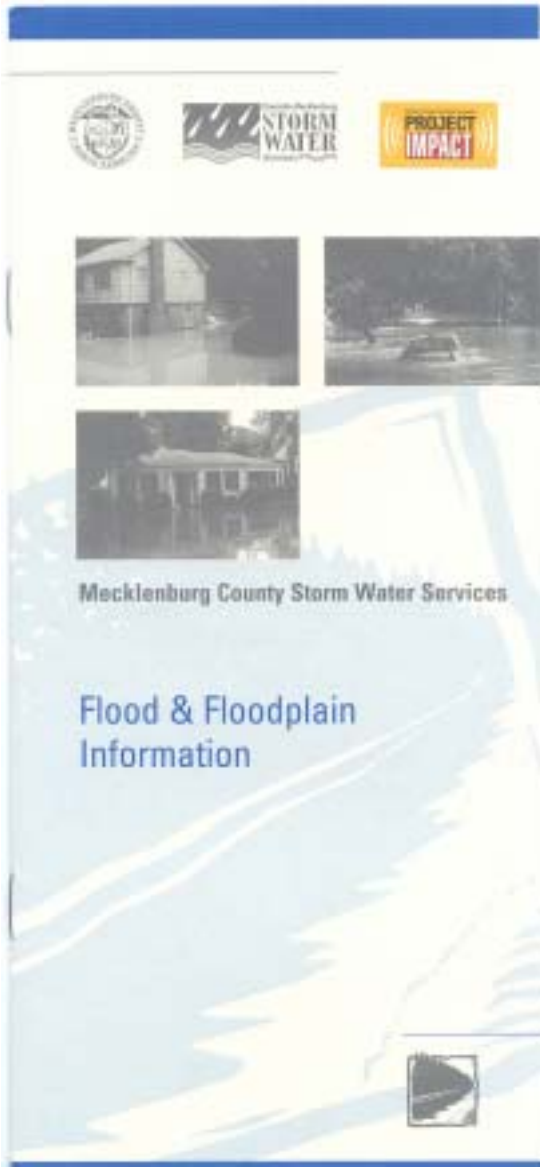
c. The planned outreach projects must address the other hazards in the community, in addition to the flood hazard.



The annual evaluation report should also include the status of the multi-hazard elements of the community's public information program strategy and outreach projects.

Publicity for Other CRS Activities

Five other CRS activities require publicity or public information projects. It is recommended that communities review these requirements before they design their outreach projects in order to develop the most efficient method of advising people and making sure the messages are consistent. The five publicity or public information requirements are:



This brochure describes the services offered by Mecklenburg County, North Carolina, including the map reading service credited under Activity 320.

1. 320 (Map Information): In order to receive CRS credit for making map information available to inquirers, the community must publicize the service. Section 323.a in the *Coordinator's Manual* lists four ways this can be done. Section 323.a.3 notes that one acceptable way is to describe the service in an OPC project credited under Activity 330 (see the examples on pages 33, 41, and 58).

2. 360 (Flood Protection Assistance): This activity credits providing technical assistance to those who ask for it. Credit is dependent on publicizing the service. This can be done through an OPC or OPF notice credited under Activity 330 (Section 363.a.1 in the *Coordinator's Manual*).

3. 503 (Repetitive Loss Area Outreach Project): Repetitive loss communities must conduct an outreach project to residents of the repetitive loss areas (Section 503.c in the *Coordinator's Manual*). The project must cover the topics of property protection and flood insurance (see the discussion on topics, below). The project could qualify for OPA credit.

4. 540 (Drainage System Maintenance): Under Section 541.b.2 of the *Coordinator's Manual*, full credit for stream dumping regulations depends on publicizing the regulatory requirement. Section 544.d notes that one way to meet this requirement is by conducting an OPC project credited under Activity 330 that covers drainage system maintenance. Examples of this are given on pages 36, 43, and 62.

5. 610 (Flood Warning Program): To receive credit for emergency warning dissemination under Section 611.b in the *Coordinator's Manual*, the community must have an OPC or OPF outreach project that covers the topics of flood warning and flood safety (Section 611.b.1(e)). The Kingsport and Charlotte County examples do this (see pages 41 and 55).

In all five cases, the publicity requirement can be met by an outreach project that is described in the community's public information program strategy (OPS). As long as the strategy document discusses the activity's publicity needs and the best way to reach the appropriate audience, any publicity method can be used.

> **EXAMPLE**: Most active floodplain residents in Flood City belong to a neighborhood association, so representatives of two associations were asked to serve on the strategy team. They convinced the other team members that notices in the association newsletters are well-read. The team decided to publicize the city's flood protection assistance (Activity 360) in these newsletters, even though they don't reach 90% of all floodplain residents.

Outreach Project Guidelines

The following guidance for outreach projects is based on findings from local experiences, CRS applications, and several research projects. These points should be considered when designing outreach projects or preparing a public information program strategy.

1. An initial outreach document should not be long and detailed. The objective is to raise the property owner's interest by explaining the general idea of flood protection. The project should describe where more information can be found.

2. A comprehensive program that reinforces a message from several sources is more productive.

3. The information should be geographically personalized so that readers see that it specifically addresses their own situation.

4. An outreach project to floodplain residents (OPF) must tell the readers that their properties are floodprone.

5. The message must be clear and unambiguous. It should be written to be understood by the lay person.

6. Using the second person ("you are in the floodplain") is often simpler and more effective than the less personal third person ("recipients of this letter are in a floodplain").

7. To receive credit for covering the property protection topic, the message must clearly articulate the most desirable measures. Protection measures must be affordable, appropriate for the community's flood hazard and building types, and perceived as realistic by a property owner. For example, if the local problem is flooded basements, the project should not cover elevation or relocation measures (see examples, pages 5 and 34). Figure 530-3 in the *Coordinator's Manual* discusses where retrofitting measures are appropriate.

8. Because no property protection measure is foolproof—especially against higher, less frequent floods—flood insurance should always be recommended.

9. The projects may be conducted by any agency or organization. For example, the community's newsletter could qualify for OPC, a neighborhood organization could distribute OPF notices, the county emergency manager could conduct a flood awareness week (OPA), and the building trades association could sponsor a floodproofing open house (OPA).

10. OPC and OPF projects are for the general public. The CRS does not credit OPC or OPF documents sent only to city employees, insurance agents, or bankers. However, OPA projects may be directed toward special audiences. For example, OPA credit can be provided for a training session for real estate agents on the community's flood hazards and map information service.

Handbooks

Credit can be obtained for distributing handbooks or manuals on flood protection. The ones listed below are available free. However, some of them cover items that are not appropriate for every community's flood hazard or building types. The information would be more pertinent if a community "cut and pasted" only the appropriate sections of a national or state manual and reproduced them as a local publication. It should have an appropriately pertinent cover, such as a picture of a flooded local landmark.

- *Answers to Questions about the National Flood Insurance Program*, FEMA 387, Federal Emergency Management Agency, August 2001. http://www.fema.gov/nfip/qanda.htm
- *Repairing Your Flooded Home*, FEMA-234, 1992.
- *Above the Flood: Elevating Your Floodprone House*, FEMA-347, 2000. http://www.fema.gov/hazards/floods/lib347.shtm
- *Avoiding Flood Damage: A Checklist for Homeowners.* http://www.fema.gov/pdf/hazards/flddam.pdf
- *Homeowner's Guide to Retrofitting: Six Ways to Protect Your House from Flooding.* FEMA-312, 1998. http://www.fema.gov/mit/bpat/bpn_hgtr.htm
- *Mitigation of Flood and Erosion Damage to Residential Buildings in Coastal Areas*, FEMA-257, October 1994.
- *Protecting Building Utilities From Flood Damage*, FEMA-348, 2000. http://www.fema.gov/hazards/floods/pbuffd.shtm

Flyers and stuffers on flood insurance are available through the NFIP. Contact a local insurance agent who sells flood insurance for examples and order forms, or obtain them from

FEMA Distribution Center
P.O. Box 2010
Jessup, MD 20794-2012
1-800-480-2520
Fax: (301) 362-5335

Guidelines for Disaster Safety Messages

In 1999, a collaboration of many professionals affiliated with the National Disaster Education Coalition developed the *Guide for Standard Messages*. Their objective was to produce messages that would be used consistently by all organizations that advise the public about hazards and hazard protection.

The participating organizations and agencies were

- American Red Cross
- Federal Emergency Management Agency
- National Oceanic and Atmospheric Administration/National Weather Service
- National Fire Protection Association
- U.S. Geological Survey
- Institute for Business and Home Safety
- International Association of Emergency Managers
- U.S. Department of Agriculture Cooperative State Research, Education, and Extension Service.

The full guide, "Talking About Disaster," including materials for different hazards, can be found on FEMA's website, http://www.fema.gov/rrr/talkdiz/.

The messages are intended to be used in educational presentations, displays and bulletin boards, print and electronic media, radio and television, and in any other medium in which disaster safety is communicated to the public. The information is in the public domain and is intended to be used and shared without copyright restrictions.

Guide for Standard Messages

NOTE: *The following section was taken from the* ***Guide****.*

The *Guide for Standard Messages* provides disaster safety messages. Each message describes a recommended action or behavior. When you wish to deliver disaster safety messages to an audience, the messages should be worded in a positive manner that helps those hearing or reading the message know how to act.

For example, in fire education, instead of saying, "Do not panic," you might say, "Remain calm; leave the building as safely and quickly as you can." This allows those hearing or reading the message to focus on what they can and should do in case of fire. For this message, you might next offer submessages on what "safely" means (crawl low through smoke, feel doors before opening, etc.).

In addition to action messages, awareness messages can be used to introduce a topic. An awareness message raises the awareness level of audience members, helping them to realize that disasters can and do happen in their communities and that they can do something to prepare for and lessen the effects of a disaster. Good examples of awareness messages include testimonials from neighbors and local statistics, because they bring the reality of disaster close to home.

Everyone has seen photos of horrific disasters on the evening news, but people often do not perceive them as real or as local; in fact, for some people, seeing too much "disaster news" can actually heighten their denial. They may feel that they do not have any control or that they cannot do anything to protect themselves or their property.

To use the *Guide for Standard Messages*, you should first get to know the audience who will be receiving the messages. Remember to consider the audience members' ages and socioeconomic, ethnic, and educational backgrounds. Be sensitive to specific audience groups. Audience members who are struggling to provide food for their families will not be interested in purchasing supplies; members who learned safety actions to take in their native country may be wary of information that contradicts what they were told previously.

It is also important to consider your area's specific hazards and disaster history. The East Coast will not prepare for volcanic eruptions, and the West Coast will not prepare for hurricanes.

Audiences vary and, therefore, it is difficult to define messages as specific to one type of audience. Only by evaluating your audience will you be able to determine which messages are most appropriate.

Messages relevant to children are provided where appropriate. Young children will be more apt to learn a task they can do, such as "stop, drop, and roll." Including children in family disaster preparedness planning will help them understand what disasters are and why it is important to prepare. They will also learn how being prepared can help protect them should a disaster occur.

If you will be making a presentation, developing a news release, or writing an article for a newspaper or bulletin, it is recommended that you determine the hazard or topic you wish to discuss, locate the section appropriate to that topic, and select three to seven relevant messages.

Design your presentation or news release around your chosen messages, providing submessages and supporting and/or background information as necessary. If time or space is limited, evaluate your audience and the chosen topic to determine the most important messages. For disasters with little or no warning, what to do during the disaster is generally most important.

For disasters with plenty of warning time, preparation may be most important. If you will be conducting multiple presentations or classes for the same group, you may choose to use several sections of this document with many messages, spread out over time.

How to Protect Your Property

- **If your property is in a landslide-prone area, contract with a private consulting company specializing in earth movement for opinions and advice on landslide problems and on corrective measures you can take.** Such companies would likely be those specializing in geotechnical engineering, structural engineering, or civil engineering. Local officials could possibly advise you as to the best kind of professional to contact in your area. Taking steps without consulting a professional could make your situation worse.
- **Install flexible pipe fittings to avoid gas or water leaks.** Flexible fittings will be less likely to break.

Example language from the *Guide for Standard Messages'* section on protecting property from landslides and mudslides.

Within each section you will find that specific messages are in boldface. There may be one basic message with several submessages under it. Following each message there may be supporting information, including information about why the message is important. In addition, there may be an explanation of why some commonly provided messages may be inappropriate.

Whatever your message, using physical props to make your presentation interactive will provide the greatest learning experience.

If you would like further information, brochures, or materials about disaster safety, or information about developing community disaster education presentations, you may contact any of the National Disaster Education Coalition member agencies or their local counterparts. See the website's "Resources" section for contact information. Keep in mind that the local affiliates of these national agencies may have additional resources and information specific to your community.

The Red Cross' website, http://www.redcross.org/index.html, offers more information and the ability to find local chapter contacts who can help with outreach projects and preparing a public information program strategy.

CRS Credit

Credit Points

Section 331 of the *Coordinator's Manual* reviews how points are calculated for the four types of outreach projects. For OPC, OPF, and OPA credit, the points are based on the number of topics that are covered. For OPS credit, the points are given for the preparation, implementation, and monitoring of a public information strategy. For Activity 300, Outreach Projects, the maximum credit is 315 points.

Outreach Projects to the Community (OPC): The credit points are based on the topics covered in an outreach project that is sent to all residents of the community. If all 10 topics are adequately discussed, a total of 60 points is provided. The points vary by topic.

8 points	4 points
The local flood hazard	Map of the local flood hazard
Flood safety	Flood warning system
Flood insurance	Floodplain development permit requirements
Property protection measures	Substantial improvement/damage requirements
Natural and beneficial functions	Drainage system maintenance

Outreach Projects to Floodplain Residents (OPF): The credit points are based on the topics covered in an outreach project that is sent to all properties in the floodplain. If all 10 topics are adequately discussed, a total of 130 points is provided. The points vary by topic.

17 points	9 points
The local flood hazard	Map of the local flood hazard
Flood safety	Flood warning system
Flood insurance	Floodplain development permit requirements
Property protection measures	Substantial improvement/damage requirements
Natural and beneficial functions	Drainage system maintenance

As stated on page 10, an OPF project MUST clearly explain that the recipient's property is subject to flooding with introductory language such as "your property is in or near the floodplain." An OPF project receives the greatest credit because research has shown it to be the most effective in motivating people to take steps to insure or protect their properties.

Additional Outreach Projects (OPA): Two points are provided for each topic covered in an additional outreach project. Usually these projects have shorter messages, provide less information, and have a "hit or miss" approach to reaching people (e.g., whoever strolls by a booth at the county fair or happens to watch a cable television show). Because of these factors, the score for an OPA project is lower than for the previous two.

The maximum OPA credit is 60 points. The maximum points possible for one project is 20 points, if all 10 topics are covered. The CRS will credit up to three OPA projects, so the total possible is 20 points multiplied by 3 projects, or 60 points.

Outreach Projects Pursuant to a Public Information Program Strategy (OPS): An OPS is an alternative to OPA credit, so a community cannot receive credit for both. The maximum credit for OPS is 125 points.

There is no credit under OPS if

- None of the recommended projects is implemented.

- The only projects implemented are credited as OPC and/or OPF projects. Although the strategy should include a discussion of the community's OPC and OPF projects (if any), OPS credit is dependent on implementing additional outreach projects.

- The community does not include the evaluation report with its annual CRS recertification.

As long as at least one of the recommended additional outreach projects is implemented, OPS credit is provided. However, the annual evaluation report must identify those projects not implemented, explain why they were not, and recommend what to do about it. The strategy team may determine that the project cannot or should not be implemented, in which case the project should be dropped from the strategy.

An example of a formal evaluation report appears on pages 73–79. A simplified report is shown on page 16.

Credit for flood-related OPS is 100 points. An additional 25 points is provided for OPS if the public information strategy meets the three criteria for a multi-hazard strategy (discussed on page 17).

Credit Calculation

This section of the *Coordinator's Manual* adds the points for all the credited projects. There are two possible formulae, depending on whether the community opted for OPA or OPS:

a. c330 = OPC + OPF + OPA1 + OPA2 + OPA3

OR

b. c330 = OPC + OPF + OPS

Note that a community that receives credit for OPS does not get credit for OPA.

Credit Documentation

For a community's first application for a CRS classification, worksheet page 17 of the *CRS Application* is submitted along with copies or descriptions of the outreach projects.

Subsequent requests for credit are called MODIFICATIONS. Modifications include the two activity worksheets AW-330-1 and AW-330-2, along with copies or descriptions of the outreach projects. These worksheets are also used by the ISO/CRS Specialist to calculate the community's verified credit. A community may also opt to use the "CRS Calculation Software," which calculates the points and prints the worksheets.

The *CRS Application*, the software, and the paper activity worksheets can be ordered using the form in Appendix E of the *Coordinator's Manual* or by requesting copies from the office listed on the inside of the front cover of this publication.

Section 333 on the *CRS Application* worksheet page 17 and on AW-330-2 is a checklist for the documentation listed below. These items are needed to confirm that the community's program meets the CRS credit criteria. If there is more than one item, each should be labeled as "Attachment 1," etc., for easy reference.

Outreach Project Materials: A copy of the brochure, notice, article, flyer, and other materials used in the outreach projects must be attached to the worksheet. The topics covered must be designated in the margins. The examples on pages 33–45 show how the margins should be marked. For projects such as public meetings, speeches, videos, displays, etc., a memo describing the project and the topics covered is sufficient.

Outreach Strategy Document: If the community is requesting credit for outreach projects pursuant to a public information program strategy under Section 331.d, a copy of the strategy document must be included with the application.

The community must also document that the strategy is being implemented. This can be in the form of a resolution of adoption or a letter or memo from the responsible party (e.g., the city manager or public information officer) stating that the projects recommended by the strategy are being implemented and that the strategy team will conduct the annual evaluation.

Frequency: Documentation that shows when the projects are undertaken also must be attached to the worksheet. In some cases, this information is in the project materials (e.g., the date of the letter to floodplain residents or a newsletter that says "Annual Hurricane Awareness Issue"). Otherwise, a memo that describes the project and how and when it is distributed is sufficient.

Verification Visit

During the verification visit, the ISO/CRS Specialist will ask to see the records that demonstrate that the projects were implemented. Newspaper articles, copies of the projects, and similar records can be used to show implementation. Some communities keep copies of letters to floodplain residents that were returned by the post office because they had moved. The cancelled postage documents the date of distribution.

Recertification

Each year, a CRS community must submit its annual recertification to FEMA and the ISO/CRS Specialist. The recertification is due by October 1. The ISO/CRS Specialist provides the forms with specific instructions.

For continued credit for Activity 330, the recertification must include copies of each year's projects. In the case of a mailer, flyer or article, a copy should be submitted. In the case of an outreach project that involves a public meeting, display, demonstration, etc., a memo to the files or a newspaper article describing how the project was conducted should be submitted.

If the community is receiving credit for outreach projects pursuant to a public information program strategy, the annual recertification submittal must include a copy of the annual evaluation of the strategy. This can be a separate report (pages 73–79) or included on activity worksheet AW-330-3 (page 16). If a separate report is submitted, it must cover the same topics as AW-330-3.

Common Problems

Nearly 80% of all CRS communities are receiving credit for Activity 330. Many of them have copied other documents to produce their outreach materials, including publications by FEMA and examples printed in previous editions of the *Coordinator's Manual*. Unfortunately, many of these documents were not written with Activity 330 in mind and they do not contain all of the items needed for CRS credit. Some of the most common problems are described below.

1. There must be more than a discussion of the statistical risk of flooding to receive credit for covering the **local flood hazard topic**. Some brochures include only a discussion of the odds of a 100-year flood as the description of the flood hazard. This language does not convey the actual LOCAL flood hazard. The lay reader often sees a 25% chance over 30 years as remote and will not feel that the threat is severe enough to warrant action. The missing factor is local information. There should also be a discussion of past floods and the damage they caused.

   Good examples of these items are included in the Lansing and Kingsport projects on pages 33–34 and 40. The Boulder, Colorado, flyer is another good example and it includes a map and the names of the sources of flooding (page 58). Although it discusses the statistical risk of flooding, it has additional information that localizes the description of the hazard.

2. Many communities have distributed or copied some of the brochures put out by the **National Flood Insurance Program**. These are excellent documents, but many of them were written specifically for people who already have flood insurance. One popular brochure, "In the Event of a Flood," describes how to request a flood insurance claim. Although it has some useful suggestions on flood safety and clean up, it cannot be credited under Activity 330 as a discussion of flood insurance or property protection.

3. The **property protection topic** must include specific permanent protection measures. Some brochures simply advise owners to take protection measures without identifying what can be done. Saying simply, "Consider floodproofing options (structural changes should be designed by a professional engineer)," is not creditable.

   Some outreach projects focus only on emergency actions, i.e., things to do after a flood or hurricane warning has been issued. Some are taken from hurricane preparedness materials and cover protection only from wind damage. These cannot receive full credit under the property protection topic because they do not discuss permanent changes that can be made to protect a property from flooding.

4. Many brochures include **useful, but uncredited, topics**. Many communities have had brochures or flyers made for other purposes and submitted them for CRS credit. They include topics that are not credited under Activity 330, such as discussions of the CRS, the community's participation in the NFIP, flood control projects, why stormwater utility rates are increasing, and the local budget. None of these is creditable under Activity 330 because they do not cover any of the 10 topics.

   It is important to note that these uncredited topics are appropriate for outreach projects. Research has shown that people are more likely to respond favorably to suggestions that they floodproof or buy insurance if they know the local government is doing all it can to reduce flooding. Therefore, the CRS encourages outreach projects that discuss local flood control projects, drainage improvement efforts, and the city budget. However, if those are the only topics covered, there is no credit under Activity 330.

5. **Notices of government meetings** are not credited. Some communities have submitted notices of public hearings on ordinance amendments and meetings or training programs for community staff. Unless the public meetings are advertised as including informative sessions, they would not be credited. Credit was provided for one community's public meeting on a revision to a floodplain management ordinance because it included background discussions on floodplain development regulations. It received two points for an OPA project that covered one topic.

Example Projects

The purpose of an outreach project is to make residents aware of the LOCAL flood hazard and ways they can protect themselves. Communities are encouraged to make use of the public information materials that are already out there.

National models could be prepared and copied but they would not describe the local hazard. Outreach projects need to be localized, and locally appropriate protection measures must be presented in a way that will get the attention of readers. For this reason, the CRS has avoided preparing a model outreach project, although there is a sample OPC for the fictitious community of Floodville in the *Coordinator's Manual* (Figure 330-1) and the *CRS Application* (pages 18–19).

Village of Lansing OPC

Lansing, Illinois, is subject to overbank flooding, local drainage problems, and sewer backup. In 1999, the Village Board of Trustees created a Flood Advisory Committee of residents and Village staff. The Committee developed the Public Information Program Strategy that is included on pages 63–72.

One of the Strategy's recommendations was to include flood articles in each of the quarterly newsletters, the "Village Vision." After one year, it was concluded that it would be better to send out a single newsletter, funded by the public information budget, than to try to squeeze articles into a newsletter funded for economic development purposes.

On pages 33–38 is the resulting single newsletter. It qualifies as an outreach project to the community (OPC). The brochure is in a word processing program so each year's mailing can be easily changed to include information on any floods that may have occurred and on new programs that might be available.

The margins have been marked like a CRS application to show where the topics appear. Where a section heading is the same as one of the 10 credited topics, it is circled. This project covers the 10 topics as follows:

1. The local flood hazard: The description of the hazard is covered in the section with that title on the first page. The sources of flooding are named along with a description of recent floods, not a vague concept of possible 100-year flooding. (8 points)

2. Flood safety: Many useful safety precautions are listed at the bottom of three of the pages. (8 points)

3. Flood insurance: On the third page is a section that notes that standard property insurance does not cover flooding and that anyone in town can buy flood insurance from his or her insurance agent. Structural and contents coverage are also discussed. Additional information on private insurance for cover basement flooding is included because that is one of the major flood problems in the community. (8 points)

4. Property protection measures: Appropriate permanent and emergency measures are covered in the section on "Floodproofing." (8 points)

5. Natural and beneficial floodplain functions: Local natural areas are identified and the brochure discusses the need to protect such areas and water quality. (8 points)

6. A map of the local flood hazard: The Village did not include a map, because it was too big for the newsletter's pages. (0 points)

7. The flood warning system: Lansing does not have a flood warning program, so there is no credit for this topic. (0 points)

8. Floodplain development permit requirements: The "Flood Protection Regulations" section discusses the requirement for permits. The location and telephone number of the Building Department are included. (4 points)

9. The substantial improvement requirements: This is also discussed in the "Flood Protection Regulations" section. (4 points)

10. Drainage system maintenance: The need for maintenance and reporting violations is discussed in the section on "Flood Protection Regulations." The office and telephone number to contact are provided. (4 points)

This brochure adequately covers 8 of the 10 topics. Lansing's score for OPC is the total of the points for each topic covered, or 52.

Village of Lansing
Flood Awareness Newsletter

September 2001

Hi. I'm Sammy Sandbag, the spokesperson for the Lansing Flood Advisory Committee. My job is to tell you about flooding and what you can do about it. This newsletter will give you some valuable information on how you can protect your house.

As part of its effort to save you money from flood damage and reduce your flood insurance premiums, the Village of Lansing is implementing a variety of flood protection activities, including periodic cleaning of the ditches and channels, regulating new construction in the floodplain, and preserving floodprone areas as open space. But there are also some things that you can do.

First, let's talk about the problem we're faced with.

The Flood Hazard

Properties in Lansing's floodplain are subject to three flood problems: overbank flooding, local drainage, and sewer backup. You could be faced with one, two or all three of these hazards.

Find out if your property is in the mapped floodplain and subject to overbank flooding by calling the Building Department, 895-7193.

320 Publicity

Overbank Flooding: Lansing is subject to overbank flooding from the Little Calumet River, North Creek and Lansing Ditch. The largest flood problem is along the Little Calumet River. The first major flood in recent memory on the Little Cal was in June 1981. It was followed by a flood almost as high in December 1982. Lansing's worst flood on record (so far) occurred in November 1990. Heavy local storms caused the Little Cal to rise higher than before, over half a foot higher than the 1981 record. It was estimated to be a "25-year" flood. The July 1996 flood came within inches of the 1981 flood.

Construction of a levee and floodwall on the Little Cal during the 1980's kept the 1990 and 1996 floods out of town. However, a flood of as little as 2 foot higher would overtop this barrier and cover many blocks. For information on the base or "100-year" flood, contact the Building Department at 895-7193.

Because of all the construction in the upstream watersheds, stormwater runs off quickly. The 1990 storm caused overbank flooding to reach buildings in less than 24 hours. The river kept rising for another 24 hours. With our flat terrain, it takes a while for the waters to recede. After the Little Cal crested in 1990, it took 3-4 days to get back in its banks. In other words, the river was out of its banks for a total of five days and in buildings for two of those days. On the smaller streams, such as North Creek and Lansing Ditch, the water rises and falls faster.

Local Drainage: Lansing's local drainage problems are primarily due to backed up combined sewers and storm sewers. The sewers are designed to drain streets and ponding areas along with transporting sanitary sewage to treatment facilities. When they are blocked or overloaded by heavy rains, the drainage system is plugged. Stormwater sits for hours or days, waiting for the sewers to clear.

Local drainage problems occur during storms in any part of the Village. In some cases, yard ponding will cause or aggravate basement flooding. Flooded streets and yards can cause or aggravate the health and safety problems and disrupt traffic.

Sewer Backup: With no place to go, sewers back up and flow into the lowest opening in the sewer line. Sanitary sewers back up into basements and storm sewers back up into streets. An overloaded combined sewer backs up into basements first and, if the water gets deeper, into streets. With the completion of the Deep Tunnel connection in 1996, the combined sewers have been better able to handle their wet weather flows.

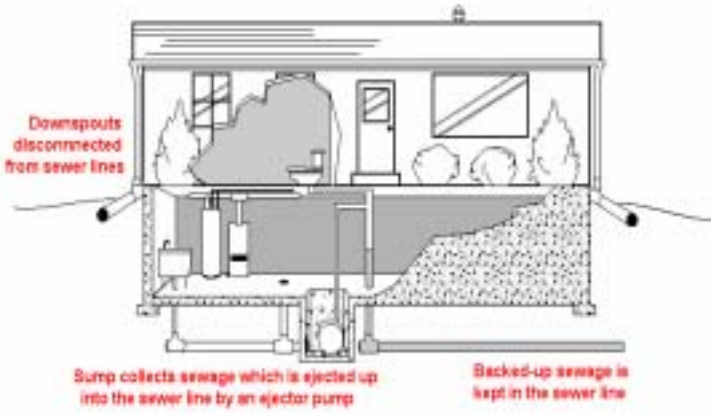
Floodproofing

Floodproofing a house means altering it so floodwaters will not cause damage. Different floodproofing techniques are appropriate for different types of buildings. See Sammy Sandbag's *Guide to Flood Protection,* which is available free at the Building Department. Use the following as a guideline:

- If you have a basement, split level, or other floor below ground level, there are lots of ways to protect your basement or lower floor from seepage and sewer backup (see illustration).
- If your house is on a slab foundation, investigate a low floodwall, berm or "dry flood-proofing" (i.e., making the walls watertight and closing all the openings when a flood comes).
- If your house is on a crawlspace, a low floodwall, berm or "wet floodproofing" will work. "Wet floodproofing" means moving all items subject to damage out of harm's way so water can flow into the crawlspace and not cause any problems. If floodwaters go over the first floor, it is relatively easy to elevate the building to get the first floor above the flood level.

An excellent source for more information is *Homeowner's Guide to Retrofitting: Six Ways to Protect Your House from Flooding* (FEMA publication 312). It can be read at the Library, ordered (for free) from the Federal Emergency Management Agency by calling 1-800-480-2520, or viewed and downloaded from FEMA's website at http://www.fema.gov/mit/bpat/bpn_hgtr.htm.

Emergency measures: No matter what kind of building you have, some last minute emergency measures can always help. For example, you could move valuable items (photos, antiques, and other "irreplaceables" etc.) or items that are most damaged by floodwaters (upholstered furniture, stuffed toys, mattresses, foam rubber, etc.) up to a higher level. You can place sandbags or plastic sheeting in front of doorways and other low entry points. Whatever emergency protection measures you use, it is always best to have a plan written in advance to make sure you don't forget anything after you hear the flood warning. Keep in mind the flood safety hints at the end of this newsletter.



An overhead sewer is one way to prevent sewer backup.

Flood Insurance

Flood insurance is highly recommended because no floodproofing measure is 100% foolproof. Most homeowners insurance policies do not cover a property for flood damage. The Village of Lansing participates in the National Flood Insurance Program (NFIP). Local insurance agents can sell an NFIP policy under rules and rates set by the Federal government. Any agent can sell a policy and all agents must charge the same rates.

Any house in Lansing can be covered by a flood insurance policy. Detached garages and accessory buildings are covered under the policy for the lot's main building. There are two types of coverage which can be purchased separately:

- **Structural** coverage covers everything that stays with a house when it is sold, including the furnace, cabinets, built-in appliances, and wall-to-wall carpeting.

- **Contents** coverage covers furniture and other personal possessions except for money, valuable papers, and the like. Renters can buy contents coverage, even if the owner does not buy structural coverage on the building.

There is no coverage for things outside the house, like the driveway and landscaping. *If you have a policy, check it closely.* You may only have structural coverage (because that's all that banks require). In Lansing, your contents are more likely to be damaged by a flood than your structure.

Some people have purchased flood insurance because it was required by the bank when they got a mortgage or home improvement loan. Usually these policies just cover the building's structure and not the contents. During the kind of flooding that happens in Lansing, there is usually more damage to the furniture and contents than there is to the structure.

Don't wait for the next flood to buy insurance protection. There is a 30 day waiting period before National Flood Insurance coverage takes effect. Contact your insurance agent for more information on rates and coverage.

An NFIP policy covers sewer backup and basement seepage if there is a general condition of flooding in the area. You may do better by checking out the sump pump failure or sewer backup coverage that might be available as an addition to your homeowner's insurance policy. Each company has different amounts of coverage, exclusions, deductibles, and arrangements. Most exclude damage from surface flooding that would be covered by an NFIP policy. The cost varies from nothing to up to about $100 for a rider on your homeowner's insurance premium.

Sammy's Safety Tips:

Do not walk through flowing water. Drowning is the number one cause of flood deaths. Currents can be deceptive; six inches of moving water can knock you off your feet. Use a pole or stick to ensure that the ground is still there before you go through an area where the water is not flowing.

Do not drive through a flooded area. More people drown in their cars than anywhere else. Don't drive around road barriers; the road or bridge may be washed out.

Stay away from power lines and electrical wires. The number two flood killer after drowning is electrocution. Electrical current can travel through water. Report downed power lines to the Police Department by calling 911.

Flood Protection Regulations

Every lot was originally designed so water would flow away from the building and along property lines to the street, storm sewer, or ditch. Fences, railroad ties, landscaping and regrading block this flow. So do construction projects in the ditches or the floodplain.

- ALWAYS CHECK WITH THE BUILDING DEPARTMENT BEFORE YOU BUILD ON, FILL, ALTER, OR REGRADE YOUR PROPERTY. A permit is needed to ensure that such projects do not cause problems on other properties.

- Every piece of trash can contribute to flooding. Even grass clippings and branches can accumulate and plug channels. If your property is next to a ditch or storage basin, please do your part and keep the banks clear of brush and debris.

- DO NOT DUMP OR THROW ANYTHING INTO THE DITCHES OR BASINS. Dumping in our ditches and storage basins is a violation of Village Code.

- You can do your part in helping the drainage system work. Sweep or pick up your gutters to prevent blockages in the storm sewers. Pick up trash and fallen branches in the ditches.

If you see dumping or debris in the ditches or basins, filling or construction near property lot lines, or filling or construction in the floodplain without a permit sign posted, contact the Building Department at 895-7193. The debris or project may cause flooding on your property

New buildings in the floodplain must be protected from flood damage. Our building code requires that new residential buildings must be elevated one foot above the base flood level.

The ordinance also requires that all substantial improvements to a building be treated as a new building. A substantial improvement is when the value of an addition, alteration, repair or reconstruction project exceeds 50% of the value of the existing building. In the case of an addition, only the addition must be protected. In the case of an improvement to the original building, the entire building must be protected.

For example, if a house in the floodplain is flooded, has a fire, is hit by a tornado, or is otherwise damaged so that the cost of repairs is more than 50% of the value of the building before the damage, then the house must be elevated above the base flood level.

These regulations are designed to protect you and your neighbors. By keeping the drainage system clear and getting the proper permits before you build, we can prevent flooding and other drainage problems.

Substantial Improvement Rules

Sammy's Safety Tips:

Look out for animals that have been flooded out of their homes and who may seek shelter in yours. Use a pole or stick to poke and turn things over and scare away small animals.

Look before you step. After a flood, the ground and floors are covered with debris including broken bottles and nails. Floors and stairs that have been covered with mud can be very slippery.

Be alert for gas leaks. Use a flashlight to inspect for damage. Don't smoke or use candles, lanterns, or open flames unless you know the gas has been turned off and the area has been ventilated.

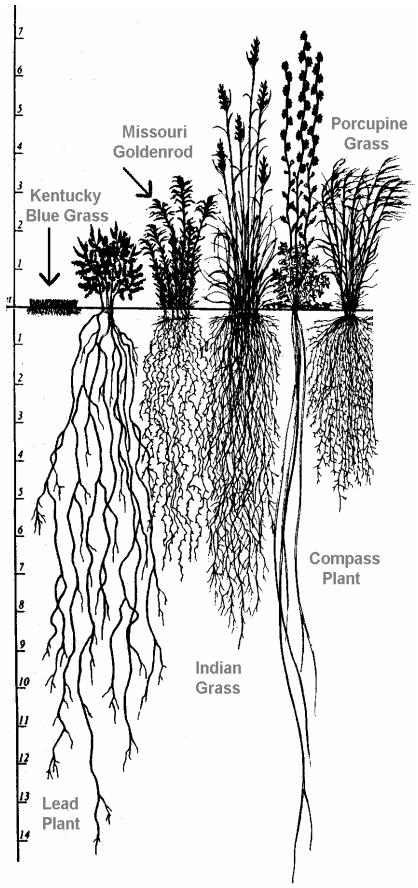
Natural and Beneficial Functions

Floodplains should be seen in their natural context. They are more than just hazardous locations for human development. Open and natural areas, such as the Forest Preserves, absorb much more rain and floodwater than urbanized areas, reducing flood flows on downstream properties. Wetland plants filter stormwater runoff, making it cleaner for those downstream.

Nearby Forest Preserves, such as Lansing Woods, have kept or restored oak woodlands and prairies close to their natural state. These floodprone areas are used by a variety of wildlife and provide habitat for species that cannot live or breed anywhere else. For example, after being gone for over 150 years, beaver have moved back into the North Creek and Little Calumet River floodplains.

It is important that we preserve such natural areas and wetlands. While some development is allowed, the Village and state and Federal agencies make sure that the natural benefits of any filled wetlands are compensated by creation of additional or improved wetland habitats nearby.

Another concern is water quality. The storm drain system carries untreated stormwater runoff directly to our streams. Pouring wastes into storm drains directly impacts our environment. Oil, anti-freeze, paint, fertilizer and pesticides pollute the water, destroy plants, and endanger wildlife. For example, one quart of oil can contaminate 250,000 gallons of water. The oil from one motor oil change can create an eight acre oil slick. Therefore, you should do your part to help keep our streams and storm drains free of pollutants.



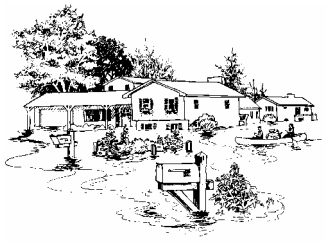
Native prairie and wetland plants have deep root systems that absorb and hold stormwater better than typical lawns. Preserving these plants reduces flooding and drainage problems.

Sammy's Safety Tips:

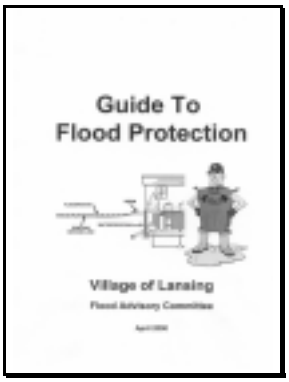
Clean everything that got wet. Flood waters have picked up sewage and chemicals from roads, farms, factories, and storage buildings. Spoiled food, flooded cosmetics, and medicine can be health hazards. **When in doubt, throw them out.**

Carbon monoxide exhaust kills. Use a generator or other gasoline-powered machine outdoors. The same goes for camping stoves. Charcoal fumes are especially deadly – cook with charcoal outdoors.

Take good care of yourself. Recovering from a flood is a big job. It is tough on both the body and the spirit and the effects a disaster has on you and your family may last a long time. Keep your eyes open for signs of anxiety, stress, and fatigue in you and your family.



Get a free copy of the Village's *Guide to Flood Protection* and more information about flood protection, from the Village of Lansing's Building Department at 895-7193.



Village of Lansing
Flood Advisory Committee
3404 Lake Street
Lansing, Illinois 60473

Bulk Rate
U.S. Postage
P A I D
Permit No. 125
Lansing, IL

City of Kingsport OPC

Kingsport, Tennessee, submitted two tri-fold pamphlets for credit under Activity 330. The pamphlets are on the following pages as OPC examples. Together, they cover seven topics. The pamphlets have been marked to show where these topics appear.

1. The flood hazard: The "History of Flooding" section provides data on the local hazard and past floods. It also notes that because of floodplain development, a repeat of the 1927 flood on one creek would be worse today. (8 points)

2. Flood safety: This topic is covered in the section with the same name. (8 points)

3. Flood insurance: This topic is covered in the section with the same name. However, the average annual premium for a flood insurance policy is now over $400. (8 points)

4. Property protection measures: This topic is covered in the section with the same name. (8 points)

5. Natural and beneficial floodplain functions: This topic is not covered. (0 points)

6. A map of the local flood hazard: The map is not included. (0 points)

7. The flood warning system: This topic is covered in the section with the same name. Appropriate local radio and television stations are listed. It is recommended that AM and FM frequencies and TV channels be included with the names of the stations. (4 points)

8. Floodplain development permit requirements: The second brochure covers this topic under the section on floodplain development regulations. (4 points)

9. Substantial improvement requirements: This topic is not covered. (0 points)

10. Drainage system maintenance: The second brochure provides an excellent discussion of drainage system maintenance. (4 points)

The two pamphlets adequately cover seven of the 10 topics. Kingsport's score for OPC is the total of the points for each topic covered, or 44.

It should be noted that Kingsport's pamphlets are in the third person and they do include some technical terms. The radio and TV stations that issue flood warnings are listed by call sign but their frequencies are not included, so some readers may not know how to tune in to them.

The authors of outreach projects should put themselves in the position of their readers. If you received a brochure in the mail, what would make you want to read it? What would make you think it applied to you? What would motivate you to buy insurance or protect your property?

Credit for Outreach Projects

4 40 4

Edition: September 2002

FLOODS AND FLOOD INSURANCE

Kingsport Planning Department
City of Kingsport
City Hall
225 West Center Street
Kingsport, TN 37660
Phone (615) 229-9485
Fax: (615) 229-9350

The purpose of this pamphlet is to inform residents and property owners of the presence of flood hazards in Kingsport, and suggest possible actions which may be taken to protect persons and property.

HISTORY OF FLOODING IN KINGSPORT

Locally, the Holston River, Reedy Creek, and Mad Branch have a history of flooding. The flood of May 30, 1927 on Reedy Creek was the highest known to local residents in the Kingsport area. It had an estimated discharge of 11,000 cfs (cubic feet per second), resulting in a flood which was six to eight feet above the stream bed. Another major flood in 1963 left Gibson Mill Road impassable, and damaged several businesses on Sullivan Street. The last major flood of Reedy Creek occurred on March 30, 1975, at the same location as the 1927 flood, and had a peak discharge of 2,950 cfs.

The largest floods recorded for the South Fork Holston River occurred in 1867 and 1901, both of which had flood waters which covered Long Island by as much as seven feet. The greatest flood since incorporation of the City (1917) occurred in 1940, when 126 homes on Long Island were flooded. These floods occurred prior to closure of the Watauga and South Fork Holston Dams in 1948 and 1950, respectively. The largest flood since closure of the upstream reservoirs occurred on March 12, 1963.

Over the years, earth fills have been made in the flood plain which obstruct the flow of water and cause floods to be higher than would otherwise be expected. For example, if the May, 1927 Reedy Creek flood recurred today, the flood waters would be at least two feet higher than what was experienced.

Flood Hazard

FLOOD WARNING SYSTEM

A flood warning system, such as is present today, was not in effect when these floods occurred. A Sullivan County Multi-Jurisdictional Emergency Operations Plan (EOP) was developed to prepare for a variety of disasters, including flooding. Flood watches (when conditions are right for flooding) and flood warnings (flooding is imminent) will be issued by T.V. (WKPT) and radio (WKPT AM/WTFM, WXBQ/WFHG, and NOAA).

Residents in flood prone areas will also be warned of an actual emergency condition by the sounding of a steady siren tone lasting three minutes. This signal will be provided by primary siren sites in Kingsport. If needed, supplemental siren coverage can be provided by industrial organizations and fire and law enforcement mobile units. When these signals are sounded, residents should turn to the television and radio stations listed above for information.

FLOOD SAFETY

There are several actions residents of flood hazard areas can take to decrease the potential of injury due to flooding.

1. Know the flood warning procedures.
2. Do not attempt to cross a flowing stream where water is above your knees.
3. Keep children away from flood waters, ditches, culverts, and storm drains.
4. If your vehicle stalls in high water, abandon it immediately and seek higher ground.
5. Evacuate the flood hazard area in times of impending flood or when advised to do so by the police or fire department.
6. Cut off all electric circuits at the fuse panel or disconnect switches. If this is not possible, turn off or disconnect all electrical appliances. Shut off the water services and gas valves in your home.

FLOOD INSURANCE

STANDARD HOMEOWNERS INSURANCE POLICIES DO NOT COVER LOSSES DUE TO FLOODS. However, Kingsport is a participant in the National Flood Insurance Program, which makes it possible for Kingsport property owners to obtain federally backed flood insurance. This insurance is available to any owner of insurable property (a building or its contents) in Kingsport. Tenants may also insure their personal property against flood loss.

The average annual premium for this insurance is $250. The actual cost will vary depending upon the amount of coverage and the degree of flood hazard. We urge persons who live or own property in flood hazard areas to purchase flood insurance to protect themselves from losses due to flooding. This insurance is required in certain instances, such as the purchase of a home with a federally backed mortgage.

PROPERTY PROTECTION MEASURES

There are various actions which can be taken to floodproof structures. Electrical panel boxes, furnaces, water heaters, and washers/dryers should be elevated or relocated to a location less likely to be flooded. Basement floor drains and interior and exterior backwater valves can be installed, and interior floodwalls can be placed around utilities.

If flooding is likely, and time permits, move essential items and furniture to the upper floors of your home. Keep materials like sandbags, plywood, plastic sheeting, and lumber handy for emergency waterproofing. This action will help minimize the amount of damage caused by floodwaters.

FLOOD HAZARD AREAS

Two types of flood hazard areas are designated in Kingsport: the floodway and the flood fringe. To determine if you live in, or own property in, a flood hazard district, contact the Kingsport Building Department at 229-9393.

There are other pamphlets available which discuss items of interest to residents of flood hazard areas. These may be obtained at the Kingsport Planning Department at no charge. Information is also available in the Kingsport Public Library, located at 400 Broad Street.

320 . . . Publicity

This pamphlet is an informational publication of the City of Kingsport Planning Department, Fred M. Crowell, Director. The principal author of this document was Carolyn M. Ashburn, Planner II. Inquiries regarding this document should be directed to the Planning Department, located in City Hall, 225 West Center Street, Kingsport, TN 37660.

DEVELOPMENT IN FLOOD HAZARD AREAS

Kingsport Planning Department
City of Kingsport
City Hall
225 West Center Street
Kingsport, TN 37660
Phone: (615) 229-9485
Fax: (615) 229-9350

The purpose of this pamphlet is to provide information on the development of floodplains and maintenance of drainage systems which flow into the creeks and rivers within these flood hazard areas.

FLOODPLAIN DEVELOPMENT REGULATIONS

The City of Kingsport has adopted, as part of the *Kingsport Zoning Ordinance,* regulations on development in flood districts. The purpose of these regulations is to control the alteration of natural floodplains and stream channels; prevent or regulate the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards in other areas; restrict or prohibit uses which may result in damaging increases in erosion or in flood heights or velocities; and to control filling, grading, dredging, and other development which may increase flood damages.

These regulations specify two types of flood hazard areas -- the floodway and the flood fringe.

Uses which have a low flood damage potential and do not restrict flood flows shall be permitted in the floodway, provided they are not prohibited by another ordinance. These uses shall not require structures, fill, dumping of material or waste, or storage of materials or equipment. The most common uses of the floodway are agricultural or recreational in nature, and parking/lawn areas of residences.

Flood fringe districts permit the same type uses as floodway districts. The construction of structures, such as residences, is

also permitted, provided the lowest floor of any residential structure is no lower than one foot above the base flood elevation.

It is very important to contact the Kingsport Building Department if any work is to be performed in flood hazard areas. This is necessary as the regulations are extensive, and development permits are required for construction or substantial improvements in the floodway or flood fringe.

MAINTENANCE OF DRAINAGE SYSTEMS

Kingsport has a storm drainage system which is composed of both open and closed segments. The open sections are drainage swales/ditches which are utilized to carry storm waters away from homes to drainage areas, such as creeks or rivers. The closed system is comprised of storm water inlets and piping which also carry the water from streets and developments to drainage areas.

Maintenance of these systems is very important. Debris in ditches and streams obstruct the flow of water which can cause overflow onto roads and into yards. Partial or complete filling in of these ditches can reduce the flood flow capacity, which will also result in overflow into roads or onto private property.

However, realizing that the ditch system may be a problem for some property owners, provisions are made for filling in ditches. If the property owner will contact the Kingsport Public Works Department at 229-9451, arrangements can be made where appropriate for city workers to instal drain piping, which has been purchased by the property owner, at City expense.

Maintenance of the drainage system is very important so that a high flood flow capacity can be realized. To aid in this, the City of Kingsport clears and performs other maintenance work on the system at least two times per year. Work is also performed on an emergency basis as needed.

Citizens are expected to perform routine maintenance on ditches located on right-of-ways in front of or to the rear of their properties. This includes the removal of high weeds, litter, or other items which may be considered a nuisance. Also, property shall be maintained so that water cannot become stagnant, and breeding areas are not provided for mosquitoes.

A litter ordinance is also in effect which makes it unlawful to deposit litter in bodies of water "in a park or elsewhere". This includes lakes, rivers, and streams.

If you know of unapproved changes occurring to the drainage system, such as filling or rerouting of streams or ditches, or a nuisance situation which exists, please contact the Kingsport Building Department at 229-9393.

Additional information on floods and related topics is available for review at the Kingsport Public Library, located at 400 Broad Street. Other pamphlets on floods in and related items can be obtained at the Kingsport Planning Department.

This pamphlet is an informational publication of the City of Kingsport Planning Department, F. M. Crowell, Director. The principal author of this document was Carolyn M. Ashburn, Planner II. Inquiries regarding this document should be direct to the Planning Department, located in City Hall, 225 West Center Street, Kingsport, TN 37660.

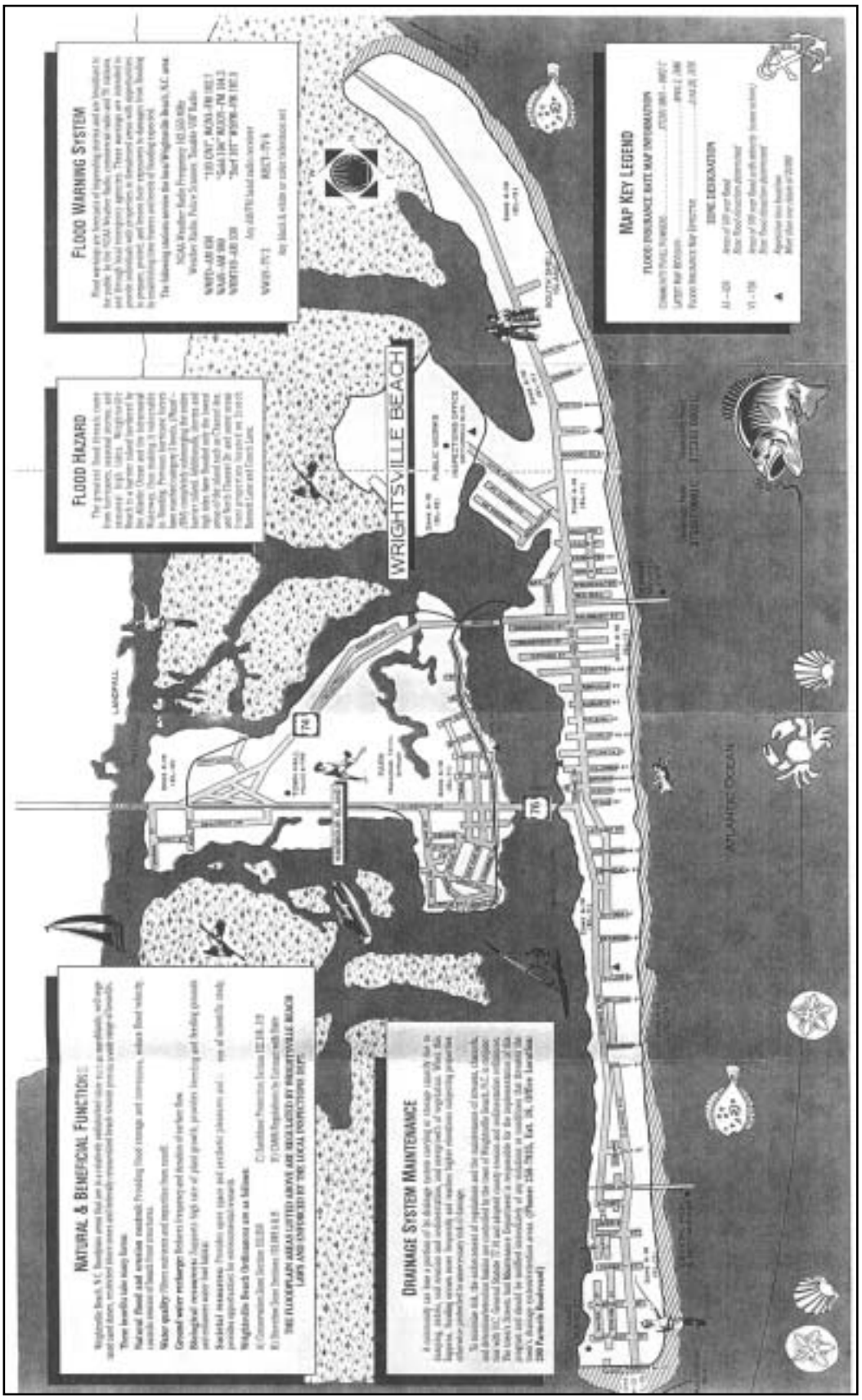
Edition: September 2002

Wrightsville Beach OPF

This outreach project to floodplain properties receives credit for all 10 topics.

Although it has been reduced in size and is difficult to read here, it is provided as an example of a most interesting format. It is on 8½" x 14" legal size paper and is folded three times.

Note the required OPF statement, "you are in a designated flood hazard area and your property is subject to flooding."


FLOOD WARNING SYSTEM
FLOOD HAZARD
MAP KEY LEGEND
NATURAL & BENEFICIAL FUNCTIONS
DRAINAGE SYSTEM MAINTENANCE
WRIGHTSVILLE BEACH
ATLANTIC OCEAN
74
76

OPA Projects

Communities have submitted a variety of projects for OPA credit. Here is a list of some of the examples that have been implemented and credited. Note that these projects all reach out to people. Preparing a poster or map that stays in a city office would not be credited.

- Ocean City, Maryland, and the Maryland Department of Natural Resources' Coastal Resources Division, prepared a poster on hurricane warnings and safety. They were given to restaurants and hotels to be posted to inform visitors to this resort city of the local hazard and evacuation procedures.

- The Mayor of Harrisburg, Pennsylvania, proclaimed a flood awareness week in June. There was a lot of publicity about the flood exhibits, videos, and information set up in the atrium of the City Government Center during the week. On each day there was a different activity, such as seminars for insurance agents and lenders and a demonstration by the Red Cross on responding to emergencies.

- The emergency manager for Dare County, North Carolina, set up a booth at a local shopping mall for two days. He handed out brochures and answered questions on a variety of flood-related topics. He also gave a presentation and handed out brochures at the Outer Banks Beach Club, a meeting attended by many floodplain property owners.

- Counties in the Tampa Bay area of Florida produce a multi-page color newspaper supplement at the beginning of hurricane season each year. The supplement includes maps of evacuation zones and warning and safety information. There are many CRS communities in those counties and each receives the OPA credit.

- South Holland, Illinois, sponsored a floodproofing open house. More than 150 people attended one evening session, which included presentations on flood protection, village programs, and displays by over 25 contractors, insurance agents, and government agencies.

- Boston, Massachusetts, conducted a flood hazard workshop on cable TV.

- Farmington, Maine, gave a "Flood Hazard Word Search" to school children to encourage them to think about the hazard.

- Other communities have given out short messages about flooding through a variety of media. These include one-liners on utility bills, flood safety information on grocery shopping bags, and signs erected in floodprone areas showing historic flood heights.

This placemat is provided to restaurants so tourists will see the safety information.

Stay Safe

How visitors prepare for the unexpected!

Rip Tides

A danger to swimmers

Another sometimes overlooked aspect of hurricanes and tropical storms are rip tides (or rip currents). Rip tides are strong sea currents that push away from the shore when a strong storm is near. They are formed by strong winds pushing water towards the shore. Tropical cyclones' winds push waves up against the shoreline even if they are hundreds of miles away, so rip tide warnings are often the first indication of a nearby hurricane.

In fact, rip tides are so strong that trying to swim back to shore against the rip tide current will only tire you out and make it that much more difficult for you to survive. Rip tides are narrow enough that if you swim parallel to shore, you can easily escape the current and then swim back to shore.

It's Hot!

The average temperature in the Charleston area is a temperate 73 degrees, but in the summer temperatures can reach well into the 90s. If you're visiting during the warmer months, it's important to observe the following heat precautions:

- Slow Down.
- Dress for summer.
- Drink plenty of water or other nonalcoholic fluids.
- Do not drink alcoholic beverages.
- Do not take salt tablets unless specified by a physician.
- Spend more time in air-conditioned places.
- Don't get too much sun.
- Elderly persons, small children, chronic invalids, those on certain medications or drugs, and persons with weight and alcohol problems are particularly susceptible to heat reactions.

While you enjoy the area's beautiful beaches, it's also important to keep in mind that sunburn can significantly retard the skin's ability to shed excess heat - and can put you in danger of heat stroke. Remember to use plenty of sun block and drink lots of water!

Source: National Weather Service

1-800-868-8118
www.charlestoncvb.com

CHARLESTON AREA
Convention & Visitors Bureau

This 8½" x 11" brochure covers the hazards of hurricanes, heat, and rip tides. The other side is on the next page.

Helpful Evacuation Reminders!

- Listen for weather updates; **follow instructions**
- Have a full tank of gas in your car
- Try to leave early in the day
- Tune into local television and radio stations

www.projectimpactone.org

What is a Hurricane?

A "Hurricane" is the most severe category of the meteorological phenomenon known as the "tropical cyclone." Tropical cyclones are low-pressure systems that have thunderstorm activity and rotate counterclockwise. When the tropical cyclone's winds reach 39-73 mph, it is called a tropical storm. When the winds exceed 74 mph, the storm is considered to be a hurricane.

What is the difference between a Hurricane Watch and Warning?

Hurricane Watch-Hurricane conditions are possible in the specified area of the Watch, usually within 36 hours. During a Hurricane Watch, prepare to take immediate action to protect your family in case a Hurricane Warning is issued.
Hurricane Warning-Hurricane conditions are expected in the specified area of the Warning, usually within 24 hours. Complete all storm preparations and evacuate if directed by local officials.

What is the Saffir-Simpson Hurricane Scale?

The Saffir-Simpson Hurricane Scale defines hurricane strength by categories. A Category 1 storm is the weakest (winds 74-95 mph); Category 2 (winds 96-110 mph); Category 3 (winds 110-130 mph); Category 4 (winds 131-155 mph); and Category 5 hurricane is the strongest (winds greater than 155 mph).

When is Hurricane season?

Since the Atlantic Hurricane season runs from June to November, it is important to pay attention to any significant storms building in the Atlantic through summer and fall. Although hurricanes do allow you time to prepare, they can change direction, speed and intensity easily.

What if I can't leave?

If you have not evacuated and it is too late to do so, find a room, closet or alcove without windows on an upper floor in which to find refuge until the storm officially passes.

Map courtesy of The Charleston Post and Courier.

HURRICANE EVACUATION ROUTES

Local News Stations

The following stations are a few sources of local news and weather information.

Television
WCBD TV-2 (NBC)
WCIV TV-4 (ABC)
WCSC TV-5 (CBS)

Radio
WSC AM 730
WTMA AM 1250
WAVF FM 96.1
WEZL FM 103.5

Phone Numbers
843-740-6300
Charleston County Emergency Operations Center

843-937-6000 ext. 4400
Local evacuation/shelter information.

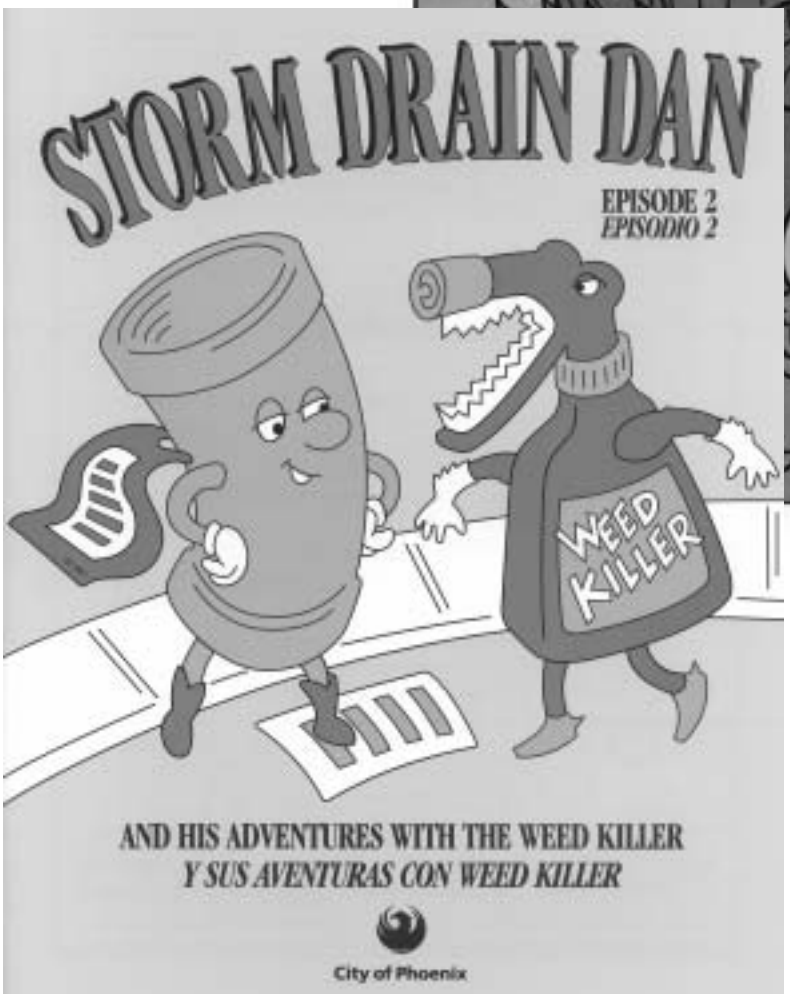
1-800-256-8535
State wide shelter information. This number will be activated once the Governor has issued an evacuation order, voluntary or mandatory.

1-888-877-9151
Traffic and road conditions.

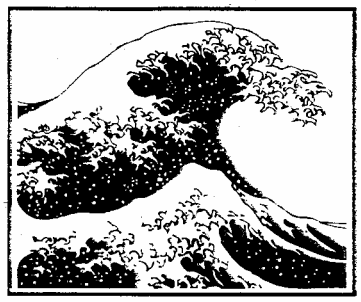
Determine, to the best of your ability, if you can indeed reach your evacuation destination and leave in plenty of time to get there.

This 8½" x 11" brochure covers the hazards of hurricanes, heat, and rip tides. The other side is on the previous page.

This is a flood safety puzzle and coloring book from the Pima County, Arizona, Flood Control District.



This book, oriented towards elementary school children, is in both English and Spanish. Prepared by the City of Phoenix, Arizona, it receives CRS credit for the topic of natural and beneficial functions.



LAKE ST. CROIX BEACH

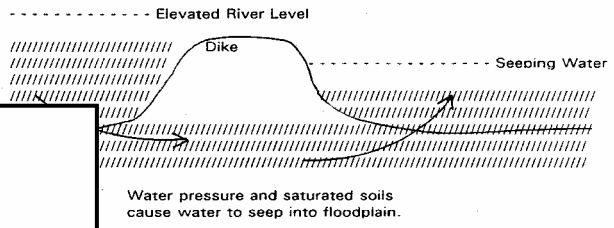
FLOODPLAIN HOMEOWNER'S GUIDE

This brochure is created by the City of Lake St. Croix Beach to assist its residents in understanding the floodplain area of the City, and to provide information needed to properly manage floodplain development.

FLOOD HAZARD

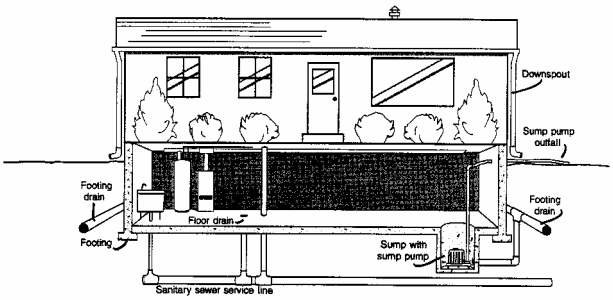
Your home is in the floodplain. The floodplain of Lake St. Croix Beach has a meandering boundary which is difficult to describe in words. If you have any question as to where your home lies within the floodplain, it is best to consult the Flood Insurance Rate Map (published by the National Flood Insurance Program) located in City Hall, 1919 Quebec Avenue. City staff will be able to assist you in reading the map and locating your residence. We have 35 homes which are directly affected by the 100-year floodplain. Twenty-five of those residences are in the 10-year designation, at or below 687' elevation. Normal pool of the St. Croix River is 675' elevation.

Flooding, at some level, is nearly an annual event in Lake St. Croix Beach. Floods here are usually the result of seepage: as the St. Croix River rises,



Water pressure and saturated soils cause water to seep into floodplain.

Guide To Basement Flooding

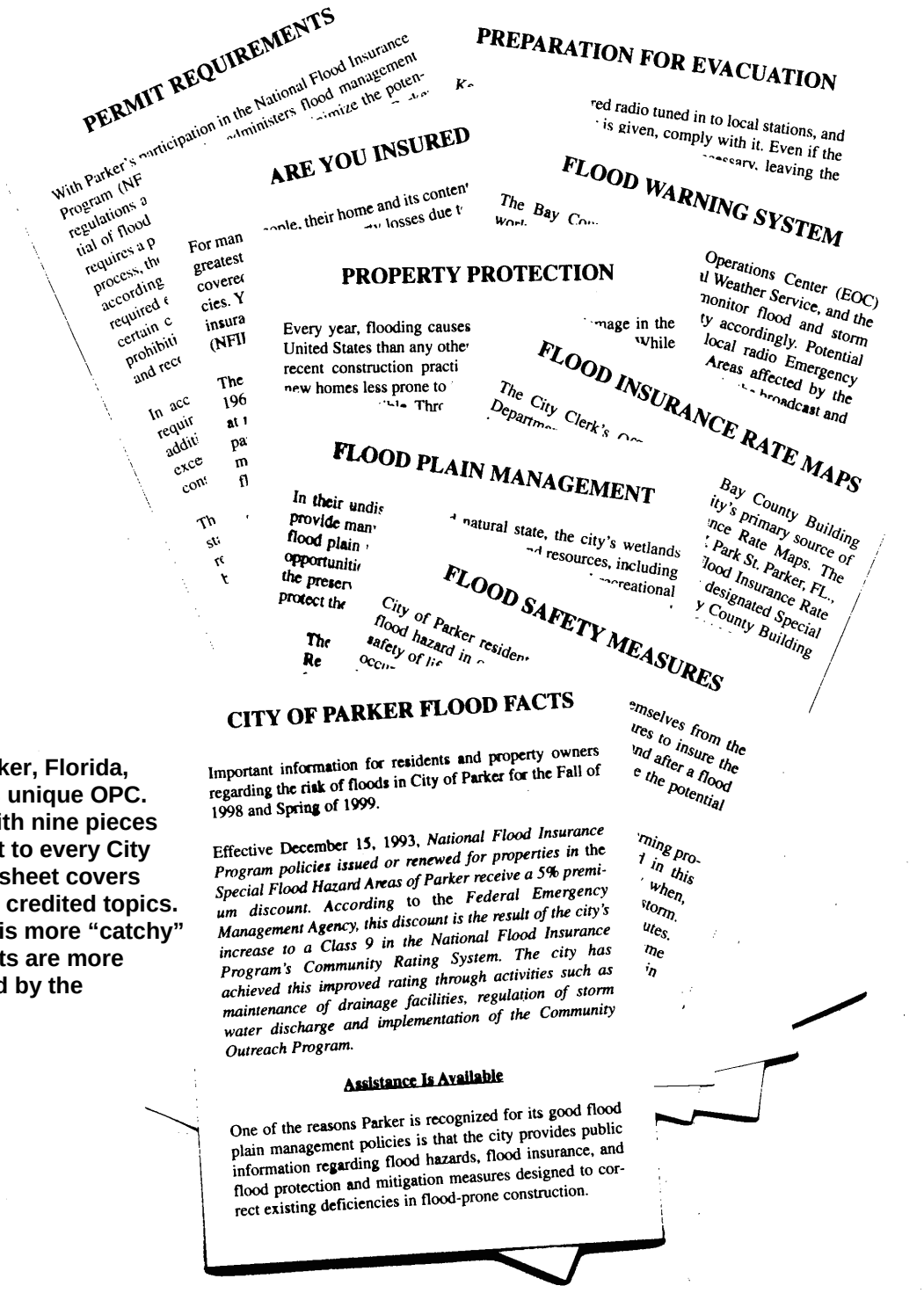


December 1995

VILLAGE OF ORLAND HILLS

Two general flood protection booklets. Lake St. Croix Beach's (above) is direct and simple on 8½" x 11" paper. It also qualifies as an OPF.

Orland Hills has two booklets, one for surface flooding and one for basement flooding (left). They are displayed at the main counter at Village Hall and are free for any resident to take.



The City of Parker, Florida, assembled this unique OPC. An envelope with nine pieces of paper is sent to every City resident. Each sheet covers one of the CRS credited topics. This approach is more "catchy" and the contents are more likely to be read by the recipient.

Floodproofing Open House

Wednesday,
August 27, 1997
7:00 p.m. to 9:30 p.m.

Marie Irwin
Community Center
Ridge Road and Highland Ave
Homewood, IL

A Self-Help Program
to
Prevent Flood Damage from
Overland Flow, Sewer Backup and
Leaky Basements

HOME SWEET HOMEWOOD
~Incorporated 1893~
Homewood, Illinois

A Floodproofing Open House brings local officials, contractors, and flood experts together to provide one-on-one advice and information to residents. "How to Conduct a Floodproofing Open House" provides step-by-step instructions on this form of outreach project. It is available for $7.00 from the Illinois Association for Floodplain and Stormwater Management, 153 Nanti, Park Forest, IL 60466.

Floodproofing Open House - Wednesday - August 27, 1997 - 7:00 p.m. to 9:30 p.m.

The Marie Irwin Community Center - Ridge Road and Highland Ave - Homewood

A Self-Help Program to Prevent Flood Damage from Overland Flow, Sewer Backup and Leaky Basements

Who should attend?

Residents and businesses who have flooding, drainage or sewer problems.

Why should you attend?

To learn about ways to protect your home or basement from flood damage through simple self-help methods.

What information is available?

Self-Help Ideas:

A slide show presented by a floodproofing expert will introduce floodproofing techniques to protect your home from flood damage.

A video will be shown on how to retrofit your home or property to protect against flood damage.

Government Agencies:

Floodproofing experts will be available to provide one-on-one advice for your particular home or property on how to prevent future flood damage.

Building officials will be present to explain how to get the necessary Village permits and assistance.

Representatives from other agencies will help you understand the causes of flooding and possible solutions.

Exhibits by Contractors:

Contractors offering an array of services will be on hand to explain their products. Many will have models showing how these products would work in your home to help prevent flood damage.

Flood Insurance Expert:

A representative from the National Flood Insurance Program will be there to answer your flood insurance questions.

Pamphlets and Materials:

A Village guide to flood protection and other handouts will be available free to help you better understand what to do after a flood and how you can protect your home from flood damage.

When and where is it?

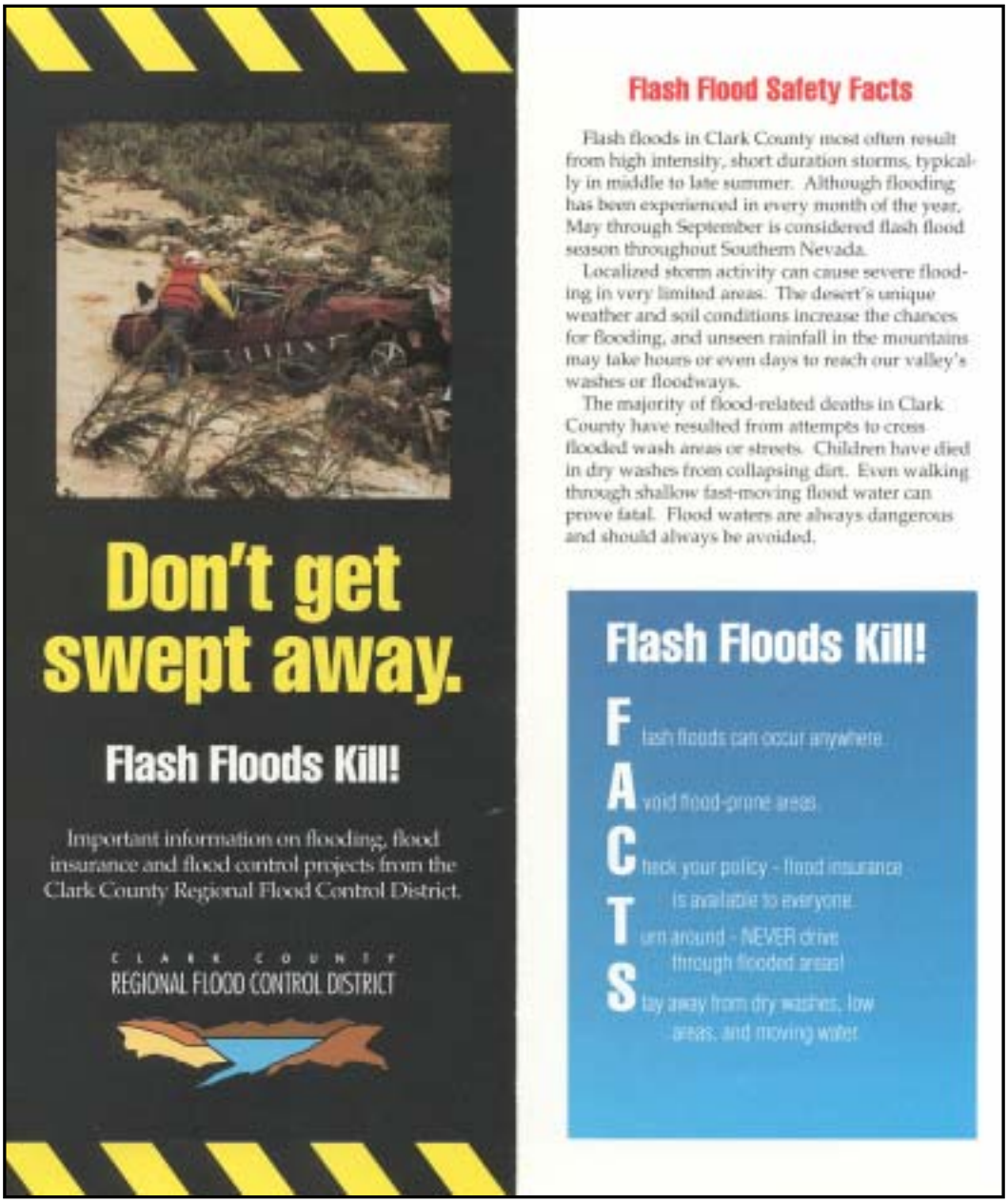
Wednesday, August 27, 1997, from 7:00 p.m. to 9:30 p.m. at the Marie Irwin Community Center, Ridge Road and Highland Ave, Homewood. The Center is four blocks east of the Homewood train station.

This is an open house - you may drop in at any time between 7:00 p.m. and 9:30 p.m.

Example Topic Coverage

Flood Safety

This is a flash flood safety handout from the Clark County Flood Control District, Las Vegas, Nevada. The eight-part folder has an eye-catching cover. Inside, the folder explains flood insurance, flood safety, and where to get help.



Flood Warning

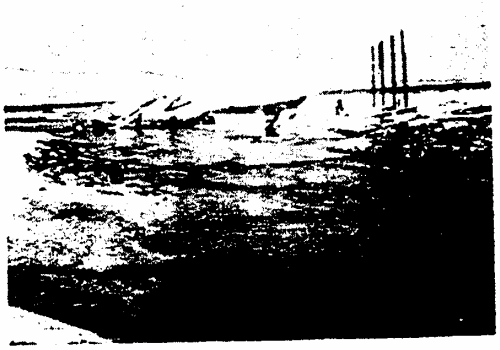
As with most Florida communities, Charlotte County has an extensive flood warning and preparedness program. An excerpt from its brochure is reproduced below.

Note how this notice relates the warning to evacuation and further instructions that everyone has in their telephone books. This project would receive full credit for the flood warning topic. The telephone book pages could be submitted for credit for flood safety.

Charlotte County Residents:

98% Of County Population Is Vulnerable To Loss From Flooding

Are You Prepared?



Charlotte County's Flood Warning System

The most serious threat of general flooding is during the hurricane season (June through November). **Residents should tune to** TV and **radio weather broadcasts and be alert to special local advisories.** Local radio and TV stations will carry advisories for our area:

Radio

WKII (AM 1070)
WCCF (AM 1580)
WIKX (FM 92.9)
WEEJ (FM 100.1)
WENG (AM 1530) *(Englewood Area)*

TV Stations

WBBH Channel 20
WINK Channel 11
WWSB Channel 40 *(Englewood Area)*

The Office of Emergency Management (OEM) maintains direct contact with the National Weather Service and National Hurricane Center and relays updates of threatening weather to government, media, hospitals, and nursing homes. The OEM can override the local cable broadcast system to provide storm and flood watch and warning updates. Law enforcement and fire-rescue have the capability to deliver flood warning messages in the unlikely event of a storm developing at night with no opportunity for prior warning to the public.

Evacuation Routes are identified on page 16 of the blue pages of the telephone directory.

Assistance in evacuation can be arranged for eligible parties by registering with the OEM. Call 743-1270 for more information on the Special Needs Program.

Flood Hazard and Map

The City of Boulder, Colorado, developed a multi-page, well-illustrated brochure. It was distributed with a cover letter to residents of the floodplain. The cover letter included the following language (bold print in original):

> The purpose of this letter is to notify you that:
>
> ∉ **your property is subject to possible flooding.**
>
> ∉ **most homeowners' insurance policies do not cover loss from flooding . . .**

Boulder's Flood Hazards

What Everyone Should Know

Flooding on Taft Drive on August 21, 1982.

City of Boulder
Flood Management Utility Office

The area near 9th and Canyon was severely damaged in the flood of 1894. Highland School is visible at left.

Where will it flood in Boulder?

The map on the next panel indicates Boulder's 100-year floodplain or high risk flood hazard areas. These areas are lands in the floodplain that are subject to a 1% or greater chance of flooding to a depth greater than one foot in a single year. In other words, they are properties that have about a 25% chance of being flooded over the life of a 30-year mortgage.

Smaller floods have a higher rate of occurrence than large floods. However, the damage smaller floods cause cannot be disregarded. Boulder's primary flood season is from May to August, but flash floods can occur at any time throughout the year and can affect nearly every person in the city.

Even though your home or business may not be located in one of these areas, you may still be affected by a flood. Flash floods, which reach peak flows in a short length of time (hours or minutes) after the onset of a rainstorm, are especially hazardous for Boulder residents. Flood waters can wash out roads, cause loss of power, and contaminate drinking water.

Everyone should be prepared for a flood.

Excerpts from this brochure are included on these pages. Note how the use of local photographs conveys the immediacy of the hazard. The hazard is also localized by the reference to a well-known and deadly flood that occurred nearby.

These pages received full credit for the topics of the local flood hazard and the flood hazard map. Additional pages in the Boulder brochure cover flood warning, safety, insurance, property protection, and regulations, but are not included here.

Boulder is at risk for flash floods.

Boulder's beautiful natural setting is one of its greatest assets. Yet, its location at the mouth of Boulder, Sunshine, Gregory, and Lefthand canyons also places its residents at risk from flash floods. In 1976 the Big Thompson Canyon, located 35 miles north of Boulder, generated a flash flood of such force that it killed at least 139 people, injured 88 others, and destroyed 361 homes and 52 businesses. That disaster provided valuable lessons for the City of Boulder and Boulder County in working to reduce the impacts of such an event in our community, but individuals must also be aware and prepared.

Flash floods...

result when heavy rains fill natural and engineered drainage systems to overflowing. The flood waters move so rapidly and powerfully that they carry away trees, boulders, mud, structures, vehicles, other debris, and people.

When a flash flood occurs, time is short – **seconds** can mean the difference between safety and tragedy. Understanding the dangers and knowing what actions to take can save your life.

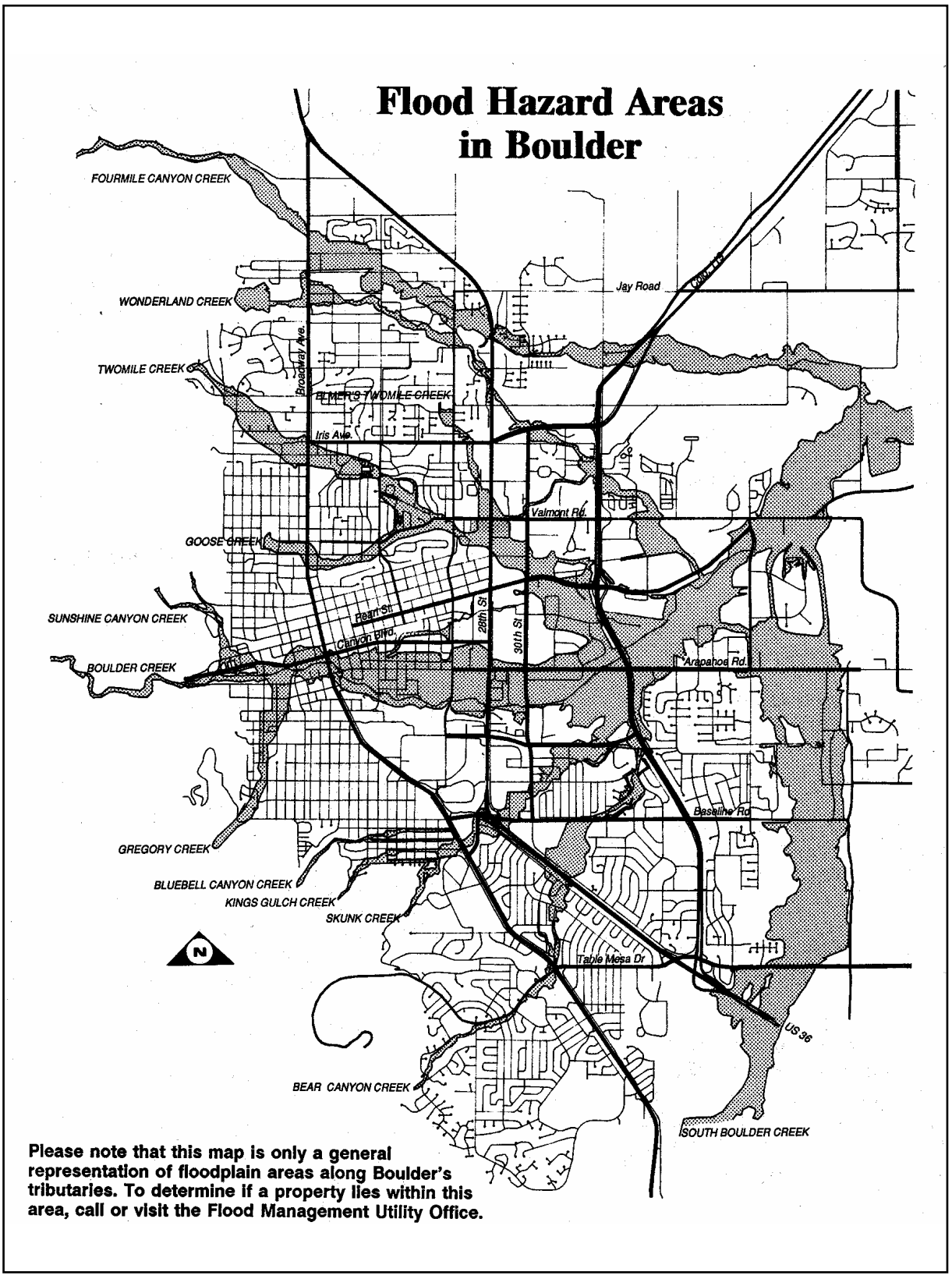
Flood waters surround the Boulder Depot at 30th and Pearl streets on May 15, 1978.

For further information, visit the Flood Management Utility Office at 1739 Broadway, or call them at 441-3240.

Flooding at 28th and Spruce streets on June 6, 1968.

Prepared by the City of Boulder, Colorado
Department of Public Works
Utilities Division
Flood Management Utility Office
P.O. Box 791
1739 Broadway
Boulder, Colorado 80306
(303) 441-3240

Printed on recycled paper
5/90


Flood Hazard Areas
in Boulder
FOURMILE CANYON CREEK
WONDERLAND CREEK
TWOMILE CREEK
UPPER TWOMILE CREEK
GOOSE CREEK
SUNSHINE CANYON CREEK
BOULDER CREEK
GREGORY CREEK
BLUEBELL CANYON CREEK
KINGS GULCH CREEK
SKUNK CREEK
BEAR CANYON CREEK
SOUTH BOULDER CREEK
Broadway Ave.
Iris Ave.
Jay Road
Valmont Rd.
Pearl St.
Canyon Blvd.
28th St
30th St
Arapahoe Rd.
Baseline Rd.
Table Mesa Dr
US 36
N
Please note that this map is only a general representation of floodplain areas along Boulder's tributaries. To determine if a property lies within this area, call or visit the Flood Management Utility Office.

Natural and Beneficial Functions

The following is taken from a flood protection flyer prepared by Sacramento County, California. It covers most of the 10 topics. This section discusses the importance of maintaining water quality and what the reader can do. This excerpt would receive full credit for the topic of natural and beneficial functions.

It is also important to note that this was written before this topic became eligible for CRS credit. It underlines the importance of preparing an outreach project that meets local needs. CRS credit should be a secondary consideration.

STORMWATER QUALITY

The storm drain system carries untreated stormwater runoff directly to creeks and rivers. Improper pouring of wastes into storm drains directly impacts our environment. Oil, paint, fertilizer and pesticides pollute the water, destroy plants, endanger wildlife and affect drinking water. The pollutants most commonly dumped into storm drains are motor oil, fertilizer, antifreeze, pesticides, herbicides and paint.

Water Quality Impacts

One quart of oil can contaminate 250,000 gallons of water. The oil from one motor oil change can create an 8 acre oil slick. Antifreeze is toxic to people, domestic animals and wildlife. Paint products can be harmful to people, animals and the environment. Pesticides are deadly to fish, birds and other wildlife. Herbicides destroy stream-side brush and vegetation as well as animals. Fertilizers encourage the growth of algae, which can reduce the amount of oxygen in water and lead to fish kills.

Much of the water we and other Californians drink comes from the American and Sacramento Rivers. Contamination can increase human health risk and endanger the food chain.

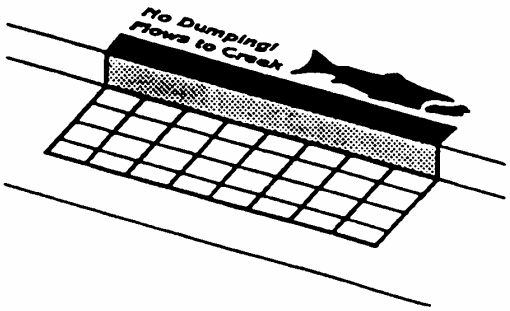
Water Quality Benefits

- We have clean water in our rivers for drinking, wildlife and recreation.
- Storm drainage facilities that are free of sediment and trash require less maintenance.
- Stream corridors are ribbons of green that provide a healthy habitat for wildlife and an attractive space in a neighborhood.

Do you care about reducing pollution in the Sacramento and American Rivers and local creeks?

If so, here's what you can do to help.

- Properly store and dispose of oils, chemicals, antifreeze and other toxic material. Sacramento County Hazardous Waste Division collects recyclable and toxic household waste. Free collection events are held regularly. Hazardous Materials also investigates hazardous spills. To report a spill or for collection event information call 386-6160.
- Never dump any waste in the storm drain. Dispose of litter and animal waste in a trash can. Sweep sidewalks, gutters, driveways and other paved surfaces. Put the debris in a trash can.
- Participate in storm drain stenciling. Storm drain stenciling is an important public awareness activity to alert citizens that dumping litter and hazardous materials into storm drains is harmful to our environment. If you belong to a volunteer group and would like to stencil storm drains, call the WRD at 440-6851.



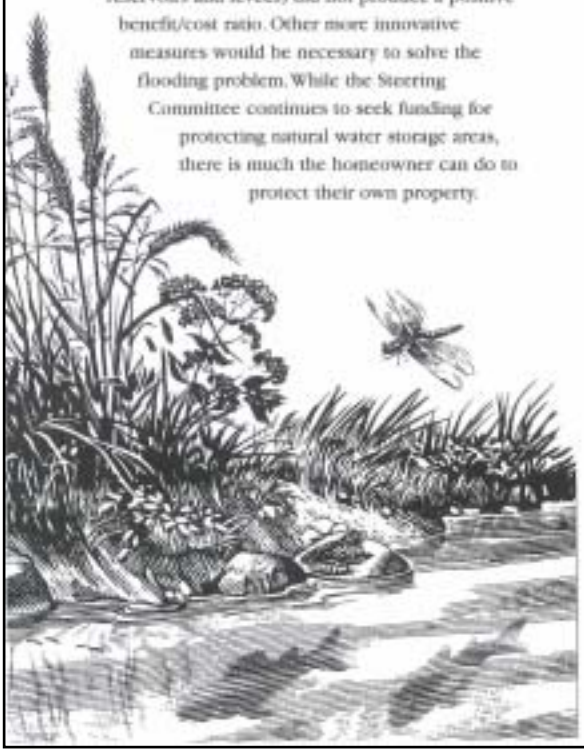
This is the first page of a four-page mailer. Page 2 is on the next page. Page 3 lists desirable and undesirable plant species for the area. Page 4 has a map of the watershed and room for the mailing address and stamp.

Butterfield Creek

STEERING COMMITTEE

Homeowners Guide to Living on the Creek

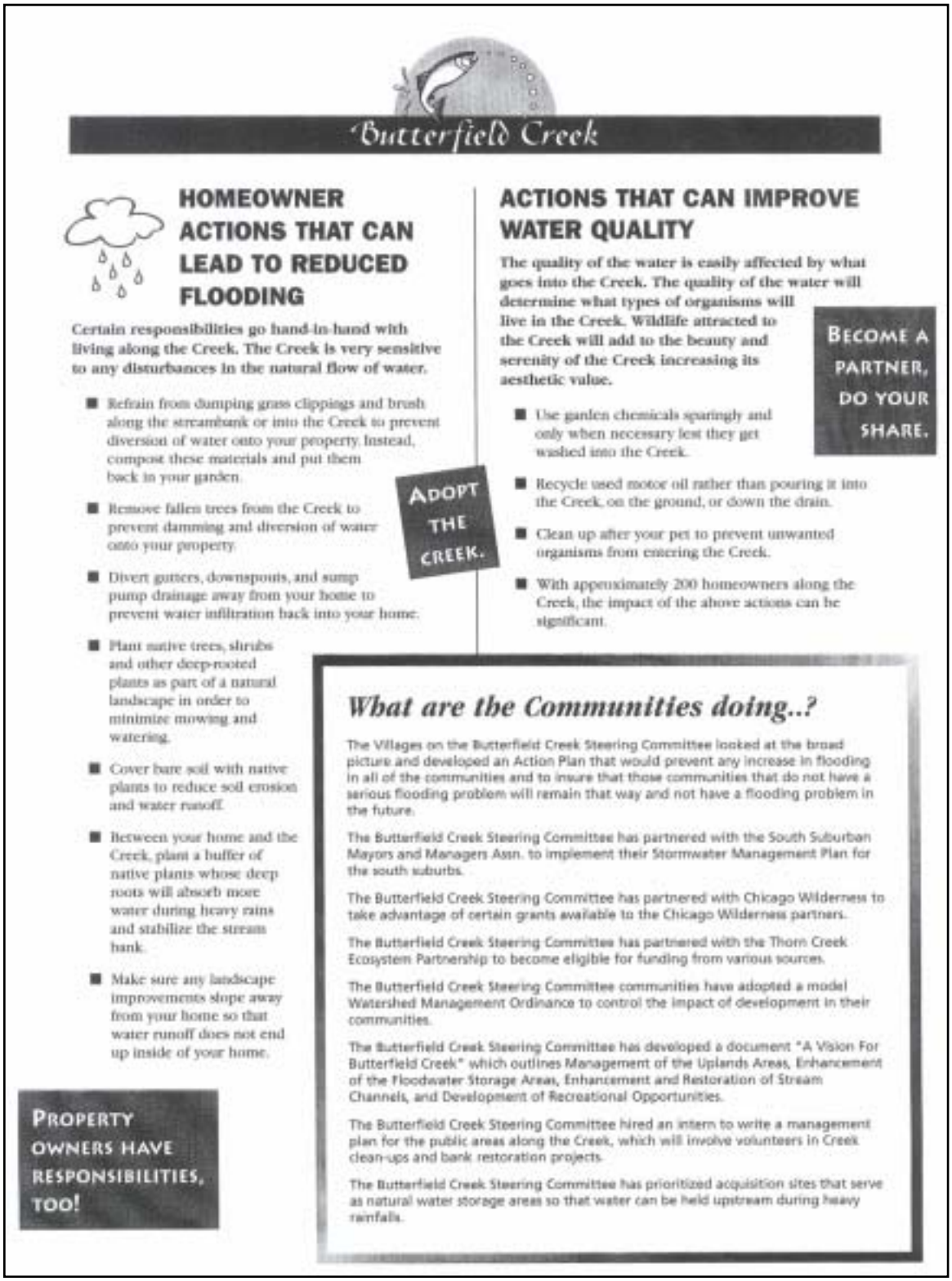
The Butterfield Creek Steering Committee was formed by several communities after the severe flooding which occurred along the Creek in 1981. Citizen concerns about flooding led to the formation of the Butterfield Creek Steering Committee in 1983 by cooperative agreement among the Villages of Richton Park, Matteson, Olympia Fields, Flossmoor, Homewood, Glenwood, Chicago Heights and Cook County. Although the initial focus of the Steering Committee was to seek federal and state funding for the development of structural measures to alleviate flooding, the results of extensive studies indicated that structural solutions (constructing reservoirs and levees) did not produce a positive benefit/cost ratio. Other more innovative measures would be necessary to solve the flooding problem. While the Steering Committee continues to seek funding for protecting natural water storage areas, there is much the homeowner can do to protect their own property.



If all property owners along the Creek used best management practices, flooding would be reduced, stream bank erosion would be reduced, water quality would be improved, and the aesthetic qualities of the Creek would be increased. Some of the major landowners along the Creek are the golf courses in Olympia Fields, Flossmoor, and Homewood. Both the Olympia Fields Country Club and the Flossmoor Country Club have worked diligently to become "certified Audubon Wildlife Sanctuaries". This is a program through which large open space golf courses can manage their grounds to comply with a set of management practices required by the New York Audubon Society. These practices have led to improved wildlife habitats on the local golf courses. As a result of the improvements for wildlife, other benefits have been realized along Butterfield Creek such as reduced stream bank erosion, reduced chemical runoff, and planting the types of plants that aid in reducing flooding along the Creek.

By adopting similar practices, the homeowner can economically participate in becoming a partner to reduce flooding, improve water quality, reduce stream bank erosion, and restore the natural aesthetic beauty of the usually mild-mannered Creek. After all, one of the reasons you chose to live near Butterfield Creek was the aesthetic quality of living near a Creek. As a homeowner along the Creek, you would want to assume the responsibility for maintaining that amenity as much as you would in maintaining the rest of your property. This Homeowners Guide will help you to do that.

Page 2 of the Butterfield Creek mailer.



Drainage System Maintenance

Besides providing the usual information about why not to dump and who to call, this flyer also notes that there is a free service for disposing of large items and hazardous materials.

Project Clean Stream

Most of our rainwater travels through gutters, storm drains, channels, washes and eventually into the major source of our drinking water, Lake Mead.

Be aware of actions which may result in the pollution of our streams and water. Did you know.....

- Dumping in the desert may result in rain and flood water being diverted into areas not designed for drainage. Debris, dumped in critical locations, can cause rainwater flow to be diverted around natural or designed watercourses. Unexpected flooding can occur. The dumping of used refrigerators, bathtubs, cars, couches, mattresses, concrete, landscaping materials, soil, boulders, sand, etc. in the desert and on vacant property is ILLEGAL and unsightly. Silver State Disposal residential customers can take advantage of the heavy item pickup service. Call 735-5151 for more information.

CLARK COUNTY
REGIONAL FLOOD CONTROL DISTRICT

- Used automobile fluids, oil, paint, paint thinners, pesticides, pool chemicals, and car batteries should be taken to a disposal site that accepts hazardous waste. Do not dump these items in the desert or in storm drains. Residential customers of Silver State Disposal may call Environmental Technologies at 734-5400 to find out about FREE quarterly Household Hazardous Waste Collection days.
- Motor oil, radiator coolants, transmission and power steering fluids can drip from cars onto our roads. Rain washes these pollutants into our local drainage systems. Make sure that fluids from your vehicle do not drip onto driveways and roadways. If possible, use biodegradable detergents to wash your car.
- Pet and animal waste, especially from dogs, horses and livestock, can get washed into the drainage system and create unhealthy bacterial growth. Be sure to clean up after your animals.

Have an eye on our environment and keep our area beautiful. If you see illegal dumping onto vacant land, open desert areas, washes, or gutters, please take the time to report the vehicle license plate number or company name to the following numbers:

Clark County and Outlying Areas	455-4191
City of Las Vegas	229-6615
City of Henderson	565-2347 or 565-2093
City of Boulder City	293-9224
City of North Las Vegas	649-0319
City of Mesquite	346-5262

For more information about Project Clean Stream, please contact the Clark County Regional Flood Control District at 455-3139.

CLARK COUNTY
REGIONAL FLOOD CONTROL DISTRICT

Printed on Recycled Paper

301 E. Clark Avenue, Suite 301
Las Vegas, NV 89101

Public Information Program Strategy Examples

Village of Lansing

Residents of Lansing had complained that the Village was not doing enough about flooding. There were also many people with basic questions about flood insurance, permit requirements, etc. To respond to this need for information and to obtain CRS credit, the Mayor appointed a Flood Advisory Committee of Village staff and residents who had voiced concerns.

The Committee held three meetings and prepared the following Public Information Program Strategy. The Committee will continue to meet to monitor progress and design the activities recommended in section 7. This Strategy has been accepted for CRS credit.

Lansing's annual evaluation report for this strategy begins on page 73.

1. Background

The Village of Lansing is built on very flat ground that once was the bottom of Lake Michigan. This terrain hinders drainage and produces wide floodplains. The Village has been subject to repeated local drainage and sewer backup problems and several major floods over the last 20 years. Development in the floodplains and the surrounding watersheds have overloaded the drainage and sewer systems and added to flooding problems.

While widespread, the Village's flood problems are not insurmountable. There are many things that the Village can implement to prevent and reduce flood problems and that property owners and residents can do to protect themselves. Keeping people informed about the hazard and protection measures is one of the best places to start.

The Village is submitting an application for flood insurance premium reductions under the Community Rating System (CRS). A "public information program strategy" is one activity that can be credited as part of that application. Accordingly, Mayor Robert West appointed a Flood Advisory Committee to develop such a strategy.

This document is the Committee's recommended Public Information Program Strategy for the Village of Lansing. It follows the format needed for CRS credit, but the recommendations are those of the local Flood Advisory Committee. It is being submitted to the Village Board of Trustees for adoption and implementation.

NOTE: *Although it is not necessary for CRS credit, the Advisory Committee wanted this formal recognition of its program by the Village authorities. The Village Board adopted the Strategy by resolution on July 20, 1999.*

2. Problem Description

There are three types of flood problems that Lansing faces:

a. Overbank flooding
b. Local drainage
c. Sewer backup

a. Overbank Flooding. Lansing is subject to overbank flooding from the Little Calumet River, North Creek and Lansing Ditch. The largest flood problem is along the Little Calumet River.

The first major flood in recent memory on the Little Cal was in June 1981. It was followed by a flood almost as high in December 1982. Lansing's worst flood on record (so far) occurred in November 1990. Heavy local storms caused the Little Cal to rise higher than before, over half a foot higher than the 1981 record. The July 1996 flood came within inches of the 1981 flood.

Floods move slowly in this flat area. The highest average floodway velocity on the Little Cal during the 100-year flood is less than 1 foot per second. Velocity as a hazard is related to flood depth. For example, the common rule of thumb is that an adult can walk through a flooded area one foot deep and running at three feet per second or three feet deep moving at one foot per second. Most buildings can withstand velocities of up to five or six feet per second without structural damage. Therefore, the velocity hazard in Lansing is relatively low.

Because of all the construction in the upstream watersheds, stormwater runs off quickly. The 1990 storm caused overbank flooding to reach buildings in less than 24 hours. The river kept rising for another 24 hours. With our flat terrain, it takes a while for the waters to recede. After the Little Cal crested in 1990, it took 3–4 days to get back in its banks. In other words, the river was out of its banks for a total of five days and in buildings for two of those days.

It is estimated that it costs $20,000 to repair a home with an unfinished basement that was flooded with only one foot of water over the first floor. This figure accounts for debris removal, cleaning, repairing the floors, and replacing walls, insulation, wooden doors, electrical services, furnace, washer, dryer, and contents. It assumes no damage to the foundation, the garage or landscaping.

In addition to property damage, floods can hurt the community's economic base. Businesses, even those not directly flooded, may be closed because no one can get to them. Employees may be diverted to protect, clean up and repair their own damage. The combination of damage to the buildings and inventory and lost customers or lost production has been known to put marginal operations out of business.

There are many noneconomic costs associated with flooding. The most important is the potential for loss of life. While the relatively slow rising and slow moving floodwaters are not generally considered life threatening, in the 1981 and 1982 floods, two young people died in neighboring suburbs trying to cross flooded areas, one on a bicycle and one in a small boat.

Three general types of health problems accompany floods. The first comes from the water itself. Floodwaters carry whatever was on the ground that the stormwater runoff picked up, including dirt, oil, and farm and industrial chemicals. In the 1990 flood, one nearby community found PCBs after the waters receded.

The second health problem comes after the water is gone. Stagnant pools become mosquito breeding grounds and wet, uncleaned areas of a building breed mold and mildew. A house that is not thoroughly and properly cleaned becomes a health hazard, especially for small children and the elderly.

The third problem is the long-term psychological impact of having been through a flood, seeing one's home damaged and irreplaceable keepsakes destroyed. The cost and labor needed to repair a flooded home puts a severe strain on people, especially the unprepared and uninsured. There is also a long-term problem for those who know that their homes can be flooded again. The resulting stress on floodplain residents takes its toll in the form of aggravated physical and mental health problems.

b. Local Drainage. Lansing's local drainage problems are primarily due to backed up combined sewers and storm sewers. The sewers are designed to drain streets and ponding areas along with transporting sanitary sewage to treatment facilities. When they are blocked or overloaded by heavy rains, the drainage system is plugged. Stormwater sits for hours or days, waiting for the sewers to clear.

Local drainage problems occur during storms in any part of the Village. Many consider flooded streets and yards as nuisance flooding. Generally the water does not reach or damage a building. In some cases, yard ponding will cause or aggravate basement flooding. Street ponding is usually not severe enough to close a street to traffic, at least not to emergency vehicles.

However, flooded streets and yards can cause or aggravate health and safety problems and disrupt traffic. It is only a "nuisance" when compared to the extensive damage caused by overbank flooding.

c. Sewer Backup. There are three types of sewers in Lansing:

1. Storm sewers that collect surface drainage and direct it to the rivers. When storm sewers work, the streets and yards are drained quickly. Storm sewers won't work if they are overloaded, underdesigned or blocked. Blockages can be caused by a broken pipe, debris or sediment in the pipe, ice, or an outlet or outfall that is under water.

2. Sanitary sewers that collect sewage from buildings and carry it to wastewater treatment plants. They should not be affected by stormwater because they are separate from the storm sewers. However, there can be cross connections and leaks in sanitary sewer pipes that receive inflows and infiltration which can overload a sanitary line during wet weather.

3. Combined sewers that collect both stormwater and sewage and carry it in the same pipe to a treatment plant.

With no place to go, sewers back up and flow into the lowest opening in the sewer line. Sanitary sewers back up into basements and storm sewers back up into streets. An overloaded combined sewer backs up into basements first and, if the water gets deeper, into streets. With the completion of the Deep Tunnel connection in 1996, the sanitary and combined sewers have been better able to handle their wet weather flows.

A sewer backup flood causes two types of damage. By getting items wet with dirty water, it can effectively destroy many basement contents. Finished basements, with carpeting and furniture, are especially susceptible to damage. Even in unfinished basements, water damages washing machines, dryers, furnaces, water heaters, and utilities.

The second type of damage comes from the sewage in the water. Backed up sewers create a significant health problem, even in empty basements. Clean up must be careful and thorough to ensure there are no lingering hazards. The health, mental health, and noneconomic impacts are similar to those described for overbank flooding.

3. Flood Safety Measures

The following is a list of accepted flood safety measures for the type of flood hazard present in Lansing.

- Do not walk through flowing water. Drowning is the number one cause of flood deaths. Currents can be deceptive; six inches of moving water can knock you off your feet. Use a pole or stick to ensure that the ground is still there before you go through an area where the water is not flowing.

- Do not drive through a flooded area. More people drown in their cars than anywhere else. Don't drive around road barriers; the road or bridge may be washed out.

- Stay away from power lines and electrical wires. The number two flood killer after drowning is electrocution. Electrical current can travel through water. Report downed power lines to the Police Department (call 911).

- Look out for animals that have been flooded out of their homes and who may seek shelter in yours. Use a pole or stick to poke and turn things over and scare away small animals.

- Look before you step. After a flood, the ground and floors are covered with debris including broken bottles and nails. Floors and stairs that have been covered with mud can be very slippery.

- Be alert for gas leaks. Use a flashlight to inspect for damage. Don't smoke or use candles, lanterns, or open flames unless you know the gas has been turned off and the area has been ventilated.

- Carbon monoxide exhaust kills. Use a generator or other gasoline-powered machine outdoors. The same goes for camping stoves. Charcoal fumes are especially deadly -- cook with charcoal outdoors.

- Clean everything that got wet. Flood waters have picked up sewage and chemicals from roads, farms, factories, and storage buildings. Spoiled food, flooded cosmetics, and medicine can be health hazards. When in doubt, throw them out.

- Take good care of yourself. Recovering from a flood is a big job. It is tough on both the body and the spirit and the effects a disaster has on you and your family may last a long time.

4. Property Protection Measures

Because of the nature of flooding and the relatively low hazard, most buildings in Lansing can be protected from flood damage. The protection measure depends on the type of building foundation (basement, slab or crawlspace) and the source of water (surface, subsurface or sewer backup).

a. For a basement, split level, or other floor below ground level subject to seepage or subsurface flooding, waterproofing the walls and installing drain tile and sump pump are the most common protection measures. Sewer backup is the more common threat and can be prevented by installing a floor drain plug, standpipe, overhead sewer or backup valve. Surface flooding can be handled with a berm or other barrier that keeps the water from reaching the building walls.

b. For a house on a slab foundation, a low floodwall, berm or "dry flood-proofing" (i.e., making the walls watertight and closing all the openings when a flood comes) are recommended.

c. For a house on a crawlspace, a low floodwall, berm or "wet floodproofing" will work. "Wet floodproofing" means moving all items subject to damage out of harm's way so water can flow into the crawlspace and not cause any problems. If floodwaters go over the first floor, it is relatively easy to elevate the building to get the first floor above the flood level.

d. In all situations, flood and/or sewer backup insurance policies are recommended because no protection measure is foolproof.

5. Current Public Information Activities

The following public information activities have been implemented or are being implemented as part of the Village's flood protection program:

a. The Building Department helps people read flood insurance maps. For CRS credit, this service must be publicized in the Village newsletter, "Village Vision."

b. The Village newsletter, "Village Vision," will carry a flood article in each of its quarterly editions. These will cover the following topics:

    1. The local flood hazard
    2. Flood safety
    3. Flood insurance
    4. Property protection measures
    5. Natural and beneficial floodplain functions
    6. Floodplain development permit requirements
    7. The substantial improvement/damage requirements
    8. Drainage system maintenance

c. Direct mailings to floodplain residents. At least once each year a letter will be sent to all floodplain properties. It will cover the same 8 topics as the newsletter articles.

d. Purchasers of a lot in a subdivision that was platted in the last 20 years see a notice in the subdivision plat if part of the lot is in the floodplain. This is required by state law and is implemented by the County Recorder of Deeds.

e. The Lansing Public Library has a variety of references cataloged under "flood."

6. Goals for this Strategy

The Flood Advisory Committee agreed on four overall goals for the Village's Public Information Program Strategy:

Goal 1: Build a commitment on the part of the Village government to a continuous and comprehensive public information program.

Goal 2: Make all residents and property owners aware of the flood, drainage and sewer backup hazards that they face.

Goal 3: Make all residents and property owners aware of the ways they can protect themselves from their flood, drainage and/or sewer backup hazards.

Goal 4: Build a personal commitment on the part of residents and property owners to take responsibility for flood protection activities that protect themselves and their community.

7. Projects for 1999 - 2000

To reach the Strategy's goals, the following projects are recommended for the period August 1999 - July 2000.

a. The Village Board should make the Flood Advisory Committee a permanent body. This should be done by a Board resolution that:

(1) Authorizes the Mayor to appoint the membership and Chair of the Committee, subject to approval by the Board,

(2) Tasks the Committee to advise the Board and Village staff on flood-related matters,

(3) Tasks the Committee to monitor implementation of the projects recommended by the approved Strategy, and

(4) Charges the Committee to submit an evaluation report to the Board each year with recommendations for the following year.

Goal(s) supported: 1
Lead agency: Village Board of Trustees

b. The Village should continue the public information activities listed in Section 5, above.

(1) The Building Department should continue to help people read flood insurance maps.

Goal(s) supported: 2
Lead agency: Building Department

(2) The Village newsletter should carry a flood article in each of its quarterly editions. Copies of the articles should be sent to The Times, The Star, The Southtown and The Shopper for wider distribution.

Goal(s) supported: 2, 3, and 4
Lead agency: Department of Planning and Development

(3) The Village should continue the annual direct mailings to floodplain residents.

Goal(s) supported: 2, 3 and 4
Lead agency: Building Department

(4) The County Recorder of Deeds should continue to enforce the subdivision plat notification requirements.

Goal(s) supported: 2
Lead agency: County Recorder of Deeds

(5) The Lansing Public Library should continue to maintain the flood protection references, including the flood maps.

Goal(s) supported: 2 and 3
Lead agency: Public Library

c. The Village should publish a brochure that summarizes the flooding problems facing the Village, what's being done by government agencies (e.g., the Deep Tunnel) and the property protection measures appropriate for a Lansing home. This would be made available at the Village Hall and other public locations and sent to inquirers on request.

Goal(s) supported: 2, 3 and 4
Lead agency: Flood Advisory Committee

d. The Village should host a flood insurance workshop for insurance agents. This would be the standard agents' training session conducted by the National Flood Insurance Program. All agents in the South Suburban and Northwest Indiana areas would be invited.

Goal(s) supported: 3
Lead agency: Federal Emergency Management Agency

e. The Village should develop a short video about property protection measures. This can be done by cutting and pasting from existing videos and adding footage related to Lansing. The video should be shown on public access cable TV channels and loaned to interested citizens and organizations through the library.

Goal(s) supported: 3 and 4
Lead agency: Flood Advisory Committee

f. The Village's cable channel should include appropriate "flash ups" on flood-related topics, such as "Are you in a floodplain? Find out by calling the Building Department."

Goal(s) supported: 2 and 3
Lead agency: Flood Advisory Committee

g. The Village should prepare one-page posters on various topics for posting in public places, such as Village Hall, the Library, the downtown kiosk, and the Eisenhower Center.

Goal(s) supported: 2 and 3
Lead agency: Flood Advisory Committee

h. The Village should prepare a portable display that can be set up at various public activities, such as the Fourth of July celebration, Sidewalk Sale, Fire Prevention Week, and Scout training. The display would include things like the floodplain map and suggestions for property protection, handouts on flood insurance and permit requirements, the list of floodplain property addresses, and copies of the flood protection brochure.

Goal(s) supported: 2, 3 and 4
Lead agency: Flood Advisory Committee

i. The Village should explore conducting a floodproofing open house. This would be an opportunity for people to learn about the hazards and property protection, see the video, obtain a copy of the flood protection brochure, discuss property protection with insurance agents and contractors, and talk to government officials about what their agencies are doing about flooding. The decision to conduct an open house should be made after Committee members attend one scheduled for September 30 in Homewood.

Goal(s) supported: 1, 2, 3 and 4
Lead agency: Flood Advisory Committee

j. The Village should consider the following activities in future years:

(1) Preparing flood safety materials for children.

(2) Conducting a floodproofing open house every other year.

(3) Meeting with hardware store managers, contractors and others in the private sector who are involved in property protection.

(4) Conducting less formal meetings with insurance agents each year.

8. Monitoring and Evaluation

The Flood Advisory Committee should meet as often as necessary to prepare or review new projects. Otherwise it should meet at least twice each year to review the status of the ongoing projects.

By the end of July of each year, the Committee should prepare an annual evaluation report to the Board of Trustees. The report would cover the following points:

(1) The goals of this Public Information Program Strategy

(2) A list of the projects implemented to meet those goals and their objectives

(3) A list of those projects that were not implemented or that did not reach their objectives

(4) Recommend revisions to the current projects and new projects to be implemented during the coming year, if different from the original strategy.

These monitoring and evaluation procedures should be included in the resolution creating the Flood Advisory Committee as recommended in Section 7.a.

MEMORANDUM

To:	Mayor and Board of Trustees
From:	Flood Advisory Committee
Subject:	Public Information Strategy Evaluation Report
Date:	September 17, 2001

At the September 17 meeting of the Flood Advisory Committee (FAC), we reviewed the status of the various activities that the Village is doing or plans to do under the Public Information Program Strategy that was adopted July 1999. This memo summarizes the activities= status and our plans for the coming year.

Goals

The Village=s Public Information Program Strategy has four goals:

> Goal 1*:* Build a commitment on the part of the Village government to a continuous and comprehensive public information program.
>
> Goal 2*:* Make all residents and property owners aware of the flood, drainage and sewer backup hazards that they face.
>
> Goal 3*:* Make all residents and property owners aware of the ways they can protect themselves from their flood, drainage and/or sewer backup hazards.
>
> Goal 4*:* Build a personal commitment on the part of residents and property owners to take responsibility for flood protection activities that protect themselves and their community.

Projects

The following projects were proposed for implementation. Their status after the second year is included, along with the FAC=s recommendation for the coming year.

1. The Building Department should continue to help people read flood insurance maps.

   Goal(s) supported: 2
   Lead agency: Building Department

   Status: This service has been implemented.
   Recommendation for next year: This service should continue.

2. The Village newsletter should carry a flood article in each of its quarterly editions. Copies of the articles should be sent to The Times, The Star, The Southtown and The Shopper for wider distribution.

   Goal(s) supported: 2, 3 and 4
   Lead agency: Department of Planning and Development

   Status: In 2000, the Flood Advisory Committee decided it would be better to send a single flood newsletter out instead of articles in the existing newsletter. The Village mailed out 10,000 "Flood Awareness Newsletters" as part of the Flood Awareness Week that was held April 30 – May 4, 2001.

   Recommendation for next year: A similar mailing should be conducted as part of next year=s Flood Awareness Week. It should go out a few weeks before the Flood Awareness Week and include announcements of special activities that will be going on.

3. The Village should continue the annual direct mailings to floodplain residents.

   Goal(s) supported: 2, 3 and 4
   Lead agency: Building Department

   Status: The mailings went out in September 2001

   Recommendation for next year: The mailing should go out again in August 2002. No changes are recommended for the text.

4. The County Recorder of Deeds should continue to enforce the subdivision plat notification requirements.

   Goal(s) supported: 2
   Lead agency: County Recorder of Deeds

   Status: It is assumed that this is still being enforced.

   Recommendation for next year: No changes are recommended.

5. The Lansing Public Library should continue to maintain the flood protection references, including the flood maps.

   Goal(s) supported: 2 and 3
   Lead agency: Public Library

   Status: The Library has continued to provide this service.

   Recommendation for next year: No changes are recommended. We will check to make sure the Library has the new Cook County Flood Insurance Rate Map.

6. The Village should publish a brochure that summarizes the flooding problems facing the Village, what's being done by government agencies (e.g., the Deep Tunnel) and the property protection measures appropriate for a Lansing home. This would be made available at public locations and sent to inquirers on request.

   Goal(s) supported: 2, 3 and 4
   Lead agency: Flood Advisory Committee

   Status: The *Guide to Flood Protection* was published April 2000. It is available at Village Hall and the Building Department. It is promoted in other public information literature.

   Recommendation for next year: The *Guide* is still current and does not need any changes. The Village should maintain an adequate number of copies to meet the demand. The next time it is up for reprinting, it should be reviewed. It should have a letter from the new mayor.

7. The Village should host a flood insurance workshop for insurance agents. This would be the standard agents' training session conducted by the National Flood Insurance Program. All agents in the South Suburban and Northwest Indiana areas would be invited.

   Goal(s) supported: 3
   Lead agency: Federal Emergency Management Agency

   Status: A workshop for insurance agents was scheduled for April 2000 as part of the Flood Awareness Week. FAC member Rich Mullen sent out over 300 notices, but only two agents registered. On the day before the workshop, he called them and canceled it.

   For 2001, it was decided to host a "Flood Awareness Breakfast" for businesses. Insurance agents, lenders and real estate agents were sent individual invitations. It was also publicized in the "Village Vision"

newsletter. Three representatives of Lansing businesses attended, but they were all from banks.

Recommendation for next year: The Committee feels that the Flood Awareness Week activities is worth pursuing again next year. A meeting will be requested with Calumet City and South Holland to discuss how to do another Flood Awareness Week. Lansing will volunteer to host the breakfast.

8. The Village should develop a short video about property protection measures. This can be done by cutting and pasting from existing videos and adding footage related to Lansing. The video should be shown on public access cable TV channels and loaned to interested citizens and organizations through the library.

   Goal(s) supported: 3 and 4
   Lead agency: Flood Advisory Committee

   Status: FAC member Pat Gulotta drafted a proposal to prepare a video for $15,000. Lansing does not have the $15,000, but might be able to fund $5,000. French checked out funding from the Village of South Holland, the South Suburban Mayors and Managers Association, and FEMA's Project Impact. No funds were available for the project.

   Recommendation for next year: When staff meets with Calumet City and South Holland on the Flood Awareness Week, this issue will be raised again.

9. The Village=s cable channel should include appropriate "flash ups" on flood-related topics, such as "Are you in a floodplain? Find out by calling the Building Department."

   Goal(s) supported: 2 and 3
   Lead agency: Flood Advisory Committee

   Status: FAC member Rich Mullen has provided the cable TV folks with one-liners which have been posted.

   Recommendation for next year: No changes are recommended.

10. The Village should prepare one-page posters on various topics for posting in public places, such as Village Hall, the Library, the downtown kiosk, and the Eisenhower Center.

    Goal(s) supported: 2 and 3
    Lead agency: Flood Advisory Committee

Status: Three posters were prepared as part of the Flood Awareness Week. They were put out in several public places in the Village Hall, Building Department, etc.

Recommendation for next year: No changes are recommended.

11. The Village should prepare a portable display that can be set up at various public activities, such as the Fourth of July celebration, Sidewalk Sale, Fire Prevention Week, and Scout training. The display would include things like the floodplain map and suggestions for property protection, handouts on flood insurance and permit requirements, the list of floodplain property addresses, and copies of the flood protection brochure.

    Goal(s) supported: 2, 3 and 4
    Lead agency: Flood Advisory Committee

    Status: Work on the display was made a second priority, after the Flood Awareness Week.

    Recommendation for next year: At the September 17 meeting, it was decided to start on the display. One Committee member will handle the frame and other will prepare graphics, photos and other materials for the display.

12. The Village should explore conducting a floodproofing open house. This would be an opportunity for people to learn about the hazards and property protection, see the video, obtain a copy of the flood protection brochure, discuss property protection with insurance agents and contractors, and talk to government officials about what their agencies are doing about flooding.

    Goal(s) supported: 1, 2, 3 and 4
    Lead agency: Flood Advisory Committee

    Status: An open house was held in South Holland on May 3, 2001, as part of the joint Flood Awareness Week held with Calumet City and South Holland. Three Lansing residents attended.

    Recommendation for next year: The Committee feels that the Flood Awareness Week activities is worth pursuing again next year. A meeting will be requested with Calumet City and South Holland to discuss how to do another Flood Awareness Week.

13. The Village should consider the following activities in future years:

    1. Preparing flood safety materials for children.
    2. Conducting a floodproofing open house every other year.

3. Meeting with hardware store managers, contractors and others in the private sector who are involved in property protection.
4. Conducting less formal meetings with insurance agents each year.

Status:

1. An attempt was made to get school children involvement in the 2000 Sammy Sandbag effort, but no schools endorsed the project.
2. An open house was held in 2001 as part of the Flood Awareness Week.
3. During the Flood Awareness Week and open house preparations, contacts were made with the managers of Menard's and Lowe's in Dolton and Calumet City. They were interested in helping promote the open house.
4. Insurance agents were invited to the business breakfast held on May 1 as part of the Flood Awareness Week.

Recommendation for next year:

1. A new outreach effort to the schools will be tried this year.
2. The decision on future open houses should wait until after a decision is made on whether there will be a Flood Awareness Week next year.
3. During the Flood Awareness Week and open house preparations, contacts were made with the managers of Menard's and Home Depot in Dolton and Calumet City. They were interested in helping promote the open house.
4. The decision on future meetings with insurance agents should wait until after a decision is made on whether there will be a Flood Awareness Week with a business breakfast next year.

14. The Village sponsored a Flood Awareness Week, April 24 B 28, 2000. It was recommended that the concept be continued and scheduled for April 2001. It should not have an insurance workshop, but should have a floodproofing open house

Status: A successful joint Flood Awareness Week was held with South Holland and Calumet City. It included a lot of publicity (especially on stream clean up), a business "Flood Awareness Breakfast," a flood warning and response exercise in South Holland, and a floodproofing open house.

Recommendation for next year: The Committee feels that the Flood Awareness Week activities is worth pursuing again next year. A meeting will be requested with Calumet City and South Holland to discuss how to do another Flood Awareness Week.

15. The South Suburban Mayors and Managers Association co-sponsored a public information workshop for communities, schools, park districts and others interested in informing people on stormwater management subjects. It was recommended that at least one FAC member attend. The workshop should be used to start networking with other local governments interested in cooperative efforts with the Village=s public information program.

    Status: One FAC member, Bob Malkas, attended and spoke at the workshop on the Village's public information program and Sammy Sandbag.

    Recommendation for next year: There are no plans for another such worship. However, there should be continuing activities with the South Suburban Mayors and Managers Association's Public Information Task Force. The Village should continued to be represented on the Task Force.

King County, Washington

The introduction to this strategy document explains its background. The CRS Coordinator signed a letter to the ISO/CRS Specialist stating that the strategy will be implemented.

The strategy team's membership is described in the document. Debi Heiden from the City of North Bend is the representative from outside the county's government. The strategy's author notes that "she has an excellent view from the outside" of the community.

Of particular interest is the assignment of the recommended activities to specific members of the strategy team. This approach will greatly help implementation and monitoring because responsibilities have been clearly stated.

Public Information Program Strategy
For King County, Washington

King County has prepared this public information strategy with the primary goal of reaching all citizens in floodprone areas and encouraging them to take actions to reduce future flood risks and flood damage. This strategy has also been developed to receive credit under the Community Rating System of the National Flood Insurance Program.

The need for more citizen-initiated flood hazard reduction has never been greater. Public resources available for flood hazard mitigation projects are limited, and the costs of public works flood control projects have increased significantly, due to the need to meet multiple objectives, such as enhancement of fisheries habitat, and compatibility with recreational and other users of the resource. Further, at the national level, the National Flood Insurance Program is considering reducing federal insurance subsidies to homeowners that live in high-risk areas.

Strategy Team

In light of these trends, King County established a public information strategy team to evaluate the County's existing public outreach program and make recommendations towards reaching the goal of encouraging private flood hazard reduction actions. The public information team responsible for developing the strategy for 1999 comprised the following:

- Carolyn Duncan, Public Information Officer for the King County Department of Natural Resources;

- Cyrilla Cook, Program Manager of the Rivers Section of the King County Department of Natural Resources (the Rivers Section is responsible for implementing the programs recommended in the County's adopted Flood Hazard Reduction Plan);

- Jeff O'Neill, Site Engineering Plans Supervisor, Residential Building Services Division, King County Department of Development Services (This Division is responsible for reviewing residential building permits proposed in the floodplain, and recording elevation certificates);

- Don Gauthier, Senior Engineer, Residential Building Services Division, King County Department of Development Services; and

- Debi Heiden, Community Services Specialist for the City of North Bend, (Debi works for a small community in rural King County that experiences repetitive flooding).

The team met on December 9, 1998 to prepare the public information strategy for King County. During this meeting, the team addressed the following questions:

- How effective are ongoing King County flood-related public outreach activities in encouraging citizens in floodprone areas to take actions to reduce flood risks and private property damage?

- What kinds of programs, if any, are needed to reach a greater portion of the population?

- How could we make existing programs more effective by reaching out to all citizens in floodprone areas and encouraging them to:

  - find out if they are in floodprone areas and identify the flooding risk to their property (especially newcomers)

  - get flood insurance (taking advantage of the 20 % discount provided by CRS for King County)

  - know how to access and use the County's flood warning services

  - know what to do before, during and after a flood, and

  - take actions to floodproof their homes.

During the meeting, the Team reviewed the existing flood awareness and public outreach programs currently being implemented by King County, determined other programs that should be implemented, and made assignments for implementing those programs. A description of these existing programs is provided later in this document. But first, a description

of the local flood hazard is provided. The local flood hazard is simply the flooding conditions that exist in King County. The public strategy team considered these local flood hazards as they assessed the effectiveness of existing public information programs and additional public information needs.

Description of the Local Flood Hazard

King County is subject to two kinds of flooding: flooding that occurs on the County's major river systems, and urban flooding, associated with urbanization, particularly of small stream basins. Six major rivers flow through King County: the Skykomish, Snoqualmie, Cedar, Sammamish, Green and White. Except for the Sammamish, each of these rivers descends from the crest of the Cascade Mountains to Puget Sound.

Because of their origins in upper elevations, these rivers are heavily influenced by the snow and rain patterns in the mountains. All of them travel through broad floodplains, with long histories of flooding. Flooding along King County's major rivers threatens public safety and welfare, and causes millions of dollars of damage to public and private property. These impacts result primarily from two types of hazards created by floods: inundation and bank erosion.

Inundation, defined as flood water and debris flowing through an area, can cause minor to severe damage, depending on the velocity and depth of flows, the quantity of logs and debris they carry, and the amount and type of development in the flood water's path.

Bank erosion can threaten areas that are not at all inundated by floods. For example, a home on a steep riverbank, above flood levels, can be undermined by the flood's erosive flows. Damage due to bank erosion can also range from minor to severe, depending primarily on whether or not there is a structure on the property and how close the structure is to the erosive river channel.

FEMA has mapped over 139,789 acres of King County that are at risk from inundation during the 100-year flood. This is roughly 10% of the County's total land area. The two most serious impacts of flooding in King County are loss of life and property damage. Loss of life has been minimized since King County began its flood warning system in the 1960's. King County continues to improve its flood warning services and public awareness efforts to prevent loss of life.

Property damage caused by floods is a far more widespread and frequent problem. Floods in recent times have hit King County extremely hard, resulting in 13 flood-related disasters since 1964. Significant river flooding occurred in January and November 1986, January and November 1990, and November 1995 and February 1996. The 1990 floods were the most significant to date, totaling over $14.4 million in damage to county

maintained river protection and stormwater facilities, roads, parks and solid waste infrastructure. Private sector damage was significant as well.

King County has made significant progress regarding urban drainage problems. Regulations have been adopted that require new development to control the rate of stormwater runoff from that development, thereby reducing impacts to natural and man-made drainage systems. The regulations provide requirements for controlling drainage on an area-specific basis. These include more restrictive flow control and land clearing standards in drainage basins that have erosion or flooding problems, and additional water quality standards in drainage basins with lakes that are sensitive to nutrient-loading. However, regulations on their own cannot completely eliminate urban drainage problems. The County also has an annual capital improvement program for regional capital projects to address urban drainage problems.

Progress has also been made with respect to riverine flooding. In November 1993, the County adopted the King County Flood Hazard Reduction Plan, which provides an analysis of flooding problems and potential solutions along the six major Rivers that flow through King County. The FHRP recommends comprehensive and long-term solutions to these flood problems, and includes: 1) policies to guide floodplain land use and flood control activities in King County; 2) programs and project recommendations, including capital improvement projects, maintenance, relocation and elevation of homes, and flood warning improvements and river planning activities; 3) implementation priorities for program and project recommendations; and 4) an analysis of major financing alternatives and issues.

Land use plans and development regulations are being implemented to prevent future development that would be at risk and to reduce the impacts of new construction. In fact, King County, along with several cities within the County, has adopted flood regulations that are much more effective than the minimum requirements of the National Flood Insurance Program in reducing flood hazards to upstream and downstream properties. These include prohibitions on placement of fill within the 100-year floodplain unless there is no increase in the elevation of the 100-year flood and the requirement that any loss of flood storage caused by placement of structures or fill in the floodplain be compensated for by excavation of equivalent volumes at equivalent elevations.

Mitigating flood hazards in areas developed prior to adoption of the regulations, however, remains a challenge. Approaches currently being implemented to reduce flood hazards for existing development in flood hazard areas includes: structural capital improvement projects, channel maintenance, public education, and flood warning. Given the extreme costs of construction and maintenance of structural solutions, King County has been focusing its efforts on non-structural alternatives, such as flood

property buyouts and home elevation programs, which provide permanent solutions to reducing flood hazards.

Public awareness programs, such as flood warning and public education, are an essential part of the County's flood hazard reduction plan. The public awareness program and flood warning services currently being implemented by King County are described below.

Current Public Information Activities

The following public information activities currently take place within the County:

1. Flood Hazard Information Services
King County Department of Development and Environmental Services responds to citizen inquiries for Flood Insurance Rate Map information and flood insurance purchase requirements. The King County Rivers Section provides historical flood information to citizens that request this information. We also provide technical information (control surveys, cross-section data and hydraulic model information) to landowners for flood studies the County has produced.

2. Annual Agency Meetings
King County holds annual agency meetings in each major river watershed to update the Flood Warning Center priority call lists and discuss flood warning and emergency response procedures. All first response agencies are invited to this meeting.

3. Annual Outreach to Repetitive Loss
King County annually sends a mailing to repetitive loss properties identified by FEMA, to notify them of flood hazards and to provide information on flood hazard reduction programs and steps they can take to make their properties more flood resistant.

4. Annual Flood Awareness Month proclamation and media articles
The King County Executive annually declares October as "Flood Awareness Month." A news release, copy of the executive's proclamation and our flood preparedness brochure are sent to a comprehensive list of print and broadcast media in October. The media kits are sent to the major daily newspapers as well as weekly community newspapers in floodprone areas. The news release typically urges people in floodprone areas to prepare for the flood season ahead of time. The release and the brochure listed phone numbers and a website address where people can get more information about what to do before, during and after a flood event.

An article about the local flood hazard, and where to get more information is also provided in the County's "Downstream News," a newsletter with more than 7,000 subscribers.

In November 1998, King County enhanced its media partnership efforts. In preparation for the predicted La Nina weather pattern this winter (colder, wetter winters), King County partnered with the City of Seattle and GTE Wireless in an extensive public information campaign called "Take Winter by Storm." The campaign included paid advertising on radio and television as well as a major news conference that received wide media coverage. These partnership efforts will continue annually.

Commercials with our phone number and Website address aired 70 times on KOMO-TV during morning, noon and evening newscasts. Similar ads aired on KIRO-AM, the number one radio news station in Seattle, and its sister stations KNWX-AM and KIRO-FM. The message was to "Take Winter By Storm" and prepare ahead of time for flooding, snow and windstorms. A phone number with a recording listing other pertinent phone numbers and a website address with links to numerous government Web pages aired in each commercial.

The "Take Winter by Storm" news conference featured the King County Executive and the Mayor of Seattle. Five television stations, two news radio stations as well as the major newspapers covered the event. In the two weeks after the news conference, follow up stories were printed in local newspapers and aired on KIRO and KING television prime time newscasts.

It is difficult to put a firm number on the very large number of people reached during the public information campaign. However, we do have some well-researched estimates. The KOMO-TV paid advertising schedule is estimated to have reached approximately 3 million households in King, Pierce and Snohomish counties or half the homes with their televisions sets on at the time the commercials aired. The King County audience is estimated at slightly less than 2 million households.

The radio stations aired 170 "Take Winter by Storm" commercials over five weeks and reached an estimated 323,000 people. The news stories aired multiple times during prime time evening television newscasts and on lower rated early morning newscasts. The two news stories that aired on KOMO-TV during its weekday 5 p.m. newscasts reached a total of 208,000 households. A similar number of people were reached when two stories aired on KING-TV weekday newscasts. Stories aired during prime time weekday newscasts on KIRO, KSTW and KCPQ TV reached smaller, but still substantial audiences, probably another 100,000 households. We estimate print stories in the Seattle Times and the Seattle Post Intelligencer reaches a total of 500,000 readers. The Eastside Journal reaches another 35,000 readers.

5. King County Flood Warning Services

The King County Flood Warning Program's purpose is to warn residents and agencies of impending flood waters on major rivers so then can take action and prepare themselves before serious flooding occurs. The County monitors major river conditions 24 hours a day. When floods are imminent,

King County activates its Flood Warning Center. Operation of the Center is based on a four-phased warning system, issued independently for each river. The thresholds for each phase are based on river gages, which measure the flood flow and stage (flood depth) of the major rivers in various locations. King County personnel warnings are issued directly to police, fire departments, schools, cities, first response agencies, and to the public through volunteer phone trees. Personnel at the Center are available to answer questions and help interpret gage readings during a flood event. There is also a recorded message, updated hourly, providing information on river conditions. At Phase III or greater, flood patrol crews are sent to monitor flood protection facilities and respond to flood emergencies around the clock.

The County works closely with the National Weather Service to obtain forecast information used to make flood predictions. Close coordination occurs with the Office of Emergency Management, Roads Division, and other agencies in order to obtain up-to-date information about major flood problems, road closures, evacuations, and other emergency services. Coordination also occurs with the US Army Corps of Engineers and Seattle Water Department regarding dam operations.

6. Notice on Title
People looking to purchase floodprone property are advised of the flood hazard through a notice on title that is recorded on title instruments for all floodprone properties.

7. Brochures
King County has recently updated its Flood Warning Services brochure, which describes how to use the County's flood warning services, important phone numbers, a floodplain map and river monitoring gage locations, what to do before, during and after a flood, and frequently flooded roads. These brochures are sent to all repetitive loss property owners, local libraries, and any other interested persons.

The Department of Development and Environmental Services also has a customer assistance bulletin providing information about development in floodplains.

8. Internet Website
King County has a Website that can be accessed by anyone with Internet capabilities. This Website provides information about the County's Flood Warning Services, and also provides a link to the river monitor gage information, so the public can monitor river conditions directly during a flood event.

9. Public Libraries
We provide documents, brochures and other information to all our public libraries for use by the public.

Recommendations for the Public Information Program: Goals

The Public Information Strategy Team determined goals for 1999 and implementation strategies to meet those goals: The following goals were established for 1999:

Through public information and education, and partnerships with schools, other public agencies, and the private sector, help all citizens in floodprone areas take the following actions to reduce flood damage and risks:

a. Find out if they are in floodprone areas and the relative risk to their property

b. Obtain flood insurance (take advantage of the 20% discount provided by CRS)

c. Know how to access and use the County's flood warning services

d. Take actions to floodproof their homes, such as:

- È elevating washers, dryers, central heating systems and electrical panels above the 100-year floodplain;
- È anchoring fuel tanks and mobile homes;
- È installing floating floor drain plug to prevent backflow;
- È installing septic backflow valves; and
- È for homes that experience slow moving water, elevating the first floor above the 100-year floodplain; and for homes that experience deep, fast-moving water, participating in home buyout programs that become available

e. Work with their neighbors to set up telephone trees and evacuation routes

Recommendations for the Public Information Program: Activities

The following outreach activities will be undertaken to implement the goals described above. The team member assigned to that activity is listed in parentheses after the item:

General Outreach

a) Important phone numbers to obtain information on flooding and road closures shall be published in area phone books (Don and Jeff).

b) The existing King County Internet site will be modified to be more user friendly, so that "flood information" is on the menu of the main page, with faster links to gage information (Carolyn).

2. Flood Awareness Month

a) Displays. The Team recommended setting up flood awareness displays during flood awareness month (October of each year). It was determined that due to their location within the County, shopping malls may not be the most effective places to set up displays. The Team recommended developing partnerships with home improvement stores, because they are located in every community that experiences flooding. Contacts will be made to determine the feasibility of partnerships with home improvement stores where displays could be set up. (Carolyn and Cyrilla) The displays could include local flood pictures, brochures and handouts, and lists of supplies recommended for flood preparedness. The stores can also provide displays of the supplies they carry. Contacts will also be made to develop partnerships with local vendors that make magnetic "refrigerator" cards, so that cards containing flood information phone numbers could be given out free to shoppers as part of the display (Carolyn).

b) Targeted mailings. The Team felt that newspaper, radio and television media might not be adequate in getting the flood preparedness message to everyone at risk. To reach a greater audience, it was recommended that we determine the feasibility of sending information by mail to all property owners living in zip codes that include floodprone areas. This is a considerable effort, since it is estimated that 10% of the County is mapped 100-year floodplain. The costs and staff time associated with this mailing will be researched to determine feasibility (Cyrilla). Alternatively, it may be possible to send out this information with drainage utility billings. If it is determined that this effort can be accomplished within existing budget and staffing constraints, the mailing shall take place in October, and include the flood warning brochure, and a fact sheet with phone numbers and tools to help the public meet the four recommended described above.

3. Education and Outreach to schoolchildren.

a) Endangered Species Outreach Program. Public Outreach staff are currently working on an informational program for area schools regarding the pending endangered species act listing for Puget Sound salmon and bull trout. This is a great opportunity to provide information about floodplains to children at the same time. The feasibility of including floodplain information (both habitat and hazards), as part of this outreach will be pursued (Carolyn). Additional funds may need to be found to help with this effort (Cyrilla).

b) Science Curriculum. Contacts will be made with area science teachers to determine how King County can develop partnerships with teachers to bring floodplain management issues to the classroom (Carolyn).

4. *Begin plans for the year 2000.*

   The year 2000 will be the tenth anniversary of the region's devastating 1990 floods, which caused more then $33 million in damage to public and private properties. The message will focus on the progress the County has made since those floods. For example, since 1990, the County adopted the Flood Hazard Reduction Plan, along with surface water, wetland and floodplain regulations. In direct response to the loss of livestock experienced by farmers, a "critter pads ordinance" was adopted by the County, allowing provisions in the regulations for farmers to provide livestock sanctuary areas with minimal impacts to floodplain functions. The program for 2000 will also revisit the extensive damage caused by that flood through pictorial displays, with a reminder that those floods were NOT 100-year floods, and that flood preparedness and mitigation is still as important today as it was in 1990.

   There may be opportunities for partnering with other cities on this effort. (Cyrilla, Debi, and Carolyn)

5. *Continue all existing outreach programs.*

Annual Monitoring

At the end of each year, the Team will meet to assess and evaluate the program, assess why certain recommendations could not be implemented and make recommendations for program improvements. Results of the program evaluation shall be included as part of the annual CRS recertification required of each community.

Skagit County, Washington

The CRS communities in Skagit County developed a joint strategy for outreach projects. Members of the strategy team included

- The watershed planner for the County's Public Works Department
- The planning director for the City of Burlington
- The building official for the City of Mount Vernon
- The planner for the Town of LaConner
- A real estate broker from Mount Vernon
- A citizen from Burlington
- The Public Information Officer for the County.

The first four people are also the CRS Coordinators for their communities. This OPS document maintains a particularly straightforward list of current and recommended projects and assignments. Each of the communities must individually document that it has accepted the strategy and will implement its share.

I. The Local Flood Hazard - A History of Flooding

Throughout the years, major flooding has occurred in the Skagit River Basin. Because of its geographic location, the Skagit River Basin is subject to winter rain floods and an increase in discharge during spring due to snowmelt runoff. Rain-type floods occur usually in November or December, but may occur as early as October or as late as February. Antecedent precipitation serves to build up groundwater reserves. Frequently, a light snow pack is then formed over most of the entire basin. A heavy rainfall accompanied by warm winds completes the sequence, which produces major floods. The heavy rainfall and accompanying snowmelt result in a high rate of runoff, as the ground is already nearly saturated from earlier precipitation. Two or more crests may be experienced within a period of a week or two as a series of storms move across the basin from the west. The winter floods have a considerably higher magnitude than the average annual spring high water.

While loss of life is always a possibility, it is not the primary threat. Our early warning system provides about 12 hours of notice for a major flood event. That generally allows adequate time for evacuations. Also, emergency officials generally have adequate time to close roads that are usually covered with flood water. However, during the 1995 flood, a truck driver was killed while hauling rock to secure a railroad bridge piling. Apparently, he ran his truck into the river and drown.

Here in Skagit County, our primary threat is property damage. Typically, restoration costs to both public and private property range in the millions of dollars per event. Homes constructed in the floodway are in high velocity zones during flood stage and are structurally threatened. Structures located in the flood plain are inundated with slower moving water. Roadways constructed near bends in the river are often threatened, although road crews are usually dispatched to secure roadways if time allows.

II. Flood Safety

Many people living in Skagit County do not realize they live in a flood hazard area. Many people are new to the area, while others move into a high hazard area unknowingly. Education remains a key avenue to improve flood safety.

Property protection is another key area to focus efforts. The primary threat from floods in Skagit County is damage. Focusing on the following safety tips will help protect both pubic and private property.

1. Remind residents to purchase flood insurance.
2. Assist residents in preparing for flooding and evacuation. Keep information on hand for family preparedness.
3. Publish tips on retrofitting techniques in each city or county publications.
4. Continue staff training during Flood Awareness Week.

And lastly, encouraging residents to purchase flood insurance will not only remind people of the flood dangers, but will help the community rebuild one house at a time after a disaster.

III. Property Protection Measures

Inform residents in each city or county flood mailing that free technical assistance on retrofitting is available through the local building department. Publish simple retrofit techniques in each city or county flood mailing. Encourage residents to consider possible areas to floodproof. Electrical panel boxes, furnaces, water heaters, washers, and dryers should be elevated or relocated if in a flood hazard area. Basement floor drains and interior and exterior backwater valves can be installed, and interior floodwalls can be placed around utilities. Consider moving essential items and furniture to upper floors or attics. Keep materials like sandbags, plywood, plastic sheeting, and lumber handy for emergency waterproofing.

IV. Current Flood-related Public Information Outreach Activities

1. Burlington mails out a Public Information Bulletin titled Flood Hazard Reduction each spring and fall to every address in the city.

2. Mount Vernon publishes a flood section each quarter in *The City News and Community View* publication, distributed through the Skagit Valley Herald.

3. Skagit County mails out a flood brochure titled *Flood Information for Skagit County* each year to every address in the county. The County also mails a more targeted letter with a second copy of this brochure to the repetitive loss properties.

4. Burlington offers free elevation certificates for city residents, helping to raise interest in flood insurance.

5. The County is working with the Corps of Engineers on a Flood Feasibility Study. As part of the study, a series of six public meetings on flood-related topics are being held. Topics include Flood Risk and Economic Impacts, Bypass, Dredging, Overtopping/setback Levees, and Non-structural Alternatives, and Upstream Storage and Flood Warning. The County also publishes a quarterly newsletter titled *The Skagit Current* to keep citizens informed of the study and meetings

6. Skagit County and the Skagit Valley Herald publish an annual flood insert page in the newspaper that contains articles on flood preparedness, flood insurance, an evacuation map, and the names of contractors able to retrofit structures.

7. Mount Vernon and Skagit County are completing major acquisition programs, during which homes in high hazard areas were removed. The permanent open space reminds the community of flood dangers.

8. Skagit County coordinated Flood Awareness Week each year, during which staff and citizens are trained in flood fight procedures and sandbagging techniques. During the week, Army Corps of Engineer staff meets with county and local dike district for better coordination during an actual event.

9. TCI Cable aired *The Skagit River - Will it Flood Again?* video five times in September.

V. Goals for Our Public Information Program

1. Encourage private homeowners to purchase flood insurance.
2. Encourage private homeowners to protect their own property.
3. Expand public outreach.
4. Increase exposure of the flood video titled *The Skagit River - Will it Flood Again?*

VI. Outreach Projects for 1999

1. Adopt Slogan: *Got flood insurance?*
   Responsibility: OPS Committee
   Implementing Goals 1 and 3

2. Develop and adopt icon to correspond with slogan.
   Responsibility: Margaret
   Implementing Goals 1 and 3.

3. Work with Assessor's office to have slogan and icon printed on October tax statements.
   Responsibility: Jennifer
   Implementing Goals 1 and 3.

4. Have slogan and icon printed on city utility bills.
   Responsibility: Margaret, Joe, Erica.
   Implementing Goals 1 and 3.

5. Advertise slogan and icon on city garbage trucks.
   Responsibility: Margaret, Joe, Erica
   Implementing Goals 1 and 3.

6. Ask PUD to print icon and slogan on utility bills.
   Responsibility: Jennifer
   Implementing Goals 1 and 3.

7. Design 1999 Flood Awareness Week insert to fit in phonebook.
   Responsibility: OPS Committee
   Implementing Goals 1, 2, and 3.

8. Add practical tips such as "How to Flood Proof your Home" in annual mailing.
   Responsibility: CRS Coordinators
   Implementing Goal 2.

9. Ensure accurate emergency information to Bellingham stations.
   Responsibility: Don
   Implementing Goal 3.

10. Contact the Argus, Herald, Times to see if they would run a monthly article on flood-related topics.
    Responsibility: Don
    Implementing Goals 1, 2, and 3.

11. Develop subject topics for monthly articles each quarter.
    Responsibility: OPS Committee
    Implementing Goals 1, 2, and 3.

12. Draft monthly articles.
    Responsibility: To be decided.
    Implementing Goals 1, 2, and 3.

13. Continue sandbag training as part of Flood Awareness Week 1999.
    Responsibility: CRS Coordinators
    Implementing Goals 2 and 3.

14. Conduct Mall Display as part of Flood Awareness Week 1999. Show flood video at display.
    Responsibility: Committee
    Implementing Goals 1, 2, 3, and 4.

15. Check with the Board of County Commissioners to see if the flood video titled *The Skagit River–Will it Flood Again?* could be aired during their regular time on the local television station.
    Responsibility: Jennifer
    Implementing Goals 1, 2, 3, and 4.

16. Update brochure *Flood Information for Skagit County*. Include CRS Coordinators' names and phone numbers.
    Responsibility: Jennifer
    Implementing Goals 1, 2, and 3.

17. Coordinate mailing next fall between cities and the county.
    Responsibility: CRS Coordinators.
    Implementing Goal 3.

18. Discuss future coordination of flood information with school districts.
    Responsibility: Margaret
    Implementing Goal 3.

19. Update county Web page each quarter. Develop county flood page, and link it to other flood pages, including USGS.
    Responsibility: Jennifer (Penny)
    Implementing Goals 1, 2, and 3.

20. Ask Haggen and Brown and Cole to print icon and logo on paper grocery bags.
    Responsibility: Clay and Margaret
    Implementing Goals 1 and 3.

21. Contact FEMA for grant funding to implement this strategy.
    Responsibility: Clay and Margaret
    Implementing Goals 1, 2, 3, and 4.

22. Look into potential flood impacts from volcanic activity. Include article on this subject in monthly series.
    Responsibility: Joe
    Implementing Goal 3.

VII. Monitoring and Evaluation of Outreach Projects

The OPS Committee will meet on a quarterly basis. During the quarterly meetings, the Committee will review and prioritize the task list, and further define responsibilities for major tasks such as the mall display.

Dare County, North Carolina

As with Skagit County, the communities in Dare County wanted to prepare a joint public information strategy. At the initial meeting, there was some doubt if this could be done because some participants challenged whether there would be any benefit. For example, one of the concerns was how to publicize regulatory requirements when the communities had different standards. After the first meeting, there was no consensus that a joint program would even be drafted.

As these items were discussed at the second meeting, it became apparent that there would be benefits, especially cost savings, of coordinating the work of the six communities. The document on the following pages is the result.

Here are some helpful conclusions this group drew about the OPS process:

- Let the participants' discussion run its course—air local concerns and determine what people want first, then worry about CRS credit.

- A coordinated approach sends a consistent message and reduces the confusion that occurs when people hear different things from different sources.

- A joint approach can reduce each community's costs in providing the annual mailing to residents, freeing funds for other public information activities.

- Working together provides technical and financial resources to do things individual communities were not doing. Dare County will start holding retrofitting workshops and will establish a web page for flooding.

- The private sector is more willing to participate in a coordinated program. It does not want to be involved in duplicative and inefficient efforts with separate local governments in a small area. For example, without this cooperation, the Home Builders would not participate in the workshops.

Note how the document itself will document that each participating community will adopt the joint strategy.

Joint Public Information Strategy for Flood and Hurricane Mitigation

Dare County, North Carolina
Town of Kill Devil Hills, North Carolina
Town of Kitty Hawk, North Carolina
Town of Manteo, North Carolina
Town of Nags Head, North Carolina
Town of Southern Shores, North Carolina

Purpose: The purpose of this joint strategy is to develop coordinated public information programs that will better inform residents, absentee property owners, and visitors on how they can protect themselves and their property before and during a hurricane or coastal storm.

Strategy Preparation: The public information strategy was prepared by representatives from the county and each municipality, State Farm, and the Blue Sky Foundation of North Carolina, Inc. The committee used an eight step process to develop the proposed strategy. Those steps included:

1. Identify the flooding and hurricane problems that need the attention of the public.
2. Identify the goals of the public information strategy.
3. Identify the messages that should be conveyed to the public.
4. Identify the best ways to communicate those messages.
5. Review current public information activities to determine if a comprehensive program is in place, and if the current approaches can be improved through cooperation and coordination.
6. Develop a list of potential public information activities.
7. Review the list to identify those activities where there are advantages to coordination and cooperation, and those that each local government should continue to perform independently.
8. Prepare a written draft for review by each local government and organization with identified responsibilities.

Flood and Hurricane Hazards: Dare County, particularly the Outer Banks area, is vulnerable to coastal storms and hurricanes. Typically, several severe winter storms or "Nor'easters" occur each year between mid-October and mid-April. As Atlantic coastal waters cool, low pressure systems are formed and thereby create conditions favorable to the formation of intense winter storms. These storms normally generate winds ranging from 35 to 50 miles per hour, but can sometimes reach lower hurricane intensity. The primary impact comes from the force exerted on the water surface by continuous high winds. This generates intensive and heightened wave action, which increases beach erosion. An extreme Nor'easter may even generate a storm surge, causing extensive flooding and bring wave action inland. While the storm surge accompanying hurricanes

generally recedes after one or two high tides, the surge from a persistent Nor'easter may last for four or five successive high tides. The highest tides and strongest winds in a Nor'easter occur farther from the storm's low pressure center than in a hurricane; thus a Nor'easter can cause widespread damage even though its center is several hundred miles at sea.

During the past ten years, there has been a noticeable increase in both the frequency and intensity of these storms. In April 1988, a winter storm generated 55 mile per hour winds and 10 foot seas that washed over highway 12 and closed down ferry service to and from Hatteras Island. During a three week period in March of 1989, three successive winter storms caused major beach erosion (up to 100 feet in some areas) and damage totaling $5 million. The Halloween Storm of 1991, a Category 5 Nor'easter, damaged or destroyed dozens of beach cottages by wave and storm surge, flooded miles of road and eroded beaches and frontal dunes. Damage totaled $7 million. The "Storm of the Century" in March of 1993 brought sustained winds of 41 mph with gusts up to 63 mph. It generated water levels up to 7.5 feet above mean sea level, spawned three tornados and resulted in damage of $3 million.

While occurring less frequently than winter storms, hurricanes strike the Outer Banks often enough to cause significant concern. North Carolina's Outer Banks are particularly susceptible to the effects of hurricanes due to the projection of the land mass into the Atlantic. Even in the absence of landfall, hurricanes deflected by inland high pressure systems travel north along the coast and affect the barrier islands.

Hurricane Emily, a Category 3 hurricane, grazed Hatteras Island on Tuesday afternoon, August 31, 1993. The hurricane's eye came within 20 miles of Cape Hatteras, but did not pass over the Outer Banks. When the winds shifted from the northeast to the northwest, water was forced onto the island from Pamlico Sound washing several homes from their foundations. Wind measuring equipment in the area recorded gusts of 107 miles per hour.

On September 10, 1993, the President declared Dare County a major disaster area as a result of damage from Hurricane Emily. The original declaration was for Individual Assistance (IA) only for Dare County, but was later amended on September 23, 1993 to include Public Assistance (PA) for the Cape Hatteras school.

As a result of Emily, 160 homes were destroyed, 216 experienced major damage, and 144 received minor damage. Manufactured homes were particularly impacted by the hurricane. Approximately 85% of the destroyed homes were manufactured homes ravaged by the high winds and/or shifted off their piers by the storm surge. Older houses on Hatteras, those built before the elevation requirements of the NFIP, were also severely affected.

Focus of the Strategy.

Coastal storms can be devastating to homeowners, businesses and local governments, but it doesn't need to be that way. The focus of this strategy is to develop effective public information activities that provide our citizens and visitors with information on the risks from natural hazards, and the actions they can take to keep their families safe and protect their property.

Goals for the public information program.

1. Enhance the public's knowledge of how to live with a coastal environment.
2. Increase the number of properties where protection measures are implemented.
3. Improve citizen knowledge of regulatory requirements for:
   a. substantial improvement and substantial damage
   b. permit requirements and procedures
   c. enclosures
4. Get people to evacuate when the warning is issued.
5. Increase the purchase of flood insurance.

Messages to be Included in the Public Information Program:

1. <u>Know the Coastal Environment - Be Stormwise:</u>

The coast is an ever-changing environment. We must design to live with nature or be prepared to suffer the consequences of doing otherwise.

As time passes, natural environmental processes change the risks and vulnerability of living in a coastal area. Building sites that sit behind dunes today may not be protected in the future. Selecting a building site and a structure's design should include an analysis of present and possible future conditions.

The most dramatic change occurs with frequent overwashes or breaches during a hurricane. Initially, water moves from the sea inland as the storm approaches. Once the eye of the storm passes, the water that has accumulated on the landward side of the barrier island overwashes the island as it rushes seaward. Sometimes new inlets are formed.

All dune systems are subject to erosion in major storms. Structures without the protection of a frontal dune system are particularly vulnerable to storm surge. Therefore, existing dune fields should be maintained using native vegetation and sand fencing to promote additional dune growth.

2. Coastal Hazards and Property Protection:

Know the flood zone of your home. Flood risk information is available from your local government. Contact your Planning or Building Inspection Department for information on the flood zone and flood elevation for your home or building site.

Know the maximum storm surge that might occur**.** Information about the potential for inland flooding and storm surge is available through your local Emergency Management Office.

Know the elevation of your home**.** This information is on the elevation certificate prepared for your home by your land surveyor. If you don't have a copy of the survey check with your surveyor or your local Planning or Building Inspection Department. Knowing the elevation of your home and the potential flood and storm surge elevations for your building site can help you know what to do to protect your life and property.

High winds, storm surge, scour and coastal erosion enhance the probability that structures with shallow piling depth will be destroyed. Owners of structures with shallow pilings should consider retrofitting and/or relocating these structures.

Storm surge causes severe damage to structures with enclosures below the base flood elevation. Owners of elevated structures who have enclosed the area beneath the original finished floor are encouraged to remove these additions.

When houses along the oceanfront are destroyed, their loss may be magnified as they damage or destroy houses along the second row. Owners of older structures along the oceanfront are encouraged to consider retrofitting and/or relocating these structures.

There are several ways to protect a building from flood and wind damage. Your Building Inspection Department has information on these protection measures. On request, site visits will be made to help you select the most appropriate protection measure or measures. This service does not include the preparation of detailed construction specifications and is not intended to compete with services offered by local engineers or architects.

3. Regulatory Requirements:

Building permits are required for the repair or reconstruction of a damaged building. Applications for permits can be obtained from the local building inspection department.
Development activities on properties located in flood hazard areas require a permit from the Building Inspection Department. Development activities are any man-made change to improved or unimproved real estate, including but not

limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations.

Streams, channels, and detention and retention basins can loose their carrying capacities as a result of dumping, debris, sedimentation, and growth of vegetation. When a drainage system loses a portion of its carrying or storage capacity, overbank flooding occurs more frequently and floods reach higher levels. Dumping in these areas is a violation of regulations and should be reported to your local Police Department.

Buildings that are substantially damaged must be brought up to the current flood ordinance standards for new construction. Damage caused by any hazard, not just flooding, is included in the substantial damage determination.

Enclosures under an elevated structure increase the degree of damage a structure will experience during a flood or hurricane. Learn about local enclosure regulations by calling your Building Inspections Department.

Financial assistance with meeting the current code may be available through your flood insurance policy increased cost of compliance coverage.

4. Hurricane Evacuation:

Even though meteorologists have made improvements in the forecasting and tracking of severe weather, especially hurricanes, there is no way to predict far in advance exactly how a storm will affect an area or when it will hit.

By being aware and staying tuned in to local radio stations and television broadcasts, the general public is able to find out what to do, when to do it and where to go. Public information activities will tell citizens and visitors where they can get the latest information on a storm and instructions on what they should do.

Flooding can begin well before a hurricane nears land. Ferry service ceases with the onset of 40-mph winds. Citizens and visitors will be advised on evacuation procedures, actions to take to secure and protect property before evacuation, safety measures, evacuation routes, and shelter locations. Residents will be advised to tune to radio and television stations for these advisories.

5. Flood Insurance:

Know what your insurance will cover. Review your insurance policy coverage to ensure you have adequate coverage. Your homeowners insurance does not cover losses due to flooding.

Find out if your home is in a flood hazard area. Contact your local Building Inspection Department if you need flood zone information. Once you have identified your risk, protect your investment by purchasing flood insurance on your home and its contents.

Flood coverage from the National Flood Insurance Program is not available in areas shown on the FIRM to be an "undeveloped coastal barrier" or "otherwise protected area" of the Coastal Barrier Resources System.

There is a 30-day waiting period before flood insurance policies become effective. Don't wait for the next storm to purchase flood insurance coverage.

Flood insurance is required whenever financial assistance from a federally regulated institution is used to construct, repair or add to a building in the special flood hazard area.

There are many factors that affect the price you'll pay for flood insurance. The higher your flood risk, the higher your premium. You will pay a lower premium if you elevate the lowest floor of your home 1-3 feet above the base flood elevation. For existing homes, some people can do this be eliminating enclosures below their elevated living space.

You will pay lower flood insurance rates because your local government participates in the Community Rating System of the National Flood Insurance Program.

Current Flood Related Public Information Activities

Activity	Dare Co.	Kill Devil Hills	Kitty Hawk	Manteo	Nags Head	Southern Shores
Mail Brochures						
All Residents	V	V		V	V	
SFHA	V	V	V	V		V
Repetitive Loss	V		V			
Civic Meetings	V		V	V		V
Publications in Library	V	V	V	V	V	V
Booth at Public Functions	V				V	
Retrofit Workshop					V	
Map Information	V	V	V	V	V	V
Technical Assistance	V		V		V	V

1999 Public Information Strategy Activities:

1. Mail Brochures: Local governments will continue mail a brochure to their residents each year. The county and municipalities will review their brochures to ensure the messages are coordinated.

2. Brochures to Repetitive Loss Property Owners: Each jurisdiction will continue to send mailings to repetitive loss property owners as it determines necessary.

3. Civic Meetings: A meeting package that provides information on the flood and hurricane mitigation programs of each community will be prepared for use at civic meetings. Since members on these groups tend to cross jurisdictional lines, this will be a more effective approach for the civic groups and for the municipalities and the county. This package will include the appropriate program descriptions and contact information for each local government.

4. Website: Dare County is developing a Website that will include information on hurricane evacuation, flood hazards, inundation maps from the SLOSH model, evacuation routes, safety measures, property protection measures, and other topics. This will be expanded to include regulatory information from each municipality, including procedures to be followed for rebuilding or repairing a structure following a disaster. It will be linked to the Blue Sky Website, which includes information on property protection and hazard resistant construction.

5. Publications in the Library: Dare County will continue to coordinate the placement of general publications in the library for all of the local governments. Each jurisdiction will be responsible for placing copies special publications that apply to it alone in the library (i.e. its Flood Insurance Rate Map, Flood insurance Study, land use study and other reports).

6. Retrofit Workshop: The annual retrofit workshop conducted by the Town of Nags Head will be expanded to include the county, other municipalities and the Blue Sky Foundation of North Carolina. It is expected that multiple retrofit sites will be utilized in the workshop, including the Blue Sky Training Center in Southern Shores. The Outer Banks Home Builders Association will also be invited to participate.

7. Map Information and Technical Assistance: Each jurisdiction will continue these activities as it deems necessary.

8. AM Radio Transmitters: Dare County is working to place AM radio transmitters at strategic locations to provide evacuation messages. This same system can be a very effective way to provide public service information to property owners as they return to the county and are passing through check points. Working with the municipalities, the county will prepare pre-recorded messages to be aired following a disaster. These messages will provide information on building permit procedures. Property owners and rental management firms will be reminded of regulations concerning substantial improvement and substantial damage, coastal setbacks, sand pushing restrictions and similar rules. Messages encouraging property loss reduction measures will also be prepared.

9. Map Information Service: Lenders, insurance agents and real estate agents will be advised on the availability of flood map information from local governments annually through the brochure mailed to each developed property. Additionally, because of the significant role they have in advising property owners and potential buyers, they will also be sent a special mailing describing this service at least every

three years. Dare County will provide this service to lenders, insurance agents and real estate agents within the county.

Monitoring and Evaluation: Each local government will keep records so that an evaluation of the impact of the public information program can be conducted. At least annually, representatives of the local jurisdictions and private agencies will meet to determine if changes in the public information strategy are needed.

Based on the public information activities, the following benefits are expected. Each will be measured to determine the level of progress being achieved.

Goal: 1. Enhance the public's knowledge of how to live with a coastal environment.

Measure: People will respect the coastal environment and design with the forces of nature in mind. Evaluation will be based on the increased request for information on how to build safer.

Goal: 2. Increase the number of properties where protection measures are implemented.

Measure: Retrofit activities should increase. Evaluation will be based on the level of permit activity for retrofit actions.

Goal: 3. Improve citizen knowledge of:

a. regulations related to substantial improvement and substantial damage, permit requirements and procedures, and enclosures.
b. measures they can take to reduce the costs of their flood insurance premium.

Measure: More property owners should know about permit requirements following a disaster. Thus, there should be fewer cases where property owners fail to obtain proper permits. Evaluation will be based on field surveys to identify violations.

Goal: 4. Get people to evacuate when the warning is issued.

Measure: Evacuations should be completed in an orderly manner and within the 18-hours identified in the Evacuation Plan.

Goal 5:. Increase the purchase of flood insurance.

Measure: There should be an increase in flood insurance policy coverage This will be evaluated based on the change in flood insurance policy count. Additionally, the citizen survey conducted in conjunction with land use plan updates may include questions about how people learned they needed flood insurance.

ATTACHMENT A

FLOOD AND HURRICANE WARNING AND RECOVERY MESSAGES

General Preparations for a Storm

- To reduce loss of lives and property, advance preparation for a hurricane, coastal storm, or flooding is important.
- Determine if you are in a flood hazard area. To find the flood zone of your home, check your flood insurance policy or contact the Building Inspector. The Building Inspector may also be able to tell you: the elevation of your home, whether your home is in a special hazard area; the base flood zone elevation, and if your home is subject to storm surge.
- Identify the things you can do to protect your family and property.
- Plan your evacuation route.
- List your personal property for insurance purposes.
- Review your insurance policy and take advantage of flood insurance.

Before a hurricane, storm, or flood threatens the area...

- Monitor storm reports on radio and TV.
- Plan your evacuation route early.
- Listen to the radio to find the location of the nearest inland shelter. (Due to the low ground elevation and potential for flooding, there are no facilities in Dare County intended for a public shelter.)
- Check batteries for transistor radios and flashlights.
- Know how to use candles, matches, and lamps safely.
- Keep at least one-half tank full of gasoline in your vehicle.
- Store packaged food and canned goods in the event there is no electricity.
- Fill clean containers with drinking water - enough for several days.
- Have shutters, lumber, and masking tape available for protecting doors and windows.
- If you live in a mobile home, plan to evacuate.

When a hurricane warning is issued...

- Listen to radio or TV for directions and weather advisories.
- Anchor or bring in outside objects, i.e., garbage cans, lawn furniture, and other loose objects.
- Board up or shutter large windows and tape small windows with masking tape to reduce shattering.
- Store valuable and personal papers in a safe, water-proof location.

If you stay at home...

- Keep radios and TVs tuned in for the latest instructions.
- Stay inside away from doors and windows. Don't go outside in the brief calm during the passage of the storm. Do not venture outside to look at the ocean or sound - these waters can rise very quickly.

If you evacuate . . .

- Know where you are going. Leave early and in daylight, if possible.
- If you go to a shelter, take needed personal items, special dietary needs, infant foods, etc. (Pets are not allowed.)
- Turn off as many utilities as you can safely. Do not touch any electrical equipment unless it is in a dry area, or you are standing on a piece of dry wood while wearing rubber-soled shoes or boots and rubber gloves. If conditions warrant, water and electrical service to your home or business may be discontinued.

After the hurricane, coastal storm, or flood . . .

- If you have evacuated, return only when advised by local officials.
- Beware of outdoor hazards such as glass, nails, loose or dangling power lines, etc.
- Guard against spoiled food and do not use water until safe.
- Obey notices placed on buildings that prohibit or restrict entrance to the structure.
- Obtain necessary permits before starting the repair of the structure.
- Consider making repairs using methods and materials that will reduce future losses.
- Check with the building inspection department if you need assistance with identifying measures that will reduce your losses during future storms.

Property Protection Measures

Every year, flooding causes more property damage in the United States than any other type of natural disaster. While recent improvements in construction practices and regulations have made new homes less prone to flood damage, there are a significant number of existing homes that continue to be susceptible to repetitive flood losses. Repetitive flood losses can make owning property near a body of water less enjoyable and can even decrease property values.

Some repetitive loss property owners have reduced their flood losses by taking temporary measures such as moving furniture and utilities to upper floors or to higher elevations. More permanent approaches have also been used. The Federal Insurance Administration has published a manual that describes various techniques that can be used to floodproof existing buildings. This process is also know as "retrofitting." The Design Manual for Retrofitting Floodprone Residential Structures presents a series of permanent retrofitting measures that can reduce or eliminate the potential of future flooding. The measures covered include: elevation of a structure, relocation of a structure, sealing a structure, protection of utilities, and using levees and floodwalls.

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