Part 1 – Flooding and Floodplain Management

Topics

- What is the NFIP
- Basic Abbreviations & Terms
- Floodplain vs Floodway
- Minimum Standards of the NFIP

NFIP – A voluntary federal program that provides flood insurance to property owners in participating communities, maps and grants in exchange for communities adopting and enforcing floodplain management regulations.

Course Topics

- Part 1 Flooding and Floodplain Management
- Part 2 A Flood Maps and Studies
- Part 2 B Map Changes
- Part 3 Regulations
- Part 4 Ordinance Administration
- Part 5 Flood Insurance & CRS
- Part 6 Mitigation and Disaster Operations
- Part 7 Coastal V Zones
- Questions
**National Flood Insurance Program**

To join the National Flood Insurance Program (NFIP), a community must adopt local floodplain management regulations.

In Illinois: 89 of 102 Counties have joined the NFIP. Approx. 900 Illinois communities have also joined the NFIP.

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**Basic Abbreviations**

- **BFE** = Base Flood Elevation
- **FIRM** = Flood Insurance Rate Map
- **FEMA** = Federal Emergency Mgmt. Agency
- **FIS** = Flood Insurance Study
- **LOMC** = Letter of Map Change
- **NFIP** = National Flood Insurance Program
- **SFHA** = Special Flood Hazard Area

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**Definition: “Flood”**

General and temporary condition of partial or complete inundation of:

- • 2 or more acres of normally dry land
- or
- • 2 or more properties…
From: Overflow of inland or tidal waters

Or From: Unusual and rapid accumulation or runoff of surface waters from any source

Or From: Mudflow, a river of liquid or flowing mud over normally dry land (not a landslide)

Or From: Collapse or subsidence of land along the shore of a lake or similar body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels that result in a flood.
Primary Types of Flooding

- Riverine
- Coastal
- Shallow
  - Sheet flow (AO Zones)
  - Ponding (AH Zones)

Understanding the Floodplain

The regulatory floodplain is the land that is subject to a 1% or greater chance of flooding in any given year.

What is a Special Flood Hazard Area (SFHA)?

- Another name for the base flood or 1% chance flood floodplain.
- These areas are indicated on Flood Insurance Rate Maps (FIRMS) as Zone A,V, AE, VE, AO, AH, AR, A99

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”
Floodway

A 'Regulatory Floodway' means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without increasing the water surface elevation more than a designated height (IL = 0.1').

How do we get the Floodway

FLOODPLAIN = FLOODWAY + FLOOD FRINGE
SURCHARGE NOT TO EXCEED DESIGNATED HEIGHT
(IL= 0.1 FOOT) (MN < 0.5 FOOT) (NFIP < 1 FOOT)

Understanding the Floodway

Part 1 Summary Review

- Where did we confuse you?
- Basic terms and abbreviations
- NFIP
- Federal, state and local roles
- Floodplain, Flood Fringe vs Floodway
Part 2B Summary Review

- Letters of Map Change (LOMC)?
- Levee accreditation

Part 3 - Topics

Regulations:
- State floodway permits
- Dams
- Public Waters
- NFIP Building Protection (elevation/floodproofing)
- Utilities
- RVs
- Substantial Damage and Substantial Improvement

Part 3 State Permits and Local Regulations

- Passage of State Legislation
- Adoption of State Model Floodplain Ordinances
- Six Northeastern Illinois Counties
- “Downstate” Counties
IL. DEPT. OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES
PERMITTING

IDNR/OWR (Northeast)
2050 West Stearns Road
Bartlett, IL  60103
(847) 608-3116

IDNR/OWR (Downstate)
One Natural Resources Way
Springfield, IL  62702
(217) 782-0900

IDNR/OWR Permit Programs
Adm. Rules

- Construction in Floodways of Rivers, Lakes and Streams: Part 3700 Rules
- Rules for Construction and Maintenance of Dams: Part 3702 Rules
- Regulation of Public Waters: Part 3704 Rules
- Floodway Construction in Northeastern Illinois: Part 3708 Rules
- Allocation of Water from Lake Michigan: Part 3730 Rules

State Permit required in a:
- Mapped Floodway
- Floodplain with no identified Floodway
IDNR/OWR Floodway Permit Program (Part 3700 Rules)

The IDNR/OWR exercises jurisdiction over construction in the floodway of watercourses which have a drainage area of:
• 1 square mile or more (640 acres) in an urban area, or
• 10 square miles or more (6400 acres) in a rural area.
• Consult with IDNR/OWR for assistance with determining jurisdiction

IDNR/OWR Floodway Permit Program (Part 3700 Rules)

• All jurisdictional streams in downstate counties regardless of the floodway/floodplain mapping
• Jurisdictional streams in NE IL which do not have regulatory (designated) floodways

IDNR/OWR Floodway Permit Program (Part 3700 Rules)

Two types of Permits are currently offered:

1. Statewide Permit
   Statewide Permits are pre-authorizations of certain minor projects which are permissible per the Part 3700 rules.
   A permit application submittal is usually not needed.

2. Formal Permit
   Formal Permits are needed for significant projects which do not meet a Statewide Permit. These projects generally require an extensive project review of engineering data.
   Examples: New Bridges and Culverts, Leveses

IDNR/OWR Floodway Permit Program (Part 3700 Rules)

Current Active Statewide Permits

- SWP 2 - Bridge and Culvert Crossings of Streams in Rural Areas
- SWP 3 - Mooring Facilities Used Exclusively for Barge Fleeting Purposes
- SWP 4 - Aerial Utility Crossings
- SWP 5 - Minor Boat Docks
- SWP 6 - Minor Non-Obstructive Floodway Construction
- SWP 7 - Outfalls
- SWP 8 - Underground Pipeline and Utility Crossings
- SWP 9 - Minor Shoreline, Stream Bank, and Channel Protection activities
- SWP 10 - Accessory Structures and Additions to Existing Residential Structures
- SWP 11 - Minor Maintenance Dredging
- SWP 12 - Bridge and Culvert Replacement Structures
- SWP 13 - Temporary Construction Activities
- SWP 14 - Special Uses of Public Waters
IDNR/OWR Floodway Permit Program (Part 3708 Rules)

The IDNR/OWR exercises jurisdiction over construction in the regulatory floodway of watercourses in Cook, DuPage, Kane, Lake, McHenry and Will counties (excluding the City of Chicago) if the watercourse has a drainage area of:

- 1 square miles or more (640 acres) in an urban area
- 10 square miles or more (6400 acres) in a rural area
- Consult with IDNR/OWR for assistance with determining jurisdiction

Two types of Permits are offered:

1. Regional Permit No. 3
   Regional Permit No. 3 is a pre-authorizations of certain minor projects which are considered permissible per the Part 3708 rules. A permit application submittal is usually not needed.

2. Formal Permit
   Formal Permits are needed for significant projects which do not meet Regional Permit No. 3. These projects generally require an extensive project review of engineering data. Examples: Bridges and Culverts, Channel Modification Projects, Flood Control Projects

Current Active Regional Permit

Regional Permit No. 3 - Authorizes underground and overhead utilities, storm and sanitary sewer outfalls, sidewalks, patios, athletic fields, playground equipment and streambank protection activities.

RP1 and RP2 are administered by IDOT

IDNR/OWR Floodway Permit Program–Part 3708 Rules Compared to Part 3700 Rules

- Appropriate Uses
- Floodway Map Revisions
- Delegation
  - Municipalities/Counties
  - IDOT Agreement

RP3 can be found at https://www.dnr.illinois.gov/WaterResources/Pages/PermitsStatewideRegionalGeneral.aspx
IDNR/OWR Floodway Permit Program (Parts 3700 and 3708 Rules)

- Permit Application Review Fees
- Check or Electronic Payment
- Fee Schedule and FAQ can be found at http://www.dnr.illinois.gov/WaterResources/Pages/default.aspx

IDNR/OWR Permit Program Process

**Joint Application Form**
Complete and Submit Joint Application Form

When to Submit…
- An application submittal is only needed for jurisdictional construction activities that require a formal permit.
- A permit application submittal is needed for work in a delegated community

What to Submit…
- Permit application package that is tailored to obtaining an IDNR/OWR permit.
- One size does not fit all.
- Properly completed IDNR/OWR copy of application form.
When not to Submit...

- An application submittal is not needed for construction activities that:
  - are not jurisdictional.
  - are authorized by a regional or statewide permit.
  - are an exempted activity per administrative rules.
  - can be authorized by IDOT/DOH per MOA.

Application Form

1. Application number.
2. Date Received (day/month/year).
3. Applicant’s name with contact person.
4. Agent’s name.
6. Adjacent Property Owners Information.
7. Project Location.

Support Information

- Narrative
- Location Map
- FIRM
- Site Plan
- Grading Plan
- Plotted Cross Sections
- Design Drawings
- Computations/H&H Analyses
- Engineering Report

https://www.dnr.illinois.gov/WaterResources/Pages/PermitApplicationandInstructions.aspx
Do Not Submit...

- More than one copy of the application form, engineering report, drawings, etc.
- Corps of Engineers, IEPA, and Applicant’s copy of the application form.
- Wetland reports needed by COE.
- Full sets of engineering drawings.
- Soil boring reports.*
- Contract documents.*

* May be needed for a dam safety submittal.

Proposed Updates to the Part 3700 Rules

- Definitions
  - Adds New Definitions
  - Expands Definition for Worst Case Analyses
- Jurisdiction
  - Expands Explanation for Exempted Activities (converted from some statewide permits - ex: outfalls, minor utility projects, etc.)
- Permit Application
  - Update Website reference
  - Timetable for OWR Response to applications

Proposed Updates to the Part 3700 Rules

- Fees
- General Construction Activities
- Bridge/Culvert Crossings
  - New Construction
  - Reconstruction
  - Modification
- Streambank Stabilization
- Boat Docks

Proposed Updates to the Part 3700 Rules

- New Levees/ Floodwalls
- Modified Levees/Floodwalls
- Floodplain Construction Without Floodways
- Violations and Enforcement
Definition

“Dam” – All obstructions, walls, embankments, or barriers, together with their abutments and appurtenant works, if any, constructed for the purpose of storing or diverting water or creating a pool.

Part 3702 Rules Dam Categorization

- Size (Small, Intermediate or Large)
  - Based on Impounding Capacity and Dam Height
- Hazard: Class I (High), Class II (Moderate) or Class III (Low)

IDNR/OWR Dam Safety Permit Program

When is a dam safety permit required?

- Construction of a new dam (Class I, Class II, or jurisdictional Class III)
- Major Modification to an existing or new dam (Major Structural Change)
- Breach or remove an existing or new dam

An existing dam is defined as a dam which was constructed prior to September 2, 1980.
IDNR/OWR Public Waters Permits (Part 3704 Rules)

- Natural Waterways
- Waterways Improved for Navigation
- Man-Made Waterways
- Appendix A
IDNR/OWR Public Waters Permits (Part 3704 Rules)

- Activities in Public Waters
- Navigation Impacts
- Encroachments
- Impairment of Public’s rights, interests and uses
- Impairment of Natural Resources
- No Delegation

Public Notices

Needed for:
- Projects that involve revisions to the regulatory floodway or flood profile.
- Projects in public waters that are not authorized by a regional, statewide or general permit.
- Formal permits for dams.
Part 3 Summary Review

- Where did we confuse you?
- State floodway permits
- Dams
- Public Waters

Development is ...

- Construction of new buildings
- Addition or substantial improvements to existing buildings
- Manufactured (mobile) homes and RVs
- Subdivisions or commercial developments
- Storage of materials
- Filling, grading, & excavating
- Fences, culverts, bridges & roads
- ANYTHING else that changes the floodplain

Any Floodplain “Development” (fences, fills, grading, etc..) Cannot Block or Obstruct the Flow of Water
Building Protection Standards

Methods to Elevate Buildings in an A Zone

- Elevation on Fill
- Elevation on flow-thru walls
- Elevation by poles, piers, or columns

Get a Site Plan with elevations

Slab on Fill

Criteria for Elevation on Fill

- Usually limited to three or four feet in height
- Fill placed in 6’ layers and compacted (95% proctor)
- Extend fill 10’ around structure
- Side slopes 1’ vertical to 1.5’ horizontal
- Erosion control
House built on fill above the flood elevation

Criteria for Elevation on Perimeter Wall Foundations

- Usually limited to three or four feet in height above grade
- Enclosed areas below the lowest floor must have openings to equalize hydrostatic pressures (1" per 1 sq. ft.).
- Openings no more than one foot above grade.
- Flood resistant materials
- NO HVAC, electric, utilities, etc..

Elevation on Solid Perimeter Walls

- At least two floor openings on different sides
- No more than 12" above ground
- Interior ground level at or above outside grade
Any enclosed area **must** be flow thru

- Total height no more than 4 feet.
- No more than 2' below grade.
- Flow through openings
  - Ratio = 1" per 1'
- Interior drainage controls
- Flood resistant materials

### Crawlspaces – TB 11

- Interior above grade?
- Interior below grade?
Watch the vents!

“Standard vents” are only 42 sq. in. Must account for any obstruction due to grates or screening.

Engineered Flood Vents

Each is rated differently. Get the ICC Evaluation Report!
House built on elevated foundation walls

Flow through lower area

What do you notice about the vents?

Non conversion Agreements essential when permitting elevated structures.

Allows for annual inspections with 48 hours notice of a visit.

Recorded with the deed with the County Recorder.

Non Conversion Agreement

CRS Credit Available
Post or Pile Foundation

- Should be used in areas of deep flooding and/or high velocities (floodways)
- Properly anchored to resist wind and water forces
- Lower area must remain open (not enclosed later). Get non-conversion agreement.

House built on piers or poles above the flood elevation
Why Anchor?

All new construction and improvement shall be constructed with electrical, HVAC, plumbing and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

Standards for Utilities and Building Systems

Utility Service for Buildings

Above ground tanks

All utilities, appliances, and equipment must be elevated above the BFE or protected. Utilities include plumbing, electrical, gas lines, heating, and air conditioning.
Utilities

1. Self propelled or towable by a light duty truck
2. No porch or deck
3. No permanent dwelling. Only seasonal use.
4. No more than 400 sq. ft.
5. Wheels on axles and inflated
6. Quick disconnect utilities
7. Licensed and titled as an RV
8. Supported by wheels or jacks. No blocks.
If an RV is on-site for more than 180 days, it must:

“Permanent or contingent measures applied to a structure and/or its contents that prevent or provide resistance to damage from flooding by allowing flood waters to enter the structure.”

Wet Floodproofing / Minor Accessory Structures

When to use Wet Floodproofing

- Enclosed areas below the BFE that are used for parking, building access, or limited storage
- Attached or detached garages
- Minimal value storage sheds and garages

Wet Floodproofing Garages and sheds

- Non-habitable
- Use only for storage and parking & no later modification
- Accessory to an existing structure on same lot
- Flood resistant materials
- No HVAC
- Flow-thru openings
- Less than $15,000 in value and less than 500 sq. ft.
Accessory Structure
Wet Floodproofing Standards

Openings to allow floodwaters to flow in & out

FPE

Non-Residential Floodproofing

ONLY NON-RESIDENTIAL STRUCTURES MAY BE FLOODPROOFED IN LIEU OF ELEVATION.

Floodproofing Requirements

1. Non-residential construction may be floodproofed below the BFE so that the structure is watertight with walls substantially impermeable to the passage of water.

2. Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.

101

102

103

104
Floodproofing Certificate

- A Floodproofing Certificate is required for all floodproofed structures
- The Floodproofing Certificate must be signed by an Engineer
- The form can be obtained at: www.FEMA.gov/library/floodproof

Substantial Improvement

"Improvement" Triggers

- Reconstruction
- Rehabilitation
- Addition
- Other improvements

The Floodproofing Certificate must be signed by an engineer and on file for EVERY floodproofed structure.
**Substantial Improvement**

- Lateral additions or vertical additions
  - 50% increase in market value or
  - 20% increase in floor area*

(*Illinois specific ordinance)

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**The Formula**

\[
\text{Cost of improvement project} \geq 50\%
\text{Market value of the building}
\]

Example: $75,000 project

Example: $140,000 house = 54%

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**“Market Value”**

- Independent professional appraisal
- NFIP claims data (Actual cash value)
- Tax or building department estimates
- Detailed Actual Cash Value estimates
- Uniform Residential Appraisal Report (URAR); value depreciated by age/quality

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**“Improvement or Damage Cost”**

Repair or improvement cost data:
- Qualified contractors’ estimates
- NFIP data*
- Standard Building Code/Marshall & Swift

Related data:
- Tax assessments
- Surveys
- Other local agencies or departments

* Note any NFIP claims won’t include repairs to basement improvements that are not covered under an NFIP policy, doesn’t reflect the deductible and includes clean up costs
Costs to be excluded

- Cleanup and dehumidifiers
- Repairing existing health/safety violations
- Preparation – specifications, surveys, building permit fees, plans
- Site work – septic systems, wells, water supplies, landscaping
- Items separate from / incidental to improvement
**Substantial Damage**

*“The 50% Rule”:*

If damages from ANY source (flood, fire, tornado, etc..) exceed 50%.

The structure must be brought into compliance with floodplain regulations (elevated or floodproofed).

THE Illinois state model ordinance tracks CUMULATIVE substantial damage.

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**Existing House with Floor Below FPE**

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**Substantially Damaged House Raised & Rebuilt above FPE**

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**Non-Triggers**

Correcting existing violations of codes that are minimum necessary for safe living conditions, including:

- Health codes
- Sanitary codes
- Safety codes

Alteration of registered “historic structure” that maintains its historic character.
**Post-Flood Requirements**

- Perfect time to reconstruct the RIGHT WAY!
- Available mitigation funds???
- Flood Insurance help???
- Obtain state or cooperative assistance
- ALL RED TAGGED (substantially damaged) buildings must be brought into compliance regardless of insurance or mitigation availability.

**Post Flood Responsibilities**

- MOVE FAST! Don’t wait for FEMA!
- Identify, tag, and document flooded structures
- Post information for the public on permit requirements. Use media sources.
- Provide technical information
- Contact State or FEMA for assistance and guidance if needed.

**Post Flood – Survey**

- Document high water marks
- Digital photos
- Mark locations on map
- Post notices on properties
- Follow up letters
Substantial Damage Regs Work!

Flooded 2008

Red Tagged!

Not Flooded 2013

FEMA Technical Bulletins and References

TB 1 - Openings in Foundation Walls and Walls of Enclosures
TB 2 - Flood Damage-Resistant Materials Requirements
TB 3 - Non-Residential Floodproofing - Requirements and Certification
TB 4 - Elevator Installation
TB 6 - Below-Grade Parking Requirements
TB 7 - Wet Floodproofing Requirements
TB 10 - Ensuring that Structures Built on Fill in or Near Special Flood Hazard Areas are Reasonably Safe From Flooding
TB 11 - Crawlspace Construction for Buildings Located in Special Flood Hazard Areas

Critical Facilities

Critical Facility - Any facility which is critical to the health and welfare of the population and, if flooded, would create an added dimension to the disaster. Damage to these critical facilities can impact the delivery of vital services, can cause greater damage to other sectors of the community, or can put special populations at risk.

Examples:
- Fire and police stations,
- Schools,
- Hospitals,
- Retirement homes,
- Major roads and bridges,
- Critical utility sites,
- Hazardous material facilities.

The last word...

Critical Facilities

If they can’t be located outside of the floodplain all together, make sure the facility and all ingress and egress is located above the 500-year flood elevation!
State and Federal Executive Orders

**Illinois Executive Order V (2006)** – All state agencies must comply with State Regs and NFIP. Critical Facilities.

**Federal Executive Order 11990 (1977)** – Federal agencies, to consider alternatives to wetland sites.

**Federal Executive Order 11988 (1978)** – Federal agencies must protect against flooding. Written prior to NFIP. Vague.

**Federal Flood Risk Management Standards (2016)** – Added layer to EO11988. Fed agencies and funding must comply with FPM regs. Additional flood protection (freeboard, climate change, etc.). RESCINDED

### Part 3 Summary Review Cont.

- Where did we confuse you on regulations:
  - NFIP Building Protection (elevation/floodproofing)
  - Utilities
  - RVs
  - Sub Dam and Sub Imp

### Part 4 - Topics

- Duties of Floodplain Administrators
- Variances
- Community Audits & Compliance
- Recordkeeping
- Elevation Certificates
LOCAL PERMIT RESPONSIBILITIES

To participate in the National Flood Insurance Program (NFIP) certain duties are required!!!!!

Everyday Activities

A. Review applications
B. Provide base flood data (where available)
C. Review plans and specifications
D. Ensure that other state and federal permits are obtained
E. Provide notice of water course alterations
F. Issue/deny permits
G. Inspect development
H. Look out for violations
I. Maintain records
J. Complete post-flood damage inspections and estimates

A. Review Applications
- Review and evaluate development permit applications
  - Is development in floodplain?
  - Is development in floodway?
- Require a permit for any development in the floodplain

B. Provide Base Flood Data
- Interpret floodplain boundaries and provide BFE data when available
- If your community map has unnumbered A zones
  - Determine BFE or
  - Require that applicant hire engineer or
  - Make FEMA do it (by applying for a LOMA)
C. Review plans and specs
- Ensure conformance with NFIP floodplain management criteria
- Include review of
  - site plan
  - foundation design
  - thoroughly notated plans

D. Ensure other permits obtained
Advise applicant of other state or federal permits or approvals that may be necessary
Examples include:
- Wetland/404 permit – Corps of Engineers
- NPDES permit - IEPA
- Endangered Species Act *– USFWS/Nat’l Marine Fisheries Service
- State floodway permit requirements
- Other local permits such as storm water management permits, septic permits, etc.

E. Notice of water course alterations
Provide required notification of changes in existing water courses to:
- FEMA
- State
- Adjacent communities
F. Issue or deny permits

Floodplain Administrator can:
- Issue floodplain development permit
- Conditionally approve permit
- Deny permit

G. Inspect development

- Check development location
- Verify construction according to plans
- Inspect:
  - setback from floodway
  - Foundation construction, elevation, openings size and location
  - Flood resistant material requirements
  - Utilities and other building systems
  - Anchoring, at/above BFE, floodproofing

H. Look out for violations

- Investigate potential violations
  - Reported by citizens
  - Reported by other officials
  - Found by chance
- Implement enforcement provisions
- Retrofit to protect from future flooding
- EDUCATE to avoid future violations!

I. “Perfect” Set of Records

- Applications
- Permit and inspection records
- Compliance files – variances, ECs*
- LOMCs and other flood studies
- Old ordinances, old flood maps
- Back-up copies in secure location
- Logical filing system, i.e., by address

* Although not required by NFIP, helps community show compliance to state and FEMA and helps the future owner with flood insurance rating.
Variance

- Grant of relief from requirements of floodplain development ordinance
- Permits construction in a manner that would otherwise be prohibited
- Stays with property if sold
- Not relief from flood insurance! Can lead to high flood insurance premiums
- Granted by local governing body

Conditions for Variances

1. For a piece of property, not owner
2. Is the minimum necessary to afford relief
3. If within designated regulatory floodway, cannot cause increase in flood levels during base flood
4. No extraordinary public expense
5. No increase in flood heights
6. No fraud or victimization of public
7. No conflict with existing local laws or ordinances
8. No increased threat to public safety or creation of nuisance

Key to Valid Variance

- “Unnecessary hardships”
- Loss of all beneficial or productive use
- Deprivation of reasonable return on property
- Property valueless without variance
- Inability to develop property in compliance with the regulations
- Reasonable use cannot be made consistent with regulations

Insufficient Reasons

- Less than drastic depreciation of property
- Convenience of property owner
- Circumstances of owner not the land
- To obtain better financial return
- Property similar to others in neighborhood
- Hardship created by owner’s own actions
If a Variance is Issued

A community must maintain a record of all variance actions, including those denied, along with the justifications (findings of fact).

A Word of Advice...

DO NOT GRANT VARIANCES!

They place people and property at risk, and flood insurance costs sky-rocket.

If you're going to grant a variance be sure to DOCUMENT!...

...This is the community's only protection after the flood when damages have occurred.

If full compliance isn’t possible...

Corrective measures should be coordinated with state NFIP Coordinator and FEMA.

Last Resort: Section 1316

✓ All other means of enforcement exhausted
✓ Community officially declares the structure in violation with a notice to owner explaining prospective denial of flood insurance
✓ Declaration/request sent to FEMA
✓ Flood insurance denied until 1316 declaration rescinded by FEMA
Got GIS? Risk Identification!

- Use of digital maps identifying flooded structures.
- GIS database used for extracting information about structures and flooding.
- Add photos, elevation certificates, damage/improvement records, etc.
- Link to permitting software to identify floodplain/floodway parcels.

Compliance!

- 100+ community visits per year.
- 15+ workshops per year.
- 5,000 technical assistance per year.
- Illinois leads the nation in communities on probation or suspended from the NFIP.

Got GIS? Risk Identification!

7 communities nationwide kicked out of NFIP. 5 are in Illinois! We (Paul) are serious!

Community Assistance Visit (CAV)
Community Assistance Contact (CAC)

CAVs and CACs provide a way for the FEMA and the state to offer technical assistance to NFIP communities and a way of addressing deficiencies or violations.

Community Assistance Visit Possible Violations

Examples of deficiencies and violations............

- Failure to require ANY permits;
- Failure to obtain state floodway permit;
- Failure to use proper flood elevation data;
- Non-compliant ordinance;
- Structures newly built below BFE;
- Substantial improvements without compliance;
- Substantial damage repairs allowed without compliance;
- HVAC or electric components not elevated;
- Failure to correct violations to practicable extent;
- Pattern & practice of issuing non-compliant variances;
- Allowing non-compliant lower enclosures or no vents;
- Fill and debris.
Community Assistance Visit

IF YOU CAN'T GET THE WHOLE THING, GET WHAT YOU CAN REASONABLY AND PRACTICALLY GET, to limit flood damage exposure to people and property. Save your community's good standing in the National Flood Insurance Program!

Community Assistance Visit (cont)

WHO'S TO BLAME?

➢ The developer?
➢ The builder?
➢ The owner?
➢ The building official?
➢ The realtor?
➢ The prior administration?

WE DON'T CARE!!!!

Regardless of who is at fault, the violation must be corrected.

Probation

➢ Formal notification to the community that FEMA regards the community's floodplain management program as not compliant with the minimum standards of the NFIP.
➢ An additional $50 dollar premium will be charged on policies sold or renewed during the probation period.
➢ The minimum probation period is one year.
Suspension

- A community is subject to suspension unless it corrects program deficiencies and remedies all violations by the compliance deadlines set during the probation period.

Effects of Suspension or Non-Participation in the NFIP

- No federally-backed flood insurance.
- No federal/state grants and loans.
- No federal flood disaster assistance.
- No federal mortgage insurance.

If your community has any Rep Loss properties...

- There is NO, NO, NO, NO, NO, NO, NO reason that you should not have adopted a cumulative substantial damage provision in your local ordinance!!!

NO REASON!

Illinois is ranked #1 in the nation:

1. Overall flood loss reduction
2. Fewest number of flood insurance claims occurring on newer post-FIRM structures (1%). *Some states have as much as 50% of flood claims taking place on newer post-FIRM buildings.
3. Mitigation of repetitive loss properties (50% no longer make damage claims)
FEMA Elevation Certificate

The Elevation Certificate

11/30/18 Expire Date
Now six pages long!!
At least 2 photos required if being used to obtain flood insurance.

Section A

- Attach a map to show building location if appropriate
- Identify whether the enclosure, crawlspace or garage has engineered flood openings.
- Carefully choose the correct Building Diagrams.

3 newer diagrams:
1. Diagram 1B is for raised-slab-on-grade or slab-on-stem-wall-with-fill buildings.
2. Diagram 2B shows a building with a basement that has an exterior entrance below ground level (sunken patio or stairway, not a true “walkout”)
3. The new Diagram 9 is for all buildings (other than split-level) elevated on a below-grade crawlspace that is not a basement (not more than 2 feet below grade and not more than 5 feet below next floor).

Background information on the property...NOT you.
Section A - Property Information

Architect will use interior dimensions while EC requires outside dimensions. May mean a shortage in net area of openings.

Must subtract any bars, louvers or grates. Please note on manufacturer in Comments area.

If yes, ICC ES form from manufacturer must be attached.
Diagram #1 and 1B – Slab or wall

Diagram # 7 - Fully enclosed lower area

Diagram #8 and #9 – Crawlspaces
(above grade crawl and below grade crawls)
Section A - Property Information - Crawlspace or enclosures

A. For building with an attached garage:
   a) Square footage of attached garage
   b) Number of permanent floor openings in the attached garage not more than 3% of total floor area
   c) Top horizontal plane of floor openings
   (A.1) Openings
   (A.2) Solid or insulated

B. For building with an unattached garage:
   a) Square footage of unattached garage
   b) Number of permanent floor openings in the unattached garage
   c) Top horizontal plane of floor openings
   (B.1) Openings
   (B.2) Solid or insulated

Interior above grade?  
or Interior below grade?

If interior grade is used to comply with opening elevation must be noted in the Comment section as photos will not show compliance.
Any enclosed area must be flow thru and interior rooms must have openings, i.e. enclosed stairwell.

Watch the vents!
“standard vents” are only 42 sq. in.

Section B – Flood Insurance Rate Map (FIRM) Information

Don’t list map number for the community number

<table>
<thead>
<tr>
<th>Product ID</th>
<th>Effective Date</th>
<th>Use</th>
<th>Status</th>
<th>Type</th>
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<td>STD</td>
<td>E002</td>
<td>BEM</td>
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</tbody>
</table>

FEMA Map Service Center website
Map Index date could differ from panel date
Section B – Base Flood Elevation
Information Sources

1. Flood Insurance Study
   - Floodway data table
   - Flood Profile

2. FIRM (least accurate)

Flood Insurance Rate Map (FIRM)

- Base Flood Elevation (BFE)
- Cross-Sections (Hexagon)

What is the BFE at the northwest corner of this house about a quarter of the way between BFE line 688 and 686?
From FIRM – about 686.5

Do you think the private drives might make a difference?
FIS Flood Profile

BFEs in Unnumbered A Zones (unstudied floodplains)

- Check with Illinois State Water Survey
- LOMAs in the area – Use National Flood Hazard Layer
- Highway Engineer/IDOT bridge designs
- Engineering study - Required if development is greater than 5 acres or 50 lots, even if an IDNR permit is not required.
- Apply for a LOMA – determination will be based on a (conservative) approximate BFE
- DO NOT CALL Paul Osman!

Section C – Building Elevation Information

Deck elevation?

- Section C(h) now captures the lowest adjacent grade at lowest elevation of deck or stairs, including structural support.
- This information is required if the EC is being used to support a request for a LOMA or LOMR-F.
- Is Deck connected to the structure? If standalone structure add details to Comments

If any item does not apply to the building, enter “N/A” for not applicable.
Last Two Pages – Building Photos

Elevation Certificates

Make sure you have the latest form
Download from:
http://www.fema.gov/
or
go to www.FEMA.gov and search “elevation certificate”

Part 4 Summary Review

• Where did we confuse you?
• Duties of Floodplain Administrators
• Variances
• Substantial damage/improvement
• Community Audits & Compliance
• Recordkeeping
• Elevation Certificates

Part 5

Flood Insurance
Part 5 - Topics

- Basic Terms & Abbreviations
- NFIP Insurance Overview
- Policy Types and Rating
- Increased Cost of Compliance
- Community Rating System
- Grandfathering

Common Acronyms...

- BFE = Base Flood Elevation
- CRS = Community Rating System
- FIRM = Flood Insurance Rate Map
- ICC = Increased Cost of Compliance
- NFIP = National Flood Insurance Program
- PRP = Preferred Risk Policies
- WYO = Write Your Own

National Flood Insurance Program (NFIP)

- Now covers 5.1 million policies in 23,000+ communities.
- $1.3 trillion in risk exposure
- In floodplains - less than 50% coverage.
- In all risk zones – less than 10% coverage.
- Adverse selection – only those who need it buy it.

Who Can Buy Flood Insurance?

- Anybody in a community participating in the NFIP.
- Anywhere within that community (all zones)
- Not all flood insurance is NFIP

To purchase an NFIP policy:
- Call a licensed insurance agent
- If you can’t find an agent who sells flood insurance, call the NFIP helpline at 800-427-4661.
- http://www.floodsmart.gov
**Coverage Amounts**

- **Buildings**
  - Up to $250,000 1-4 family residential
  - Up to $500,000 other residential
  - Up to $500,000 non-residential

- **Contents**
  - Up to $100,000 Residential
  - Up to $500,000 Non-Residential

  Less if community is in the Emergency phase of the program

---

**NFIP Flood Insurance**

Can be purchased for:

- a building under construction
- a finished structure
- contents inside an insurable bldg.

---

**Insurable Property**

- 2 or more outside rigid walls
- A fully secured roof
- Permanently affixed to a site
- At least 51% of ACV above ground
- Could be manufactured home or travel trailer if it meets above criteria

---

**Definition of an eligible building**

- 2 or more outside rigid walls
- A fully secured roof
- Permanently affixed to a site
- At least 51% of ACV above ground
- Could be manufactured home or travel trailer if it meets above criteria
**NFIP Does NOT Cover**

- Basement improvements
- Most personal belongings in a basement
- Structures built over water

**Limitations**
Basements and enclosures beneath the lowest floor of elevated post-FIRM buildings – limited coverage

**Waiting Period**
- Generally 30 days, unless it’s at the time of loan closing, mortgage review or map revision

**Lenders**
- Must have determination on file
- May require insurance even outside SFHA

**When It’s Written**

**Who Writes Flood Insurance?**

**NFIP flood insurance**
- FEMA’s NFIP Servicing Agent
- Write Your Own (WYO) companies

**Private flood insurance**
- WYO Companies
- Other high-risk insurers, Lloyd’s of London
- Growing interest in some parts of the country
Who MUST buy Flood Insurance?

- Required for buildings in SFHA (floodplain) when:
  - Making
  - Increasing
  - Renewing
  - Extending
    - a mortgage, home equity, improvement, construction, commercial or farm credit loan secured by the building
  - OR, when lender becomes aware a building in the SFHA securing the loan is not insured

Lender’s Responsibility

Insurance is required when:

- A lender makes, renews, extends, or increases a loan.
- That loan is from a federally regulated lender
- The loan collateral is a building insurable under the NFIP’s standard policy.
- The building is or will be located in an SFHA.
- The community participates in the NFIP.
- Insurance is also required when a lender learns that such a building is not insured (such as when a lender is notified by its flood hazard determination vendor of a map revision)

How Much Coverage is Required?

- Outstanding principal balance
- Maximum available through the NFIP
- Insurable value of building
- Whichever is less

Who MUST Buy Flood Insurance?

Community Status
- Does the community participate in the NFIP?
- Is insurance available?

Type of Loan
- Is the lender Federally regulated?

Type of Property
- Is it an insurable structure?

Location of Property
- Is it located within a floodplain?
When do flood insurance policies become effective?

30-Day Waiting Period

- Exceptions for:
  - Insurance in connection with a loan
  - Purchased within 13 months of a map change (1 day)

Lenders Documentation

Lender must complete (or have a vendor complete) a Standard Flood Hazard Determination Form and maintain it in the loan file for the life of the loan.

Lender must notify borrower of the results and maintain documentation that the borrower received the notification.

Do lenders HAVE to hire a third-party determination company? **NO!**

Flood “Certification” Vendors

- Not FEMA endorsed
- Essentially unregulated industry
- Approx 150 firms but only 1/3 subscribe to NFDA standards and practices
- Quality control issues
- What are they *really* determining?
- Some perform 10,000+ determinations per day (mostly automated)
**Deductibles**

Standard
- $1,000 Post FIRM
- $2,000 Pre FIRM

Higher deductibles available for lower premiums

Separate deductible for building and contents

---

**Comparison Cost of Flood Insurance**

**Existing Pre-FIRM House**

(*"subsidized" rates*)

- $887/year
- $26,610/loan

Based on $75,000 bldg. & $20,000 contents coverage. Single family, no basement, standard deductible

---

**Risk-Rating Redesign**

- NFIP rating methodology is undergoing significant redesign.
- More factors will be incorporated into the rating
- Will rely less on insurance agents’ inputs
- Elevation above or below BFE will still be an important component
- More detail coming in the next several months
The Preferred Risk Policy (PRP)

- Written only for areas located outside of the mapped floodplain (B, C and X Zones)
- Sold in “packaged” coverage amounts. Very cheap!

<table>
<thead>
<tr>
<th>Building Type</th>
<th>Building Coverage</th>
<th>Contents Coverage</th>
<th>Annual Premium</th>
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</thead>
<tbody>
<tr>
<td>Residential w/o basement</td>
<td>$30,000</td>
<td>$12,000</td>
<td>$150</td>
</tr>
<tr>
<td>Residential with basement</td>
<td>$30,000</td>
<td>$12,000</td>
<td>$175</td>
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<tr>
<td>Non-Residential w/o basement</td>
<td>$50,000</td>
<td>$50,000</td>
<td>$557</td>
</tr>
</tbody>
</table>

“Newly mapped” (formerly the PRP Extension)

- Rating for “newly mapped” properties added to the SFHA by a new FIRM start at a low price, which gradually increases each year.
- Homeowner must ask for the rate procedure

Grandfathering

If homeowner:
- maintains continuous coverage or
- was built in compliance with an old FIRM, insurance can be rated using previous map if it benefits them.

“Old Maps” Rule

Keep old maps!!!

If old maps aren’t available, check for historical maps at: www.msc.fema.gov

Many, but not all, old maps are there.
How can Homeowners reduce the cost of their Flood Insurance?

- With lenders approval, increase the amount of deductible or amount of coverage
- Get an elevation certificate and determine if full risk rate is lower than pre-FIRM rate
- Look into map change (LOMA or LOMR)
- Mitigate to reduce vulnerability
  - Elevate home
  - Elevate furnace and A/C
  - Tankless Water Heater

What can a Community Do?

- Join CRS/Increase CRS Rating
- Be aware of mitigation grants
- Work together!
- Provide technical advice
  - Elevation Certificates
  - Building/Rebuilding to reduce flood risk
  - Implement Higher Standards

FLOODPLAIN MANAGEMENT & ITS EFFECTS ON FLOOD INSURANCE

Building Construction:
- 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

What is Increase Cost of Compliance (ICC)??

- Part of the standard Flood Insurance Policy.
- Not a grant—property must be substantially damaged by flood while insured to claim ICC.
- Up to $30,000 to assist with code compliance:
  - Floodproof
  - Relocate
  - Elevate
  - Demolish
How to Qualify for ICC??

Three conditions must be met to claim the ICC coverage:

- Building must be insured under the NFIP and have a paid claim for flood damage.
- Building must be substantially damaged by a flood or meet the definition of “repetitive loss” due to flood damage.
- The community must determine that the building is substantially damaged by flood and is required by the community’s ordinance to be elevated or removed from the SFHA (and “notify” the owner of this).

QUICK Mitigation is the Key

One month after the flood!!!!

Community Rating System (CRS)

- Another way to reduce the cost of a flood policy!
- Community goes above-and-beyond NFIP minimums.
- Must pass a “clean” CAV first.
Community Rating System in IL
69 Active Communities

- Adams County 8
- Addison 6
- Aurora 7
- Bartlett 6
- Calumet City 6
- Carpentersville 6
- Chicago 5
- Country Club Hills 8
- Crystal Lake 6
- Des Plaines 6
- Elgin 7
- Evanston 7
- Fayette County 6
- Freeport 7
- Glen Ellyn 7
- Glendale Heights 7
- Glencoe 5
- Gurnee 6
- Highland Park 7
- Hinsdale 7
- Illinois County 5
- Lake County 6
- Lake Forest 7
- Lake in the Hills 6
- Lombard 7
- Lisle 6
- Loves Park 7
- Mokena County 7
- Midlothian 7
- Moline 8
- Montgomery 6
- Mount Prospect 6
- Naperville 6
- New Lenox 7
- Northfield 7
- Oak Brook 7
- Oak Park 7
- Palatine 7
- Rock Island Co 7
- Roselle 6
- Saginaw County 7
- Schaumburg 6
- South Elgin 5
- South Holland 5
- St. Charles 5
- St. Charles County 5
- Sugar Grove 6
- Swansea 7
- Tinley Park 7
- Waukegan 6
- Wheaton 6
- Willowbrook 6
- Winnetka 6
- Wood Dale 5

As of Feb 2019

CRS in Illinois
- Illinois is consistently one of the top states in the nation for CRS participation
- Thirteen communities are class 5 or better
- One CLASS 2 community only 7 in the nation
- 23 of top 50 policy communities enrolled
- 40% of all flood insurance policies in Illinois are in communities that receive CRS discounts.

Incentive
CRS provides an incentive for communities to initiate new flood protection activities.

CRS Activity Examples
- Activity 300 - Elevation certificates, Outreach projects
- Activity 400 - Higher standards, Open space preservation, Stormwater management
- Activity 500 - Acquisition and relocation, Drainage system maintenance
- Activity 600 - Flood warning program, levee safety, dam safety
CRS Activities

- 300 Public Information Activities
  - 310 Elevation Certificates
  - 320 Map Information
  - 330 Outreach Projects
  - 340 Hazard Disclosure
  - 350 Flood Protection Information
  - 360 Flood Protection Assistance

- 400 Mapping & Regulatory Activities
  - 410 Additional Flood Data
  - 420 Open Space Preservation
  - 430 Higher Regulatory Standards
  - 440 Flood Data Maintenance
  - 450 Stormwater Management

- 500 Flood Damage Reduction Activities
  - 510 Floodplain Management Planning
  - 520 Acquisition and Relocation
  - 530 Flood Protection
  - 540 Drainage System Maintenance

- 600 Flood Preparedness Activities
  - 610 Flood Warning Program
  - 620 Levee Safety
  - 630 Dam Safety
Part 5 – Summary Review

- Where did we confuse you in covering:
  - NFIP Insurance Requirements
  - Types of flood insurance and policies
  - Increased Cost of Compliance (ICC)
  - Community Rating System (CRS)
  - Grandfathering

Part 6
Mitigation and Post-Disaster Assistance

CRS Premium Discounts

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<tr>
<th>Class</th>
<th>Points</th>
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<td>500-999</td>
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<td>7</td>
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<td>6</td>
<td>2000-2499</td>
<td>10%</td>
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<tr>
<td>5</td>
<td>2500-2999</td>
<td>5%</td>
</tr>
<tr>
<td>4</td>
<td>3000-3499</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3500-3999</td>
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</tr>
<tr>
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<tr>
<td>1</td>
<td>4500+</td>
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Mitigation Grant Programs

FEMA currently has 3 mitigation grant programs:
- Hazards Mitigation Grant Program (HMGP)
- Flood Mitigation Assistance (FMA)
- Pre-Disaster Mitigation (PDM)

Other sources of money:
- IDNR/OWR
- DCEO (HUD funds)
- Metropolitan Water Reclamation District
- Counties and municipalities

Mitigation Grant Programs

<table>
<thead>
<tr>
<th>Entry</th>
<th>HMGP</th>
<th>PDM</th>
<th>FMA</th>
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<tr>
<td>State Agencies</td>
<td>+</td>
<td>+</td>
<td>+</td>
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<tr>
<td>Federally-recognized Tribes</td>
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<td>+</td>
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<tr>
<td>Local Governments/Communities</td>
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<td>+</td>
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<tr>
<td>Private Nonprofit Organizations (PNPs)</td>
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Cost Sharing Required

<table>
<thead>
<tr>
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<th>Federal / Non Federal Share</th>
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<tbody>
<tr>
<td>HMGP</td>
<td>75/25</td>
</tr>
<tr>
<td>PDM</td>
<td>75/25</td>
</tr>
<tr>
<td>PDM – If subrecipient is small and impoverished community or tribal government</td>
<td>90/10</td>
</tr>
<tr>
<td>FMA – insured properties and planning grants</td>
<td>75/25</td>
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<tr>
<td>FMA – repetitive loss property</td>
<td>90/10</td>
</tr>
<tr>
<td>FMA – severe repetitive loss property</td>
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Mitigation Funds will NOT Solve all of your Problems

- Limited amount of funds
- Some projects too big
- Some projects too small
- Must show a cost benefit
- Some don’t qualify under the rules

Presidential Declaration

- If a disaster is large enough it can receive a Presidential Declaration
- Declaration can be for Individual Assistance, Public Assistance, and/or Mitigation
- Public Assistance has 406 Program funds that can be used for mitigation. They also have ability to do alternative projects.
- Small Business Administration has their own process.
- Mitigation funds can be used anywhere in the state for any type of project.
- Mitigation project does not have to relate to the disaster, i.e. flood buyouts after a tornado
- Projects need to be a part of the local hazard mitigation plan

Hazard Mitigation Grant Program (HMGP)

- FEMA allocates 15% of the total disaster assistance generated in response to a Presidential declaration toward HMGP.
- Program is administered by the State.
- 75% Federal / 25% Local cost share.
- Voluntary and Competitive (No Guarantee).
- Projects must meet benefit-cost, environmental and other Federal, State and local criteria.
- Can fund acquisition, elevation, and small structural flood projects, wind and earthquake projects
- Retrofitting – Elevation, relocation, floodwalls, wet & dry floodproofing and demolition
- Priorities: Substantial damage and repetitive loss
- Voluntary for property owners

HMGP - Examples

- Acquisition and Structure Demolition/Relocation
- Dry Floodproofing of Historic Residential Structures
- Elevation–
- Hazard Mitigation Plan
- Structural Retrofitting of Existing Buildings
- Residential and Community Safe Rooms
- Wildfire Mitigation
- Wind Retrofit
Flood Mitigation Assistance (FMA)

- Annual nationwide competitive program
- Yearly Allocation from Insurance Policy Base.
- Requires Flood Mitigation Plan.
- Administered by the State.
- Repetitive Loss properties are targeted.
- Community needs to be in good standing in the NFIP.
- Structures must be insured.
- Voluntary and Competitive (No Guarantee).

Pre-Disaster Mitigation Program (PDM)

- Annual nationwide competitive program.
- Funds projects for all natural hazards
- Flood insurance is not a prerequisite
- Local Hazard Mitigation plan is a prerequisite
- Can fund hazard mitigation plans
- Changing emphasis –floodwalls, green infrastructure, floodplain and stream restoration
- Potential for a LOT more money
- Communities (subapplicant) applies to state who then applies to FEMA by an annual deadline

IDNR Funds

- Acquisition and demolition
- No elevations, no Mobile Homes
- Funds are on a reimbursement basis
- No Cost share
- Can be used as Cost Share for FEMA
- Easier than the FEMA program
- Limited funding and highly competitive

Repetitive Loss Structure

- Has incurred flood-related damage on 2 occasions, in which the cost of the repair, on the average, equaled or exceeded 25 percent of the market value of the structure at the time of each such flood event (ICC)
- CRS defines as 2 or more claims over $1,000 in any 10-yr period

Severe Repetitive Loss Structure

- Has at least 4 claim payments (including building and contents) over $5,000 each, and the cumulative amount of such claims payments exceeds $20,000;
- For which at least 2 separate claims payments (building payments only) total exceeds the market value of the building
Rep Loss in Illinois

- 3,814 rep loss properties (9.5% of 40,000 policies)
- $198.5 million in total losses (31% of our total claims)
- At least one property is located in 381 Illinois communities
- 1993 - #5 on the national list!
- 2007 - #15 on the national list!

Mitigation Planning

- States and local communities are required to have plans
- States must use local plans is estimating losses and for establishing priorities for planning and project grants
- Communities must have mitigation plans to be eligible for federal mitigation funds (DMA 2000), HMGP, FWA, and PDM.
- Most plans are now done on a county-wide basis and a community must show participation

What is in a mitigation plan?

- Analyzing the communities risks
- What steps can be taken to mitigate them
- The Pro’s and Con’s of the methods
- Prioritizing the mitigation methods
- How will you accomplish them
- Uploads into the State Mitigation Plan
- Adopted by the local government
- Emphasis on the process – want involvement, dialogue

Don’t Plan for the Past; Plan for the Future

- Urban flooding is becoming more significant
- Increasing number of extreme events
Post Disaster Assistance

Depending on the declaration, federal assistance can include:

• Assistance to state and local governments to help pay for disaster response or damages to public infrastructure
• Money for relief agencies like Red Cross
• Grants and loans to individuals and households for temporary living or personal property damages
• Small Business Administration loans
• Federal tax relief via IRS

Public Assistance Program

States, territories, tribal, and local governments, as well as private nonprofits, can get reimbursed for emergency response activities. It is critical that organizations set up accounting systems in advance of a disaster to increase rates of reimbursement.

The list of activities is extensive and includes:

• Repairs to public infrastructure, i.e. water treatment plants, roadways, public buildings, etc.
• Police and public works overtime pay
• Flood and fire fighting activities
• Supplies and equipment
• Meals for emergency workers
• Evacuation and sheltering operations

Public Assistance Program

FEMA will require building repairs or replacements meet the most recent ICC codes and other hazard mitigation features and will provide funding for the eligible increase in cost.

If a jurisdiction doesn’t have sufficient flood insurance coverage on a damaged building, the assistance will be reduced accordingly.

CRS communities must certify to having the necessary flood insurance coverage.
Following a presidential disaster declaration, FEMA will set up disaster centers in the area and set up a disaster number for people to use when requesting assistance.

Two options for residents and businesses, regardless of flood insurance coverage are:

- Small Business Administration low interest loans
- FEMA’s Individual and Household Assistance Program
  - Housing
  - Personal property
  - Real property

If federal assistance is received, flood insurance will be required in the future for the property, regardless of owner.

Where did we confuse you in covering:
- HMGP
- FMA
- PDM
- Mitigation Planning
- Post Disaster Assistance

Individual and Household Assistance Program

Part 6 – Summary Review

MITIGATION
IEMA Point of Contact:
Sam Al-Basha
State Hazard Mitigation Officer
Illinois Emergency Management Agency
1035 Outer Park Drive
Springfield, IL  62704
217-785-9942 sam.m.al-basha@illinois.gov

IDNR-OWR Point of Contact
Ron Davis
217-524-7280
Ron.davis@illinois.gov

FEMA Point of Contact:
Frank Shockey
Natural Hazard Specialist
536 South Clark Street
Chicago, IL  60605
312-408-5321
Frank.shockey@fema.dhs.gov
IDNR/OWR Contacts:

Paul Osman
Statewide Programs Manager
(217) 782-4428
Paul.Osman@Illinois.gov

Marilyn Sucoe
NE Illinois Floodplain Manager
(847) 608-3181
Marilyn.Sucoe@Illinois.gov

Coastal Floodplains

Definitions........

- Coastal High Hazard Area: an area of special flood hazard extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources. The area is designated on the FIRM as Zone V1 – V30, or VE or V.

Coastal Floodplains

Coastal A Zone: the portion of the SFHA landward of a V zone...which may be subject to wave effects, velocity flows, erosion, scour, or combinations of these forces and are treated as V zones.

Coastal transect
Levels of Detail in Floodplain Delineations

- Detailed Coastal: Based on detailed engineering methods, near-shore bathymetry, and coastal storms. Two levels of studies...

Coastal Barrier Resource Act (CoBRA) of 1982
- Coastal High Hazard or V Zone Construction
  - Mean High Tide: All new construction in V Zones must be located landward of the reach of mean high tide.

Coastal Barrier Improvement Act of 1990
- Areas subject to certain flood coverage restrictions. The NFIP is prohibited from writing flood insurance policies on new or substantially improved buildings in these areas.
- There are no CBRS or OPA areas in Illinois.
Methods to Elevate Buildings in a V Zone

- New and substantially improved structures must have the bottom of the lowest horizontal member at or above the BFE.

Bottom of the lowest horizontal structural member supporting the lowest floor

Structural Fill is prohibited to support buildings.

Nonstructural fill, such as might be used for landscaping, should be placed so that it does not divert waves and surging floodwaters onto other structures.
Building Protection Standards
Coastal High Hazard or V Zone Construction (cont.)

Connecting the Load Path in the V Zone

- Continuous path from roof to wall to foundation
- Materials that resist deterioration
In V Zones, the applicant must include the V Zone Certificate and an engineer’s certification of design on a breakaway wall.
Building Protection Standards
Coastal High Hazard or V Zone Construction (cont.)

Altering Sand Dunes
- Your flood damage prevention ordinance prohibits manmade alterations of sand dunes that will increase potential flood damage.

COBRA
- NFIP insurance not available.
- You must still review and issue permits.

Permit Issuance (continued)
- Fill is not allowed as a method to elevate buildings in V Zones.
- FEMA does not allow placement of fill in V Zones as a method to remove a site from the mapped floodplain by means of a LOMR-F.
- Non-structural fill may be used for landscaping purposes and cannot divert waves and water toward any building.
Part 2 - Topics

- Basic Terms
- Types of FEMA Maps
- Flood Zones
- Flood Insurance Studies (FIS)
- Locating BFEs on Maps and Exhibits
- Updating Maps (Map Changes)
- Levees

Common Acronyms...

BFE = Base Flood Elevation
FHBM = Flood Hazard Boundary Map
FIRM = Flood Insurance Rate Map
FIS = Flood Insurance Study
LOMC = Letter of Map Change
LOMA = Letter of Map Amendment
LOMR = Letter of Map Revisions
NFIP = National Flood Insurance Program
SFHA = Special Flood Hazard Area
Types of FEMA Maps

- Flood Hazard Boundary Maps (FHBM)
- Flood Insurance Rate Map (FIRM)
- Flood Boundary Floodway Map (FBFM)
- Digital Flood Insurance Rate Map (DFIRM)

National Flood Hazard Layer (NFHL)

Pre-1988 FIRMS and FBFM
Status of Illinois DFIRMs

How Do They Make Floodplain Maps?

• For Riverine Floodplains:
  • Need to know flood stages (elevations)
  • Need topographic data to map the flood stages
Floodplain Mapping

• How do we determine flood elevations?
  • Ideally...
    • Multiple gages on every stream
    • 100+ years of observations
    • Stationary climate/watershed conditions

~240 active stream gages in Illinois
• Many have short recording periods

Peak Flow (cfs)
Water Year

Cahokia Creek At Edwardsville, IL Peak Flows

• Peak Flow
• Linear (Peak Flow)
Floodplain Mapping

• Need hydrology and hydraulic analyses to define flood elevations
• Hydrology – How much precipitation runs off land surfaces and collects in streams and rivers
• Hydraulics – How high does water flow through stream and bridges

Hydrology

• Hydrology – defines flow rates (discharges) at various flood frequencies
• Most interested in 1% Annual Chance (100-year) stream flow
• Several methods
  • Watershed Modeling
  • Stream gage analysis – statistical approach
  • Regression equations/StreamStats – empirical approach

Hydraulics

• Hydraulic analysis determines the depth (height) of flow moving through a stream, bridge, culvert, etc.
• Hydraulics is simulated through modeling software
Hydraulics

- Typical hydraulic models require:
  - Cross sections of channel and overbank topography
  - Bridge/culvert data
  - Peak flow rates
  - Boundary conditions (starting water-surface elevation)

Cross Sections

Topography
Topography

• Greater accuracy and precision for floodplain mapping

Topography

• Bench Marks (BM) and Reference Marks (RM)
  • BM or RM = Carefully measure elevation points from which other elevations are surveyed. These are a surveyor’s starting elevation.
  • Datums (Not all elevations mean the same thing!)
    • MSL = Mean Sea Level
    • NGVD 29 = National Geodetic Vertical Datum of 1929
    • NAVD 88 = North American Vertical Datums of 1988
    • Local datum = Relatively referenced datum (challenging to covert to other datums)
    • 650' NGVD29 ≠ 650' NAVD88 ≠ 650' Local
    • FIS Report provides explanation of datum used.

Flood Zones

• 1% Annual Chance Flood is basis for the NFIP
  • 1% Annual Chance Flood is known as the “Base Flood”
  • 1% Annual Chance Flood Elevation is known as “Base Flood Elevation” or “BFE”
  • The floodplain delineation of the “Base Flood” is known as “Special Flood Hazard Areas” or “SFHA”
  • Not all flood hazards are equal therefore floodplain maps have variety of Flood Zones
    • Each flood zone has unique regulatory requirements and flood insurance ratings
Flood Zones

- Flood Zone name depends on Floodplain Map Vintage
- A Zones depict 1% Annual Chance Floodplain
  - Zone A (No BFEs) = typically riverine approximate
  - Zone AE or A1-30 (includes BFEs) = riverine detailed
  - Zone AO depth of 1' to 3' given = shallow sheet flow
  - Zone AH (includes BFEs) = shallow ponding

Approximate A Zones

- Approximate A Zones do not have BFEs
- Permits still required
  - Permits necessitate the estimation of a BFE

A Zones
Zone AO

• Zone AR – Floodplain resulting from decertification of a previously accredited flood protection system that is being restored to provide at least 1% Annual Chance protection

• Zone A99 – Floodplain to be protected by a Federal flood protection system under construction; no BFEs

Zone AH

Other A Zones
Coastal Flood Zones

- V Zones depict 1% Annual Chance Coastal Floodplain
  - **Zone V** (no BFEs) = Approximate Coastal
  - **Zone VE/V1-30** (includes BFEs) = Detailed Coastal

- Two hazard components to V zones:
  - Inundation of Base Flood of coastal waters
  - Velocity (wave action) hazard, hence Zone V

V Zones

Floodway
Fringe Normal Stream Level Floodway

Use same 100-yr. flow (Q100)

Fringe Flood Level With Fringe Filled (BFE and Floodway)

Use same 100-yr. flow (Q100)

BFE
Normal Stream Level

Fringe Flood Level With Fringe Filled (BFE and Floodway)

Floodway

• National Standard = 1 foot floodway surcharge
• Illinois Standard = 0.1 foot floodway surcharge

FLOODWAY = FLOODWAY FRINGE = 100 YEAR FLOODPLAIN
SURCHARGE NOT TO EXCEED 0.1 FOOT
Non Regulatory Flood Zones

- Zone X (shaded)/Zone B – 0.2% Annual Chance (500-year) floodplain or 1% Annual Chance (100-year floodplain with average depth less than 1 foot)
- Zone X/Zone C – Area of minimal flood hazard
- Zone D – Area of undetermined flood hazard (no regulatory requirements but mandatory flood insurance purchase required)
<table>
<thead>
<tr>
<th>Flood Zone</th>
<th>Floodplain Frequency?</th>
<th>BFE or Depth Given?</th>
<th>Mandatory Flood Insurance Purchase Requirement?</th>
<th>Regulatory (requires permits)?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone A</td>
<td>1% AC [100 Year]</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Zone AE or A1-30</td>
<td>1% AC [100 Year]</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Zone AO</td>
<td>1% AC [100 Year]</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Zone AH</td>
<td>1% AC [100 Year]</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Zone AR</td>
<td>1% AC [100 Year]</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Zone A99</td>
<td>1% AC [100 Year]</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Zone V</td>
<td>1% AC [100 Year]</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Zone VE or V1-30</td>
<td>1% AC [100 Year]</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Floodway</td>
<td>1% AC [100 Year]</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Zone X (shaded) or Zone B</td>
<td>0.2% [500-Year]; sometimes 1% less that 1' depth</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Zone X (unshaded) or Zone C</td>
<td>N/A</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Zone D</td>
<td>N/A</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

SFHAs

Old FIRM Legend

New FIRM Legend

KEY TO MAP

- SFHAs
- 1% Floodway
- Regulated Floodway
- 0.2% Annual Chance Flood Hazard
- Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile
- 1% Annual
- Areas with Increased Flood Risk due to Dam Water
- Areas with Flood Risk due to Dam Levee
- Areas with Reduced Flood Hazard
- Areas of Uncontrolled Flood Hazard

EXPLANATION OF ZONE DESIGNATIONS

- A: Area of 1% Floodway
- AE: Area of Regulated Floodway
- A1-30: Area of 0.2% [500-Year] annual chance flood hazard
- AH: Area of 1% Annual
- AO: Area of Increased Flood Risk due to Dam Water
- AR: Area of Flood Risk due to Dam Levee
- A99: Area of Uncontrolled Flood Hazard
- VE: Area of Reduced Flood Hazard
- V1-30: Area of Uncontrolled Flood Hazard
- V: Area of Unregulated Floodway
- X: Area of Increased Flood Risk due to Dam Water
- X: Area of Flood Risk due to Dam Levee
- X: Area of Uncontrolled Flood Hazard
- X: Area of Unregulated Floodway
- Zone A: 1% AC [100 Year]
- Zone AE or A1-30: 1% AC [100 Year]
- Zone AO: 1% AC [100 Year]
- Zone AH: 1% AC [100 Year]
- Zone AR: 1% AC [100 Year]
- Zone A99: 1% AC [100 Year]
- Zone V: 1% AC [100 Year]
- Zone VE or V1-30: 1% AC [100 Year]
- Floodway: 1% AC [100 Year]
- Zone X (shaded) or Zone B: 0.2% [500-Year]; sometimes 1% less that 1' depth
- Zone X (unshaded) or Zone C: N/A
- Zone D: N/A

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Accessing Floodplain Maps

- FEMA Map Services Center – www.msc.fema.gov
- Effective Maps
- Historic Maps
- Flood Insurance Studies (FIS)
- Letters of Map Change (LOMCs)
- DFIRM Database

Accessing Floodplain Maps

- Online Interactive Map of All DFIRM data
- Can be loaded into Google Earth
- Displays LOMCs

Flood Insurance Study (FIS)

- Appraises a community’s flood problems
- Community’s flood history
- Study information
- Provides hydrology and hydraulic results
- Provides flood elevation profiles
- Provides floodway data information
### Floodway Data Table

<table>
<thead>
<tr>
<th>GREEN RIVER</th>
<th>G 1.188 1,691 6.9 267.5</th>
<th>FLOODWAY DATA</th>
<th>BASE FLOOD WATER SURFACE ELEVATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>SECTION</td>
<td>DISTANCE (FEET)</td>
<td>WIDTH (FEET)</td>
<td>CROSS DISTANCE (FEET)</td>
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<tr>
<td>A</td>
<td>0 1.188 1,691 6.9 267.5</td>
<td>267.5 0.1</td>
<td>268.2</td>
</tr>
<tr>
<td>B</td>
<td>280 1.288 1,539 7.6 267.5</td>
<td>267.5 0.1</td>
<td>268.2</td>
</tr>
<tr>
<td>C</td>
<td>480 1.288 1,539 7.6 267.5</td>
<td>267.5 0.1</td>
<td>268.2</td>
</tr>
<tr>
<td>D</td>
<td>710 1.288 1,539 7.6 267.5</td>
<td>267.5 0.1</td>
<td>268.2</td>
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<tr>
<td>E</td>
<td>980 1.288 1,539 7.6 267.5</td>
<td>267.5 0.1</td>
<td>268.2</td>
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<tr>
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<td>267.5 0.1</td>
<td>268.2</td>
</tr>
<tr>
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<td>1,560 1.288 1,539 7.6 267.5</td>
<td>267.5 0.1</td>
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<td>267.5 0.1</td>
<td>268.2</td>
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<tr>
<td>M</td>
<td>2,820 1.288 1,539 7.6 267.5</td>
<td>267.5 0.1</td>
<td>268.2</td>
</tr>
</tbody>
</table>

1. Foot above confluence with Lake Highwater
2. Elevation computed without contribution of contribution of Lake Highwater

City of Floodville, CA

*Floodway Data Management Agency*

City of Floodville, CA

**Floodway Data**
### Accuracy Precedence for BFEs

- **#1 Floodway Data Table**  
  (Most Accurate)

- **#2 Flood Profiles**  
  (2nd Most Accurate)

- **#3 BFE on FIRM Panel**  
  (Least Accurate)

### Determining a BFE Example

**Figure:**

- **Zone X**
- **Zone AE**
- **Green River**

**Table:**

<table>
<thead>
<tr>
<th>Cross Section</th>
<th>Channel Width</th>
<th>Channel Slope</th>
<th>Velocity</th>
<th>Regulated Flood</th>
<th>Floodway Elevation</th>
<th>Water Surface Elevation</th>
<th>BFE</th>
<th>NGVD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>------</td>
</tr>
</tbody>
</table>

*Foot above confluence with Hickory Creek  
BFE = 667.8' NGVD*
Determining a BFE Example

Location 1
BFE = 667.2' NAVD

Location 2
BFE = 668.4' NAVD
Determining a BFE Example

Updating Maps (Map Changes)

• Sometimes the maps are just wrong!
• There is a process to correct or update the maps

Types of Map Changes

<table>
<thead>
<tr>
<th>MT-1 Map Changes</th>
<th>MT-2 Map Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Letter of Map Amendment (LOMA)</td>
<td>• Letter of Map Revision (LOMR)</td>
</tr>
<tr>
<td>• Conditional letter of Map Amendment (CLOMA)</td>
<td>• Conditional Letter of Map Revision (CLOMR)</td>
</tr>
<tr>
<td>• Letter of Map Revision Based on Fill (LOMR-F)</td>
<td>• Physical Map Revisions (PMR)</td>
</tr>
<tr>
<td>• Conditional Letter of Map Revision Based on Fill (CLOMR-F)</td>
<td></td>
</tr>
</tbody>
</table>
Letter of Map Amendment (LOMA)

Situation:
Structure is located on NATURALLY high ground

Information needed by FEMA:
Completed MT-1 Form 1 (or MT-EZ)
Lowest Adjacent Grade must be higher than BFE

Cost: “free”
MT-EZ Form

LOMAs are shown on the NFHL

The E-LOMA

- Internet based system to quickly process simple LOMA requests
- Only available to licensed land surveyors and professional engineers
- Allows determinations to be printed out locally by the user
- Random audits to be completed to verify accurate determinations
Letter of Map Revision Based on Fill (LOMR-F)

Situation:
Fill placed in “Flood Fringe” (outside floodway) to elevate ground or structure above BFE

Information needed by FEMA:
MT-1 Forms including Community Acknowledgement

Cost: Relatively inexpensive
Technical Bulletin 10-01

Letter of Map Revision (LOMR)

Situation:
Physical changes to the floodplain, floodway, or flood elevations

Information needed by FEMA:
Detailed engineering analysis and MT-2 Forms

Cost: not cheap
Letter of Map Revision (LOMR)

Conditional Map Changes

- FEMA’s comments on the impacts of a proposed project on the floodplain/floodway/BFEs
- Ensures that structures are constructed in compliance with NFIP regulations
- Map change not official until follow-up LOMC request made with certified as-built drawings

LOMC Fee Schedule
Levees in Illinois

Failures occur somewhere in Illinois with every major flood!

Levee Accreditation

- Not all levees are created...
  - ...for the same purpose
  - ...for the same flood frequency
  - ...using engineering design standards

- Only levees that meet the requirements of 44 CFR 65.10 can be accredited to show protection provided against the base flood on the floodplain map
Accredited Levees

Non-Accredited Levee

Accredited Levee

Levee Accreditation

• Levees may be able to meet 44 CFR 65.10 requirements but the floodplain map will not show base flood protection until the documentation is accepted by FEMA and a revised floodplain map is issued showing protection.

• Accredited Levees...
  • ...can be overtopped or fail (sometimes resulting in damage/loss of life greater than without levee)
  • ...can deteriorate over time
  • ...require regular maintenance

44 CFR 65.10 Accreditation Requirements

• Freeboard (3 ft. or more)
• Closures
• Embankment Protection
• Stability Analysis
• Settlement Analysis
• Interior Drainage
• Operation & Maintenance Plan
Community/Levee Owner Responsibilities

- Levee Owners are responsible to provide the 44 CFR 65.10 documentation to FEMA for initial and continued accreditation status on the floodplain map.
- Massive effort to obtain accreditation and maintain accreditation.

### Levee Myths

<table>
<thead>
<tr>
<th>Myth</th>
<th>Truth</th>
</tr>
</thead>
<tbody>
<tr>
<td>I won’t flood if I live behind an accredited levee</td>
<td>Accredited levees can fail or be overtopped by larger events; does not eliminate all risk</td>
</tr>
<tr>
<td>My home will never be mapped in floodplain since I live behind an accredited levee</td>
<td>Levee accreditation is not granted in perpetuity; maintenance and upgrades are often needed to maintain accreditation status</td>
</tr>
<tr>
<td>Levees only fail when overtopped by floodwaters</td>
<td>Levees can fail due to seepage, erosion, or collapse</td>
</tr>
</tbody>
</table>

Brookport, Illinois
Brookport, Illinois

Brookport, Illinois
IDNR Residual Risk Map 2007

Residual Risk Awareness

• Hundreds of thousands of residents live behind levees
• Yet only 1% carry flood insurance!

Part 2 Summary Review

Where did we confuse you in covering:
• Types of FEMA Maps
• Flood Zones
• Flood Insurance Studies (FIS)
• Locating BFEs on Maps and Exhibits
• Updating Maps (Map Changes)
• Levees