

Floodplain Management Ready Reference

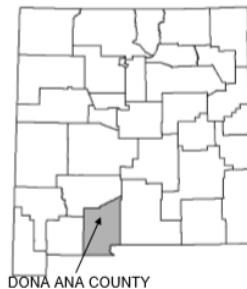
FLOOD INSURANCE STUDY

VOLUME 1 OF 2



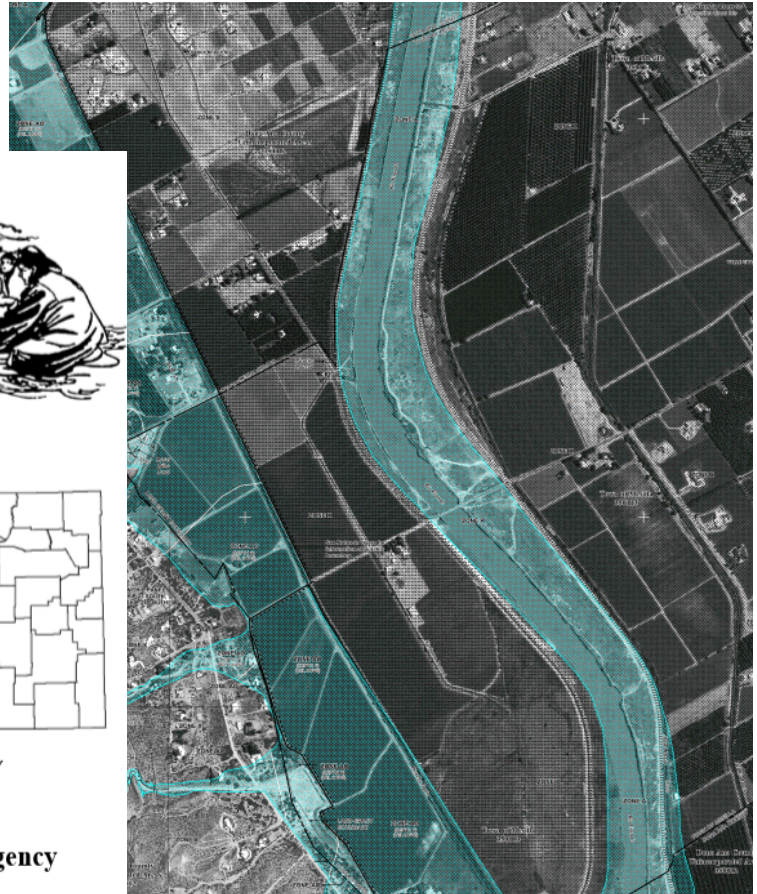
DONA ANA COUNTY, NEW MEXICO AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
ANTHONY, CITY OF	350061
DONA ANA COUNTY (UNINCORPORATED AREAS)	350012
HATCH, VILLAGE OF	350013
LAS CRUCES, CITY OF	350332
MESILLA, TOWN OF	350113
SUNLAND PARK, CITY OF	350147



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Federal Emergency Management Agency

Flood Insurance Study Number
35013CV001A



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New Mexico Floodplain Managers Association

March 2020



Notes to the User

This *Ready Reference* is a companion to the *Handbook for Floodplain Managers*, which provides detailed information on administering a floodplain management ordinance at the community level.

The section numbering is the same in both documents. If you want more information on a topic that you see in this *Ready Reference*, go to the first page of that section in the *Handbook for Floodplain Managers*. That first page is a table of contents for that section.

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Additional materials are provided in the *Handbook for Floodplain Managers*, including information on disaster operations, references, and a model floodplain management ordinance for New Mexico communities.

Common acronyms: Here are some of the acronyms used most often in the two references.

FEMA: The Federal Emergency Management Agency

FIRM: Flood Insurance Rate Map (see page 7)

LOMA: Letter of Map Amendment (see page 13)

NFIP: The National Flood Insurance Program (see page 5)

NMFMA: The New Mexico Floodplain Managers Association (see page 4)

SFHA: Special Flood Hazard Area (see page 6)



Basic Rules

There are five basic rules to administering a floodplain management program. They are detailed in this reference

Basic rule #1: You must use the latest maps and flood data published by FEMA. Section 9 reviews the requirements on using maps and data in an ordinance.

Basic rule #2: A permit is required for all development in the SFHA shown on your FIRM. Section 10 covers what needs a permit.

Basic rule #3: Development must not increase the flood hazard on other properties. Section 11 discusses how this is done using the floodway concept.

Basic rule #4: New buildings must be protected from damage by the base flood. Section 12 has the regulatory requirements for new buildings.

Basic rule #5: If the cost of improvements or the cost to repair the damage exceeds 50 percent of the market value of the building, it must be brought up to current floodplain management standards. Section 13 covers the rules for existing buildings.

For More Information

NMFMA

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575-840-3027

Nmfma.ed@gmail.com www.nmfma.org



The New Mexico Floodplain Managers Association is a nonprofit organization dedicated to improving floodplain management in New Mexico through training of floodplain managers, educating the public and other professionals and through other means.

Federal Emergency Management Agency

Region VI
FRC 800 North Loop 288
Denton, TX 76209

www.FEMA.gov (940) 898-5399



1. Flooding and People

Floodplains are part of a natural system. When there is too much water on the ground, there is a flood – that’s natural.

Problems arise when people build in the path of the natural flooding process. To prevent or minimize new problems from occurring, we regulate what’s built in the floodplain.

Building in Floodplains Exposes People to Safety and Health Hazards

- Even slow moving floods can be life threatening
- Floodwaters destroy food and medicine.
- Flooding can shut down water and waste treatment facilities
- Flooding impacts people’s mental health



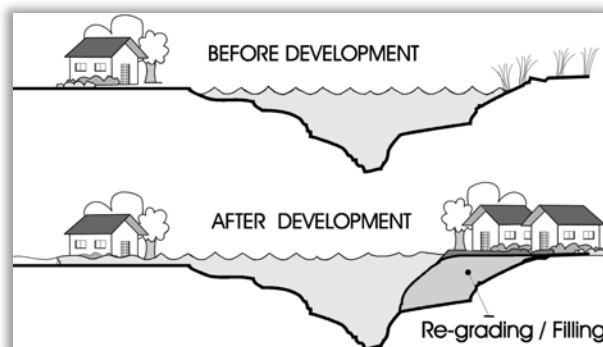
Building in Floodplains Exposes New Development to Flood Damage

- Buildings can be damaged by debris, current and other moving hazards.
- Floors and walls can collapse from hydrostatic pressure
- Wallboard, insulation, wood and contents are destroyed just by being wet.



Building in Floodplains Increases Flood Problems for Others

- Development anywhere in the watershed can increase the amount of stormwater runoff that goes to the rivers and streams, increasing flood heights.
- Fill and buildings in the floodplain can obstruct flood flows.
- Floodplain development reduces the amount of room available to store floodwaters, increasing flood heights.
- Floodplain development can destroy habitat and other natural floodplain functions.



2. The NMFMA

The New Mexico Floodplain Managers Association (NMFMA) was founded in 1995 as a nonprofit corporation dedicated to the improvement of floodplain management throughout the State. The purpose of the New Mexico Floodplain Managers Association is the following:

- To promote public awareness of proper floodplain management;
- To promote the professional status of floodplain management and secure all benefits resulting therefrom;
- To promote a liaison between individual concerns with proper floodplain management and to encourage the exchange of ideas;
- To keep individuals concerned with proper floodplain management well informed through education and professional seminars and to provide a method for dis-semination of information, both general and technical;
- To inform concerned individuals of pending floodplain legislation and other related management matters; and
- To study and support legislation pertinent and necessary to the effective implementation of floodplain management matters.

It is the mission of the New Mexico Floodplain Management Association to reduce the losses, costs, and human suffering caused by flooding; to further educate all of New Mexico and its citizens about floods, floodplains and floodplain management; and to promote a balance between development and the natural and beneficial functions of floodplains.

In 2001, and again in 2003, the NFMA supported successful legislation to improve floodplain management in New Mexico. In 2001, it became mandatory for each community with a floodplain management ordinance to have floodplain development reviewed by a CFM. In 2003, it became mandatory for any community with identified flood hazards to adopt a floodplain management ordinance.

Community floodplain managers who are NMFMA members have learned to consult with their peers on solutions to problems. They meet floodplain managers from other communities in the state at conferences and rely on their mutual experience.

Anyone interested in floodplain management is invited to become an active member of the NMFMA. Much of the work of the Association is accomplished by committees, and our committees can always use more ideas and workers.

Status as of January 2020

- Established April 1995, incorporated as a nonprofit organization. Chapter of ASFPM March 1999.
- Nine-member Board of Directors (Chair, Vice Chair, Second Vice Chair, Secretary, Treasurer, four Regional Directors).
- Eight Board meetings each year.
- One membership meeting each year. One conference each year.
- Provides member training and reference information via nmfma.org and email.

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- Operational committees (Conference, Training and Education).
- Accredited CFM program; Certification Board; 166 CFMs.
- Executive Director: J.D. Padilla, CFM
- Web site: www.nmfma.org
- 2020 membership: Approximately 233.

3. The National Flood Insurance Program

The National Flood Insurance Program (NFIP) was created to:

- Transfer the costs of flood disaster assistance from the general taxpayers to floodplain property owners through flood insurance premiums.
- Provide floodplain residents and property owners with financial aid after floods, especially smaller floods that do not warrant federal disaster aid.
- Guide development away from flood hazard areas.

The NFIP is administered by the Federal Emergency Management Agency (FEMA). There are three basic parts to the NFIP.



Mapping: Through FEMA's flood hazard mapping program, Risk Mapping, Assessment and Planning (MAP), FEMA identifies flood hazards, assesses flood risks and partners with states and communities to provide accurate flood hazard and risk data to guide them to mitigation actions. Mapping is explained in more detail in Sections 4, 5, 6 and 7.

Insurance: If a city or county joins the NFIP, Federally-backed flood insurance is made available for all properties in that community. Flood insurance is covered in Section 20.

Regulations: In order to join the NFIP, a city or county must agree to regulate future development in the floodplain shown on the FIRM. **The community has a legal obligation to the Federal government** to ensure that new buildings will be protected from the flood levels shown on the FIRM and that development will not make the flood hazard worse. As of 2020, 104 New Mexico communities participate in the NFIP.

Sanctions

If your community fails to uphold its obligation to the NFIP, the following could happen:

- New buildings will be built subject to damage by the base flood (see Section 4).
- Insurance on an improperly constructed building may be very expensive.
- FEMA can put the community on probation and flood insurance premiums would go up for everyone.
- FEMA can suspend the community. This would mean an end to Federal financial aid for floodplain properties that require flood insurance, such as VA loans, EPA grants, housing subsidies, and disaster assistance.

For information on maps for your community, call 877-FEMA-MAP.

4. How Flood Maps are Prepared

The Base Flood

Floods come in many sizes – with varying degrees of magnitude and frequency. In order to have common standards, the NFIP and the State of New Mexico adopted the same baseline flooding probability. The NFIP calls this standard **the base flood**. Others call it the **100-year flood**. These terms mean the same thing.

On FEMA maps, the **base floodplain** is called the A Zone or the Special Flood Hazard area. (SFHA).

The term 100-year flood is often misconstrued. Often, people interpret the 100-year flood definition to mean “once every 100-years.” This is wrong! It means that the odds are one in 100 (1% chance) that a flood of this magnitude will occur in any single year. A community could have a 100-year flood two times in the same year, two years in a row, or four times over the course of 100-years.

The other thing to keep in mind is that smaller floods occur in the floodplain more frequently. They just don’t cover as large an area.

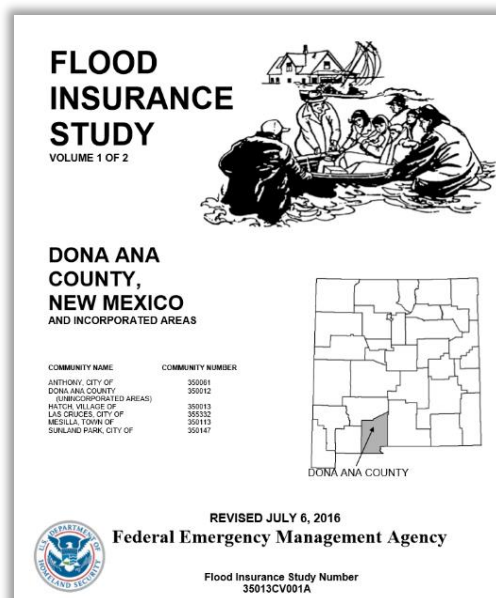
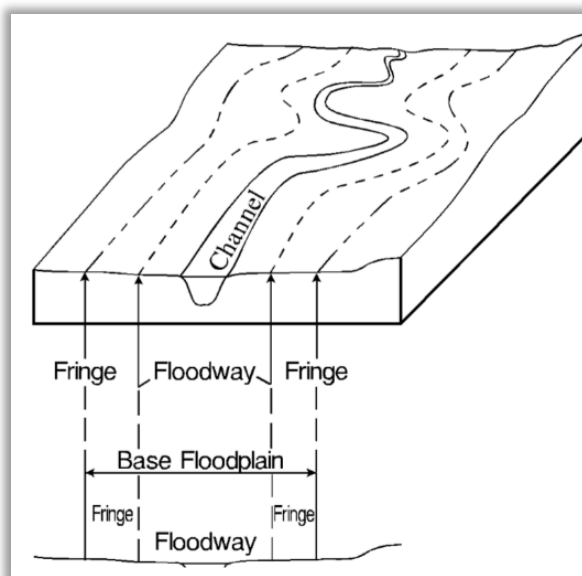
Floodplain: Floodway and Fringe

The base floodplain or **Special Flood Hazard Area (SFHA)** is the area inundated by the 100-year flood. The **floodway** is the stream channel and that portion of the adjacent floodplain which must remain open to permit passage of the base flood.

Floodwaters generally are deepest and swiftest in the floodway, and anything in this area is in the greatest danger during a flood. The remainder of the floodplain is called the floodway **fringe** where water may be shallower and slower.

Flood Insurance Study

When a flood study is completed for the NFIP, the information and maps are assembled into a Flood Insurance Study, which includes a text, the Flood Insurance Rate Map (FIRM) and the Flood Boundary and Floodway Map (included in studies prepared before 1986). Since 1986, floodways have been shown on the FIRM.

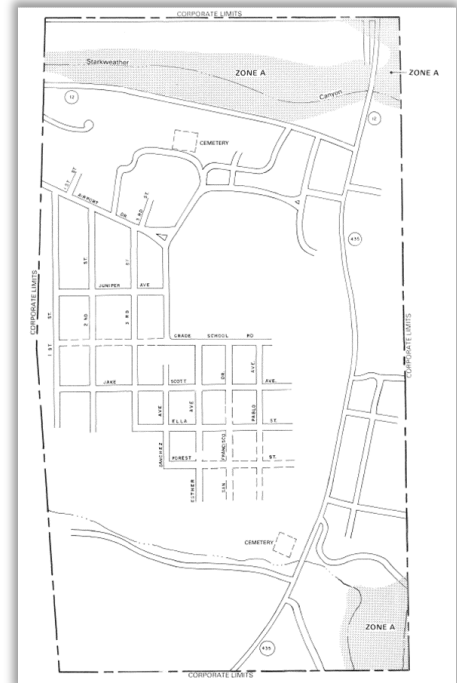


5. NFIP Maps

Flood Hazard Boundary Map

Flood Hazard Boundary Maps (FHBMs) were initially prepared to provide flood maps to many communities in a short period of time. They were made in the 1970's and early 1980's without benefit of detailed studies. On the FHB, the Special Flood Hazard Area (SFHA) is designated as a shaded area labeled "Zone A," and no base flood elevations are given.

In some cases, FEMA simply converted the FHB to a FIRM by issuing a letter to the community stating that the FHB shall be considered a FIRM. In those cases, the community was instructed to line out "FHB" on the map's title box and write in "FIRM." In these situations, the Zone A is treated the same as an unnumbered A Zone on a FIRM.

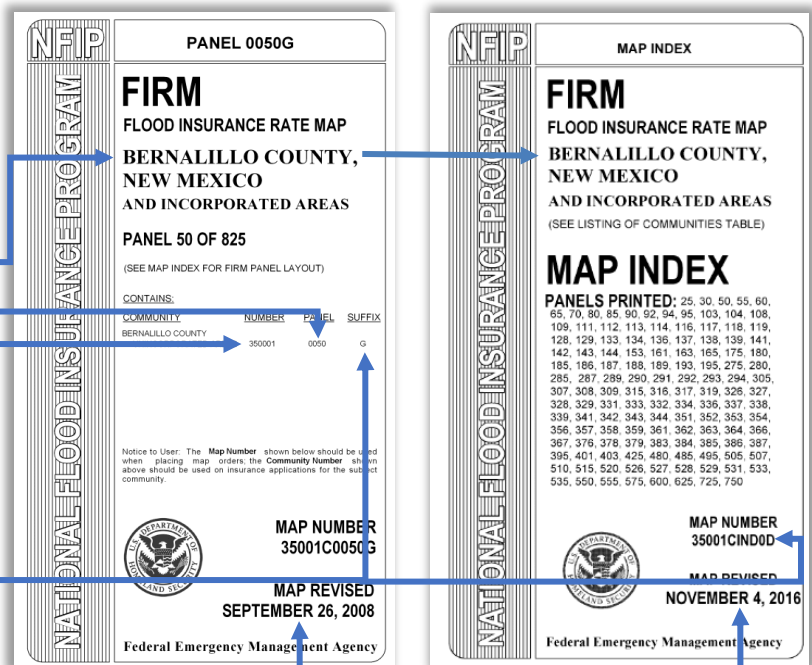


Flood Insurance Rate Map (FIRM)

The **FIRM** is the official FEMA map for communities in the Regular Phase of the National Flood Insurance Program. Smaller cities can fit on one panel. Larger cities and counties will have several panels and a **Map Index**.

Each panel has a **title block** with important NFIP information. The title block is the lower right portion of the opened map for both the map index and the FIRM panels. In the title box are:

- the community's name
- the panel number (on the Map Index, all of the panel numbers are listed)
- the six-digit NFIP community identification number – "350001"
- map panel suffix – a letter, e.g., "C" or "D"
- map effective or map revision date – "September 26, 2008" for FIRM panel 1.



Flood Insurance Rate Map Features (old format)

Under the old format (before 1986), FEMA published a Flood Insurance Rate Map (FIRM) and a separate Flood Boundary and Floodway Map.

“Numbered” Zone A: Special Flood Hazard Area (SFHA or 100-year floodplain) – flood elevations are provided

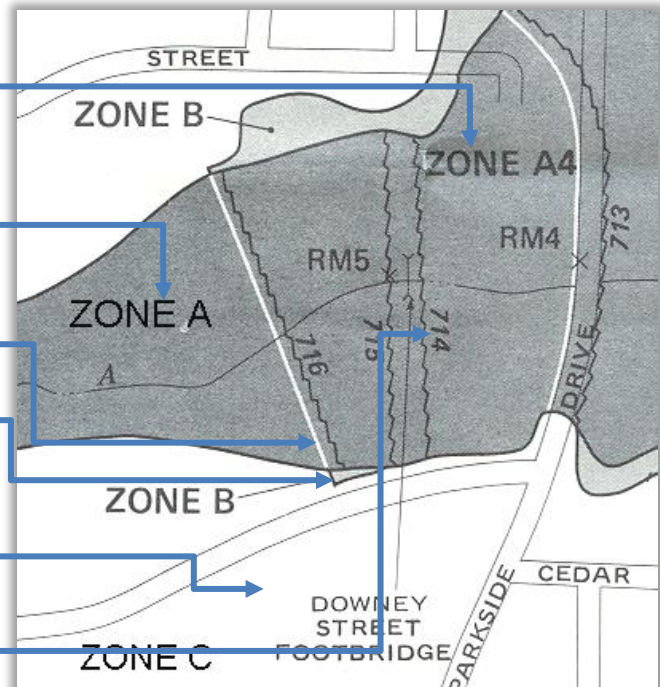
Zone A: SFHA, but no flood elevations provided

Zone break line: separates different A Zones

Zone B: 500-year floodplain

Zone C: outside the 500-year floodplain (but still may have flood or drainage problems)

Base flood elevation (not a very accurate number to use. See more on page 12).



Flood Boundary and Floodway Map Features

Stream channel

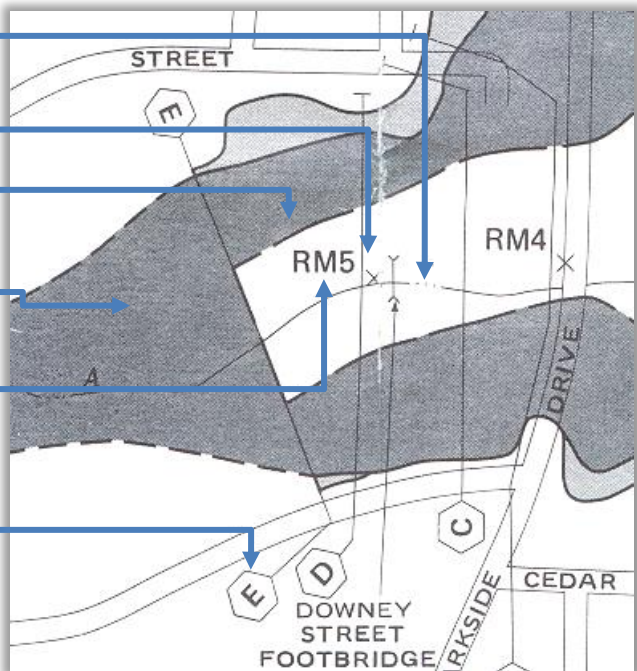
Floodway (white area on both sides of the channel)

Floodway fringe (that part of the floodplain that is not in the floodway)

Approximate mapped flood-plain, floodway not determined

Elevation reference mark (benchmark that shows ground elevation)

Cross section (surveyed as part of the flood study)



Flood Insurance Rate Map Features (New Format)

Since 1986, FEMA has published only one map that includes the floodway boundaries. Instead of calling the SFHAs with base flood elevations “numbered” A Zones, the new format uses the term “AE” where the “E” stands for “elevation.” Instead of separate “B” and “C” Zones, all areas outside the SFHA are called “X” Zones.

Zone AE: Special Flood Hazard Area (SFHA or base floodplain) – flood elevations are provided.

Shaded Zone X: 500-year floodplain

Unshaded Zone X: outside the 500-year floodplain (but still may have flood or drainage problems)

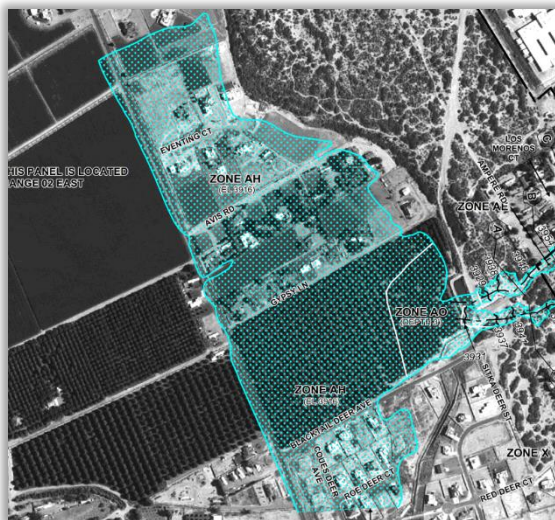
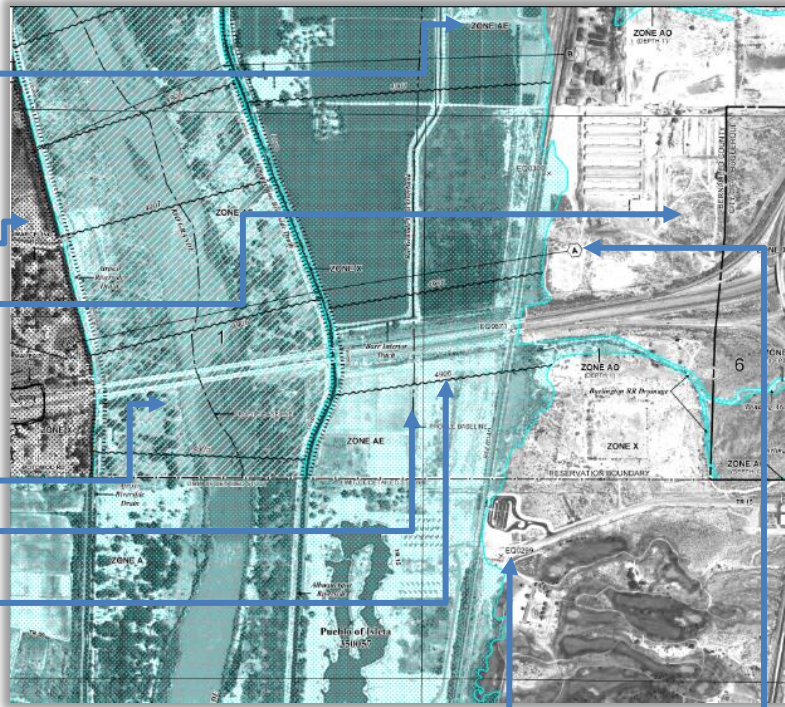
Floodway

Floodway fringe

Base flood elevation (not a very accurate number to use. See the discussion on page 12).

Elevation reference mark (benchmark that shows ground elevation).

Cross section (surveyed as part of the flood study)

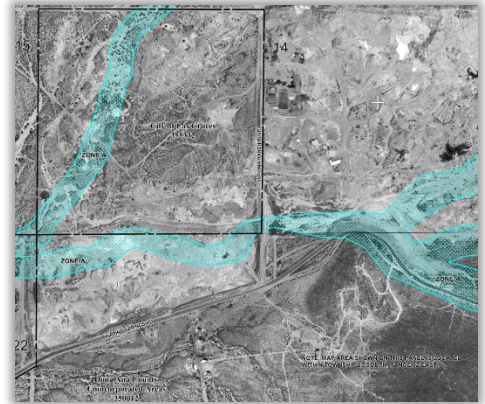


FIRMs for shallow flooding areas use Zone “AO” for sheet flow or “AH” for ponding. AO Zones may show the depth of the base flood (above ground level) while AH Zones show the elevation of the base flood (above sea level).

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More recently, FIRMs have been formatted to provide **countywide FIRMs**. All floodplains in the county are shown, making it easier to deal with annexations and areas just outside a city. A county-wide FIRM has a 5 digit number – don't confuse it with the six digit NFIP community number.

FEMA is modernizing the map creation process by digitizing FIRMs. The conversion of FIRMs to a digital format has many benefits. The Digital Flood Insurance Rate Map (DFIRM) is comprised of all digital data required to create the hardcopy FIRM. This includes base map information, graphics, text, shading and other geographic and graphic data.



Effective, preliminary, and historic regulatory products can be accessed electronically through The [FEMA Flood Map Service Center \(MSC\)](#). Additionally, FEMA has developed the National Flood Hazard Layer (NFHL), a geospatial database that contains current effective flood hazard data. FEMA provides the flood hazard data to support the National Flood Insurance Program. The simplest way for you to access the flood hazard data, including the NFHL, is through FEMA's Map Service Center (MSC).

6. Using Maps and Data

Locating a Site

To locate a site, follow these steps. Remember to check your north arrow. The top of the map is not always north.

1. If your community has more than one map panel, use the Map Index to determine which panel to use. Use map landmarks – highways, streets or streams – to find the site on the index.
2. Find the map panel for the area containing the site. Be sure the map panel is the most recent one – compare its suffix letter with the suffix letter for that panel on the current map index. Remember, in many communities, panels will have different effective dates due to revisions that do not affect the whole community.

If there is an asterisk on the panel number on the Map Index, either no flood hazard has been identified in that area or it is entirely one flood zone and the panel was not printed. Most likely the panel's area is all X Zone, outside the SFHA.

3. Locate the site as accurately as possible. Use a detailed street or road map or the tax assessor's plat map to identify the property boundaries, if necessary.
4. For situations near the floodplain boundary, you may have to obtain the distance on the ground between the site and one or more identifiable points, such as the centerline of a road or street, a bridge, or some other feature on the map. Locate these points on the flood map.
5. Convert the distances to the map scale and plot the site on the map.

This FIRM has a scale of 1 inch = 500 feet. This means you should use the "50" scale on an

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engineer's scale.

To find out whether a site 250 feet west of Happy Place is in the floodplain, measure 250 feet along Willow Creek Lane west from the street right of way. This site is in the Zone Shaded X and is not required to meet the requirements of city's floodplain ordinance.



Locating the Floodway Boundary

1. Locate the site on the map and select the correct engineer's scale for the map scale.
2. Using an engineer's scale, measure the distance from the floodway boundary to a nearby feature on the ground. For streets, use either the right of way or the center of the street, just be sure to use the same location on the map and on the ground.
3. Run the same measurement on the ground to locate the floodway boundary at the site.
4. If any portion of the site is determined to be within the floodway, then the floodway provisions of your ordinance apply.

This Floodway Map has a scale of 1 inch = 400 feet. This means you should use the "40" scale on an engineer's scale.

To find the floodway boundary, use the scale to determine the distance from a ground feature, like the intersection of 1st Street and Parker Avenue



In this case, the floodway boundary on the northwest side of Parker Avenue is 300 feet west of First Street. When a project is proposed in this area, measure 300 feet from the corner and mark the site with stakes to show where the floodway boundary is on the ground.

Note: You may be called on by a bank or lender to determine if a property is in or out of the SFHA. Communities should be aware that lenders are legally responsible for determining if a flood insurance policy is required for a loan.

Under the recently enacted National Flood Insurance Reform Act, if someone other than a lender provides map information to decide if a flood insurance policy is required for a loan, the information must be guaranteed. This information is usually provided on [FEMA's Standard Flood Hazard Determination Form](#).

Note that if you are asked to sign such a form, you are guaranteeing the accuracy of the determination so you may assume some liability for your action.

Determining Base Flood Elevations

There are three ways to find the base flood elevation when a detailed flood study has been conducted. The most accurate is to use the **Floodway Data Table** in the Flood Insurance Study if the site is at or very close to a cross section.

The least accurate way is to read the wavy lines on the **FIRM**. This approach should only be used to verify that you did not make a one foot or ten-foot error when you read the profile.

The most common approach, and the most accurate if the site is not near a cross section, is to use the **flood profile**. The profiles are graphs that are found in the back of the Flood Insurance Study.

On the left edge is the elevation above sea level. →

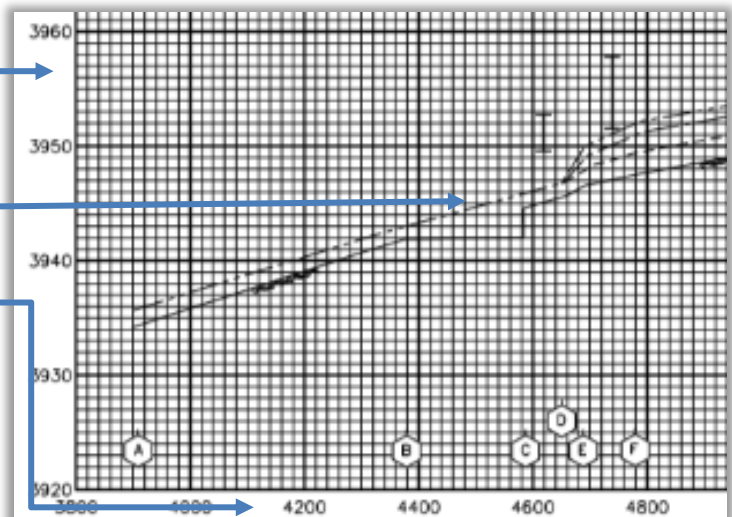
Lines on the graph represent various flood levels. →

On the bottom of the graph is the distance along the stream. →

Example: On this profile, each vertical square represents one foot in elevation. At cross section B, the flood is 3943 feet above sea level.

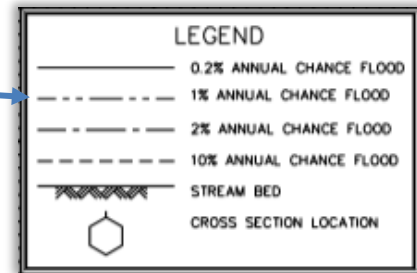
Each horizontal square represents 20 feet. Cross section C is 10 squares or 200 feet upstream of cross section B.

Example: 200 feet downstream of cross section B, the flood level is 3940 feet above sea level.



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A profile in the **Flood Insurance Study** may show more than one flood. Make sure you read the right line. The base flood is shown as a long dash with two short dashes.



Approximate A Zones

In areas without detailed studies, the applicant for a permit must use the best available data.

7. Maintaining and Revising NFIP Maps

No map is perfect and no flood situation is static. From time to time, FEMA, communities or individuals may find it necessary for a FIRM or Floodway Map to be updated, corrected or changed.

FEMA uses two methods to make flood map changes. The first is to actually change the map and publish new copies. The other more common method is to issue a letter that describes the map change. This is called a letter of map change.

Types of Letter of Map Changes

Letter of Map Amendment (LOMA): The map can be changed if the building is shown to be on ground higher than the base flood elevation. The lowest adjacent grade is compared to the base flood elevation for *buildings* built before the first FIRM was published (pre-FIRM buildings). For newer structures (post-FIRM buildings), the lowest floor (including basement) is also compared to the base flood elevation.

For vacant lots, it must be shown that the lowest elevation within the boundaries of the property is above the base flood elevation. Otherwise, a Conditional Letter of Map Amendment or CLOMA can be requested. A CLOMA informs the builder and others (such as the bank financing the project) that when the project is completed, it will qualify for a LOMA.

Letter of Map Revision Based on Fill (LOMR-F): A LOMR-F removes a structure or property from the base floodplain based on the placement and proper compaction of fill outside the floodway. For *buildings*: the lowest adjacent grade and the lowest floor (including basement) must be above the base flood elevation. For *undeveloped properties*: the lowest lot elevation must be above base flood elevation.

Letter of Map Revision (LOMR): A LOMR is normally based on revised hydraulic modeling and usually will not involve specific lots, properties or structures. Because it will revise official regulatory elevations or floodways, a request for a LOMR must have the approval of the community.

Conditional Letter of Map Revision (CLOMR): Under this process, engineering data may be submitted for a proposed project or future condition. FEMA requires a CLOMR for proposed revisions involving the floodway.



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FEMA has designed a web-based tool for licensed land surveyors and professional engineers (referred to as Licensed Professionals or LPs) and other FEMA permitted Certified Professionals (CPs) to submit LOMA requests, known as an [electronic Letter of Map Amendment \(eLOMA\)](#). The eLOMA tool is designated to replace the traditional LOMA process by allowing LPs and CPs to expedite LOMA requests that meet eLOMA criteria and potentially generate an instant determination from FEMA.

For requests that cannot be processed by eLOMA, FEMA has developed the Online LOMC tool to allow applicants to submit their requests electronically. This tool is a convenient way for applicants to upload all information and supporting documentation and check the status of their request online. Users can submit requests through this tool instead of filing the paper form via mail. You can find additional information about FEMA's Online LOMC Tool at www.fema.gov/onlinelomc.

Forms: FEMA forms can be downloaded from the [FEMA Paper Application Forms Webpage](#).

MT-1: LOMA, CLOMA, LOMR-F, CLOMR-F

MT-2: LOMR, CLOMR, Physical Map Revision

MT-EZ: LOMA for a single lot, LOMR-F for a single lot (also in Appendix D of the *Handbook for Floodplain Managers*)

8. Regulatory Framework

The State of New Mexico requires that communities with identified flood hazards adopt and enforce floodplain regulations and join the NFIP (§3-18-7 NMSA 1978). The State also requires that a community with a floodplain management ordinance have a Certified Floodplain Manager (CFM) review floodplain development.

FEMA must approve the local floodplain management ordinances for communities in the NFIP.

The Administrator's Duties

Duties of the administrator of the floodplain regulations vary depending on the kind, size and characteristics of the community. However, certain responsibilities are common to all ordinance administrators. Here is a list of such duties and the section in this Ready Reference (and the *Handbook for Floodplain Managers*) where these topics are covered:

- Understand the regulations (Sections 10 – 14)
- Ensure that permits are applied for (Sections 10 and 15)
- Correct violations (Sections 17 and 18)
- Process permit applications (Sections 15 and 16)
- Coordinate with other programs (Section 10)
- Ensure projects are built according to approved permits (Sections 15 and 16)

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- Take enforcement actions (Section 18)
- Keep records (Section 19)
- Maintain and update flood data and maps (Section 7)
- Update the ordinance (Appendix A)
- Deal with the public (Section 8)

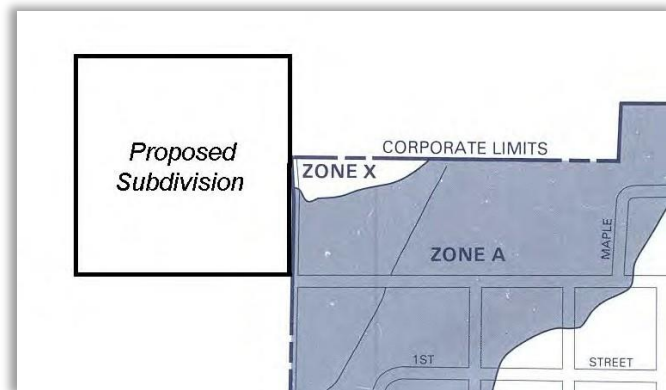
The NMFMA provides training for the examination for Certified Floodplain Manager and provides conferences and other training opportunities to enable them to maintain their certification with continuing education credit.

This *Ready Reference* and the *Handbook for New Mexico Floodplain Managers* are examples of the tools provided by the NMFMA.

9. Regulatory Requirements: Maps and Data

Basic rule #1: You must use the latest maps and flood data published by FEMA.

This rule applies to areas outside your corporate limits that are within your jurisdiction, such as new subdivisions that petition for annexation and need the city's approval. If you do not have a countywide FIRM, you should formally adopt the county's FIRM in your ordinance to strengthen your basis for regulating areas not currently shown on your FIRM.



When FIRM and Ground Data Disagree

When ground surveys show that a development site is above the base flood elevation, you should record the data and issue the permit. Then, if the developer or owner wants the property removed from the Special Flood Hazard Area designation (e.g., in order to remove the Federal mandate to purchase flood insurance), he or she can request a Letter of Map Amendment (LOMA).

Conversely, you are not bound to regulate areas outside your mapped floodplain even though site surveys show that they are in fact below the base flood elevation. It would be good to advise the owner of the flood hazard.

Approximate A Zones

Communities are required to use the best data available. Section 9.3 of the *Handbook for Floodplain Managers* provides details on how to do this. If a development is greater than 50 lots or 5 acres, the permit applicant must conduct a flood study.



You are required to have information in your file showing the lowest floor elevation of buildings in unnumbered A zones, even though you do not have a base flood elevation. If your regulation requires buildings in unnumbered A zones to be elevated three feet above adjacent grade, it will save the owner considerably on NFIP flood insurance.

10. Regulatory Requirements: What Needs a Permit?

Basic rule #2: A permit is required for all development in the SFHA shown on your FIRM.

Development Permit

The NFIP requirements are keyed to “development” in the floodplain. “Development” means “any man-made change to improved or unimproved real estate.” This includes, but is not limited to:

- Construction of new structures
- Modifications or improvements to existing structures
- Fencing
- Land clearing, excavation
- Filling, grading, paving
- Drilling, driving of piles
- Mining, dredging
- Permanent storage of materials and/or equipment

Make sure your regulatory program requires permits for all of these activities in the floodplain

The floodplain regulations must also be enforced for the following projects:

- Projects implemented by a government agency, including your community
- Street and highway work
- Water and sewer systems
- Storage of hazardous material
- Subdivisions
- Other large developments, such as apartments, shopping centers, schools, factory-built home parks and planned unit developments.

Permits from Other Agencies

The NFIP rules require the community to ensure that other federal and state permits have been obtained for each development project. You should not issue your local permit until you are certain that the other agencies’ requirements are met.

First, check with other local offices to see where and when they need to review a planned project. Check with the building, planning, zoning, sanitation, public works, streets or highways departments, the fire marshal, and the engineer.

Other local governments may have jurisdiction over some aspects of floodplain development. Check with the county, adjacent municipalities, drainage districts, county health or sanitation department, soil and water conservation districts, etc.

11. Regulatory Requirements: Floodways

Basic rule #3: Development must not increase the flood hazard on other properties.

During the 1800's, there were many occasions when railroads and other development blocked drainage ways and floodplains. After the floods and resulting damage, the builders were sued. Since then, courts have consistently ruled that it is illegal to block the flow of surface waters so as to cause damage to others.

One of the key purposes of floodplain management is to prevent construction projects similar to those that created problems in the past. This is done by withholding the development permit until the project plans are reviewed to ensure that no obstruction to flood flows or increases in flood damages will be created.

If you have a floodway map (see Section 4), then the floodway rules apply only in the mapped floodway. If no floodway has been designated, the community must review floodplain development on a case-by-case basis to ensure that increases in water surface elevations do not occur, or identify the need to adopt a floodway if adequate information is available

It is recommended that the developer provide a “no-rise” certification to certify that the development project will not affect flood heights.

12. Regulatory Requirements: New Buildings

Basic rule #4: New buildings must be protected from damage by the base flood.

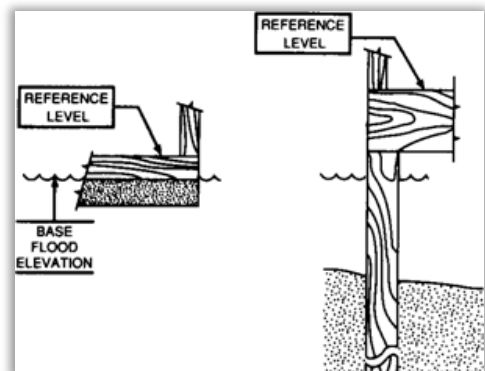
Building: The term “building” is the same as the term “structure” in the NFIP regulations. Your ordinance may use either term. It means “a walled and roofed building, including a gas or liquid storage tank, that is principally above ground, as well as a manufactured [factory-built] home.”

Flood protection elevation: The flood protection elevation is a term used in this reference for the minimum protection level your ordinance requires for new buildings in the floodplain. The level must be at or above the base flood elevation.

Elevating Buildings

Elevating a building above the flood protection elevation is the most common and secure way to protect a building from flood damage. It is the *only way allowed for residential buildings*. There are three approaches:

- Elevating on fill
- Elevating on piles, posts, piers or columns
- Elevating on walls or a crawlspace.



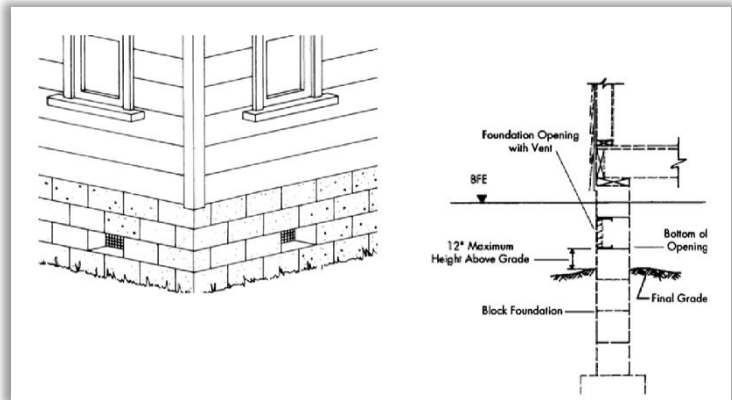
Ready Reference

No matter which approach is used, the **lowest floor** (which includes a basement) must be above the flood protection level.

Enclosures

Enclosures are areas created by a crawlspace or solid walls below the flood protection elevation. Enclosures below the flood protection level must be floodable. That means:

- They must be built of flood-resistant materials
- They must have adequate openings to let water in (see Section 12.5.4 for the specifications)
- They can only be used for building access, vehicle parking and storage of materials that have low damage potential.



Floodproofing

Non residential buildings can be elevated or floodproofed. A floodproofed building means the walls are watertight, the structural components can resist hydrostatic and hydrodynamic loads and effects of buoyancy, and utilities are protected from flood damage. A licensed professional engineer or architect must prepare the building plans and certify the floodproofing measures, preferably using the FEMA Floodproofing Certificate form.

Other Provisions

AO Zones: AO Zones are shallow flooding areas where FEMA provides a base flood depth (not a base flood elevation). In AO Zones, new buildings must be protected to at least the depth number specified in feet on the community's FIRM OR at least two feet above grade, if no depth number is specified.

Basements: The definition of the "lowest floor" includes basements and the definition of "basement" includes any floor level below grade. Note that "walkout basements," "daylight basements" or "terrace levels" are usually sub grade on only three sides, with the downhill side at or above grade. Thus, they are not considered basements for either floodplain management or flood insurance rating purposes (but they are still the lowest floor of a building for floodplain management and insurance rating purposes).

Anchoring: Both elevated and floodproofed buildings must be properly anchored to stabilize them against flood forces. This means anchoring the building to its foundation and ensuring that the foundation will not move.

Flood resistant materials: All parts of a building exposed to floodwaters must be made of flood resistant materials. A list of these is in Section 12.5.4 of the *Handbook for Floodplain Managers*.

Accessory Structures

In certain cases, agricultural buildings and detached residential garages and sheds in the floodway fringe may be exempted from the building protection standards. There are specifications for this approach in Section 12.6 of the *Handbook*.

Factory-Built Homes

A factory-built home includes a building that is transportable, a mobile home or a “double wide.” Factory-built homes must meet the same flood protection requirement as “stick built” or conventional housing. Because they are usually residential buildings, they must be elevated so the lowest floor is above the flood protection elevation. Recreational vehicles that are placed on a site for more than 180 days and are not “ready for highway use” must meet the same flood protection requirements as buildings.

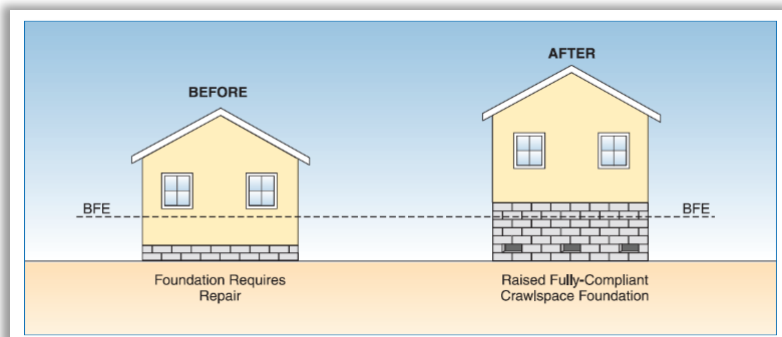
13. Regulatory Requirements: Existing Buildings

Basic Rule #5: If the cost of improvements or the cost to repair the damage equals or exceeds 50 percent of the market value of the building, it must be brought up to current floodplain management standards. This requirement also applies when the original floor area of a building is increased by 50 percent.

Substantial Improvement

“Substantial improvement” means any reconstruction, rehabilitation, addition or other improvement to a structure, the total cost of which equals or exceeds 50 percent of the market value of the structure before the start of construction of the improvement.

Projects that meet either of these two *criteria* must be treated as new buildings and protected to the flood protection elevation.



Substantial Damage

“Substantial damage” means damage of any origin sustained by a structure whereby the cost to restore the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred. The damage can be from any cause – flood, fire, earthquake, wind, rain, or other natural or human-induced hazard.

The substantial damage rule applies to all buildings in a flood hazard area, regardless of whether the building was covered by flood insurance. Note that the rule uses “cost to restore,”

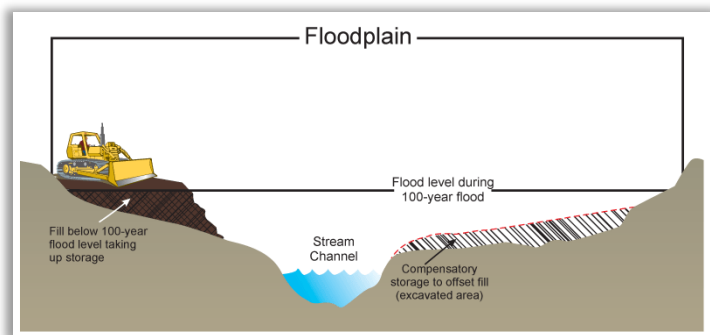
not “cost of repairs.” The cost to restore the structure must be calculated for full repair to the building’s *BEFORE-DAMAGE* condition, even if the owner elects to do less. It must also include the cost of any improvements that the owner has opted to include during the repair project.

Exceptions can be made for **historic structures** and code violations.

14. Additional Regulatory Standards

FEMA establishes *minimum* floodplain management requirements. Communities are encouraged to adopt additional or more restrictive requirements that will better protect development under your local flooding conditions. The following are identified in Section 14 of the *Handbook for Floodplain Managers*.

- Prohibiting development in high hazard areas, such as areas prone to flash flooding.
- Encouraging or requiring subdivisions to avoid the floodplain or cluster their buildings on high ground.
- Establishing minimum distances that structures must be positioned – set back - from river channels to protect them from flooding and erosion and to protect the channel banks and riparian habitat.
- Preserving natural areas, such as those that are habitat for rare or endangered species, from development.
- Zoning floodprone areas for lower density uses.
- Requiring a flood protection elevation that is more than one foot above the base flood elevation (owners will see substantial flood insurance premiums savings, too).
- More specific standards for foundations to protect buildings from erosion, scour and settling.
- Prohibiting critical facilities from the floodplain or floodway
- Requiring buildings or critical facilities to have dry land access during a flood.
- Special rules in areas subject to flooding by a dam breach.
- Requiring developers to remove an equal or greater amount of fill than they put in the floodplain to compensate for the lost floodwater storage (“compensatory storage”).
- Require developers to restrict the rate at which the increased runoff created by the development leaves the property. The developer must build a facility to store stormwater runoff on the site (“stormwater management”).
- Preventing filling or draining of wetlands.



Ready Reference

- Preventing on-site sewage disposal in areas with high ground water.
- Protecting streams from runoff that causes nonpoint source pollution.

15. Permit Review

Section 10 discusses when a permit is required. This section can be used as a checklist to review the application for a permit. NMFMA has model permit forms which are included in this section in the *Handbook for Floodplain Managers*.

1. Review for Completeness

- ✓ Check all forms
- ✓ Check the site plan for completeness
- ✓ Check the building plan for completeness
- ✓ Check certifications
- ✓ Check for needed federal and state permits
- ✓ Circulate for others to review

2. Review for Compliance

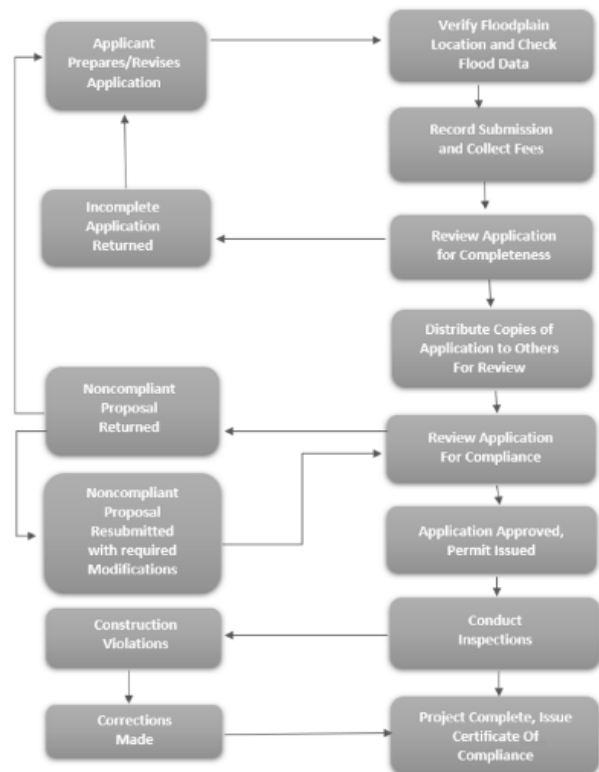
- ✓ Examine site information
- ✓ Review building plans
- ✓ Review engineering documents.

3. Approve or Deny

If the project meets all the requirements, issue a permit. If not, it must be denied. Give the reasons for denial in writing. The applicant then can choose to:

- Withdraw the permit application.
- Redesign the project to bring it into compliance with regulations.
- Appeal to the Board of Adjustments or Board of Supervisors.
- Ask for a variance to the regulations.

Appeals and variances are discussed in Section 17.



No. _____	
FLOODPLAIN DEVELOPMENT PERMIT	
Specify for what purpose the permit is issued— New construction, alterations, fill, excavation, other	
ISSUED TO: _____	
ADDRESS: _____	
PROJECT ADDRESS: _____ <small>(if different from permittee's address)</small>	
ISSUED BY: _____ <small>Floodplain Management Administrator</small>	
DATE: _____ <small>(This permit expires 180 days from this date)</small>	
<small>THIS PERMIT MUST BE POSTED ON THE PREMISES IN A CONSPICUOUS PLACE SO AS TO BE CLEARLY VISIBLE FROM THE STREET.</small>	

16. Inspections

The most effective way to ensure compliance is to inspect the site frequently during construction. This is particularly important in the early phases of work on a building because that is when errors in the location or elevation of the lowest floor can be found and corrected. An inspection program also puts builders, developers and property owners on notice that the community will insist that projects are completed in compliance with regulations.

Pre-Construction Inspection

Do this inspection before ground is broken. Ideally, this site visit should be after the site is staked out to allow you to check the plans in relation to the ground and lot boundaries. With plans in hand, you should check the following:

- ✓ The location of the floodplain and floodway boundaries.
- ✓ Setbacks from lot lines, channel banks, etc.
- ✓ Floodway encroachments, if applicable.

If you find a violation, you should take photographs, document the problem in writing, and issue a stop work order to the builder until the problem has been corrected.

Elevation Inspection

Schedule this inspection just before installation of the lowest floor.

- ✓ Make sure the floor will be at or above the flood protection elevation
- ✓ Check whether any fill meets the necessary compaction, slope and protection standards contained in your regulations.
- ✓ Check that the building's location matches the permit application's plans.
- ✓ Check the number and size of crawlspace or enclosure openings.
- ✓ Check whether any part of the project encroaches into the floodway.

Final Inspection

- ✓ Ensure that the foundation and floor elevation have not been altered since the elevation inspection.
- ✓ Obtain an as-built elevation or floodproofing certificate.
- ✓ Ensure that nothing subject to flood damage, such as a furnace, air conditioning unit, or ductwork, has been located below the lowest floor.
- ✓ Check for floodway encroachments.
- ✓ Check the anchoring system used in securing factory-built homes.
- ✓ Issue a certificate of occupancy if the project passes the final inspection.

17. Appeals and Variances

Appeals

Ambiguous language or differing interpretations can lead the applicant and permit office to disagree. Your ordinance should have a process for referring these disagreements to a board which will interpret the ordinance and settle the dispute.

Conditional or Special uses

Some regulations use the conditional use, special use, or special exception process to allow some use of the floodplain. This process allows a community to review the project completely and place special conditions on the permit.

Variances

Floodplain management regulations cannot be written to anticipate every imaginable situation. A process for issuing variances gives a builder a way to seek permission to vary from the letter of the rules because of a special situation.

In general, a variance is granted for a parcel with physical characteristics so unusual that complying with the ordinance would create an exceptional hardship to the applicant or surrounding property owners. Those characteristics must:

- Be unique to that property and not shared by adjacent parcels.
- Pertain to the land, not to any structure, its inhabitants or the property owners.

Hardship: The concept of unnecessary hardship is the cornerstone of all variance standards. *The applicant has the burden of proving unnecessary hardship.* The claimed hardship must be exceptional, unusual and peculiar to the property involved. Financial hardship, inconvenience, aesthetic considerations, physical handicaps, personal preferences or the disapproval of one's neighbors do *NOT* qualify as exceptional hardships nor do problems caused by previous action of the applicant or property owner.

Insurance: The applicant for a variance to protect a building to a level lower than the flood protection elevation must be told in writing that granting the variance will result in increased flood insurance premium rates.

Exceptions can be made for **historic structures** and functionally dependent uses.

18. Enforcement

In order to ensure that development meets the requirements of your regulations, you must monitor the floodplain, and where necessary, conduct an inspection of a property.

Voluntary Compliance

The best approach is to convince the developer that complying with the ordinance is in his or her own best interest. Explain the flood hazard and how the rules protect the property (or neighboring properties) from that hazard. If this doesn't work, give written notice, talk to the attorney and pursue legal recourses.

Ready Reference

1. Contact the property owner or building contractor in person or by telephone to explain your concerns. Give them a deadline to respond to your concerns.
2. Follow up with a written notice.
3. Notify the property owner (in writing, preferably via certified mail) of the nature of the violations, what to do to correct them and a deadline. This is commonly called a “stop work order.”
4. Post a violation notice on the property.

Legal Recourses

Recordation: Depending on your ordinance’s authority, you may be able to record the violation in the property’s deed records. This will inform potential purchasers as well as “cloud the deed.”

Restraining order: This is an order to stop further non-compliant conduct. It is issued by a County Board of Supervisors or through the courts.

Tickets: With the right legal authority, an officer authorized by the community may issue a civil citation for an infraction.

Section 1316

Section 1316 of the National Flood Insurance Act authorizes FEMA to deny flood insurance to a property declared in violation of the community’s ordinance. It is used when all other legal means to remedy the violation have been exhausted. Denial of flood insurance means the owner (or prospective purchaser) will not be able to obtain most types of mortgages or loans for the property.

Ask NMDHSEM or the FEMA Regional Office for help in enforcement issues.

19. Records

Records show what you approved and what you told the developer, forming a “paper trail” needed for administrative or legal proceedings related to development projects. Such records are vital in case the project is built in violation of your ordinance or the conditions of a permit. They also give future owners information about the property.

Permit File

You should have a file for each permit application which includes:

- ✓ The permit application form and all attachments, including the site plan.
- ✓ All correspondence pertinent to the project.
- ✓ Flood and floodway data prepared by the developer.
- ✓ Engineering analyses of floodway encroachments and watercourse alterations.

Ready Reference

- ✓ Special engineering designs for enclosures below the base flood.
- ✓ Any variances or appeals proceedings.
- ✓ Records of inspections of the project while under construction.
- ✓ Documentation of the “as-built” lowest floor elevation of all new and substantially improved buildings.
- ✓ Certification of the elevation to which any nonresidential building has been floodproofed.
- ✓ Certificates of compliance or occupancy.

Keeping these records is a requirement to participate in the NFIP. There is no statute of limitations as to how long they should be kept.

Elevation Certificate

You need an official record that shows how high new buildings and substantial improvements were elevated. This is needed both to show compliance with the ordinance and for the owner to obtain a flood insurance policy. The best way to do this is to get the builder to have a surveyor give you a completed and signed FEMA Elevation Certificate before you issue a certificate of occupancy.

The FEMA Elevation Certificate form is self-explanatory. Data for Section B come from your Flood Insurance Rate Map (see Section 5).

One problem arises when a city annexes Special Flood Hazard Areas in the unincorporated areas of the county. If the subject property is located within areas annexed from the county, use the community’s NFIP number in item B1, but use the county’s FIRM for items B4 – B9.

The FEMA form is an 18-page packet. It includes the six-page FEMA Form 086-0-33, Elevation Certificate, and instructions on how to complete it. A complete copy is in Appendix D of the *Handbook for Floodplain Managers*. The [Elevation Certificate Form](#) can be downloaded from FEMA’s website.

20. Flood Insurance

One of the main reasons for your floodplain management program is to make insurance available for people who want to protect themselves financially from flood hazards. This section reviews how the insurance aspect of the NFIP works and how rates and coverage are dependent on how well buildings comply with your ordinance.

There are misconceptions that insurance is not available for properties in a mapped floodplain or for properties that are not in a floodplain. *Any* property in your community can be covered by flood insurance –Property owners always work through their insurance agents for buying the policy and settling claims – they do not need to deal with FEMA.

Coverage



Ready Reference

Flood insurance coverage is provided for insurable buildings and their contents. **Building coverage** is for the structure (see the definition of building in Section 12). This includes all things that typically stay with the building when it changes ownership, including the furnace, wall-to-wall carpeting and built-in appliances.

Contents coverage is for the removable items inside an insurable building. A renter can take out a policy with contents coverage, even if there is no structural coverage.

Basements and enclosures: There is limited coverage in basements and enclosures below the lowest floor of an elevated post-FIRM building (including a manufactured home). It therefore behooves the permit official to ensure that furnaces and other items that can be damaged by floodwater are not allowed in a crawlspace or other enclosure below an elevated lowest floor.

Waiting period: In most cases, a 30-day waiting period follows the purchase of a flood insurance policy before it goes into effect. This is to encourage people to keep a policy at all times and not gamble that they won't flood.

Rating Buildings

The premiums on new (post-FIRM) buildings are based on the risk of flooding and flood damage. The two aspects of the NFIP – insurance and regulations – reinforce each other. How well local floodplain management regulations are enforced affects the flood insurance rates paid by the citizens of your community.

Pre-FIRM buildings (those built before the initial effective date of your Flood Insurance Rate Map) can be insured using flat “subsidized” rates. They are designed to help people afford flood insurance even though their buildings were not built with flood protection in mind.



The Mandatory Purchase Requirement

The mandatory flood insurance purchase requirement is a Federal law that applies to all forms of federal or federally related financial assistance for buildings located in the floodplain. This requirement affects loans and grants for the purchase, construction, repair, or improvement of any building in the floodplain. It also applies to disaster assistance and all mortgage loans purchased by Fannie Mae or Freddie Mac in the secondary mortgage market.

How it works: Before a person can receive a loan or other financial assistance, there must be a check to see if the building is in the base floodplain that is shown on a Flood Insurance Rate Map (FIRM). The base floodplain is shown as one or more zones that begin with the letter "A."

Copies of the FIRM are available for review in most building or planning departments. Many lenders and insurance agents also have copies. It is the lender's responsibility to check the FIRM to determine if the building is in a floodplain, although the community may provide assistance.

If the building is in a floodplain, the agency or lender is required by law to require the recipient to purchase a flood insurance policy on the building. The requirement is for structural coverage equal to the amount of the loan (or other financial assistance) or the maximum amount available, whichever is less. The maximum amount available for a single-family house is \$250,000.

The mandatory purchase requirement does not affect loans or financial assistance for items that are not covered by a flood insurance policy, such as vehicles, business expenses, landscaping, and vacant lots. It does not affect loans for buildings that are not in the floodplain, even though a portion of the lot may be floodprone. While not mandated by law, a lender may require a flood insurance policy as a condition of a loan for a property in any location.

What you can do about it: If your property is in the floodplain, get the insurance. You might not have seen a flood recently, but the odds that you'll be flooded are *five times greater* than having a fire. You don't want to be without fire insurance, do you?

If your property is not in a mapped floodplain, you should still consider flood insurance – there may be local drainage problems that don't show up on the map (the rates are lower, too).

If you're sure you're not in a floodplain, but the bank insists, check the map yourself. If your ground is higher than the published base flood elevation, you can submit survey data and a request for a "Letter of Map Amendment." For more information on this approach, see Section 7 of the *Ready Reference*.

Note: Many people who were required to get building coverage do not realize that their contents are not covered unless they voluntarily purchase contents coverage.

Floodplain Permit Quick Check

