An Introduction to Floodplain Management

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What is Floodplain Management?

According to FEMA:
Floodplain management is the operation of a community program of preventive and corrective measures to reduce the risk of current and future flooding, resulting in a more resilient community. These measures take a variety of forms, are carried out by multiple stakeholders with a vested interest in responsible floodplain management and generally include requirements for zoning, subdivision or building, building codes and special-purpose floodplain ordinances.

What is Floodplain Management?

According to WDNR:
Policy and procedures to insure wise use of floodplains, including mapping and engineering, mitigation, education, and administration and enforcement of floodplain regulations.
What is Floodplain Management?

Floodplain management is a partnership between:
  • Federal regulations (44 CFR 59-72)
  • State regulations (NR 116)
  • Local ordinance

Federal Role

• Risk identification (Map Production)
• Review/approval of Letters of Map Change
• Establish minimum development/building protection standards (NFIP)
• Provide affordable flood insurance coverage (NFIP)
• Determine flood insurance rates using actuarial methods

Federal Role

• Lending regulations/enforcement
• Inform and educate the public
• Provide technical assistance to local partners
• Respond to congressional inquiries

THE NATIONAL FLOOD INSURANCE PROGRAM

A voluntary program based on a mutual agreement between the Federal government and the local community. In exchange for adopting and enforcing a floodplain management ordinance, Federally-backed flood insurance is made available to property owners throughout the community.
NFIP Goals

- Reduce the loss of life and property caused by flooding
- Reduce rising disaster relief costs caused by flooding
- Reduce the reliance on flood disaster relief dollars by providing an alternate means of protection for an individual's home

Accomplishing NFIP Goals

- Publish maps to identify high flooding risk areas
- Inform and educate the public to make them aware of the flooding risk to their property
- Make Federally backed flood insurance coverage available to property owners
- Attempt to guide development away from the flooding risks through education and regulation
- Require new and substantially improved structures to be elevated above the flood risk
- Prohibit new development within the designated floodways that would increase flood heights

State Role

- Establish development/building protection standards and promulgate state regulations
- Provide technical assistance including training to local community/agency partners
- Under contract with FEMA, evaluate and document community/agency floodplain management activities
- Inform and educate the public

State Role

- Under FEMA contracts, provide mapping, engineering and contract management services for RiskMAP
- Review/approve engineering studies for map revision projects
- Respond to legislative inquiries
Local Role

- Adopt local floodplain management regulations in compliance with appropriate Federal/State laws
- Regulate development/building protection standards through permitting and inspection of construction activities to ensure compliance with adopted floodplain regulations
- Maintain information records of floodplain development and mapping
- Inform and educate the public

NFIP STATS

- 548 participating communities in Wisconsin
- 3.8 Million policies – over 15,400 in Wisconsin
- $422 Billion in coverage – 2.8 billion in WI
- Self-supporting since 1986 (not 2005/2012)
Flood Control Act of 1936

• Declared floods were a national menace
• Flood control was a federal responsibility
• Expanded federal responsibility for flood control to all navigable waters
• Authorized 250 flood control projects in 31 states

1960’s

• Increasing flood losses and disaster costs sparked a push to implement a National Flood Insurance Program as an alternate form of assistance to flood victims
• Wisconsin Water Resources Act of 1965 establishes state floodplain and shoreland zoning programs

Flood Insurance Act of 1968

• Established the National Flood Insurance Program (NFIP)
• Granted authority to manage the NFIP to the Federal Insurance Administration (FIA)
• Established the 1% chance flood to be the national regulatory standard
• Made flood insurance available in communities which adopted development/building standards

1970’s

• Flood Disaster Protection Act of 1973 required NFIP participation in order for a community or individual to receive Federal flood disaster dollars
• Executive Order 11988 required Federal agencies include review of the flood risk and the impact to natural and beneficial values of floodplains prior to funding a project
• FEMA was created in 1979
**Flood Reform Act of 1994**

- Response to the 1993 Midwest Floods
- Increased lender compliance to ensure flood insurance is required where appropriate
- Authorized mitigation assistance grants to protect structures before flood damage occurs
- Authorized Increased Cost of Compliance insurance coverage to bring damaged structures up to current code standards

**2000 - 2014**

- Disaster Mitigation Act of 2000 increased emphasis on coordination between mitigation planning and implementation
- Biggert-Waters Flood Insurance Reform Act of 2012 designed to allow premiums to rise to reflect the true risk of living in high-flood areas
- Homeowner Flood Insurance Affordability Act of 2014 slowed the rate at which flood insurance premiums increased

**What is a floodplain?**

**Special Flood Hazard Area**

SFHA’s are the darkly shaded areas on a Flood Hazard Boundary Map or a Flood Insurance Rate Map. SFHA’s represent the area of the base flood.
**Definition of Base Flood**

A flood that has a one-percent chance of being equaled or exceeded in any given year. It often is referred to as the **“100-year” flood.**

**“1% chance flood”**

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**Riverine Special Flood Hazard Areas**

- **Zone A** - No BFE’s determined.
- **Zone AE** - BFE’s determined.
- **Zone AH** - Flood depths of 1 to 3 feet (usually areas of ponding); BFE’s determined.
- **Zone AO** - Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain; average depths determined.)

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**Definition of Floodway**

The channel of a river or other watercourse and the adjacent land areas that must be reserved to discharge the base flood without increasing the water surface elevation.
Definition of Flood Fringe

The remainder of the floodplain, after the floodway has been determined. Generally, the slower velocity backwater area of the floodplain. The flood fringe can be filled or modified without affecting the floodway.

Wisconsin Flood Zones

- Floodway
- Flood Fringe
- General Floodplain (Zone A)
- Flood Storage (Those floodplain areas where storage of floodwaters has been taken into account during analysis in reducing the regional flood discharge)

Mapping

Types Of Maps

- Flood Hazard Boundary Maps (FHBM) – only in 14 counties (12 by 2016)
- Digital Flood Insurance Rate Map (FIRM) – all other communities
- Both are based on Flood Insurance Study (FIS)
Flood Insurance Rate Map (FIRM)

DFIRM (Digital Flood Insurance Rate Map)

Flood Insurance Study

FIS Narrative

- Background, authority, scope
- Principal flood problems
- Existing proposed flood control projects
- Engineering methods used
- Floodplain management/insurance applications
Use the FIRM and FIS Report to:

- Identify Special Flood Hazard Areas,
- Identify the location of specific property,
- Estimate BFE at a specific site,
- Determine flood insurance zone at a specific site
- Determine the location of the regulatory floodway

What it Takes to Create a FIRM

- Topography
- Hydrological Analysis
- Hydraulic Analysis
- Base Map

Topography

- Vertical coordinates (elevations)
- Can be field surveyed or obtained from existing topographical maps
- Includes cross sections of the stream channel
- The greater the level of accuracy of the topography the more accurate the BFE

Hydrology

- A science that deals with the distribution and circulation of water in the atmosphere, on land surfaces, and underground.
- Hydrological analysis computes:
  - Flood discharge (How much)
  - Flood frequency (How often)
Hydraulics

- A science that deals with fluids in motion.
- Hydraulic analysis is used to determine how much of the floodplain is required to pass the given flood discharge and computes:
  - Flood elevation determinations (How deep)
  - Floodway determinations (How wide)

Base Map

- Horizontal coordinates
- Shows streets, railroads, streams
- DFIRMs have an aerial photo layer

What is Development?

In 44 CFR 59 Definitions, the NFIP defines development as:

- any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials.
Development is ....

- Construction of new structures
- Modifications or improvements to existing structures
- Excavation
- Filling
- Paving
- Drilling
- Driving of piles
- Mining
- Dredging
- Land Clearing
- Grading/Road construction
- Storage of materials and/or equipment

Key Project Questions

Some key project questions to ask:

- What flood zone is the project in?
- Will the project obstruct flood flows?
- Will the project alter drainage?
- Are there impacts on adjacent properties?
- Is an engineering study/design needed?
- Is DNR/FEMA review/approval needed?
- Is a Letter of Map Change (LOMC) needed?
- Can project be redesigned to avoid impacts?

When are permits needed?

- New/replacement roads
- New/replacement bridges
- New/replacement culverts
- For road maintenance, it is the ZA’s decision whether fill, grading or other physical changes associated with the project would trigger the permit requirement

FEMA Zone A Basics

- Projects that alter existing SFHA, ie. new/replacement bridges, culverts, dams, fill
- Must submit data for projects that revise effective data
- Critical for proper floodplain management and insurance rating
- Includes structures, roads, bridges, fill, storage, subdivisions
**FEMA Concerns**

- If project causes increase, then:
  - Apply for CLOMR – Conditional Letter of Map Revision
  - Requires alternative analysis, community concurrence, no insurable structures impacted, notify adjacent owners

**FEMA Concerns**

- Use of published FiS/FIRM
- No changes to FEMA-identified floodplain districts w/o approval (LOMC process)
- How other data can be used
- DNR/local agency approval

**LOMC Exempt Projects**

LOMC is not required if:
- Area zoned for open-space use
- No planned or anticipated land use changes
- Track cumulative increases/1 foot
- Insurable structures not affected

**116 Zone A Standards**

- Must contact DNR Water Management Engineer
- If RFE increases, increase must be either contained on applicant’s land or secure easements
- No PE submittal required as follows:
  - Project located in isolated/rural area
  - Only applicant’s property affected
  - Not allowed in conjunction with other projects
  - If project scope unclear, exceptions don’t apply
Study Requirements

- Required for stream crossings
- Exception for clear-span bridges
- May be needed for other projects such as road projects with significant impacts
- Not needed for paving, minor fill, etc.

LOMC Requirements

AE Zone - floodway change:
- BFE increase – redesign project or obtain easements and alternatives analysis for CLOMR
- BFE decrease or no change – need LOMR within 6 months of project completion
- Community responsible for LOMR submittal and acknowledgement

LOMC Requirements

AE Zone – no floodway change:
- BFE increase or decrease - redesign project or obtain easements and alternatives analysis for CLOMR
- BFE - no change – complete no-rise certificate; no CLOMR required

LOMC Requirements

A Zone
- Submit data to develop a floodway on effective FIRM
- If not in floodway, no LOMR needed, submit data within 6 months
- If in floodway, does project cause an elevation increase?
LOMC Requirements

- A Zone – BFE increase < 1 foot:
  - Get flooding easements or keep increase on applicant’s property
- A Zone – BFE increase > 1 foot:
  - Submit for CLOMR and complete alternatives analysis
- A Zone – no BFE change:
  - Complete no-rise certificate; no CLOMR required; submit data

Bridge/culvert projects

- Replacement-in-kind: no study/LOMC
- Other projects: submit study data:
  - No floodway/BFE change, no CLOMR needed, submit data
  - Floodway change, no BFE change, CLOMR required
  - Floodway change and BFE increase, either redesign or do alternatives analysis

LOMC Summary

In AE zones, LOMC needed when:

- New data is produced and used for development or for map update
- When new study revises effective data
- When physical changes are made in floodplain (e.g. channelization, stream realignment, new dam)

Encroachment

- Any project in the floodway requires an encroachment review (H & H analysis)
  - filling, grading, excavating, drilling
  - construction or placement of permanent/temporary structures
  - storage of materials/equipment
- An encroachment review is an engineering analysis of a project’s impact on flood flows and flood height
- Purpose is to ensure that the floodway is reserved to carry flood flows
Map Changes

- May be either physical or administrative changes to the floodplain
- May be used to incorporate better technical data (hydrologic/hydraulic or dam failure study)
- Approved/issued by FEMA
- May be requested by property owner or community
- LOMA, LOMR, CLOMR, LOMR-F must be issued prior to issuing a building permit

Types of Map Changes

- LOMA
- LOMR
- LOMR-F
- Physical Map Revisions

What is LOMA?

- Official amendment by letter to a FIRM
- Establishes the structure or property’s location in relation to the floodplain
- Requested by property owner
- Contact: FEMA
- Fee: No cost
- 30-60 days to process
What is LOMR?

- Official revision to a FIRM, which changes effective data and flood insurance risk zones
- Conditional LOMR (CLOMR) must be issued if work in the floodway causes any increase to BFE
- May be requested by property owner, community or state
- Contact: Regional Floodplain Engineer/FEMA
- Fee: Contact FEMA

What is LOMR-F?

- Official revision to a FIRM due to fill placed on the property which changes effective data and flood insurance risk zones
- May be requested by property owner, community or state
- Contact: Regional Floodplain Engineer/FEMA
- Fee: Contact FEMA

Physical Map Revisions

- An official republication of a FIRM to revise BFEs, floodplain boundaries and floodways
- Used for physical alterations, annexations or corrections to technical data
- May be requested by community, state or FEMA
- Contact: FEMA

WHAT HAPPENS WHEN A COMMUNITY DOES NOT ENFORCE ITS FLOODPLAIN MANAGEMENT ORDINANCES?

- Communities are required to adopt and enforce a floodplain management ordinance that meets minimum NFIP requirements.
- Communities can be placed on probation or suspended from the NFIP for non-enforcement.
- This is done only after FEMA and state have provided help to the community to become compliant.
PROBATION
• Formal notification by FEMA to a community that its floodplain management program does not meet NFIP criteria. It is an action authorized under Federal regulations.
• A community can be placed on probation 90 days after FEMA provided written notice to community officials of specific deficiencies.
• Probation may be continued for up to 1 year after the community corrects all program deficiencies and remedies all violations.

PROBATION.....
• An additional $50 charge is added to the premium for each policy sold or renewed.
• The additional charge is effective for at least 1 year after the community’s probation period begins.
• Probation DOES NOT AFFECT the availability of flood insurance.

SUSPENSION
• A community is subject to suspension when it fails to correct program deficiencies including failure to adopt an adequate ordinance.
• The community is provided written notice of the impending suspension and granted 30 days to show cause why it should not be suspended.

SUSPENSION......
• If suspended, the community becomes non-participating and flood insurance policies cannot be written or renewed.
• Policies in force at the time of suspension continue in force for the policy term.
• Three-year policies remain in force until the next annual anniversary date of the policy.
Regulations

NFIP vs NR 116
- FEMA standards a nationwide minimums
- Wisconsin has higher standards
- Local ordinance must include both
- Model Ordinance incorporates all required language

Wisconsin Minimum Standards
Chapter NR 116 Wisconsin Administrative Code
- Exceeds NFIP minimum standards
- 2 foot freeboard
- Dryland access for new development
- Prohibits most floodway development
- Cumulative improvement standard (50%)
- Zero rise mapping standard

Definition of Lowest Floor
"...means the lowest floor of the lowest enclosed area, including basement.

In Wisconsin, no floor can be placed below the Regional Flood Elevation."
**Definition of Substantial Damage**

Damage of any origin sustained by a structure whereby the cost of restoring the structure to its pre-damaged condition would equal or exceed 50% of the equalized assessed value of the structure before the damage occurred.

**Definition of Substantial Improvement**

- Any repair, reconstruction, rehabilitation, addition or improvement of a building or structure, the cost of which equals or exceeds 50 percent of the equalized assessed value of the structure before the improvement or repair is started.
- The term does not include:
  - any project for the improvement of a building required to correct existing health, sanitary or safety code violations identified by the building official and that are the minimum necessary to assure safe living conditions
  - any alteration of a historic structure provided that the alteration will not preclude the structure’s continued designation as a historic structure.

**Flood Insurance**

- Coming Soon!
- "I survived the 1/400 year flood!"
- Limited Edition Tickets

**Flood Risk Probabilities**

- For a house located within the Special Flood Hazard Area, there is a 26% chance that it will be inundated by a 100-year flood during the life of a 30-year mortgage...
- Over a 50 year period, the probability increases to 39%.
Eligible Structure

- Walls And Roof
- Principally Above Ground
- Manufactured (Mobile) Home
  - Foundation
  - Anchored
  - Utilities

When is Flood Insurance Mandatory?

- As a condition of any Federal grants or other financial assistance to repair or construct insurable structures within the SFHA including, certain forms of flood disaster aide.
- As a condition of any mortgage from a Federally insured or regulated lender for the repair or construction of insurable structures within the SFHA.

Available Levels of Coverage

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</tr>
<tr>
<td>Non-Residential</td>
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Building / Contents Coverage

- Contents Coverage NOT Automatic
- Emphasis Usually On Building Coverage
**Floodplain Management and Its Effects on Flood Insurance**

- Get it right and insurance premiums will be affordable
- Get it wrong and premiums will be very expensive
- Exceed minimum standards and insurance will be relatively cheap

**Flood Insurance Update**

- All structures moving to full risk rates
- Secondary homes affected in 2015
- New surcharges and assessments in 2015
- PRP extension program phased out
- Grandfathering still available

**Many Thanks.......**

And now time for questions?????