



Federal Emergency Management Agency

Region VII

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MODEL GUIDE FOR DEVELOPING A POST-FLOOD DAMAGE STANDARD OPERATING PROCEDURE

INTRODUCTION

Your community has sustained a flooding disaster. What actions need to be taken? Many items need to be addressed during the critical first 72 hours, but after the immediate emergency needs are met, what floodplain management items need to be accomplished?

The biggest task facing the floodplain manager after the flood is making sure any post-disaster reconstruction is done in compliance with the community's floodplain management ordinance. These construction requirements apply to all structures located in the 100-year floodplain. If the disaster event is large in scope, the demand for issuing the floodplain development permits will be tremendous. Communities that have limited staff resources are quickly overwhelmed.

Post-disaster reconstruction efforts are the top priority for most flood-impacted property owners. This is the critical time when community officials need to be especially aware of the extent of damage and types of repairs to be made. The National Flood Insurance Program (NFIP) requires participating communities to adopt ordinance provisions regulating construction and reconstruction in the 100-year floodplain.

Two of these provisions become very important during post-disaster reconstruction: substantial-damage and substantial-improvement. Local floodplain management ordinances require structures damaged 50 percent or more to meet all of the floodplain construction requirements. Usually this means the structure must be elevated or floodproofed (nonresidential structures only) to or above the 100-year base flood elevation. Some communities also have additional height elevation and/or floodproofing requirements.

One way to reduce the pressure on the local community officials is to develop a standard operating procedure (SOP) for conducting a post-disaster damage survey. The damage survey is a post-disaster task that must be accomplished as soon as possible in the recovery effort. Ideally, the community's overall emergency SOP also includes other emergency response and recovery issues. This guide is developed to assist communities in formulating a post-flood damage SOP. Since the damage survey is only one process during a post-disaster recovery, other functions or tasks are discussed briefly.

WHAT DO THE COMMUNITY PERMITTING OFFICIALS NEED TO KNOW?

Basically, the community permitting officials need to know:

- How far did the water get into the community and its structures?
- How deep was the water?
- How long did the water remain in the structures?

By answering these three questions, the community will have a fairly good preliminary feel for where the heaviest damage occurred. Major damage areas can be identified for priority survey and inspection efforts.

The best way to develop post-disaster documentation is to conduct a damage survey. By conducting a damage survey, the community will be able to determine the overall impact of the disaster, the extent of damage to specific structures, and establish documentation for issuance of floodplain development permits in compliance with the community's floodplain management ordinance. A damage survey can also be used by community officials to determine the need for additional resources to address the post-flood needs and the scope of the rebuilding effort.

This guide was written to outline suggested tasks to assist the community in preparing for a flood disaster. While the primary focus of the guide is the post-flood damage survey, a review of pre-flood planning and disaster response concerns relating to the damage survey are included. The sections are divided into pre-flood, during the flood, and post-flood to focus on the timing of the task. This guide is not intended to be all inclusive or meet all of the unique needs of each community. It should be used as a starting point for community-specific operating procedures.

PRE-FLOOD PLANNING TASKS

Routine daily tasks frequently capture all of the working time of local community officials. When disaster strikes, no time has been devoted to developing a standard operating procedure (SOP) and the community officials and staff become overwhelmed. If the community leaders recognize the advantage in pre-disaster planning and actually develop an SOP, disaster impacts can be lessened. The following pre-flood tasks are presented for consideration.

1) Review your community's Flood Insurance Rate Maps and Flood Hazard Boundary Maps or the Flood Insurance Study and Flood Boundary and Floodway maps

- Become familiar with where the floodplain boundaries lie in the community
- Identify potential impact areas

2) Develop a floodplain structure data base

- Compare the community's property ownership maps to its floodplain maps
- Develop a comprehensive listing of all structures located in the floodplain. At a minimum, the list should include:
 - Property owner information [name, address, and telephone number]
 - Assessed valuation or fair market value and the 50% threshold figure

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[Pre-flood Planning Tasks – continued]

- Any existing information for each structure such as lowest floor elevation, date of construction, etc.
- Base flood elevation for each structure

This will serve as the data base for conducting any post-flood damage survey. Floodplain structures can be pre-identified to ensure compliant permitting under the community's floodplain management ordinance.

3) Develop, discuss, and widely distribute to community officials and staff the emergency procedures to be put in place once a disaster is underway

- Establish an emergency chain-of-command and publicize it
- Develop standard reporting procedures
- Develop administrative policies that will become effective during the disaster recovery phase such as:
 - Combination of other health and safety officials as part of the inspection teams to limit exposure to special hazards
 - Establish conditions for declaring hazardous damaged buildings as public nuisances. [This may require an emergency ordinance.]
 - Refuse repair permits when property located in the floodplain is damaged more than 50% of its value
 - Overtime policies for inspectors
 - Requiring the owner's or representative's presence during inspections
 - Operating procedures should be in place before they are needed and should be understood and followed by everyone participating in the response/recovery effort.
- Secure access to communication equipment, transportation support, and supplies to accomplish tasks
- Establish the general damage categories that each building will be evaluated against
- Coordinate with emergency service providers [police, fire, and health] to determine availability and extent of involvement
- Determine utility safeguard procedures and secure agreements with local public utility service providers. Work with utility companies to delay power restoration until the community has inspected the structure.
- Develop specific criteria for estimating the percent of damage to a building
- Consider a temporary community-approved moratorium on the issuance of floodplain development permits, if required, to allow community personnel to complete the damage survey. This moratorium should only be temporary [30-60 days]. Emergency and critical facilities (hospitals, water and power plants, fire stations, etc.) cannot be included in the moratorium.
- Research where additional building inspectors and other staff resources needed for floodplain development permit review and on-going inspections of buildings can be found

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[Pre-flood Planning Tasks – continued]

- Determine where the engineering expertise to deal with structural engineering problems will be secured
- Develop inspection review sheets, reporting sheets, etc.
- Develop inspection team responsibilities and procedures
- Develop public service announcements

DURING THE FLOOD

While the disaster is actually unfolding, many community officials are involved in addressing the immediate flood protection needs of its residents. Well-planned SOPs can reduce the level of confusion and actually enable the community to anticipate needs. Limited staff will be available during this time. To reduce the potential for noncompliant post-flood reconstruction, the following items are suggested.

1) Control access to flood-impacted areas

- Barricade areas of concentrated flooding need and control entry

2) Conduct preliminary broad-scope disaster surveys (floodplain manager)

- View the flood-impacted area and make general notes on the extent, height/depth, and velocity of the floodwaters
- Take pictures of the conditions
- Make individual structure notes and take photographs (if possible) for damage documentation

3) Post all flooded buildings

- Flooded structures should be posted with information advising property owners a safety inspection is required before reoccupancy is authorized and entry to any flood-damaged building requires approval by the community.

Control of entry to buildings in the more remote areas is very difficult. These buildings should be posted as soon as possible to prevent owners from reoccupying structures and initiating reconstruction prior to authorization.

POST-FLOOD TASKS

Exactly when this period occurs varies from event to event by community. Some of the suggested tasks can actually be initiated during the flooding disaster. If the community has accomplished the pre-flood planning tasks, some of the post-flood tasks will take much less time. Community officials should carefully consider these items, as they represent the bulk of the work effort to recover from a flood. **The post-flood damage survey is an item that must be accomplished to determine the extent of damage.** This documentation is necessary to ensure floodplain development permits are issued in compliance with the community's floodplain management ordinance.

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[Post-flood Tasks – continued]

- 1) **Coordinate with local emergency management, police, fire department, rescue squad, and other community agencies or employees who may be involved in flood evacuation and response to identify specific areas that have flooded**
- 2) **Survey and inspect the flood-damaged areas to determine which structures have been damaged and take photographs for documentation**
 - Determine when each structure each structure was constructed
 - Pre-FIRM [built prior to the effective date of the Flood Insurance Rate Map (FIRM)]
 - Post-FIRM [built after the effective date of the FIRM]
 - If post-FIRM, is it compliant?
 - Determine extent of damage to each structure
 - Sample damage classifications:
 - Substantially damaged [more than 50% of fair market value]
 - Heavily damaged [may be more than 50% of fair market value]
 - Moderately damaged [less than 50% of fair market value]
 - Minimally damaged [only minor repairs necessary]
- 3) **Post each structure with the preliminary inspection findings and take photographs of any damage**
 - Make sure the posted notice includes:
 - Address of structure
 - Inspection date and inspector signature
 - Preliminary inspection classification [additional explanation in appendix]
 - ◇ WHITE: Building damaged, inspection required before re-entry
 - ◇ GREEN: Building inspected, no apparent hazards, minimum repairs
 - ◇ YELLOW: Building inspected, minor repairs
 - ◇ ORANGE: Building inspected, apparent damage in excess of 50%, repairs not authorized until damage extent verified
 - ◇ RED: Building inspected, apparent extensive damage, no re-entry
 - Major damage items
 - Requirements to reoccupy/repair [floodplain development permit, other permits, etc.]
 - Instructions for the property owner
 - Copy of preliminary inspection report
- 4) **Post a notice on each flood-damaged structure clearly indicating a floodplain development/building permit is required prior to the initiation of any repair of the flood-damaged structure**
- 5) **Determine the fair market value for each structure**

The tax assessed value of the structure (excluding the land) may be used in place of the fair market value.

MODEL GUIDE: POST-FLOOD DAMAGE SOP

[Post-flood Tasks - continued]

- 6) **Allow the property owner to provide an appraisal of the property (at their own expense) that represents the fair market value of the structure**
 - For substantially damaged structures, the appraisal should reflect the value immediately prior to the damage
 - Only accept appraisals performed by trained, qualified, state-licensed real estate appraisers

- 7) **Review the property owner's appraisal prepared by an independent review appraiser, if the appraisal exceeds the tax assessed value of the structure by more than fifteen (15) percent**
 - Confirm the value established by the new appraisal represents the fair market value of the structure
 - If the review appraisal report supports a value greater than the tax assessed value, then the new appraised value may be used to determine if the proposed improvements or repairs to the structure constitute a substantial-improvement
 - Provide a copy of the new appraisal to the tax assessor's office

- 8) **Determine the fair market value of the proposed repairs/improvement**
 - Must represent the fair market value of the work to be performed
 - Total value of the damage must be determined, regardless of the extent of repairs
 - Can require the property owner to provide an itemized cost of all the proposed and required repairs/improvements
 - If insured, an itemized insurance adjuster's report can establish the value of damage
 - If not insured, the community must determine the total value of damage [can require property owner to provide an itemized breakdown of costs prepared by a local, licensed building contractor]
 - Must include any donated labor and materials and costs for any owner labor

- 9) **Inspect and review independent cost estimates to determine if it fairly represents the total damage and repair costs**
 - Hire a qualified building contractor to review the cost estimates

- 10) **Compare the value of the proposed repairs/improvements to fair market value of the structure**
 - If substantially damaged or improved, the structure must comply with all of the community's floodplain ordinance requirements
 - Substantial-improvement rule cannot be waived due to volume of floodplain development permits to be issued

- 11) **Issue a dated, numbered floodplain development permit, and require it to be posted at the building repair site at all times**
 - Other community officials [police, sheriff, public works employees, etc.] should be aware of the floodplain development requirements and report any violations

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[Post-flood Tasks – continued]

- 12) **Make frequent (preferably daily) physical inspection of the flood-damaged area to ensure repair work is not being performed without a floodplain development permit**
 - Make daily notes of any activities or changes [document with photographs]
- 13) **Make provisions for on-going building inspections and code enforcement**
 - As reconstruction progresses, additional inspections may be required to ensure extent of repairs [document with photographs]
- 14) **Publish a notice in the local newspaper to remind property owners that a floodplain development permit is required to repair structural damage resulting from the flood**
 - Direct property owners to the community building department for assistance and information concerning a floodplain development permit
 - Explain that emergency repairs done with temporary materials (tarps, plastic sheeting, etc.) generally do not require floodplain development permits
 - Include an easy to understand guide through the permitting procedure
- 15) **Publish articles and notices about the availability of flood insurance**
 - Remind citizens the community is a participant in the National Flood Insurance Program and that structure and contents flood insurance coverage is available to any property owner, regardless of the property location
 - Remind citizens that flood insurance is NOT just for properties located in the 100-year floodplain
 - Flood insurance is available to any property owner in a community participating in the National Flood Insurance Program
 - Remind renters they can purchase flood insurance coverage on their personal property contents
 - Discuss availability of purchasing flood insurance coverage from any state-licensed property and casualty insurance agent
 - Except for flood insurance purchased at the time of a real estate closing, there is a thirty day waiting period before the policy becomes effective
- 16) **Other suggestions**
 - Expedite floodplain development permits for minor (nonstructural) repairs such as windows, doors, etc.
 - Coordinate with public health officials to distribute important health and safety information
 - Establish restricted access to damaged areas and curfews
 - Ample supply of community street maps for contract inspectors and vendors

APPEALS

A system to review the inspection determination must be established. Frequently, property owners do not agree with the damage estimate or property valuation. The formal procedure for appealing flood damage estimates should be established per your community's appeals procedure.

One suggested procedure is:

- 1) Review the original estimate of the percent of damage**
 - Review the estimate provided by the inspector as part of the preliminary damage inspection and any photographs
 - Original estimate is basis for subsequent action by the community
- 2) Review evidence for amending the estimate provided by the property owner**
 - Copy of bona fide contract to repair the building
 - Estimate of repair costs prepared by a registered architect or engineer
 - A detailed list of required repair materials and labor prepared and certified by the owner or certified building contractor
 - Any other reasonable documentation, photographs, etc.
- 3) Determine a “final” estimate of damages**
 - Include all evidence that documents the reason for the modification
- 4) If owner still disagrees, owner can appeal to the community's Board of Appeals**
 - Provide appeal form consistent with the provisions of the community's ordinances
- 5) Present the appeal to the Board of Appeals**
 - Completed form to be processed by community
- 6) Schedule public hearing before Board of Appeals**
 - Additional meetings may be required during the post-flood period
- 7) Require the property owner or the owner's agent to attend the public hearing**
 - Owner should present case for appeal
 - Community documentation should be available for review by the Board
- 8) Board of Appeals hears the request and decides the issue**
- 9) All Board of Appeals' decisions are subject to judicial review**

SUMMARY

Typically, flood disaster events are very unpredictable, but the damages resulting from a flood do not have to be. Proper floodplain management and construction has consistently resulted in reducing losses to life and property. Communities that take time to develop a standard operating procedure gain more than that time back during a disaster. Samples of various forms and suggested wording are attached to this SOP. **Please review each sample carefully and adapt it to your community. Any SOP or community form should be reviewed by the community's legal counsel, adopted by the community, and incorporated in the floodplain management administrative procedures for that community.**

The Regional Office of the Federal Emergency Management Agency in Kansas City is available to work with your community to further refine these suggested procedures. If you have any questions concerning this or any other aspect of your floodplain management program, please contact the Regional Office National Flood Insurance Program staff at (816) 283-7003.

APPENDICES

DAMAGE LEVELS AND CONDITIONS

INSPECTION TAG COLOR	DAMAGE LEVEL	SAMPLE CONDITIONS
<p><u>WHITE</u> [Inspection Required before reentry]</p>	<p>Undetermined</p>	<p>Damage apparent</p>
<p><u>GREEN</u> [Preliminary inspection conducted]</p>	<p>Minimum repairs needed</p>	<p>Broken windows, damage to landscaping, porch/deck damage, carpets soaked on first floor, chimney damage, business signs damage, parking lot damage</p>
<p><u>YELLOW</u> [Building inspected]</p>	<p>Minor repairs needed</p>	<p>Interior floor and wall damage, minor damage to exterior walls, shingles/roofing removed or missing, small trees fallen on structure, business inventory destroyed, fleet/vehicle damage, fire escape not usable</p>
<p><u>ORANGE</u> [Building inspected]</p>	<p>Major repairs needed; apparent damage in excess of 50%; repairs not authorized until damage extent verified</p>	<p>Water above first floor, moved off of foundation, walls collapsed, exterior frame damage, roof off or collapsed, foundation damage, insulation damage, exterior wall damage, one room destroyed, exits blocked, utilities damage [furnace, water heater, well, septic system], accessory/service buildings damage, production/office equipment damage</p>
<p><u>RED</u> [Building inspected]</p>	<p>Destroyed; apparent extensive damage; no re-entry allowed</p>	<p>Structure leveled, foundation/basement damage, water above the eaves, second floor missing</p>

PRELIMINARY INSPECTION: DAMAGE LEVELS AND CONDITIONS

As soon as possible after the water has receded so that buildings are accessible, and after clearance by emergency officials, any flood-damaged structure should be inspected. The property owner or representative should be present for the interior inspection. The primary purpose is to verify safety for entry. The secondary purpose is to estimate the percent of damage that has occurred. Photographs of the damage should be taken. At the conclusion of the preliminary damage inspection, the structure should be tagged with its building status.

WHITE: No inspection was made. Building was damaged and an inspection is required before reentry can be authorized.

GREEN: This building was inspected. No obvious safety hazards were found. Flood damage was apparently insignificant, no repairs beyond clean-up were required, and continued use and occupancy is authorized immediately.

YELLOW: This building was inspected. Flood damage repairs are needed before occupancy can be approved, but no significant life-safety hazards were apparent. Entry to the building for purposes of personal property retrieval, clean-up, and inspection for repairs is authorized. A floodplain development permit and any other building permits are required before electrical, plumbing, mechanical, or building repairs are started.

ORANGE: This building was inspected. Damage to the building was apparently in excess of 50% of the building value and repairs cannot be authorized unless the structure can comply with all of the community's floodplain management requirements.

RED: This building was inspected. There was apparent serious damage or a hazardous condition which makes reentry unsafe. Entry may result in injury or death. Use or occupancy of the structure is prohibited and entry for any purpose requires special arrangements approved through the inspecting official.

Completeness and accuracy of information on the preliminary damage inspection forms is vital. Missing or incorrect information results in delays.

PRELIMINARY DAMAGE INSPECTION REPORT

Date inspection requested: _____ Date of inspection: _____

Floodplain status: Fringe _____ Floodway _____

Owner(s)/business name(s): _____

Owner(s) telephone #: _____ Work (if different): _____

Property address: _____

Site access authorized – Emergency Operations: _____
Date _____ Initials _____

Building approved for re-entry – Community: _____

Building Type: Residential [] Commercial [] Accessory []

Condition: Structurally sound [] Apparently unstable [] Unsure []

Does structure have basement? Yes [] No []

Water level in building: At time of inspection: _____ At crest: _____

Roof damaged:	No []	Yes []	Repairable []	Uncertain []
Walls damaged:	No []	Yes []	Repairable []	Uncertain []
Floors damaged:	No []	Yes []	Repairable []	Uncertain []
Foundation damaged:	No []	Yes []	Repairable []	Uncertain []
Electrical power:	On []	Off []	Secured []	Was submerged []
Gas service:	On []	Off []	N/A []	
Gas piping:	Damaged []		No apparent damage []	Was submerged []
Propane:	On []	Off []	N/A []	
Oil:	On []	Off []	N/A []	
Water:	On []	Off []	Damaged []	Was submerged []
Sewer:	Blockage []		No apparent damage []	Septic system []
Htg & AC sys:	Damaged []		No apparent damage []	Was submerged []
Fire prot sys:	Damaged []		No apparent damage []	Was submerged [] N/A []

Estimated percent of total damage: _____ %

INSPECTOR'S RECOMMENDATIONS

Occupancy recommendation: Approved [] Limited entry [] Restricted entry [] UNSAFE []

Color of placard used: Green [] Yellow [] Orange [] Red []

Electrical service may be restored: No [] Yes [] No action needed []

Gas service may be restored: No [] Yes [] No action needed []

Water service may be restored: No [] Yes [] No action needed []

Telephone service may be restored: No [] Yes [] No action needed []

REINSPECTION required before completion of preliminary damage inspection: Yes [] No []

INSPECTOR'S SIGNATURE: _____

Date of reinspection: _____ Comments: Passed [] Failed []

INSPECTOR'S SIGNATURE: _____

AUTHORIZED

COMMUNITY NAME – PERMITTING OFFICE
COMMUNITY ADDRESS

A BUILDING PERMIT WAS ISSUED FOR THIS STRUCTURE
AND IT IS AUTHORIZED TO BE CONSTRUCTED IN
ACCORDANCE WITH APPROVED PLANS ON FILE.

PERMIT NO. _____

PROPERTY ADDRESS

THIS NOTICE IS NOT TO BE REMOVED

[WHITE BACKGROUND]

**COMMUNITY NAME – PERMITTING OFFICE
ADDRESS**

NOTICE

RE-ENTRY INSPECTION REQUIRED

**ARRANGEMENTS MUST BE MADE FOR
AN INSPECTION OF THIS STRUCTURE
BEFORE ANY
RE-ENTRY CAN BE ALLOWED.**

**FOR FURTHER INFORMATION
CONTACT: COMMUNITY
PERMITTING OFFICE**

[GREEN BACKGROUND]

**COMMUNITY NAME – PERMITTING OFFICE
ADDRESS**

**SAFE FOR
OCCUPANCY**

PROPERTY ADDRESS

INSPECTOR SIGNATURE DATE

[YELLOW BACKGROUND]

**COMMUNITY NAME – PERMITTING OFFICE
ADDRESS**

NOTICE

INHABITABLE

USE CAUTION UPON ENTERING

PROPERTY ADDRESS

NOTE: This structure can be repaired with proper permits. Contact the Community Permitting Office at (###-####) to discuss your options.

Permitting Official

Date

[ORANGE BACKGROUND]

**COMMUNITY NAME – PERMITTING OFFICE
ADDRESS**

DANGER

**UNINHABITABLE
USE CAUTION UPON ENTERING**

PROPERTY ADDRESS

NOTE: This structure cannot be repaired without proper permits. Contact the Community Permitting Office at (###-####) to discuss your options.

Permitting Official

Date

[RED BACKGROUND]

**COMMUNITY NAME – PERMITTING OFFICE
ADDRESS**

CONDEMNED

DANGER

USE CAUTION UPON ENTERING

PROPERTY ADDRESS

**ANY PERSONS WILLFULLY DESTROYING,
MUTILATING, OR REMOVING THIS CARD WILL BE
PUNISHED TO THE FULL EXTENT OF THE LAW.**

This structure has sustained flood damage greater than 50% of it's market value. A letter will follow within 30 days advising you of your options or you can call ###-#### for details.

Permitting Official

Date