Developing a Repetitive Loss Area Analysis

for Credit under
Activity 510 (Floodplain Management Planning)
of the Community Rating System

2017

NFIP/CRS

CONTENTS

Section 1. Background 1
- Purpose 1
- Definition of Repetitibve Losses 2
- Addressing Repetitive Loss Properties 3
- Benefits of a Repetitive Loss Area Analysis 3

Section 2. The Repetitive Loss List 3
- How to Update the List 4
- Repetitive Loss Categories 8

Section 3. Mapping Repetitive Loss Areas 8
- Mapping Requirements 9
- Preparing the Map 9

Section 4. The Five-step Planning Process 11
- Criteria for Repetitive Loss Area Analysis 11
  - Step 1. Contact Property Owners 12
  - Step 2. Contact Other Agencies 13
  - Step 3. Collect Data 16
  - Step 4. Consider Mitigation Alternatives 18
  - Step 5. Document the Findings 20
- Approval of the Repetitive Loss Area Analysis 22
- Annual Evaluation Report 22
- Cycle Verification Requirements 23

Section 5. Conclusion 23

Appendix A. Resources A-1

Appendix B. Examples of Field Work B-1

About this guide:
This document was developed by the Insurance Services Office, Inc. (ISO), lead service provider to the Federal Emergency Management Agency for the National Flood Insurance Program's Community Rating System. Any questions should be directed to the ISO/CRS Specialist, the FEMA Regional Office, or to nfipcrs@iso.com. See Appendix A for additional contact information.

Cover photos:

Repetitive Flooding on Victory Drive in Savannah, Georgia (left)

Repetitive Flooding along Beaver Creek in Knox County, Tennessee (right)

Section 1. Background

Flooding is the most common natural hazard in the United States and causes more damage and deaths than most other natural hazards combined. When you think about floods, the larger ones that result from a hurricane or the overflow of a major river are the ones that tend to be remembered—such as that from Hurricane Katrina in 2005 and the Cumberland River floods of 2010, which affected downtown Nashville, Tennessee.

Flooding in Nashville, Tennessee, 2010

However, smaller floods also contribute to the nation's repetitive flood problems. Often called "nuisance flooding," these low-level floods can be the result of inadequate drainage or localized stormwater problems such as ponding of water, poor drainage, clogged culverts or drains, obstructed drainageways, sewer backup, overbank flow from a ditch or small stream, or even from a homeowner's filling in a drainage swale. For many repetitively flooded properties, these smaller floods represent most or all of the flood insurance claims paid on a building, especially for building located in the low-risk flood zones (B, C, and X Zones).

Street flooding on Victory Drive in Savannah, Georgia

Purpose

A repetitive loss area analysis (RLAA) is a mitigation plan for areas that have or are expected to experience repeated losses from flooding. During this analysis, detailed building information is collected through field visits to develop an understanding of the exact causes of repetitive flood damage at those sites. The purpose of an RLAA is to generate mitigation solutions for individual buildings or areas, in contrast to a hazard mitigation or floodplain management plan, which examines community-wide flooding problems and solutions.

Even though the purpose of an RLAA is to bring about mitigation on individual buildings within a community, it sometimes takes a collective effort from local, state, and federal agencies to actually implement certain mitigation measures. This is particularly true for many techniques like elevation or acquisition of structures, if Federal Emergency Management Agency (FEMA) grant funding is utilized.

As with a floodplain management plan prepared for FMP (floodplain management planning) credit under the Community Rating System (CRS), an RLAA requires that your community follow a standard planning process. The RLAA process has five planning steps as compared to a more detailed 10-step process for a floodplain management plan. Depending on the number of repetitive loss properties, an RLAA will require more data-specific detail about buildings within the defined areas subject to repetitive losses.

Your community can receive CRS credit for both a floodplain management plan and a repetitive loss area analysis (FMP and RLAA credit, respectively). The two can be prepared at the same

time since some of the planning steps overlap; however, the two planning documents should remain separate and not be combined (as annexes or subsections, for example) because of the annual progress reports and update requirements of the CRS.

Definition of Repetitive Loss

For CRS purposes, a repetitive loss property is any insurable building for which two or more claims of more than $1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period since 1978 (the year at which consistent claims data collection began). Therefore, a building with paid NFIP claims of more than $1,000 in 1979 and again in 1980 is considered a repetitive loss property until that building's flood problem is mitigated. On the other hand, a building with paid NFIP claims of more than $1,000 in 1994 and again in 2013 would not be a repetitive loss property since more than 10 years elapsed between the first and second losses.

Severe repetitive loss (SRL) properties are another class of repetitive loss. These properties, defined under the 2004 Flood Insurance Reform Act, are those buildings that either have four or more claims of $5,000 or more, or have at least two claims that cumulatively exceed the building's value.

FEMA is required by the Act to define SRL properties for multi-family buildings. This subset of SRL properties also includes non-residential buildings that meet the same criteria as for 1–4 family properties. The flood insurance on these properties is serviced by FEMA through a Special Direct Facility and not by individual Write Your Own insurance companies.

A repetitive loss designation runs with a building even if ownership of the building changes. The repetitive loss designation for a building will remain on your community's list even after the insurance policy has lapsed, has been terminated, or the building's risk has been mitigated. More information about the repetitive loss list is discussed in Section 2. The Repetitive Loss List.

Terminology

Repetitive loss—Any insurable building for which two or more claims of more than $1,000 were paid by the NFIP within any rolling 10-year period, since 1978. Two of the claims paid must be more than 10 days apart but, within 10 years of each other. A repetitive loss property may or may not be currently insured by the NFIP.

Severe repetitive loss—As defined by the Flood Insurance Reform Act of 2004, SRLs are 1–4 family residences that have had four or more claims of more than $5,000 or at least two claims that cumulatively exceed the building's value. The Act creates new funding mechanisms to help mitigate flood damage for these properties.

Addressing Repetitive Loss and Severe Repetitive Loss Properties

There are more 5.3 million NFIP policies across the United States in more than 22,000 communities. About 160,000 of these properties have suffered repetitive losses as of 2015. Since 1978, approximately $9 billion have been paid to these properties, which represents about one-quarter of all flood insurance claims payments. Many of these buildings are uninsured today even though they remain on a community's repetitive loss list.

It is the responsibility of every community that participates in the CRS to address its entire repetitive loss problem (those buildings on FEMA's Repetitive Loss List and those adjacent buildings with the same or similar flood condition). Through a RLAA, your community develops a better understanding of the source of its flood damage and can provide more meaningful mitigation solutions to those property owners.

Benefits of a Repetitive Loss Area Analysis

Homeowners often want a solution to their repetitive flood problems because they must continually clean up and repair their homes, and can even be displaced for a period of time. In response, communities usually provide advice and assistance to property owners who have been flooded or have drainage problems.

From a state and national perspective, mitigating repetitive loss properties makes economic sense and reduces the financial burden on the National Flood Insurance Fund (NFIF). Reducing repetitive flood claims can help strengthen the solvency of the NFIF. But more importantly, reducing damage to repetitively flooded buildings makes communities safer.

If you participate in the CRS, an RLAA can help increase mitigation opportunities on repetitively flooded buildings in your community, reduce future damage to them, and also provide up to 140 points of credit under Activity 510.

Section 2. The Repetitive Loss List

To participate in the CRS, a community must maintain and update its repetitive loss data. Maintaining these data also helps a community accurately identify its repetitive flooding problems and appropriate mitigation measures.

Each year, FEMA generates a list of repetitive loss properties for all communities that participate in the CRS and those who are interested in applying to the CRS. At a minimum, these data include the property address, dates of claims, amount of each claim, and the current insured and/or previous owner's name.

The list and the worksheet pages (Repetitive Loss Update Worksheet (AW-501)) can be obtained from your State NFIP Coordinating Office or FEMA Regional Office (see Appendix A). Communities have the option to use the latest repetitive loss data

FEMA's cover sheet for data protected by the Privacy Act of 1974

provided by the Insurance Services Office, Inc. (ISO). If you have a problem obtaining this data you can contact ISO at nfipcrs@iso.com or your ISO/CRS Specialist (see Appendix A).

Communities are required to provide updates to their repetitive lost list when preparing an RLAA to disclose when properties have been mitigated, protected, or are not located in the community's jurisdiction. When you report updates to your ISO/CRS Specialist, FEMA can provide more accurate repetitive loss information.

How to Update the Repetitive Loss List

Updating the repetitive loss list during the preparation of an RLAA is a good idea because it ensures that a community is addressing the entire repetitive loss problem and is working with an accurate list of unmitigated properties. A detailed examination of addresses on the repetitive loss list is required to conclude whether the property is actually located in a community or whether the address for the property belongs in another community. Equally important is evaluating whether insured buildings have been removed, retrofitted, or otherwise protected from the causes of repetitive flooding.

The Repetitive Loss Worksheet (AW-501) is the form that is used to report any changes to FEMA's repetitive loss list. After examining the list, and providing updates or changes if necessary, the community must provide a copy of the CC-RL form, signed by the community's CRS Coordinator. A copy of the CC-RL can be downloaded from the CRS Resources website.

The Privacy Act

Flood insurance and repetitive loss data are protected by the Privacy Act of 1974. The data include personally identifiable information, such as the addresses of insured properties. This information must not be made available to the public. The data should be kept in a safe place and marked "For Internal Use Only. Protected by the Privacy Act." FEMA will assign a password to access digital files that contain flood insurance data or PPI. (5 *USC*.§552a)

There are seven types of updates or changes that can be made on the AW-501.

- For an address that is not located in your jurisdiction, complete **3. Property Not In Our Community or Jurisdiction**. Include the name of the community where the address for the building does belong and the NFIP Community Number.
- If a building has been removed from a lot, complete **5. No Building On Property**. Review the "Mitigation Actions" list on the back of the AW-501 and indicate which one applies.
- If a building has been protected from repetitive flooding, complete **4. Flood Protection Provided**. Documentation such as an Elevation Certificate may be required.

OMB Control Number: xxxx-xxxx
Expiration: x/xx/20xx

Federal Emergency Management Agency

National Flood Insurance Program

NFIP REPETITIVE LOSS UPDATE WORKSHEET (AW-501)

THE INFORMATION ON THIS FORM IS BASED ON CLAIMS ON OR BEFORE: January 1, 2011

REPETITVE LOSS NUMBER: 0987654

Internal use only ☐ A ☐ N/A ☐ FRR

NFIP Community Name: Baldwin County	CID#: 015000
Local Property Identifier: 56-09-29-0-999-000	

Current Property Address	Previous Property Address/Community ID#
12345 Memory Lane, Fairhope, AL 365325	
Last Claimant:	Last Claimant:

Insured: Yes	Name Insured: Elmer R. Flood
Date of Losses: 20040916 19980927	Total Number of Losses for Property: 2

REQUESTED UPDATES

MARK ALL UPDATES BELOW THAT APPLY (IMPORTANT - SEE INSTRUCTIONS)

1. ☐ **INFORMATION PROVIDED NOT SUFFICIENT TO IDENTIFY PROPERTY.**
   Choose this update if all attempts to locate the property fail. Please describe the steps you took to locate the property in the comments section below.

2. ☐ **COSMETIC CHANGES REQUIRED TO THE ADDRESS:**
   Update the address shown above and/or add our local alternative property identifier such as a Tax Assessor #.

3. ☐ **PROPERTY NOT IN OUR COMMUNITY OR JURISDICTION:**
   Choose this update if you have positively determined that the property shown is not located in your community. Please provide the correct NFIP community name and if known the NFIP community ID Number. If available, please attach a map showing the property location.
   ASSIGN TO NFIP COMMUNITY NAME: _____ NFIP COMMUNITY ID#: _____

4. ☒ **FLOOD PROTECTION PROVIDED.**
   Choose this update only if some type of structural intervention has occurred to the building, prop-erty or the source of flooding that protects the building from future events similar to those that occurred in the past. The update must be supported by documentation such as an Elevation Certifi-cate and the Mitigation action and funding below must be provided.

   (Mitigation Action 1.) (Source of Primary Mitigation Funding 3.) (Secondary Source of Funding 3.)

CC-RL-2 (AW-501-1) *[continued on next page]*

FEMA FORM 086-0-35A (04/17) Page 10 of 13

A sample completed AW-501, first page

OMB Control Number: xxxx-xxx
Expiration: x/xx/20xx

5. ☐ **NO BUILDING ON PROPERTY.**

Choose this update only if the property in question can be positively identified as the site of the previously flooded building and documentation is available to support that an insurable building no longer exists at this site. The update must be supported by documentation such as a Demolition or Relocation Permit and the Mitigation action and funding information below must be provided.

(Mitigation Action 2.) (Source of Primary Mitigation Funding 3.) (Secondary Source of Funding 3.)

6. ☐ **DUPLICATE LISTING WITH RL NUMBER:** _____ COMBINE AS ONE LISTING.

Choose this update to identify two or more separate listings that are for the same building. List all other RL numbers that are duplicates to this property. Please indicate which address shown is the correct address to use.

7. ☐ **HISTORIC BUILDING:**

Choose this update if you know the building is or would be eligible to be listed on a State or National Historic Registry.

COMMENTS SECTION:

Previously updated -- this property is no longer considered a RL property
Updated as -- Flood protection provided -- on 11/05/2009

A signed RL transmittal sheet must accompany this form for approval of the update!

CC-RL-3 (AW-501-2)

FEMA FORM 086-0-35A (04/17) Page 11 of 13

A sample completed AW-501, second page

OMB Control Number: 1660-0022
Expiration: 3/31/2020

Community _____ State _____ CID _____
(6-digit NFIP Community Identification Number)

CC-RL The Repetitive Loss List

(See Section 501 in the *CRS Coordinator's Manual).*

☐ We have reviewed the repetitive loss list dated: _____ , 20 _____ , and [check one]

☐ Attached are updated Repetitive Loss Update Certifications, AW-501; or

☐ There are no changes to FEMA's repetitive loss list.

As the current CRS Coordinator for _____ [community name], I have examined the repetitive loss data provided for each of our _____ [number] assigned repetitive loss properties. For each property in need of update, I have attached an AW-501 that reflects the current and accurate address, the correct National Flood Insurance Program (NFIP) community identification number, and all known mitigation actions with the primary source of funding noted. To the best of my knowledge and belief, any AW-501 not updated and submitted as part of this application has been checked and is not in need of update at this time.

Signature _____ (Community CRS Coordinator)

To facilitate verification, please provide the names of the CRS Coordinator and local repetitive loss contact person, if other than the CRS Coordinator

CRS Coordinator	Repetitive Loss Contact
Name	
Title	
Phone number	
Fax number	
Address	
E-mail address	

Comments:

CC-RL-1

FEMA FORM 086-0-35A (04/17) Page 9 of 13

The CC-RL form

Repetitive Loss Category

Any time updates are made to a community's repetitive loss list, the total number of repetitive loss properties change. When that number is adjusted, a community's repetitive loss category can also change. For CRS communities, the number of unmitigated properties left on the updated list determines the community's additional requirements. A community will fall into one of three categories:

Category A—No unmitigated repetitive loss properties,

Category B—More than 1 but fewer than 49 unmitigated repetitive loss properties,

Category C—50 or more unmitigated repetitive loss properties.

A full explanation of the repetitive loss category requirements is provided in Section 502.a on page 500-7 of the *CRS Coordinator's Manual*. A community with 10 or more repetitive loss properties is required under Activity 510 to develop either a floodplain management plan (element FMP) or a repetitive loss area analysis (element RLAA) that covers all of its repetitive loss areas.

Frequently Asked Questions

Q Why do updated repetitive loss properties continue to appear on a list year after year?

A Updated properties will continue to appear on your list forever, but only for informational purposes. They will have a special notation that the property is no longer subject to repetitive flooding.

Q Is a property that belongs to another community removed from a list?

A Yes, this is the only time that a property is completely removed from a community's list.

Section 3. Mapping Repetitive Loss Areas

It is important to distinguish between a repetitive loss PROPERTY and a repetitive loss AREA.

A repetitive loss property is an NFIP insured property that has made two or more claims of more than $1,000 in any given 10-year period since 1978. Some properties have sustained repeated flooding but may not be considered repetitive loss properties for various reasons:

- An owner who lives in the Special Flood Hazard Area (SFHA) does not have a mortgage.
- An owner who lives in the SFHA has filed only one claim against the NFIP or did file two claims but they were more than 10 years apart.
- The owner chose not to file a claim after being flooded or filed claims that were under the $1,000 threshold.
- The owners mitigated their problem and the building is no longer subject to repetitive flooding.

There are several reasons why a property might be subject to repetitive flooding but may not appear on a FEMA's repetitive loss list for that community, so it is important to examine all of the repetitive flooding problems. If only the properties on the list are examined, then only part of the entire problem is being addressed. Therefore, it is important that all buildings with the same exposure to repetitive flooding be identified in an "area." This is what is meant to "map a repetitive loss area."

Mapping Requirements

To prepare a repetitive loss map, the following steps should be considered to incorporate all properties that should be a part of an area. A visit to the neighborhood may be needed to get a clear understanding of the flooding problem(s). In some cases, a single repetitive loss property can be an "area," but in most cases there will adjacent or nearby properties included in area.

1. Locate each unmitigated repetitive loss and severe repetitive loss property on a map. These properties are listed in the AW 501 file and spreadsheet (Microsoft Excel) provided by FEMA, the State NFIP Coordinating Office, or by the Insurance Services Office (ISO).

2. From the "Historical Claims" Excel file, identify any properties with only one flood insurance claim, and locate them on the map. Some of these properties can become the next repetitive loss properties. Double-check the dates of flooding to see if they are close to any dates on the repetitive loss list.

3. If available, overlay a topographic map or use a layer from your geographic information system (GIS) to identify areas or properties which have lower elevations.

4. Draw lines around those areas with similarly situated properties, such as being subject to flooding or being lower-lying than surrounding properties.

5. Check the area(s) in the field to confirm that the boundaries you have drawn make sense. If they don't, it may be that the buildings in the area are unique. For example, the buildings that have flooded may be on slab foundations rather on crawlspaces like their neighbors, meaning they are closer to the ground and more prone to being flooded.

6. You may need to contact the homeowner(s) if a field check doesn't reveal why the building(s) were repeatedly flooded.

7. If only one building ends up in an area, an explanation is necessary to document these findings. A repetitive loss map with only one property cannot be made available to the public, because it would violate the Privacy Act.

8. For all other repetitive loss areas, the FEMA repetitive loss properties within the area should not be labeled or specially marked. If the repetitive loss properties are marked, the map cannot be made available to the public, because it would violate the Privacy Act.

Preparing the Map

Careful attention should be given to how areas are determined, because the mapped area of repeated flooding is the basis for the analysis. After you have plotted the properties from the list, along with nearby properties with the same or similar flood condition, and any single-claim "Historical" properties, and have investigated the area's topography and the elevation of the buildings, simply shading the parcels on the map can be the demarcation of the repetitive loss area.

- In the example below, all the building footprints fall within either the 100-year or 500-year floodplains.

- A repetitive loss area can also be defined by drawing lines around all of the properties with the same or similar flood condition. Five of the seven buildings in the area mapped at right fall within the 100-year floodplain and two buildings are outside in the floodplain in an unshaded X Zone.

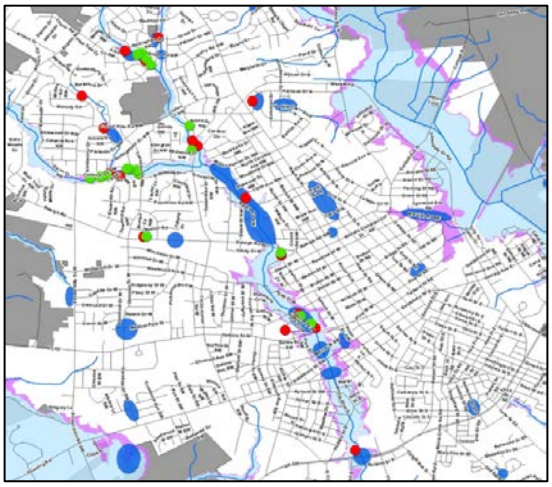
- Since more than 20% of annual flood losses occur outside mapped floodplains, a repetitive loss area also may lie completely within a B, C, or X Zone. These properties may be subject to "nuisance" flooding that results from poor drainage or clogged storm drains.

If areas don't make sense, a visit to that neighborhood may be required to determine what properties belong in a repetitive loss area. In some cases it may require speaking with a property owner who may be able to explain the cause of flood damage and which buildings in the neighborhood are experiencing the same or similar problem.

Instead of relying on one owner's perspective, it is always a good idea to speak with multiple owners, if possible, to confirm the source of repetitive flooding.

Homeowner in Wilson, North Carolina, explaining the source of repetitive flooding at her property.

Source: Amec Foster Wheeler



Repetitive loss properties and localized flooding (hot spots) in Wilson, North Carolina.

If a lot lies in an X Zone well away from any known source of flooding, examining the drainage patterns and contour of the land can help to identify why the property may be subject to repetitive flood damage.

A community must explain and document why only one property is included in an area and is the only building subject to repetitive flood damage. If an area is a single lot, the map of that area cannot be made public unless no property lines are shown and exaggerated boundaries or a distorted symbol is used.

There are no limits to the size of a repetitive loss area. A community may designate its entire SFHA as a repetitive loss area.

See the publication "503 Mapping Repetitive Loss Areas for CRS" on the CRS Resources website for more details on preparing the map.

Section 4. Five-step Planning Process

An RLAA requires a planning process to be followed similar to the process for developing a FMP under Activity 510. Instead of following a ten-step planning process, a repetitive loss area analysis process includes five planning steps. Even though the RLAA planning process is less involved, data must be collected on all buildings in the repetitive loss areas.

A community can receive credit for both a FMP and RLAA. A FMP can be prepared in conjunction with area analyses or the FMP can identify the need for area analyses.

Criteria for Repetitive Loss Area Analysis

Communities with one or more unmitigated repetitive loss properties meet the criteria to prepare a RLAA. At least one area must be delineated and at least one property on FEMA's list must be included. Area analyses must cover all repetitive loss areas or an impact adjustment will be applied. For example, if only 40% of the repetitive loss areas are covered by the analyses, a community will only receive 40% of the possible credit.

One exception to this criterion applies to communities that have no repetitive flood claims, but are addressing repetitive flooding issues. If communities have areas that are repeatedly flooded, analyses may be prepared so long as they describe and map the repetitive flooding problem (including any past flood insurance claims) and comply with the credit criteria. If there are multiple areas using this approach, they cannot be contiguous and each area may receive up to 20 credit points.

Area analyses must be prepared and adopted for all areas; however, where buildings are similarly constructed and flooding characteristics and mitigation measures are uniform, the areas may be combined into one report.

Planning Your Areas

How many analyses do you need?

Once you have mapped your repetitive loss areas, work with the building or construction department and floodplain manager to determine the number of analyses required.

Considerations for Analyses

- Downtown commercial area with lots of basements
- West side of town—newer slab-on-grade residential construction
- North side of town—older homes on crawl spaces and/or basements

Construction factors should also consider the type of flooding exposure.

It is a good idea after mapping repetitive loss areas to work with the building department and floodplain manger to help decide how many analyses may be required to cover all of the areas. Examining the types of building construction and the associated causes of repetitive flooding will help determine how many separate analyses are appropriate.

Consider geographic areas within a community and the type of construction that is most prevalent along with the associated flood problem. For example, a downtown area usually exhibits similar types of commercial construction and has storm drains on every corner. A flat area with slab-on-grade construction likely would be need an analysis separate from that of the downtown area and a locale with rolling hills and crawlspace construction yet another.

All analyses must meet three criteria:

1. Repetitive loss area mapping must be prepared in accordance with Section 503.b in the *CRS Coordinator's Manual* and the handout "Mapping Repetitive Loss Areas for CRS," found on the CRS Resources website.

2. An impact adjustment will be applied if a community does not prepare analyses on all of its areas. A community that wants to prepare analyses to meet the Category C repetitive loss planning requirements must cover all of its areas.

3. Analyses must be prepared according to a five-step process. Step 1 (notifying property owners) must be completed first. After that, the rest of the steps can be completed in any order.

Step 1. Contact property owners. Notify all properties in the identified repetitive loss area(s) that a project is beginning that will investigate flood damage and recommend mitigation solutions.

NOTE: *Step 1 in the planning process requires communities to notify property owners in all repetitive loss areas that community staff will be collecting data on their homes and how to get a copy of the draft report once it is completed. AT STEP 1, A COMMUNITY SHOULD NOT HAVE A DRAFT OF THE DOCUMENT PREPARED OR BE SEEKING INPUT ON THE DRAFT PLAN.*

Requesting the owners' participation in analyzing the hazards and recommending solutions is essential. Remember that any notice or document that is prepared cannot identify which properties are on FEMA's repetitive loss list because this information is protected by the Privacy Act of 1974. It is acceptable; however, to publicize which properties are in the repetitive loss areas since there is more than one property and there are no restrictions on publishing aggregate data.

Community planning staff can make flood insurance claims information available to the owner of the property, but it cannot be shared with anyone else.

- At the community's discretion, the notice can be sent to either the owner or resident, as long as some representative of the property is notified. It is preferable to try to notify the resident at the since he or she is most likely to have contact with the field survey crew.
- A direct mail letter is the most efficient way to notify either the resident or the owner. A notice in a newspaper or newsletter article is not sufficient.
- The notice must advise the recipients how and where they will be able to obtain a copy of the draft report, when it is available, and how they can provide comments. A community staff member should be listed as the primary contact for the project.

The Privacy Act

Flood insurance and repetitive loss data are protected by the Privacy Act of 1974. The data include personally identifiable information, such as the addresses of insured properties. This information must not be made available to the public. The data should be kept in a safe place and marked "For Internal Use Only. Protected by the Privacy Act." FEMA will assign a password to access digital files containing flood insurance or PPI data. (5 *USC*.§552a)

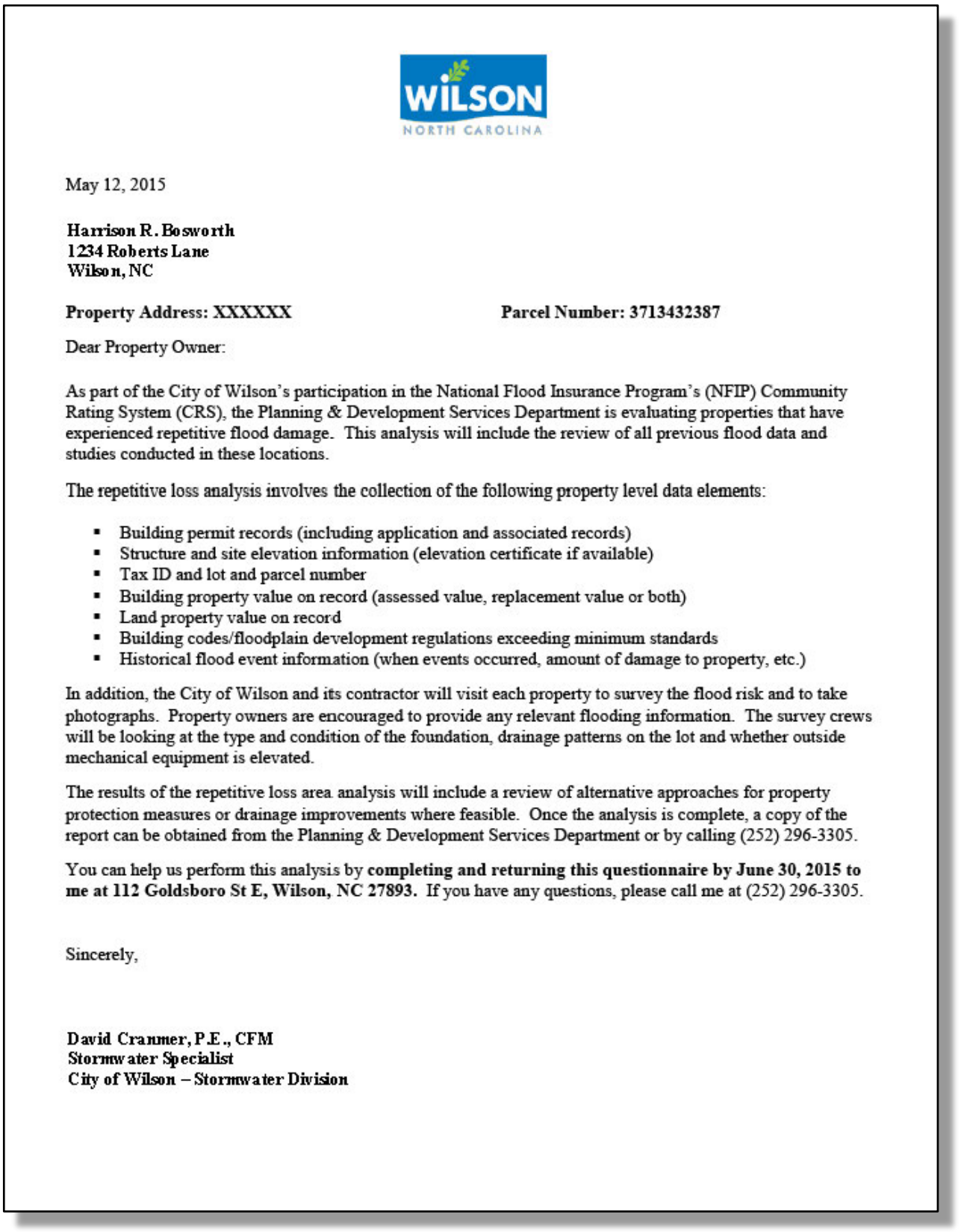
The notice needs to encourage participation in the process. One way to do this is to include a survey or questionnaire with the initial letter. The questionnaire could gather information on the cause of flooding, how deep the water gets, what types of mitigation measures were used by the property owner, and whether there is a flood insurance policy on the property. All of this information can help shape the mitigation measures appropriate for the building.

Another way to encourage involvement is to hold neighborhood meetings to describe the process, objectives, and expected results from the project. Face-to-face communication can be more advantageous for public involvement than direct mail.

Step 2. Contact other agencies. Agencies and organizations that have plans, studies, or reports that may discuss the causes of flooding must be contacted during the planning process, whether they are outside the community or within it. Each agency, organization, or department must be cited in the analysis along with the type of information utilized.

A variety of beneficial information can be gained from new flood studies, drainage studies, watershed master plans, and other drainage improvement projects that are part of a capital improvement plan.

For example, the City of Alexandria, Virginia, conducted a Potomac River Waterfront Flood Mitigation Study that assessed the repetitive flood problems and offered several potential mitigation projects for the City to consider.



May 12, 2015

Harrison R. Bosworth
1234 Roberts Lane
Wilson, NC

Property Address: XXXXXX **Parcel Number: 3713432387**

Dear Property Owner:

As part of the City of Wilson's participation in the National Flood Insurance Program's (NFIP) Community Rating System (CRS), the Planning & Development Services Department is evaluating properties that have experienced repetitive flood damage. This analysis will include the review of all previous flood data and studies conducted in these locations.

The repetitive loss analysis involves the collection of the following property level data elements:

- Building permit records (including application and associated records)
- Structure and site elevation information (elevation certificate if available)
- Tax ID and lot and parcel number
- Building property value on record (assessed value, replacement value or both)
- Land property value on record
- Building codes/floodplain development regulations exceeding minimum standards
- Historical flood event information (when events occurred, amount of damage to property, etc.)

In addition, the City of Wilson and its contractor will visit each property to survey the flood risk and to take photographs. Property owners are encouraged to provide any relevant flooding information. The survey crews will be looking at the type and condition of the foundation, drainage patterns on the lot and whether outside mechanical equipment is elevated.

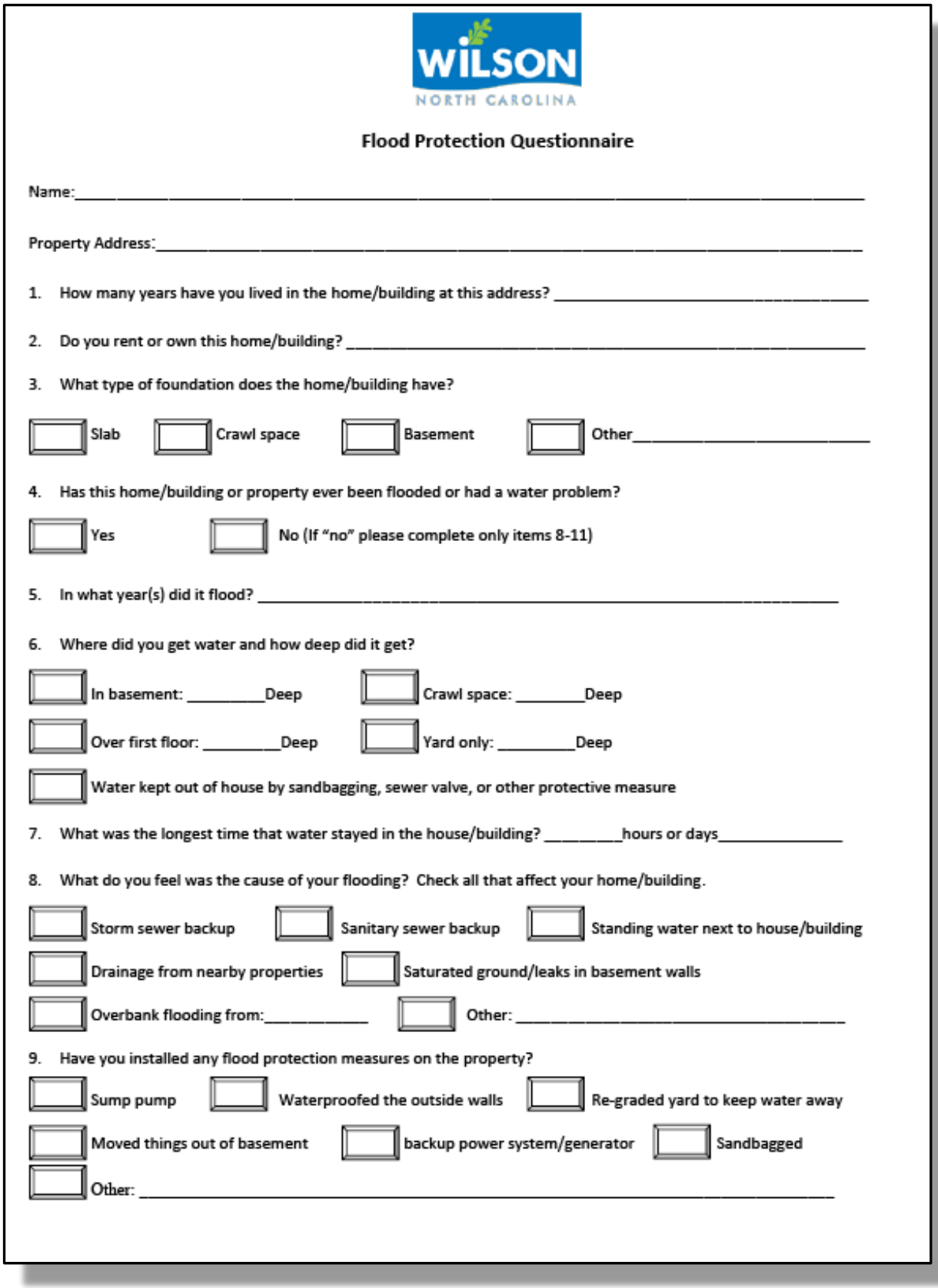
The results of the repetitive loss area analysis will include a review of alternative approaches for property protection measures or drainage improvements where feasible. Once the analysis is complete, a copy of the report can be obtained from the Planning & Development Services Department or by calling (252) 296-3305.

You can help us perform this analysis by **completing and returning this questionnaire by June 30, 2015 to me at 112 Goldsboro St E, Wilson, NC 27893.** If you have any questions, please call me at (252) 296-3305.

Sincerely,

David Cranmer, P.E., CFM
Stormwater Specialist
City of Wilson – Stormwater Division

An example of a Property Notification Letter



WILSON
NORTH CAROLINA

Flood Protection Questionnaire

Name:_____

Property Address:_____

1. How many years have you lived in the home/building at this address? _____
2. Do you rent or own this home/building? _____
3. What type of foundation does the home/building have?

☐ Slab ☐ Crawl space ☐ Basement ☐ Other_____

4. Has this home/building or property ever been flooded or had a water problem?

☐ Yes ☐ No (If "no" please complete only items 8-11)

5. In what year(s) did it flood? _____
6. Where did you get water and how deep did it get?

☐ In basement: _____Deep ☐ Crawl space: _____Deep

☐ Over first floor: _____Deep ☐ Yard only: _____Deep

☐ Water kept out of house by sandbagging, sewer valve, or other protective measure

7. What was the longest time that water stayed in the house/building? _____hours or days_____
8. What do you feel was the cause of your flooding? Check all that affect your home/building.

☐ Storm sewer backup ☐ Sanitary sewer backup ☐ Standing water next to house/building

☐ Drainage from nearby properties ☐ Saturated ground/leaks in basement walls

☐ Overbank flooding from:_____ ☐ Other: _____

9. Have you installed any flood protection measures on the property?

☐ Sump pump ☐ Waterproofed the outside walls ☐ Re-graded yard to keep water away

☐ Moved things out of basement ☐ backup power system/generator ☐ Sandbagged

☐ Other: _____

The first page of a sample questionnaire

States and localities develop plans for a variety of different reasons. The hazard mitigation plan is the one that should address repetitive flooding and determine which areas are prone to which hazards. The local hazard mitigation plan or floodplain management plan should have more detailed localized information about flooding and projects to address those hazards.

Other community plans may be useful, such as a local comprehensive land use plan, stormwater management plan, or neighborhood plan. Although these typically are not focused on flooding, they do include information on environmental issues, zoning, and the character of an area.

A community's public works department or community engineer will maintain drainage information that can contribute to an understanding of the geography of the system and identify problem spots that need continued maintenance. A map of those spots may highlight problems in neighborhoods or at specific intersections. Many of these sites may correspond to the locations of repetitive loss properties and lead to a clearer delineation of the repetitive loss area and a better appreciation of the causes of the flood damage.

Future drainage improvement projects may appear on a community's capital improvement program.

A community's tax assessor's office and GIS system can be other sources of information which can provide foundation type, value, and age of a structure. A GIS system can provide detail on elevation (topography), types of soils, and floodplain and parcel boundaries.

For coastal areas, contacting the National Oceanic and Atmospheric Administration, can provide information on past coastal storms and on the impact pf sea level rise.

The U.S. Army Corps of Engineers may be conducting a drainage improvement or dredging project which can impact flood or tidal conditions in a community.

Step 3. Collect data. Each building in the repetitive loss area must be visited to collect data and make a preliminary determination of repetitive flooding and appropriate mitigation measures.

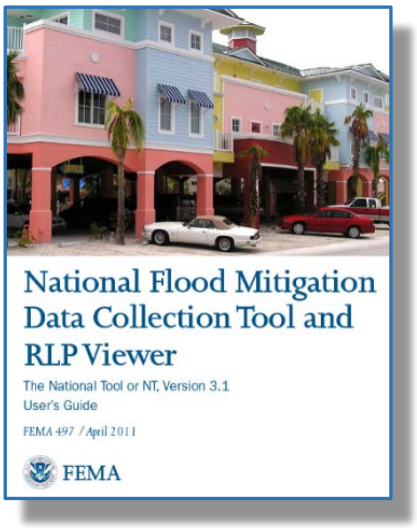
At the building site, numerous factors should be investigated, including but not limited to drainage patterns around the building, location and elevation of the HVAC unit, and the condition of the structure, the foundation, the gutters and downspouts, and nearby drainage ditches and storm drains.

All field survey work should be completed from the street right-of-way unless the owner invites a crew member onto the property. With a good camera, working from the street should not be a problem.

Collecting flood elevations or historic flood levels is not required, but they can be helpful in determining which mitigation alternatives would be most effective.

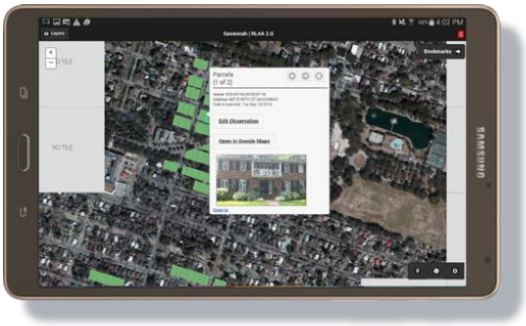
The dates of the flood insurance claims payments sometimes can help identify the cause of repetitive flooding, such as rainfall on a certain date or a major flood that caused overbank flooding. The amount of a claim can help determine the amount of damage for that event.

A FEMA publication, *Selecting Appropriate Mitigation Measures for Floodprone Structures* (FEMA-551), provides comprehensive background on the types of mitigation appropriate for the type of structure and flooding exposure.



A community can determine how it will collect the data on each building. Collecting data on buildings is the most time-consuming step. Most of the time is spent on recording the building data and taking appropriate pictures to document the site.

FEMA has developed the National Flood Mitigation Data Collection Tool to assemble information related to risk, building construction, and costs of mitigation measures. The tool has two levels of data collection. Limited data is assembled through a windshield survey (using a printout and a camera). If the limited data indicates that mitigation is appropriate for a building, then additional detailed data will be needed to determine the cost and benefit of various mitigation measures.



Automating the data collection process can reduce the time spent in the field and the processing of data back in the office. A mobile application allows the data and pictures to be ready on the fly as opposed to writing down information out in the field and taking photos and then returning to the office to enter the data onto forms.

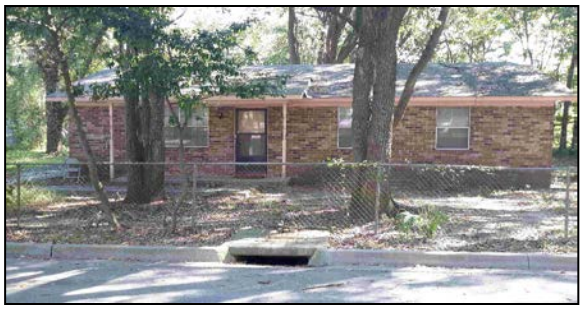
This two-step process is time consuming and ensuring that the correct photo is attached to the correct form is a challenge. Communities who have the ability to program smart phones or tablets can increase the speed and efficiency at which the data are collected and processed.

Whichever method is used for collecting data on all buildings within repetitive loss areas, the following information must be captured, at a minimum:

- Drainage patterns around the building,
- Type and condition of the building's foundation, and
- The overall condition of the structure.

Additional information collected on buildings can be helpful in determining the cause of repetitive flooding and selecting the appropriate mitigation measure:

- Date of flood loss and amount of the flood insurance claims;
- Location and/or elevation of the HVAC unit;
- First flood elevation, including LiDAR or contour data;



This lot is flat and the grade does not slope away from the building. There are no gutters or downspouts. A storm drain is located in front of the lot. All these characteristics contribute to repetitive flooding.

- EC diagram number;
- Type of construction—wood frame, masonry, etc.;
- Building information—square footage, value, etc.;
- Photos of the building, including the HVAC unit, channels, and storm drains; and
- Guttering and downspouts on buildings.

Examples of good ways to complete field work are included in Appendix B.

Step 4. Consider mitigation alternatives. This step requires matching the correct mitigation measure with the flooding problem, based on the data collected and the field visits. Many mitigation measures are available, and multiple options should be considered.

A review of specific alternatives must be conducted. At a minimum, the types of property protection measures (listed in Figure 360-1 of the *Coordinator's Manual*) and the six FEMA mitigation categories (listed in Figure 510-4 of the *Coordinator's Manual*), must be examined during this step. Both structural and non-structural measures must be considered.

NOTE: *A review of alternative approaches for mitigating flood damage to a building that only considers drainage-based remedies or structural flood control projects is not sufficient*

As with any mitigation plan, the objective is to ensure that realistic solutions are considered to reduce damage from repetitive flooding. Grants and other forms of financial assistance may be available to some residents.

Figure 360-1 from the *CRS Coordinator's Manual*

- Demolish the building or relocate it out of harm's way.
- Elevate the building above the flood level.
- Elevate damage-prone components, such as the furnace or air conditioning unit.
- Dry flood proof the building so water cannot get into it.
- Wet flood proof portions of the building so water won't cause damage.
- Construct a berm or redirect drainage away from the building.
- Maintain nearby streams, ditches, and storm drains so debris does not obstruct them.
- Correct sewer backup problems.

The six FEMA mitigation categories (from Figure 510-4 of the *Coordinator's Manual*) follow.

Preventive activities keep things from getting worse. Planning, land acquisition or regulations are put in place to reduce development in flood-prone areas. Examples of non-structural preventative projects include

- More accurate floodplain mapping using LiDAR and including development of depth grids
- Increased floodplain regulations that manage what can and cannot be done in the SFHA
- More stringent building code requirements to protect buildings
- Creating open space areas within areas subject to flood damage to reduce potential for additional damage
- Changes to the planning and zoning requirements which could include low density zoning requirements in the floodplain
- Maintaining the drainage system to ensure there are no obstructions to the flow
- Implementing stormwater management regulations to reduce post-development runoff from building sites
- Develop setback requirements

Property Protection activities are most often undertaken by property owners on a particular building or can sometimes be led by a community on behalf of a property owner(s). Examples of non-structural property protection projects include

- Promotion of flood insurance across the community to make sure those in repetitively flooded buildings in B, C and X-Zones also carry insurance.
- Encourage acquisition and/or relocation of a building to eliminate damage from flooding.
- Elevate pre-FIRM buildings to at or above the base flood elevation plus any freeboard.
- Combined storm and sanitary sewers may require that sewer backup protection measures be implemented.
- Retrofitting a building can eliminate low level repetitive flooding.

Natural Resource Protection activities may not directly affect a building that is subject to repetitive flooding, but these measures can help areas by protecting lands from development and keeping property in a natural state. Examples of non-structural natural resource protection projects include

- Preserving natural areas or restoring areas to a natural state can benefit the quality of a community or local neighborhood.
- Protecting wetlands will allow additional storage of floodwaters and provide a recharge of the aquifer system.
- Protecting the coast line by preserving native habitat and allowing setbacks for construction can protect an area from sea level rise.

Structural projects keep floodwaters away from buildings or an area through a variety of large scale mitigation projects. These projects are usually undertaken by the local, state, or federal governments or a combination of government entities. These types of projects are often not undertaken by property owners. Examples of structural projects include

- Building a levee or floodwall between a water course and the area to be protected.

- Modifications to channels can bring about reduced flood damage.
- Reservoirs hold water back for a period of time. Floodwaters are stored behind a dam or in a storage or detention basin. Floodwaters can be stored for some time, then released slowly so that the stream or river can handle the flow.
- A diversion is a new channel or pipe that moves flood waters away from an existing problem to a new area where there is less of an impact.
- Drainage improvements often are described in a local capital improvement program.

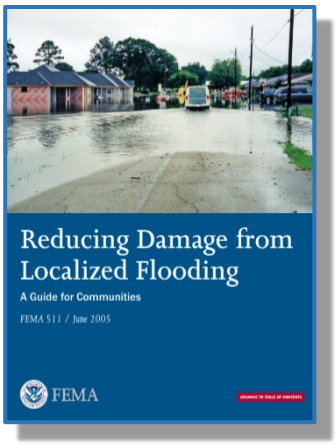
Public Information activities will not fix the flood problem, but will help to educate property owners about the causes of repetitive flooding and ways they can protect their buildings from damage. These activities are usually undertaken by the local government, but can also be implemented by a regional planning agency, water management district, or other entity. Examples of public information activities include

- Conducting outreach projects including mailings to all properties in the repetitive loss area encouraging the purchase of flood insurance and discussing property protection measures along with sources of financial assistance and where to go to get help.
- Enhancing a community's website to provide property protection advice and assistance and what department will visit a property to investigate a flood problem.
- Working with the real estate community to develop a disclosure program for flooding either by encouraging the use of a local GIS system (which identifies if a building is in the SFHA or is in an area that is subject to flooding) or by working with the Multiple Listing Service (MLS) to promote disclosure of the flood hazard on MLS forms.

Emergency Services measures are more for response and recovery than for mitigation; however, having a fully operational flood threat recognition system and warning system can protect residents and prepare them to make modifications to their building or to encourage action to move their belongings to a higher level or safer location.

In summary, during Step 4 a community should consider

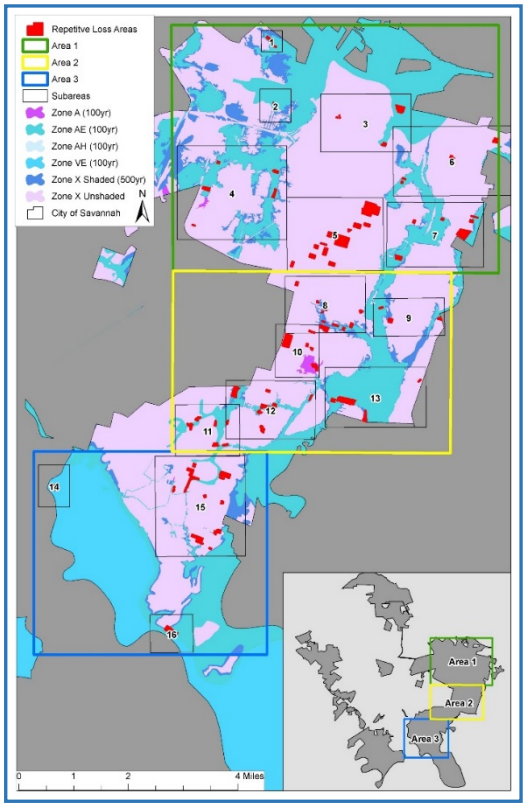
1) The flood protection measures in Figure 360-1 of the *Coordinator's Manual*;
2) The six FEMA mitigation categories in Figure 510-4 of the *Coordinator's Manual* (listed above)*;*
3) FEMA's *Selecting Appropriate Mitigation Measures for Floodprone Structures;* and
4) All the potential tools and techniques discussed in *Reducing Damage from Localized Flooding* (FEMA 511).



Step 5. Document the findings. The findings of the analyses must be documented and a report must be developed for each repetitive loss area. If the types of buildings, flooding problems, and mitigation measures vary from one area of a community to another, a separate report must be prepared for each. However, similar conditions (structure types, flood problems and mitigation) exist in multiple areas, they can be grouped into one report.

An Example from Savannah, Georgia

In developing a repetitive loss area analysis for the City of Savannah, Georgia, 87 repetitive loss areas were identified. Those areas included 185 unmitigated repetitive loss properties, 83 "historic" properties (those with one paid flood insurance claim), and 585 properties with the same or similar flood condition but no claims against the NFIP. Therefore, a total of 851 properties were included in the 87 areas.



After an examination of the types of buildings, flood problems, and potential mitigation measures, it became clear that the City could be divided into three distinct areas:

Area 1—Downtown/Historic/Midtown

Area 2—Southcentral

Area 3—South City/Sound.

Instead of preparing 87 different reports, three separate reports were developed based on the three distinct areas. Within the three distinct areas of the community were sub-areas with even more common issues. For example, the Downtown/Historic/Midtown area of Savannah contained 7 subareas and 37 repetitive loss areas. This shows how a community with a large geographic footprint and a high number of repetitive loss areas can develop a repetitive loss area analysis.

The list of claims data and structure types for Savannah's repetitive loss properties is summarized in the table below. This table may be released to the public because the data are aggregated and no personally identifiable information is shown.

Table 4.24 - NFIP Policy and Claims Data by Structure Type – City of Savannah

Structure Type	Number of Policies in Force	Total Premium	Total Coverage	Number of Closed Paid Losses	Total of Closed Paid Losses
Single Family	5,871	$3,035,815	$1,473,288,500	1,427	$20,348,735
2-4 Family	406	$233,449	$82,285,800	52	$1,168,613
All Other Residential	672	$347,947	$120,711,300	51	$2,033,811
Non-Residential	548	$1,074,627	$273,388,800	78	$2,848,670
Total	**7,497**	**$4,691,838**	**$1,949,674,400**	**1,608**	**$26,399,829**

Source: FEMA Community Information System, October 2014

NOTE: *A copy of Savannah, Georgia's Repetitive Loss Area Analysis is available on the* CRS Resources website.

Each report must include

- A summary of the planning process that was followed, including how the property owners were involved;
- A problem statement of the flood problem with a map of the affected area. The map may show individual properties or parcels, but cannot show which ones are on FEMA's repetitive loss list;
- A list or table showing information for each building. The data should include the address, foundation type, condition, and appropriate mitigation measures. Remember that this list should not include individual building insurance information such as the number and amount of claims, etc. However, providing aggregate policy information as shown in the Savannah example is acceptable.
- A description of the alternative mitigation measures that were considered for the repetitive loss area. A comprehensive review must include evaluating the flood protection measures in the four sources listed above.
- An action plan for the selected mitigation measures that indicates
    - Who or what agency is responsible for implementation;
    - When the project will be implemented (date, duration, after the next flood, etc.); and
    - How the project will be funded (operating budget, after grant funding is received, etc.).

Approval of the Repetitive Loss Area Analysis

Once the report is finalized and in draft form, it should be made available to the owners of the properties in the repetitive loss areas for review and comment. Any private information, such as names of the insured or addresses of the insured, must be removed from the report before it is distributed to the public.

After comments are received and revisions incorporated, the repetitive loss area analysis must be adopted by the local governing body or by an office that has been delegated approval authority by the governing body.

A resolution is an appropriate method of adoption. Even though a community may have three separate analyses within one report, only the single report must be adopted.

Good Idea

Create one comprehensive analysis report that includes ALL the detailed tables and property-specific information. This report can be used by the community for planning purposes.

Then, create a separate summary report (without specific property information) that can be submitted for public review without violating the Privacy Act.

Annual Evaluation Report

Each year a community must prepare a report evaluating its RLAA(s).

- The report must review each action item (project) by indicating whether the project has been implemented and recommend changes to action item as appropriate.
- Only one report is required to cover some or all of the area analyses that were prepared.

- The report must be made available to the media, the public, and to all properties (owners and residents) in all of the repetitive loss areas.
- The report must be submitted with the community's annual recertification.

Cycle Verification Requirements

An update to a community's repetitive loss area analyses must be prepared in time for each CRS cycle verification.

- The update must review the flooding and building conditions as well as any changes to FEMA's repetitive loss list or any other circumstances that have changed. This may require that the repetitive loss mapping and projects are updated or revised accordingly.
- The update can be a new report or an addendum to the existing report.
- An annual evaluation report that reviews and updates the five planning steps may qualify as the area analysis update.
- The update can qualify as the annual evaluation report for the year in which it was prepared.
- The update must be made available to the media and the public, especially to all properties (owners and residents) in all of the repetitive loss areas.

Section 5. Conclusion

Understanding the cause of repetitive flooding helps communities implement appropriate mitigation projects to reduce damage and make their communities safer. This mitigation also helps FEMA and the NFIP eliminate future claims on those buildings.

The five-step RLAA process requires examining both repetitively flooded buildings and areas prone to repetitive flooding to determine the most effective way to mitigate damage—whether from nuisance flooding or major storms. Mitigation measures identified in the RLAA and subsequently implemented can help a community reduce and even eliminate damage to specific buildings.

Appendix A. Resources

ISO Repetitive Loss Data Manager and Program Coordinator

Sherry Harper, AICP, CFM
Senior Technical Coordinator
2382 Susan Drive
Crestview, FL 32536
850-682-1998

Sources of Data on Repetitive Losses

- The Regional CRS Coordinator at the Regional Office of the Federal Emergency Management Agency. Updated contact information is available on the CRS Resources website.
- The State NFIP Coordinator for your state. Updated contact information is available on the ASFPM website.
- The ISO/CRS Specialist for your state. Updated contact information is available on the CRS Resources website.

Other Resources

Repetitive Flood Portal on the website of the University of New Orleans Center for Hazards Assessment Response and Technology, accessible at http://floodhelp.uno.edu/Portal.aspx

Selecting Appropriate Mitigation Measures for Floodprone Structures (FEMA 551), available for download at http://www.fema.gov/media-library-data/20130726-1609-20490-5083/fema_551.pdf

Reducing Damage from Localized Flooding (FEMA-511), available for download at http://www.fema.gov/media-library-data/20130726-1446-20490-0539/FEMA511-complete.pdf

Appendix B. Examples of Field Work

Field Data Collection—Type of Data to Collect on Repetitive Loss Properties

Property Locator / Repetitive Loss#:		3712-27-3053.000	
Inspection Date:	6/11/2015	**Inspector:**	Alex Magruder
No. of Stories:	1	**Basement:**	No
Occupied:	Yes	**Neighborhood:**	Single Family Residential
Fill:	Below Street Grads	**Elevated:**	1-2 Feet
Observations:	Has gutters. Hvac unit on ground. Secondary struct. Creek to the left of property. Low point of street. Has street drain. Neighbor says basement floods. Started with construction on airport road. Neighbor house: 1400.		
Flooding:	Yes		
Flooding Notes:	Neighbor says yard floods. Unknown property damage.		
Land Use:	Single-family residential		
Land Use Notes:			
Adequate Vents Present:	Yes		
Spoke with:	Neighbor		
Structure Type:	Masonry		
Structure Type Notes:			
Condition of Structure:	Good (optional minor repairs)		
Foundation Type:	Crawlspace floor at or above grade on at least 1 side		
Foundation Type Notes:			
Condition of Foundation:	Good (optional minor repairs)		

Repetitive Loss Area Properties: Observations in the Field

Berm constructed by homeowner

Unelevated HVAC unit

Dry drainage ditch

Wet drainage area

Clogged drainage inlet

Clogged drainage inlet

Standing water

Flat lot, no gutters, drainage inlet

Driveway slopes to lower level, creek in back

Pond next to house

Flood wall and fence barrier constructed by homeowner

HVAC unit elevated by homeowner

Flood wall to protect house

Flood wall to protect HVAC unit

Commercial flood wall