

Floodplain Management: Current Hot Topics

MACPZA 2013 Annual Conference

presented by
DNR Ecological & Water Resources

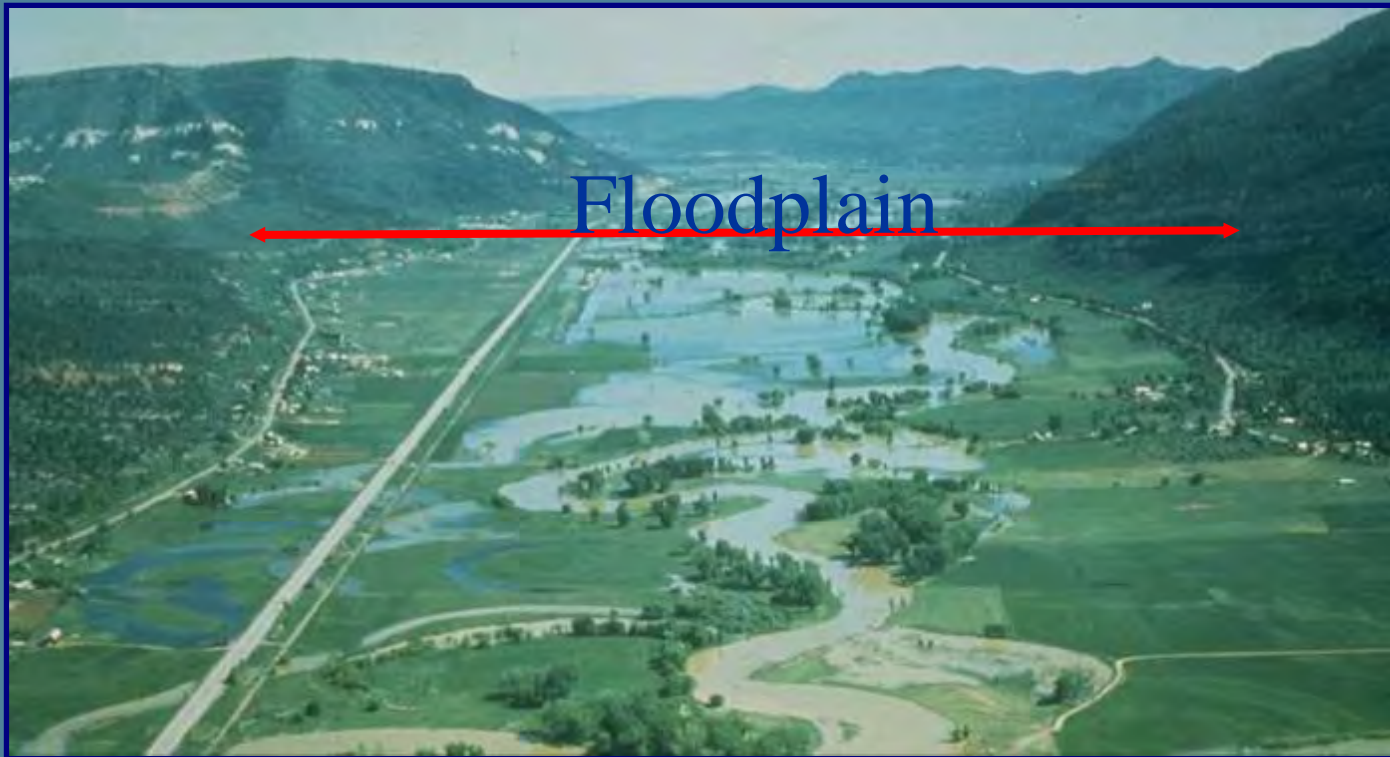
Ceil Strauss, State Floodplain Manager

Today's Topics

- Brief review of floodplain management basics
- Biggert-Waters Reform Act of 2012
- What local officials need to know because of BW-12
 - Finding FEMA map for site
 - Determining Base Flood Elevations
 - More LOMAs
- Special topics
 - “In” or “Out” mentality
 - Atlas 14
 - Decks & Tanks

NATIONAL FLOOD INSURANCE PROGRAM (NFIP) - 1968

- 1) DEVELOPMENT STANDARDS (administered locally)
- 2) ID FLOODPLAIN (FEMA Maps)
- 3) FLOOD INSURANCE (mandatory since 1974)



Floodplain Zoning



Roles & Responsibilities

- Zoning Authority (city, county or township)
 - Most important!
 - Adopts ordinance, enrolls in National Flood Insurance Program (NFIP), administers & enforces
- State – Oversight; technical assistance & training; approve ordinances & some data/mapping; coordinate between FEMA & community (& watersheds, HSEM, etc.)
- Watershed District – may have overlapping regulations &/or mitigation projects; often key data source
- FEMA – Oversees NFIP (enrolls; can suspend); produces / approves maps & data

Participating in National Flood Insurance Program (NFIP)

484 Cities

14 Townships

2 Tribes

85 Counties

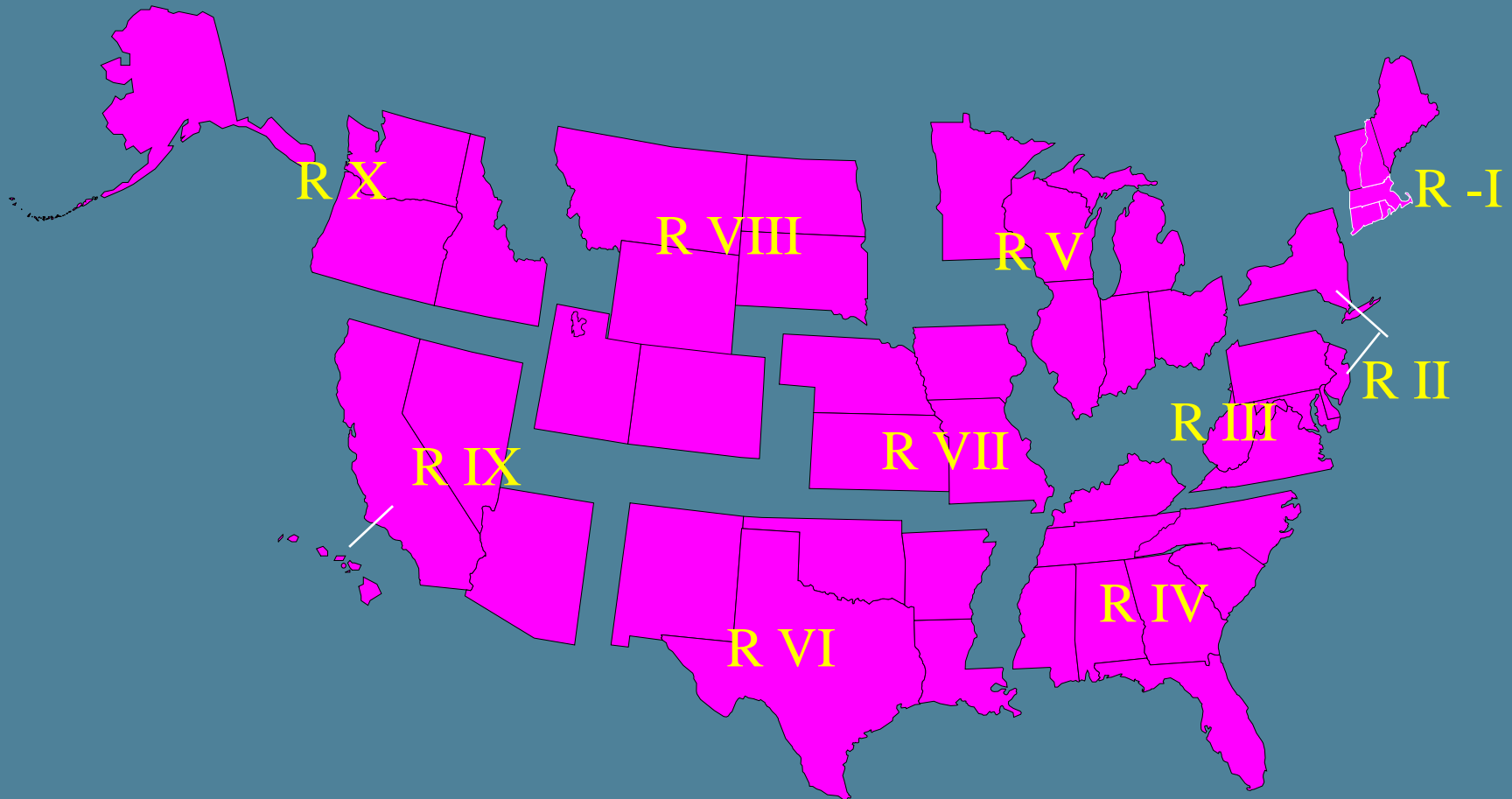
(all with zoning; not Hennepin & Ramsey)

585 Total

*>94% of State Population Eligible



FEMA REGIONS



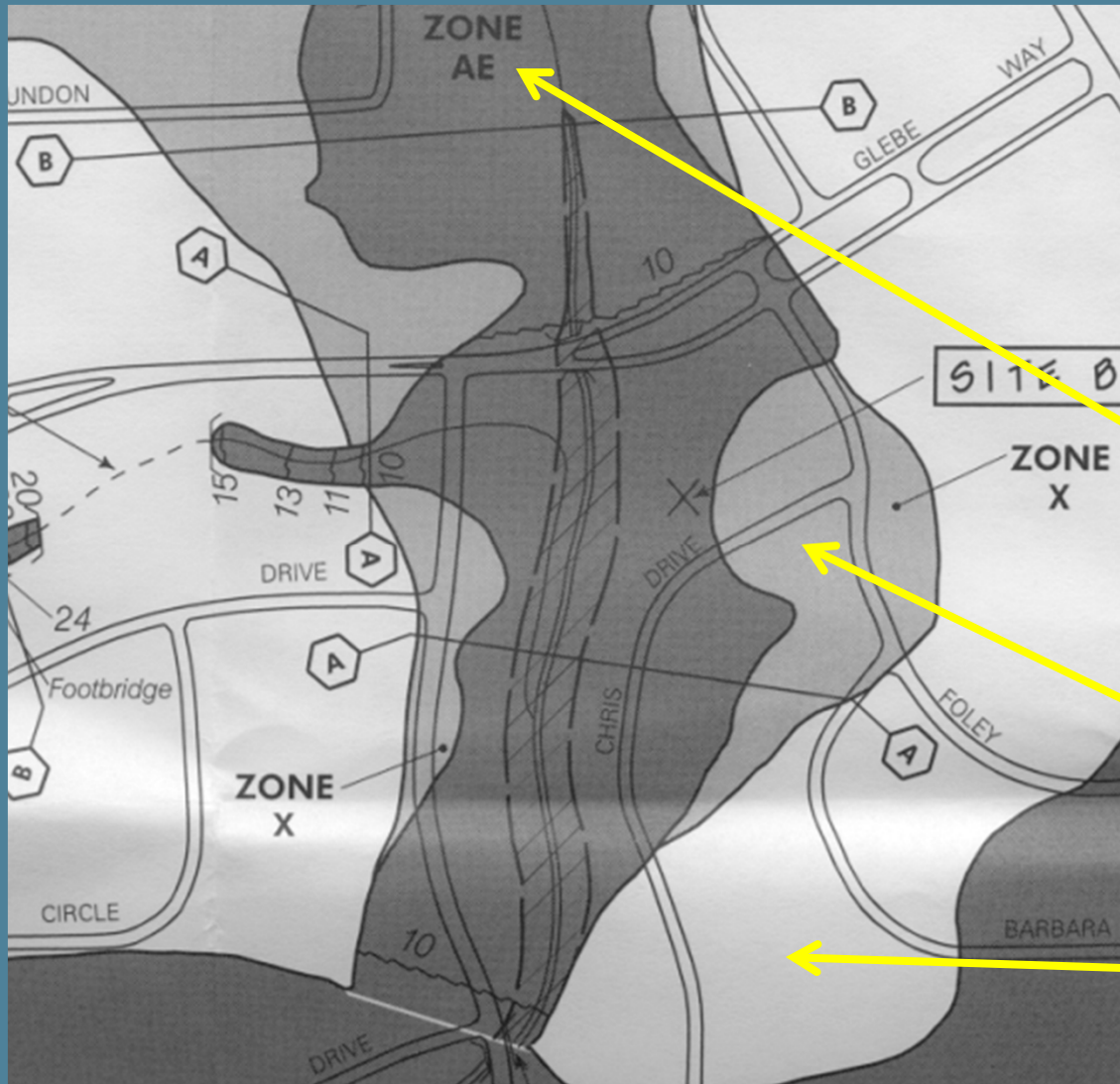
FLOOD FREQUENCY

| <u>Flood Frequency</u> | <u>Annual Probability of Occurrence</u> |
|------------------------|---|
| 10-Year | 10% * |
| 50-Year | 2% * |
| 100-Year | 1% * |
| 500-Year | 0.2% * |

* Chance of being equaled or exceeded
in any given year.

ZONING VERSUS INSURANCE

Sample FEMA Map with SFHA



National Standard of "100-year flood" chosen

High Flood Risk

- Zone A & AE (old)
- Zone A & AE (new)

Medium Flood Risk

- Zone B (old maps)
- Zone X (shaded)

Low Flood Risk

- Zone C (old maps)
- Zone X (unshaded)

Mandatory Flood Insurance

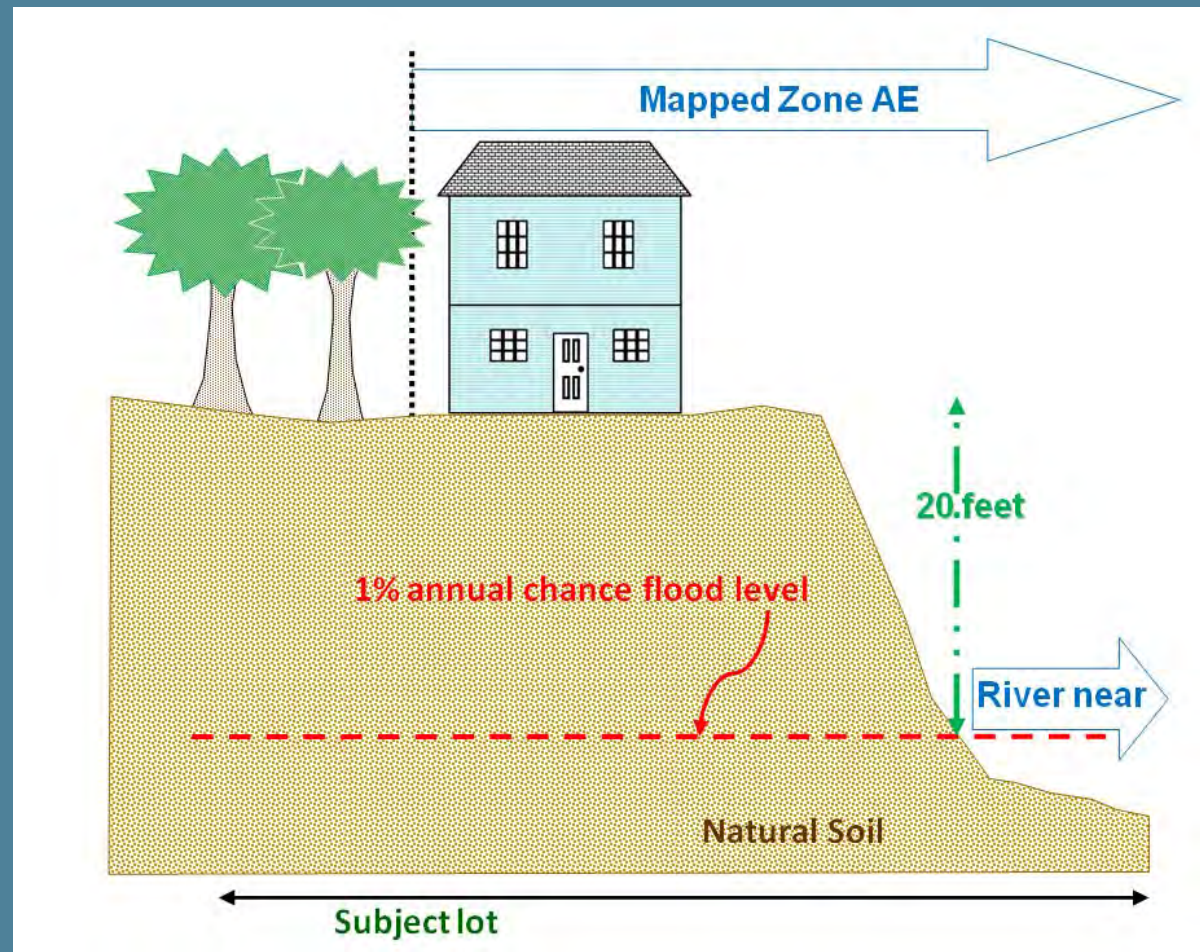
- If STRUCTURE is in Zone A, AE, AO, A1-30 AND they have loan from federally regulated institution
- Even if structure is really high, unless they obtain a Letter of Map Amendment (LOMA)
- NOTE: Some lenders have more restrictive requirements for their business (i.e., in 500-year, or replacement cost vs loan balance)

WHAT'S THE CALL?

Location on FIRM for proposed house



- (1) Flood Insurance mandatory?
- (2) Zoning requirements?

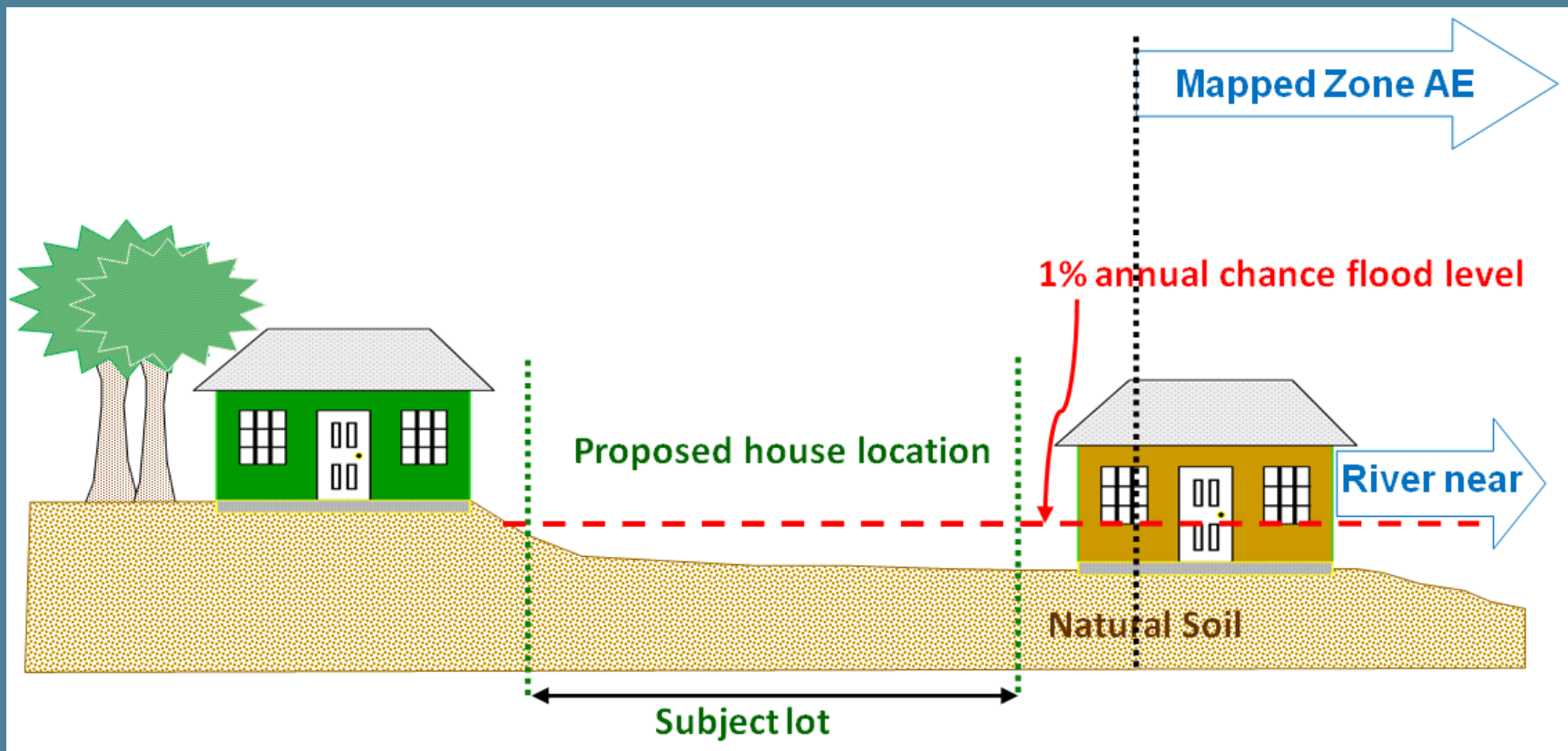


Where Does Ordinance Apply?

MN Rule 6120.5700, subp.3, D: “Where a conflict exists between the floodplain limits illustrated on the official zoning map and actual field conditions, the flood elevations shall be the governing factor in locating the regulatory floodplain limits”

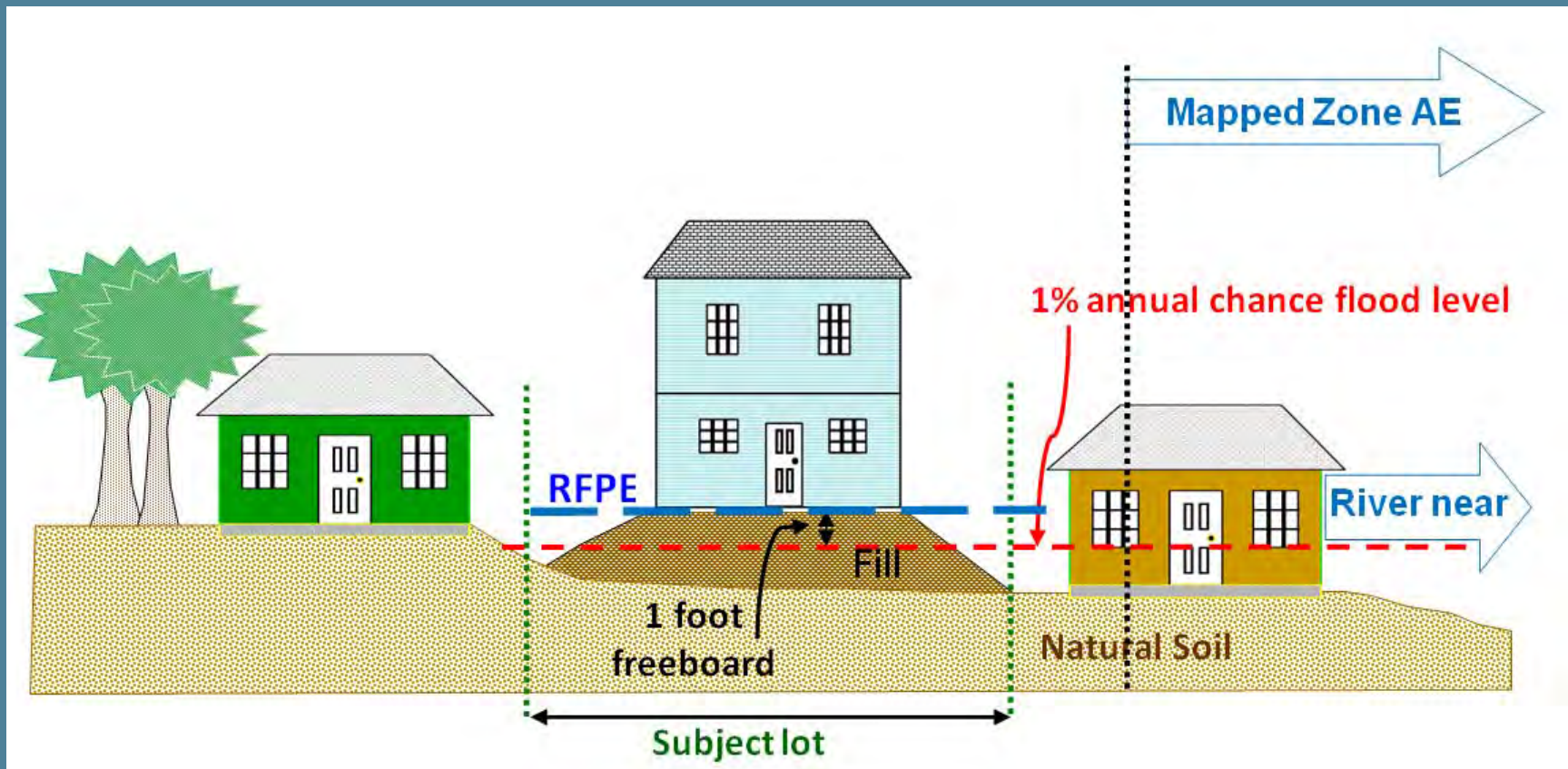
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Location on FIRM for
proposed house



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Location on FIRM for
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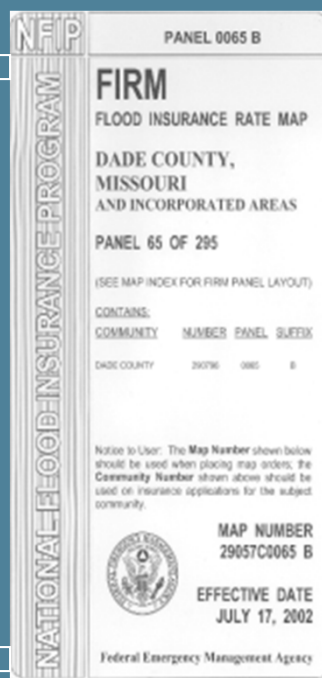
Who Can Buy Flood Insurance?

- Community Participation
- All Zones



Two rate structures:

- Pre-FIRM
- Before initial FIRM
- or
- On or Before 12/31/1974
- Whichever is LATER
- “OLD STANDARDS”



- Post-FIRM
- On or After the initial FIRM
- or
- After 12/31/1974
- Whichever is LATER
- “NEW STANDARDS”
or “In Compliance”

Standard vs. Preferred Risk

■ Standard Rates-

- Rate Tables provided in Flood Insurance Manual
- Fixed premiums; fixed limits
- Risks not eligible for Preferred Risk Policy

■ Preferred Risk Rates-

- Must be in Zone B, C, or X at time of application AND *each subsequent renewal**
- Limited loss history

NOTE:

*A building which becomes ineligible for PRP due to a zone change will renew using Standard Rates.

However, the old low- or moderate-risk zone can still be “locked” in.

Figure 1: BEFORE First FEMA Maps. Many structures were built before any FEMA floodplain maps existed and the high risk flood hazard areas were known.

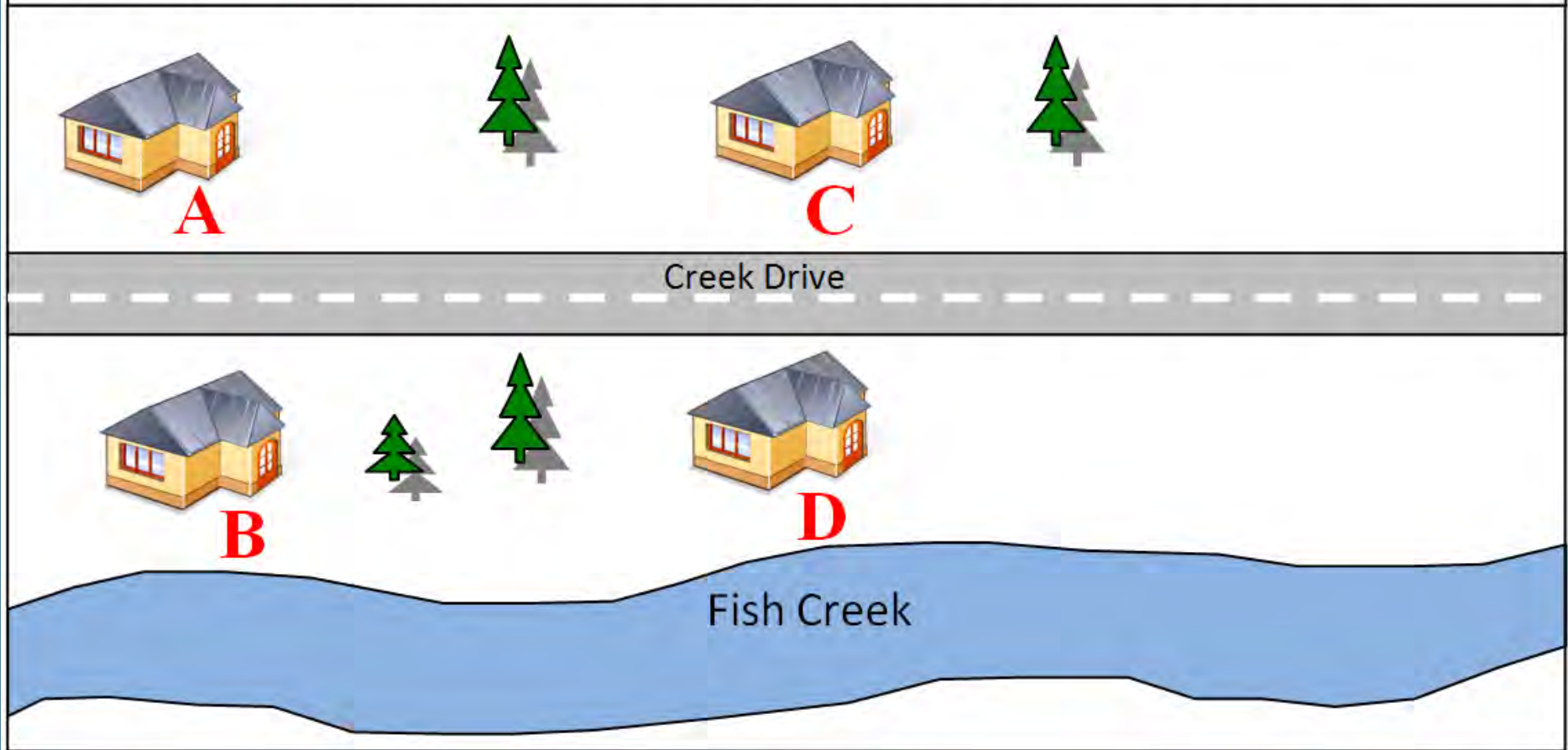
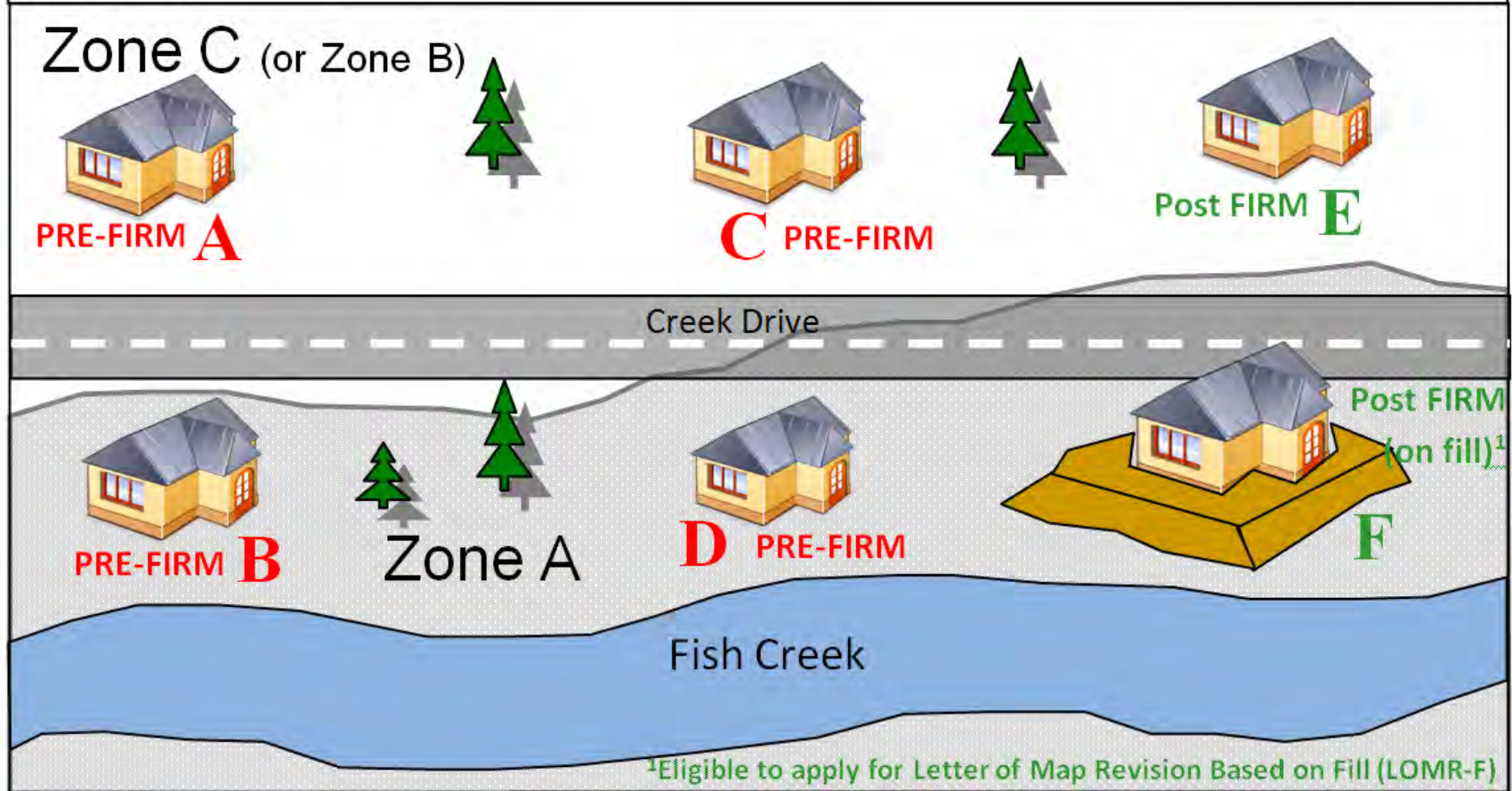


FIGURE 2: AFTER 1ST FIRM (1981). The first Flood Insurance Rate Map (FIRM) for this area shows the high risk flood hazard area (Zone A) as a darker gray shaded area. Medium risk (Zone B) and lower risk (Zone C) areas outside of the Zone A may be shown on the FIRM.



First FEMA Flood Insurance Rate Map (FIRM) in 1981




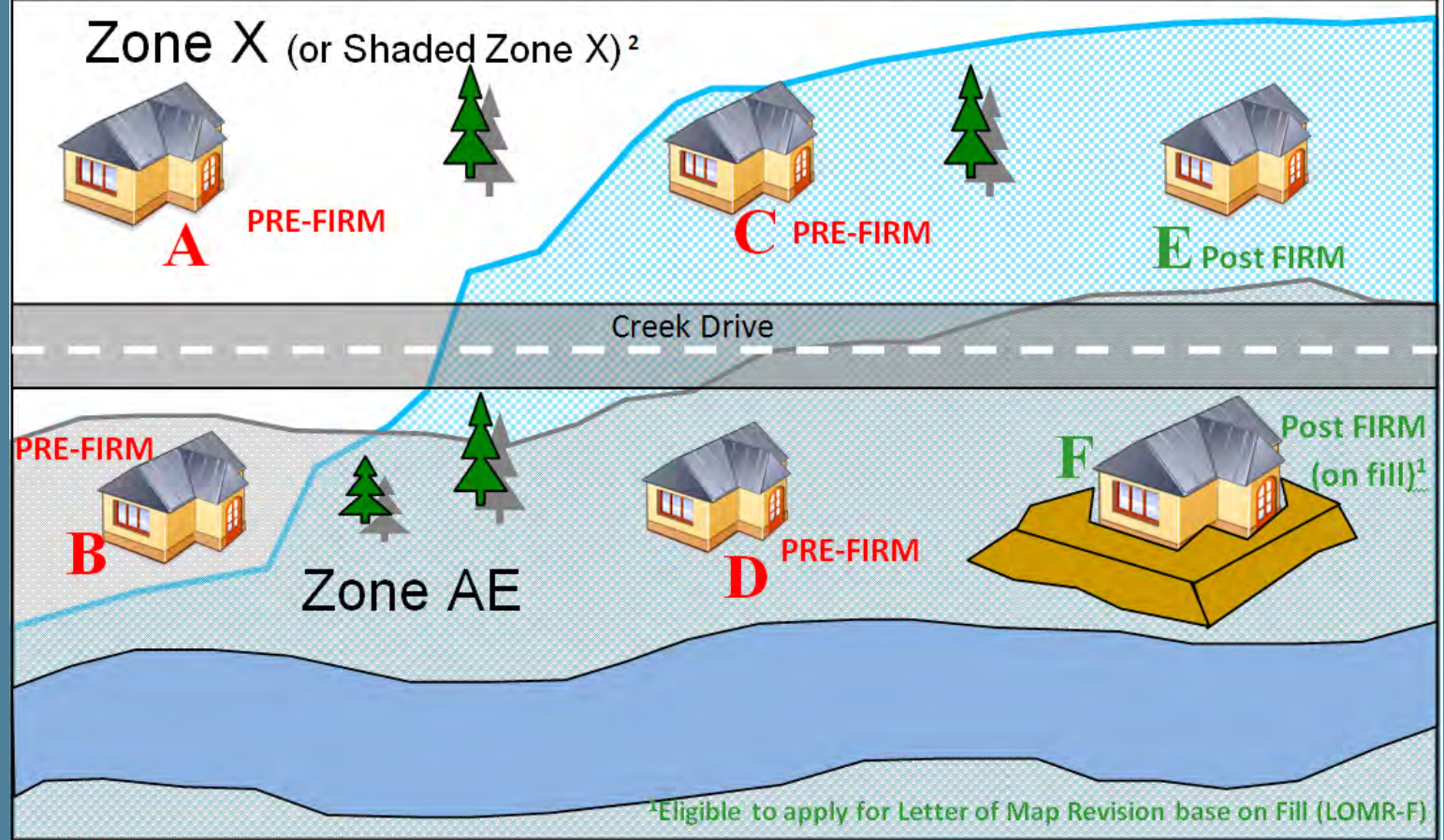
Zone A 
(1% Annual Chance Flood Zone)

FIGURE 3: AFTER 2ND FIRM (2010) The 1981 FIRM is replaced by a new FIRM in 2010. On the new FIRM the high risk flood hazard area (1% annual chance floodplain, or the "100-year" floodplain) is mapped with a blue dot pattern (Zone AE).



New FEMA Flood Insurance Rate Map (FIRM) in 2010



Zone AE
(1% Annual Chance Flood Zone)



Preferred Risk Policy Eligibility Extension

A New Low-Cost Flood Insurance Option for You

The Federal Emergency Management Agency (FEMA) introduces a new flood insurance rating option for the National Flood Insurance Program (NFIP) to help reduce the financial burden placed on property owners whose buildings are newly mapped into a high-risk flood area.

FLOOD MAPS CHANGE – FLOOD RISKS CHANGE

Upon a request from the President, Congress appropriated funds in 2003 and directed FEMA to update the nation's flood hazard maps. This effort (known as Flood Map Modernization) used the latest data and technology to identify communities' current flood risks nationwide. As a result, many property owners have found that their risk of flooding has changed. If a building in a moderate-to-low risk flood zone was newly mapped into a high-risk Special Flood Hazard Area (SFHA), most lenders would require flood insurance. While most property owners would be able to buy a lower-cost Preferred Risk Policy (PRP) before the new flood maps became effective, the policy would have to then be converted to a more expensive standard-rated policy at subsequent renewals. Recognizing the financial burden this places on affected property owners, FEMA is extending the eligibility of writing the lower-cost PRP for two years after a revised flood map's effective date.

ELIGIBILITY FOR THE PRP TWO-YEAR EXTENSION

For policies effective on or after January 1, 2011, FEMA is applying the two-year PRP eligibility extension for buildings affected by map changes since October 1, 2008.

Affected Buildings

Buildings that have been newly mapped into high-risk flood zones (i.e., zones beginning with 'A' or 'V') due to a map revision on or after October 1, 2008, and before January 1, 2011, are eligible for a PRP for *two policy years* effective between January 1, 2011 and December 31, 2012. So, policies issued as standard-rated policies or converted to standard-rated policies following a map change on or after October 1, 2008, could be converted to the lower-cost PRP for two years beginning on the first renewal effective on or after January 1, 2011. Buildings meeting these same conditions that were not previously insured may be issued a new PRP on or after January 1, 2011, during this same eligibility period.

Buildings that are newly mapped into a high-risk flood zone due to a map revision on or after January 1, 2011, are eligible for a lower-cost PRP for *two policy years* from the map revision date.

Buildings meeting the above requirements must also meet the NFIP's PRP loss history requirements. At the end of the extended eligibility period, policies on these buildings must be written as standard-rated policies.

STAY PROTECTED AND SAVE

The PRP extension provides significant savings to property owners. A property owner who has a home without a basement will pay \$343 for \$200,000 in building and \$80,000 in contents coverage for a PRP versus more than \$1,400 for a standard-rated policy in an X zone, and even more if rated in a high-risk flood zone (i.e., A zone)...**a savings of more than \$1,000+ a year.**

This extension also provides you with additional time to save and prepare for paying for the increase in premium in two years, as well as more time for your community to upgrade or improve any flood control structures to meet FEMA standards and reduce the flood risk. Sound floodplain management will help reduce the financial impact on you in the long term while making your community safer to live and work in.

For more information about this option, contact your local insurance agent or floodplain administrator. Additional information can also be found at www.FloodSmart.gov/PRPExtension.

Could get PRP
rate for 2+ years
Being phased to
higher rates as
of October 1,
2013

Grandfathering - BW-12 Impacts TBD

- Pre-FIRM Buildings – One Chance to lock in the zone
 - Purchase flood insurance before the maps become effective
- Post-FIRM Buildings – Two Chances to lock in zone or BFE
 - Purchase flood insurance before the maps become effective
 - Obtain proof that the building was built in compliance at the time it was constructed

Remember: Sometimes the rate is better when using the new maps; both options should be checked!

Why the Changes to the NFIP?

- 1968 - Congress created the National Flood Insurance Program to make flood insurance more affordable and decrease Federal Disaster Assistance expenditures.
 - Voluntary Community Participation
 - Subsidized Rates
- 45 years later
 - Subsidized rates are unsustainable.
 - NFIP ~\$17 B in debt after Katrina; ~\$25 B after Sandy



Philosophy Behind Biggert-Waters

- Passed in summer of 2012
- Extends NFIP 5 years
- Majority of reforms focused on financial solvency of the program
 - Those living at risk should pay more
 - Truly pricing risk may equal better mitigation decisions
- Major recognition of need for mapping through establishment of the National Flood Mapping Program
- Grant program changes

What's Changing? Section 205

2013 - Subsidized rates start being phased out

- Non-primary residences
- Business properties
- Severe repetitive loss properties (1-4 residences), and properties where claims payments exceed fair market value

Pre-FIRM:

Built before the community's first Flood Insurance Rate Map became effective and not been substantially damaged or improved

Subsidized Rates:

Pre-FIRM properties that are in Zone D or in Zones A and V that are not rated with an elevation certificate.

*Except Zone A99 & AR
26

Changes for Non-Primary Residences

Changes effective January 1, 2013, at policy renewal

Subsidized premium rates for pre-FIRM properties in high-risk (A* or V) zones and Zone D are being phased out

Rates will increase 25% per year until they reflect the full-risk rate.

**Except Zones A99 & AR*

*Non-primary residence:
A building that will be lived
in for less than 80 percent of
the policy year*



Direct Move to Full-Risk Rates

More changes to start October 1, 2013 for pre-FIRM properties in Zones A*, V, or D

After the sale/purchase of a property after 7/6/2012
Subsidized rates can no longer be assigned to the new owner

When a new policy is issued after 7/6/2012
Full-risk rates will be charged

After a policy lapse after 10/4/2012
Full-risk rates will be charged

Policyholders should know that allowing a policy to lapse could be costly.

Renewal letter cycle starts now

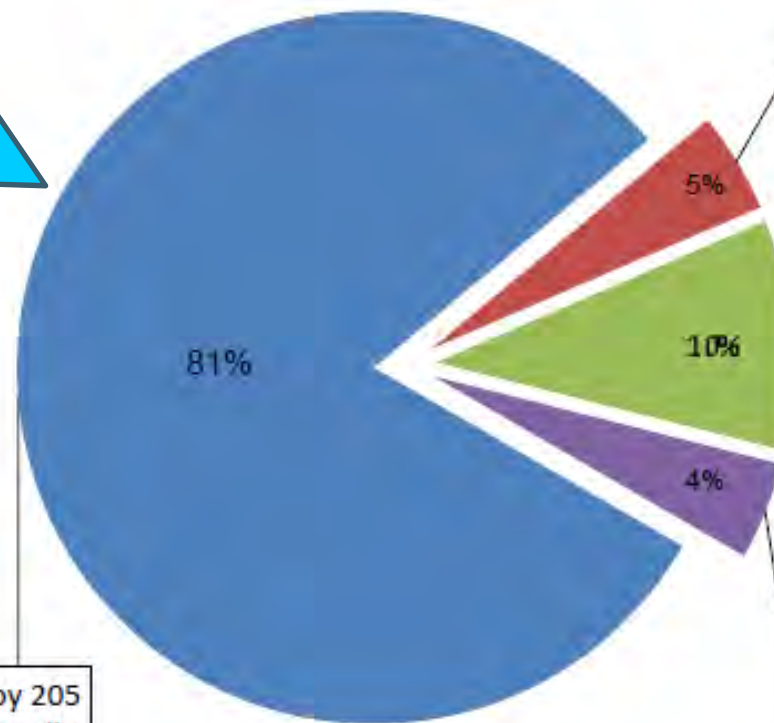


Who Will Be Affected by Subsidy Changes?

NFIP Policyholders under Section 205

(data as of 12/31/2012)

FEMA basic information on BW-12 emphasizes this breakdown of the impacts



Not affected by 205 (already actuarially rated), 4,480,669 policies

These pre-FIRM non-primary residences, business properties, and Severe Repetitive Loss (SRL) properties (252,851 policies) will see 25 percent increases until the true risk premium is reached.

These pre-FIRM primary residences (578,312 policies) will retain their subsidies until sold to new owner, policy lapse, etc.

These properties, which include pre-FIRM condos and multifamily properties (244,085 policies), will not see immediate increases.

Who's Affected by Section 205?

About 19% of the NFIP policyholders; BUT...

Look at your state/county/community; e.g.,

29% of MN policies are affected by Section 100205
(3,468 of 11,953 policies), BUT...

That's **68%** of the 5,134 A Zone policies in MN

Only about 10-30% of A Zone structures have policies
(partly due to MANY Letters of Map Amendments, etc.)

What happens when that other 70-90% sells?

Also...average rate for primary pre-FIRM residence is
going up 16-17% on October 1, 2013

BW-12 Resources

For Up-To-Date Information:

1. ASFPM website www.floods.org
2. ASFPM Linked-In Page where a subgroup has been established
3. FEMA site – www.fema.gov
Search “BW-12”

The screenshot shows the ASFPM website homepage. At the top, there is a navigation bar with links for Home, Member Login, Contact Us, and Links, along with a Keyword Search box. The main header features a large image of a river and trees, with the ASFPM logo and the text "Association of State Floodplain Managers". A dropdown menu is open on the left side, listing various website sections. Below the menu are sections for "Upcoming Events" and "Hot Topics". The main content area includes "About ASFPM", "ASFPM Mission", "Current Events", and a row of five logos for various programs and certifications.

Join and Become a Member of ASFPM Home | Member Login | Contact Us | Links Keyword Search

Association of State Floodplain Managers

- ▶ About ASFPM
- ▶ ASFPM Membership Information
- ▶ Certification Program (CFM®)
- ▶ Conferences & Events
- ▶ Training and Education
- ▶ Committees
- ▶ Chapter and State Contacts
- ▶ State/Local Resources and Tools
- ▶ Flood Maps & Data
- ▶ National Policy and Programs
- ▶ Publications and Policy Papers
- ▶ Press Room
- ▶ Job/RFP Postings

Upcoming Events
Monday, Sep. 9, 2013
[E273 Managing Floodplain.. Green Infrastructure \(WV\)](#)
[Intro to Streamgauging \(CO\)](#)
[Green Infrastructure \(WV\)](#)

Hot Topics
[A Strategy to Reduce the Risks and Impacts of Dams on Floodplains](#)
Wednesday, September 04, 2013
ASFPM publishes new resource for Dam Risk Reduction

About ASFPM
The Association management, flood warning and res policy in the Uni government, th forecasting, em

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Current Events
[Information Page for Hurricane Sandy](#)
[Flood Insurance Affordability Paper](#)
[Information Page for Biggert-Waters 2012 NFIP Reform Act Implementation](#)

BW-12 Links: General Info & Affordability Paper

NATIONAL FLOOD BARRIER TESTING & CERTIFICATION PROGRAM

NATIONAL CONFERENCE Making Room for Floods & FIP

NAI No Adverse Impact

ASFPM FOUNDATION

CERTIFIED CFM FLOODPLAIN MANAGER

Information on BW-12

2012 - 2013 NFIP Reform Act and Reform Act Implementation



[H2O Partners video on NFIP changes in BW12 \(05/2013\)](#)



[FEMA WYO Bulletin: Clarifications and Revisions to the October 1, 2013, Program Changes Cover Memo and Q&A \(05/2013\)](#)



[FEMA Spreadsheet on Flood Policies Possibly Affected by BW-12 Section 205 by State / County / Community \(05/2013\)](#)



[StormSmart: What the Biggest Changes to Flood Insurance Reforms Mean for Homeowners \(01/2013\)](#)



[FEMA Website on Biggert-Waters \(03/2013\)](#)



[FEMA Impact of Changes to the NFIP Fact Sheet \(03/2013\)](#)



[EMForum.org presentation on BW12 \(04/2013\)](#)



[2012 NFIP Reform Act NFIP Reform Section are found on page 10](#)



[ASFPM Summary of NFIP Bill \(08/2012\)](#)

PRP Extension Guidance:



[FEMA Advisory Bulletin \(08/2012\)](#)



[FEMA WYO Bulletin \(08/2012\)](#)



[Attachment \(08/2012\)](#)

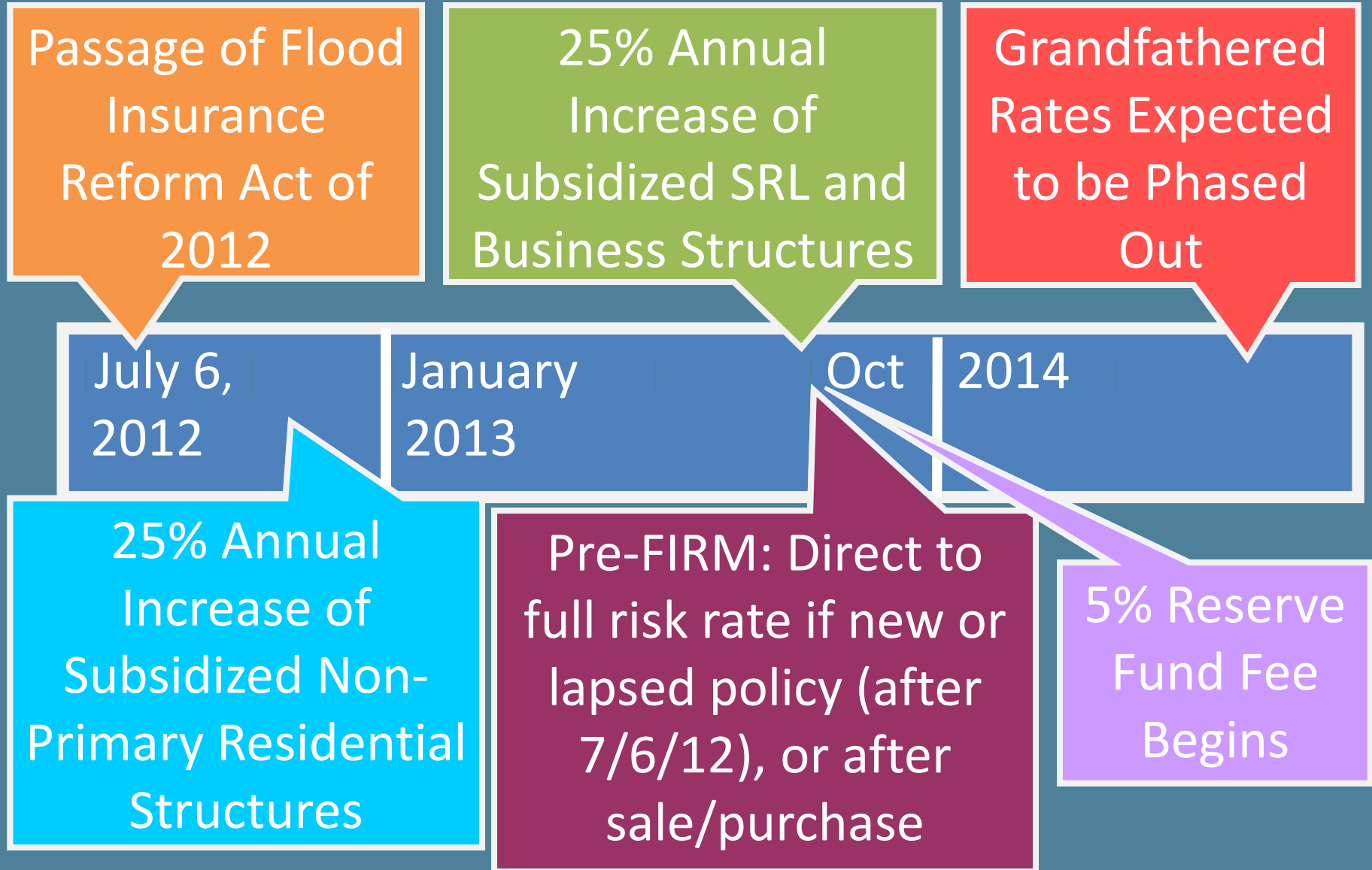
Policy Waiting Period Exception Bulletins:

Spreadsheet with
number of policies
(down to
community level)
affected by
Section 205 of
BW-12

Remaining Questions About Impacts for Map Changes (BW-12 Section 207)

- Reform act indicates newly mapped will have grandfathered rates phased to full risk rates. Not sure when/how changes resulting from 2012 Reform Act related to map changes will happen.
- Current newly mapped – were able to get Preferred Risk Policy (PRP) for 2 years (& that was extended while phasing in BW-12). Newly mapped PRPs policies are being phased to higher rates.
- Currently can grandfather the current zone (standard X Zone rates) or elevation difference

Timeline for Rate Changes



Sample Flood Insurance Premiums

January 2013 rates

| Pre or Post FIRM ¹ | Dwelling Type & # of Floors | Amount of Coverage Build/Content (in thousands) | Deductible Build/Content | Flood Zone | Elevation Difference of Lowest Floor and BFE (Feet) | Cost of Flood Insurance* (per year) |
|-------------------------------|--|---|--------------------------|-------------------------|---|--|
| Pre | Single Family/ One Floor No Basement | \$200/\$80 | \$2,000/\$2,000 | A1-30, AE, AO, AH, A | Not Needed (Pre-FIRM) | Primary (>80%) \$2,643 Non-Primary \$2,956 |
| Pre- or Post | Single Family/ One Floor No Basement | \$200/\$80 | \$1,000/\$1,000 | B, C or X | Not Needed | \$1,584 Standard Flood Ins. Policy |
| Pre- or Post | Single Family/ One Floor No Basement | \$200/\$80 | \$1,000/\$1,000 | B, C or X | Not Needed | \$388 Preferred Risk Policy (<i>Eligibility Requirements</i> ***) |
| Post | Single Family/ One Floor No Basement | \$200/\$80 | \$1,000/\$1,000 | A1-30, AE | +4 | \$462 |
| | | | | | +3 | \$498 |
| | | | | | +2 | \$570 |
| | | | | | +1 | \$810 |
| | | | | | At BFE | \$1,636 |
| | | | | | -1 Below | \$5,042 |
| | | | | | -2 or more | Submit for Rate |

BW-12 Covers Other Important Areas

- Establishes the National Flood Mapping Program
 - First time in legislation
 - \$400 million annually in authorization
 - All maps must show 100-yr and 500-yr for:
 - All populated areas
 - Areas of potential population growth
 - Residual risk (within 100-year FP) behind levees
 - Residual risk (within 100-yr FP) below dams
 - Flood data developed on watershed basis (already doing)

BW-12 Flood Mapping

- Establishes the Technical Mapping Advisory Council to make recommendations to FEMA
 - Advises FEMA on mapping guidelines
 - Improve accuracy, ease-of-use, distribution
 - How to use best available climate science
 - FEMA is currently setting up the TMAC
- Requires notification of property owners who are included or excluded from areas where mandatory purchase is required



BW-12 Flood Mapping

- Limits appeals to be based on the sole ground that the proposed data is scientifically or technically incorrect
- Establishes a Scientific Review Panel to hear certain appeals on flood mapping issues
- Levees
 - Establishes the Flood Protection Structure Accreditation Task Force
 - Makes changes related to flood insurance rates in areas protected by flood control structures where levee is deficient but adequate progress on repairs are being made



“Flood Mapping for the Nation” Report

- March 2013 ASFPM Report
- Cost Model developed to:
 - Complete mapping inventory for entire country
\$4.5 - \$7.5 billion
 - Steady state maintenance cost (of the mapping data)
\$116 - \$275 million
- Recommended all flood hazard areas in country be mapped
- Recommended nationwide LiDAR
- Fits well with the Congressional authorization



BW-12 and Insurance Affordability

- Likely future impacts of BW-12

Insurance affordability, especially for those that cannot afford it #1 issue!

- Provision to charge actuarial rates on sale of home particularly impactful
- BW-12 barely dealt with issue
- Lots of good ideas out there on how to do this

- Probably be some sort of “mini” reform of the NFIP in the next few years as actuarial rates kick in

- Lots of bills proposing delays or removal of changes; delays most likely

ASFPM's Approach to Flood Insurance Affordability

2 Good Resources:

- (1) ASFPM “Flood Insurance Affordability” recommendations. Link to paper on ASFPM home page (noted earlier). It’s only 4 pages!
- (2) August 2013 Wharton paper on affordability (20 pages)

Lots of tables and graphs to illustrate concepts

Also 4 page summary



ASFPM's Approach to Flood Insurance Affordability

- Mitigation is cornerstone of approach
- Some items can be implemented now, some items need new/altered rules, regulations, programs
 - Means tested vouchers – tied to mitigation loan?
 - New approaches such as community-based insurance and long-term policies that stay with a structure and can assist in financing mitigation
 - Tax benefits for mitigation (versus current tax benefits for uninsured flood losses)
 - Refine flood insurance rating to better reflect both risk and effective partial mitigation

BW-12 FMA Grant Changes

- More categories where benefit – cost doesn't have to be calculated – should speed up process
- Using different Severe Repetitive Loss and Repetitive Loss definitions than for the National Flood Insurance Program (NFIP)
 - Severe Repetitive losses can be residential AND non-residential
 - Repetitive Losses for Flood Mitigation Assistance (FMA) grants include if 2 or more losses that averaged 25% damage (vs 2 or more >\$1,000), and had Increased Cost of Compliance (ICC) coverage (started after 1994 reform act)

Make Your Community Resilient

1. Enforce your floodplain ordinance
 - Doesn't help long term to have substantial improvement or damage just below 50%
 - Substantial improvement is 30% for flood insurance (BW-12)
2. Adopt higher standards in your ordinance
3. Consider the Community Rating System program:
 - MN minimum standards should start you at class 8 (10% discount). Some MN cities at class 5 (25% discount in A zones)
 - New studies show that CRS has far more value than just insurance discount
4. Advise citizens & developers of possibility of future higher water elevations. Educate it's not "in" or "out"
5. Consider community-wide mitigation steps through Hazard Mitigation Plan

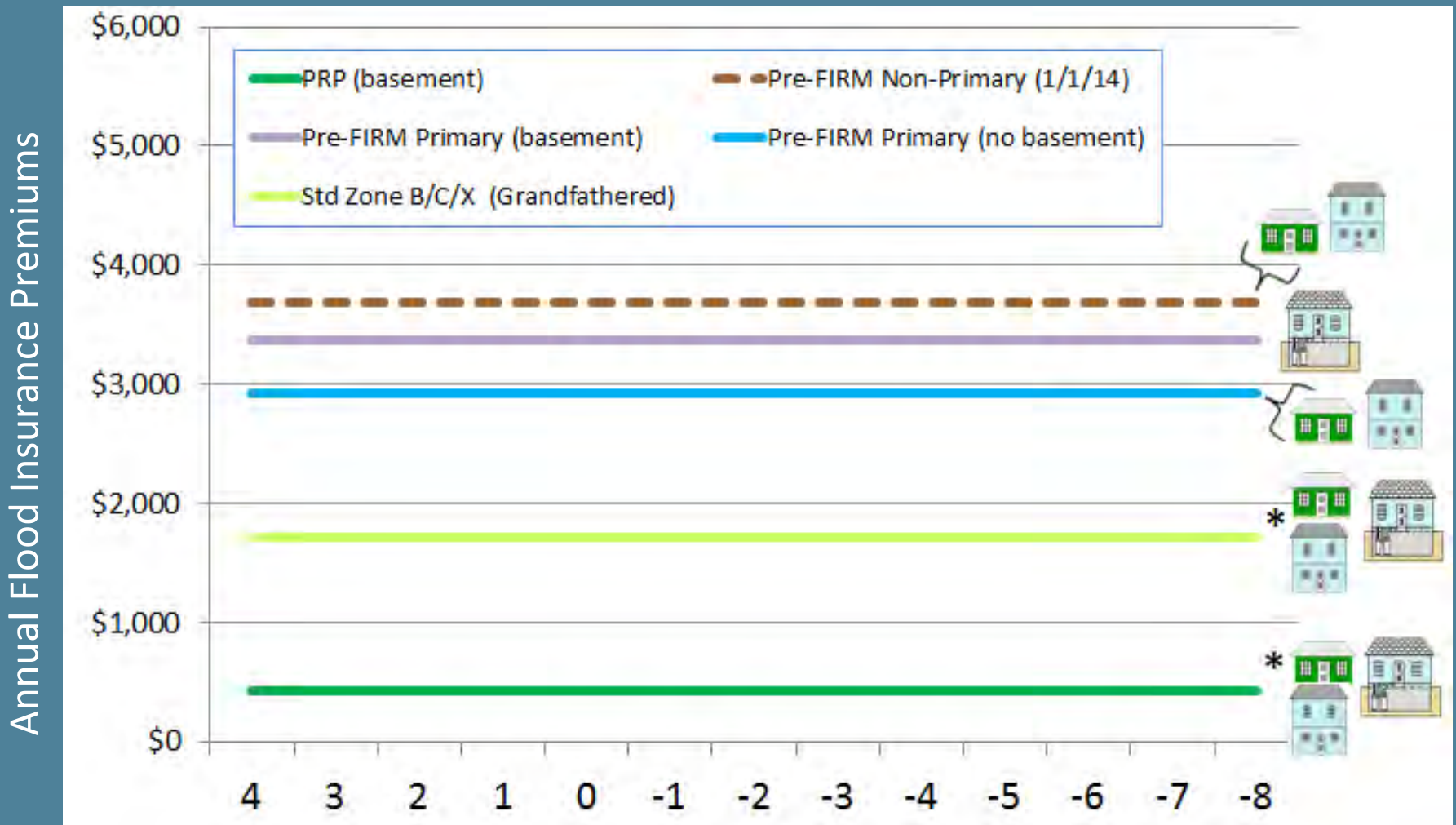
New Message to Homeowners

Mitigate (Remember to get a permit)

- Building or rebuilding higher will lower your risk and could reduce your premium
- As option to elevating, consider:
 - Adding vents to your foundation (might involve partial filling)
 - Elevating utilities, especially if replacing anyway
 - Other flood damage reduction activities



How Are Changes Phasing In? Non-Primary Phasing Started 1/1/13

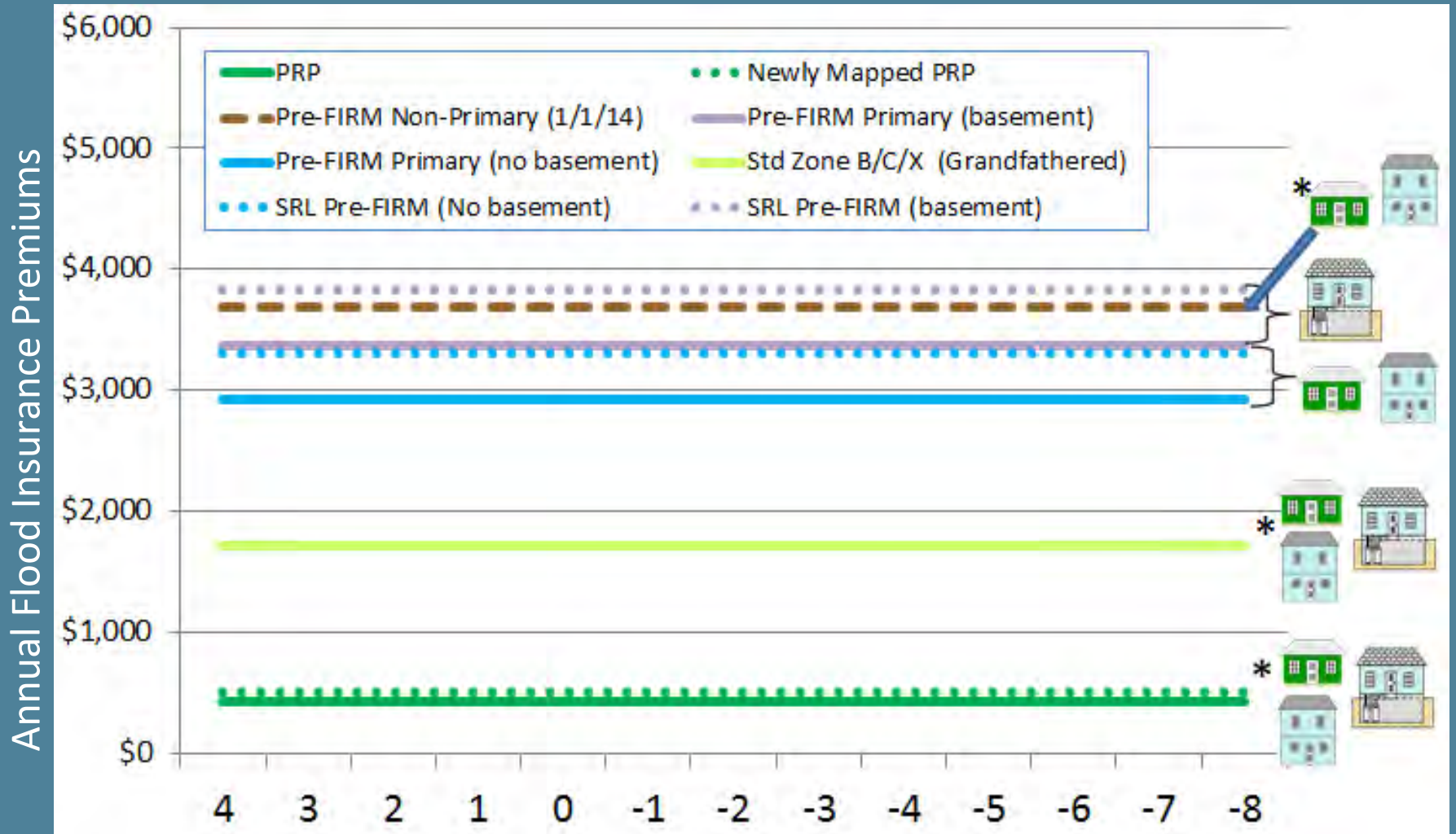


Rates for 200K Building/80K Contents coverage on 10/1/2013 (except as noted).

*Pre-FIRM Basement Rates are a bit higher

How Are Changes Phasing In?

Severe Repetitive Losses & Newly Mapped PRPs Phasing in 10/1/13

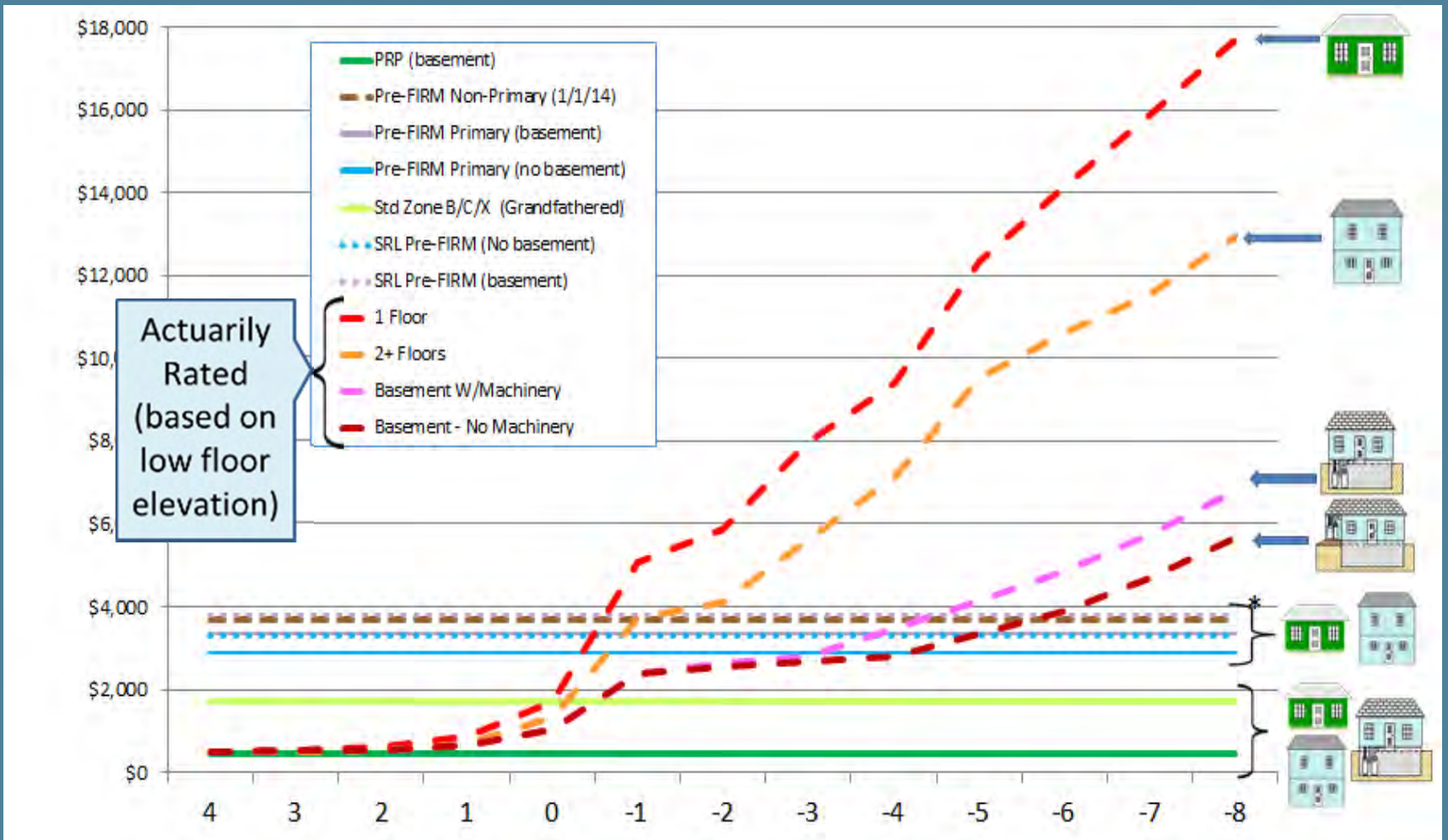


Rates for 200K Building/80K Contents coverage on 10/1/2013 (except as noted).

*Pre-FIRM Basement Rates are a bit higher

How Does Elevation Affect Premiums? Phased in & Immediate Changes

Annual Flood Insurance Premiums



Rates for 200K Building/80K Contents coverage on 10/1/2013 (except as noted).

*Pre-FIRM Basement Rates are a bit higher

Need to Build Higher!

Under the Flood Insurance Reform Act of 2012, You Could Save More than \$90,000 over 10 Years if You Build 3 Feet above Base Flood Elevation*

PREMIUM AT 4 FEET BELOW
BASE FLOOD ELEVATION

\$9,500/year
\$95,000/10 years



PREMIUM AT
BASE FLOOD ELEVATION

\$1,410/year
\$14,100/10 years



PREMIUM AT 3 FEET ABOVE
BASE FLOOD ELEVATION

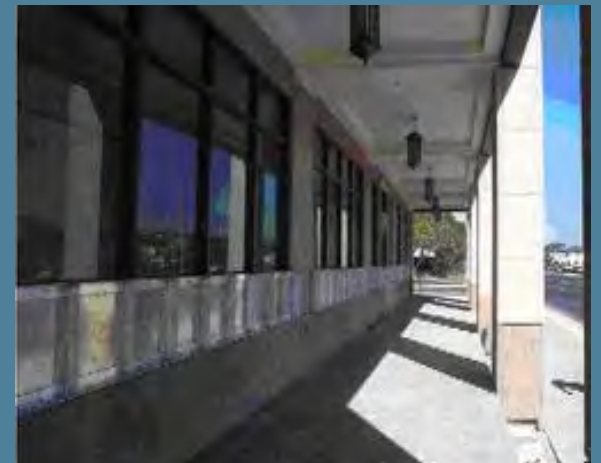
\$427/year
\$4,270/10 years



Retrofitting Structures

Encourage retrofitting compliant-when-built structures to protect against current risk and maximize insurance savings

- Install vents and ensure proper venting in lower enclosures
- Elevate equipment
- Backfill basements and lower enclosures
- Elevate structure above BFE
- (anticipate future higher BFEs)
- Relocate structure out of SFHA
- Flood proof non-residential



Remind people to get a permit!

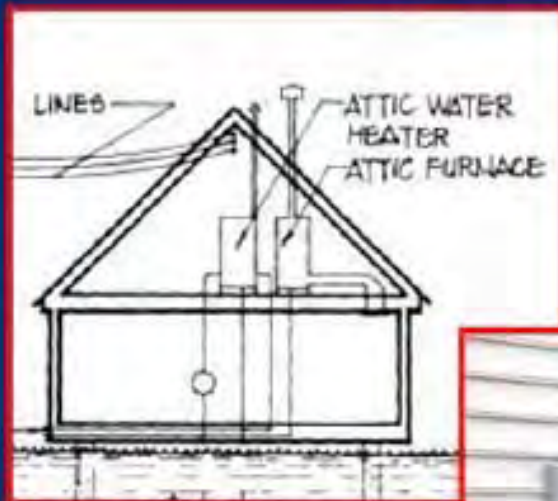
Saving Money on Flood Insurance

- Community Resiliency
- Retrofit
- Consult with insurance agent –
Get an E.C.



The smartest way to save is to build higher.

Elevate Or Relocate Mechanicals



See full presentation -
http://www.fema.gov/pdf/hazard/flood/2010/1935/Basement_Flood_Mitigation.pdf



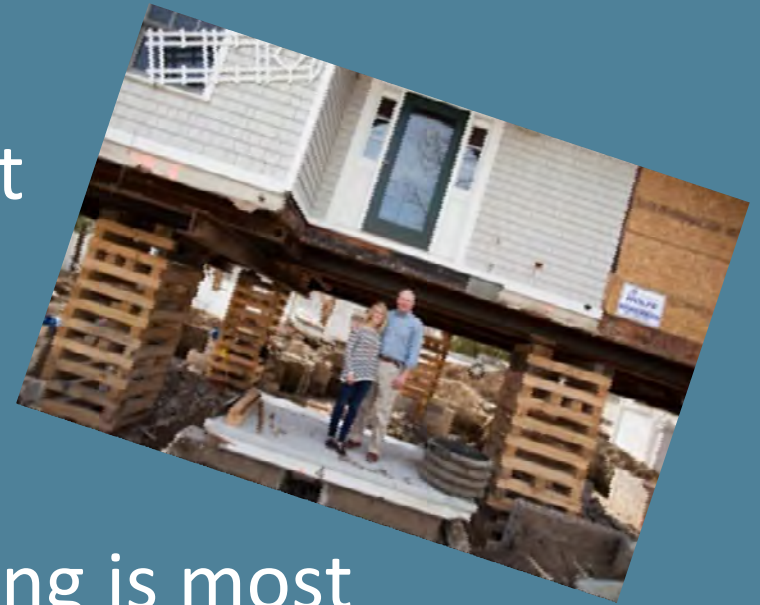
FEMA

IEMA
Illinois Emergency Management Agency

New Message to Homeowners

Talk to your insurance agent about
options on policy

- Get an **Elevation Certificate** to determine your correct rate!
- Higher deductibles might lower your premium (but consider your situation – not good idea if basement flooding is most likely scenario)



How to Answer Flood Insurance Questions

- Direct questions to insurance agents or www.floodsmart.gov.
- Do not speculate on flood insurance rates
 - Every property is different. What may apply to one, may not apply to another.
 - Don't perpetuate fear or feed into rumors.
- As the floodplain administrator, you do need to understand how floodplain management decisions can impact insurance rates



Opportunities After Disaster

Friday, July 9, 1993

MR. AND MRS. ARNOLD FLOOZLE
OF DAVENPORT, IOWA
TAKE ADVANTAGE OF CONDITIONS
TO PAINT SOME OF THOSE
HARD-TO-REACH AREAS...



JANZIGER
The Christian Science Monitor

Compliance

by flood and
Increased



- Substantial damage (floodplain)
- Bring structure
- Consider Rep

East Grand Forks



After

50 m

The Bottom Line

- Building or rebuilding higher can lower flood risk and could save money
- Communities can lower flood risk and flood insurance premiums through:
 - Reinforcing higher standards
 - Building and rebuilding to mitigate future flood damage
 - Enrolling in CRS
 - Using federal/state grants with local help with mitigation



Impacts of BW-12 for Local Officials

- Residents who were able to get pre-FIRM rates with no elevation certificate (EC) or Base Flood Elevation (BFE) will need them now
- Local Official will:
 - Be bearer of bad news that they need EC (can community help with surveys or organizing group surveys for discounted prices?)
 - Need to help provide BFE
 - Want to guide to Letter of Map Amendment, if possibly eligible

Bank of America

Home Loans

P.O. BOX 961291
FORT WORTH, TX 76161-0291

New map dated 11/16/11

0003204-0012037 CDMF 081 901228

Date: NOVEMBER 28, 2011

Re: Bank of America Loan #:
Property Address:

Loan Principal Balance: \$156,590.00

Flood Insurance Coverage Amount under the Policy, if obtained: \$190,000.00

(This insurance may provide less coverage than was in effect previously).

Dear [REDACTED]:

Under the guidelines of the National Flood Insurance Reform Act of 1994 (Flood Act), and the requirements of the investor of your loan, we contracted with an independent provider to perform a flood zone determination of your property. This flood zone determination was performed to determine if recent changes to your community flood maps have affected your property. This flood zone determination indicates that the improved real estate securing your home loan is currently within zone AE*, an area designated by the director of the Federal Emergency Management Agency (FEMA) as a Special Flood Hazard Area (SFHA).

The Flood Insurance Rate Map (FIRM) used to complete the determination, published by FEMA, is reference number 270435-020-5, and is dated 11/16/2011. This map can be reviewed at the office of your local government official or agency. Under the authority provided by your loan documents, we require that any improved real estate within an SFHA be covered by an acceptable flood insurance policy. Our records do not currently reflect that an acceptable flood policy covering your property is in force.

In order for us to remove your flood insurance requirement from your account, please forward us a copy of your current Flood Insurance Policy (FIP) or Flood Insurance Rate Map (FIRM) which specifically removes your structure(s) from the SFHA.

If you have already purchased flood insurance on your property, please provide us with a copy of your current flood insurance policy showing that your policy is in force and complies with the enclosed insurance requirements. You may also provide us with the front page of your policy that summarizes coverage, limits, deductibles, and states the current period of your policy. Please mail it to the address shown below or fax it to us at (800) 293-8158. Upon receipt of your policy, we will update your insurance information.

If you do not provide us with evidence of appropriate flood insurance on your property within 45 days of the date of this letter, we are authorized by your loan documents to purchase flood insurance on your behalf, and it will be effective 01/13/2012. Lender-Placed Flood Insurance may be purchased by us through agencies that are affiliates of Bank of America.

Please send correspondence to:
P.O. BOX 961291, FORT WORTH, TX 76161-0291
Please write your loan number on all correspondence

ARW4U1F7

If citizen gets letter from bank, advise them to act quickly:

- Verify if structure's in Zone A(AE)
- See if eligible for LOMA or LOMA-OAS
- Get NFIP flood insurance if they can't resolve within 45 days
- Lender will/can "force place" insurance that is not NFIP:
 - (1) Much more expensive
 - (2) Can't get refund once LOMA is obtained
 - (3) 2012 NFIP Reform Act says they must reimburse once proof of NFIP policy

Find Current Effective Map



FEMA

Map Service Center

MSC Product Search

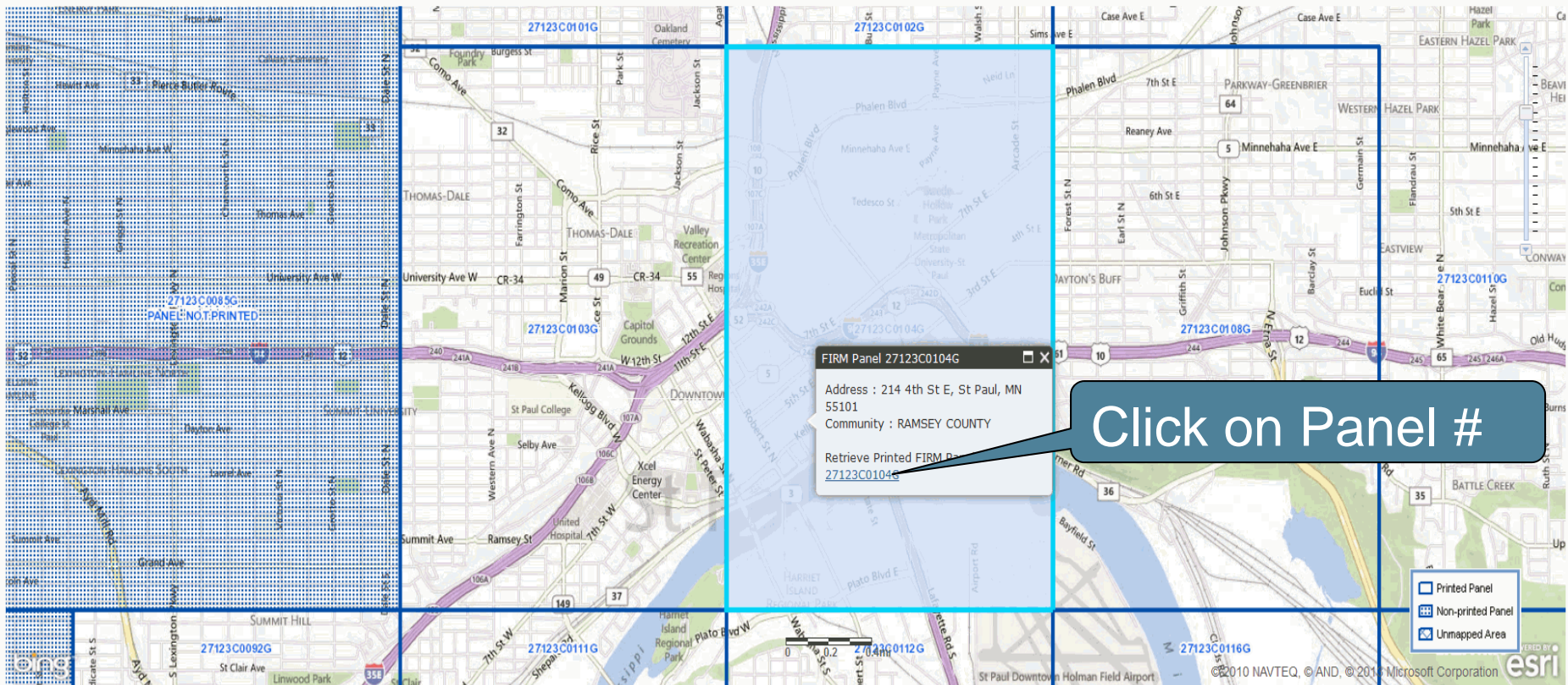
Enter an address or place:

214 E. 4th St, st paul, mn 55155

Select Use the select tool to choose a location or area of interest.

Base Map: Road Map

Product Type: Flood Maps



Click on Panel #

Make FIRMette

FEMA MSC Viewer

Scale: 4

Help

Pick New Viewport Center

Zoom Win Pan

Zoom In Zoom Out

1:1 MAX

Zoom In Zoom Out

Make a FIRMette

Info

Save your FIRMette

Back

Map Scale: 1" = 500'

Map Number: 27040026 F

Effective Date: APRIL 1, 2003

Map Title: FIRM FLOOD INSURANCE RATE MAP

City of Saint Paul, Minnesota

Wabasha County

Panel 36 of 44

Map Scale: 1" = 500'

Map Number: 27040026 F

Effective Date: APRIL 1, 2003

Map Title: FIRM FLOOD INSURANCE RATE MAP

City of Saint Paul, Minnesota

Wabasha County

Panel 36 of 44

FEMA MSC Viewer

Scale: 5

Help

Zoom Win Pan

Zoom In Zoom Out

1:1 MAX

Zoom In Zoom Out

Make a FIRMette

Info

Save your FIRMette

Back

Map Scale: 1" = 500'

Map Number: 27040026 F

Effective Date: APRIL 1, 2003

Map Title: FIRM FLOOD INSURANCE RATE MAP

City of Saint Paul, Minnesota

Wabasha County

Panel 36 of 44

FEMA MSC Viewer

Scale: 5

Help

Zoom Win Pan

Zoom In Zoom Out

1:1 MAX

Zoom In Zoom Out

Make a FIRMette

Info

Save your FIRMette

Back

Map Scale: 1" = 500'

Map Number: 27040026 F

Effective Date: APRIL 1, 2003

Map Title: FIRM FLOOD INSURANCE RATE MAP

City of Saint Paul, Minnesota

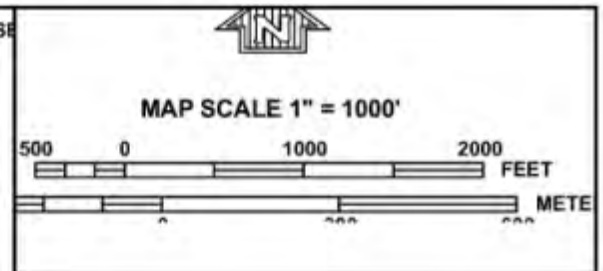
Wabasha County

Panel 36 of 44



If structure is near Zone A, use better aerial photos.

Check if structure is "in." Might be clear.



NFIP PANEL 0340E

FLOOD INSURANCE RATE MAP
NEWPORT COUNTY, CONNECTICUT
UNINCORPORATED AREAS
456

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|-------------------|--------|-------|--------|
| NEWPORT, CITY OF | 270510 | 0340 | E |
| WOODBURY, CITY OF | 270699 | 0340 | E |

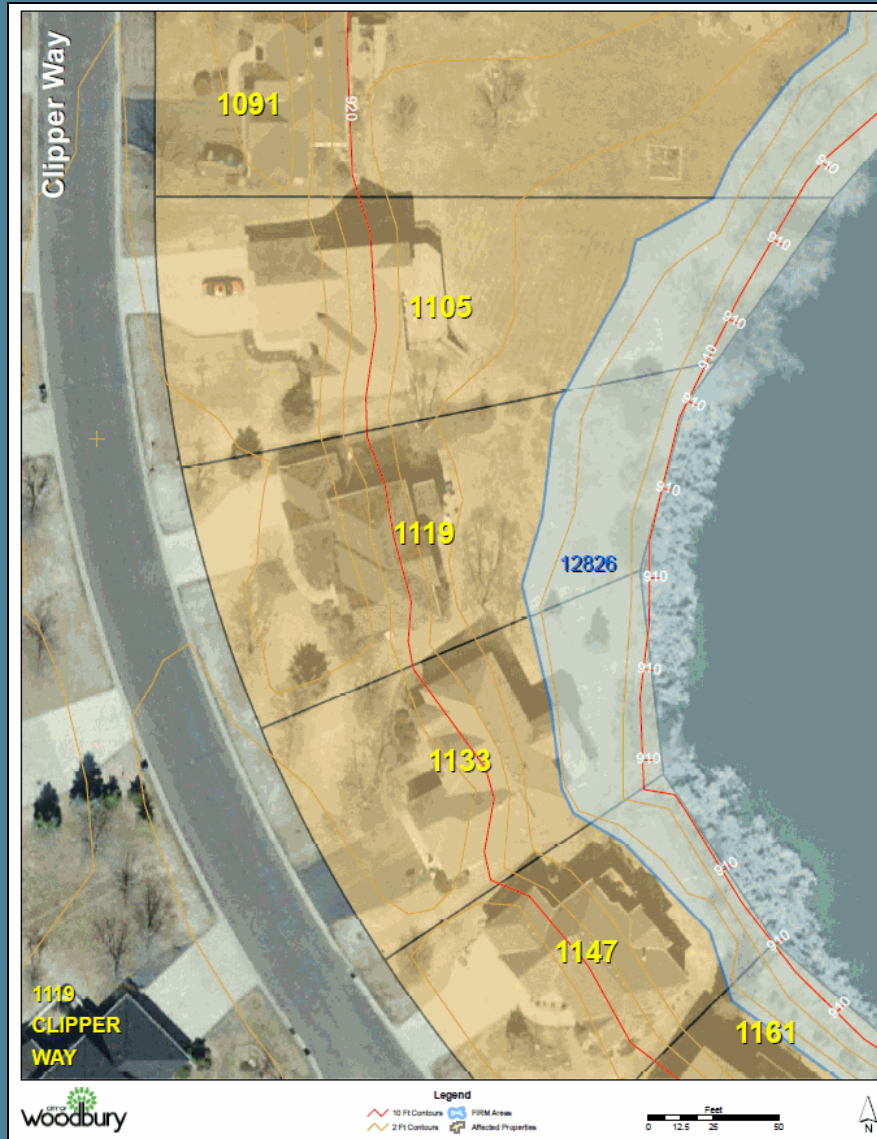
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
27163C0340E
EFFECTIVE DATE
FEBRUARY 3, 2010

Federal Emergency Management Agency

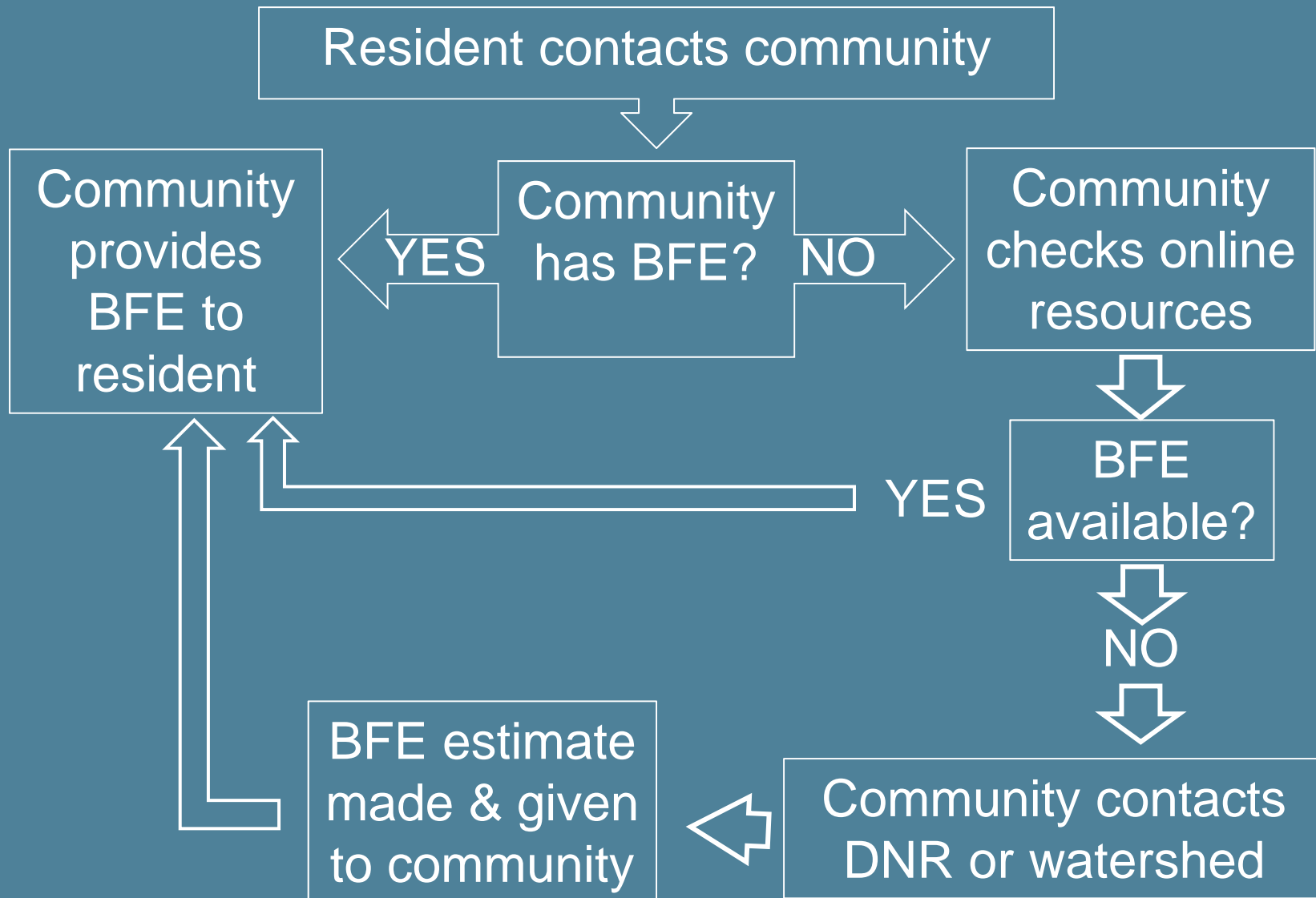
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

IF Better Aerial Photo in Overlay Shows “Out”



- Show to lender.
- Some will accept the better data.
- Some lenders will still insist on getting Letter of Map Amendment (LOMA) from FEMA
- Would be eligible for cheaper policy in meantime.

Who Determines BFE?

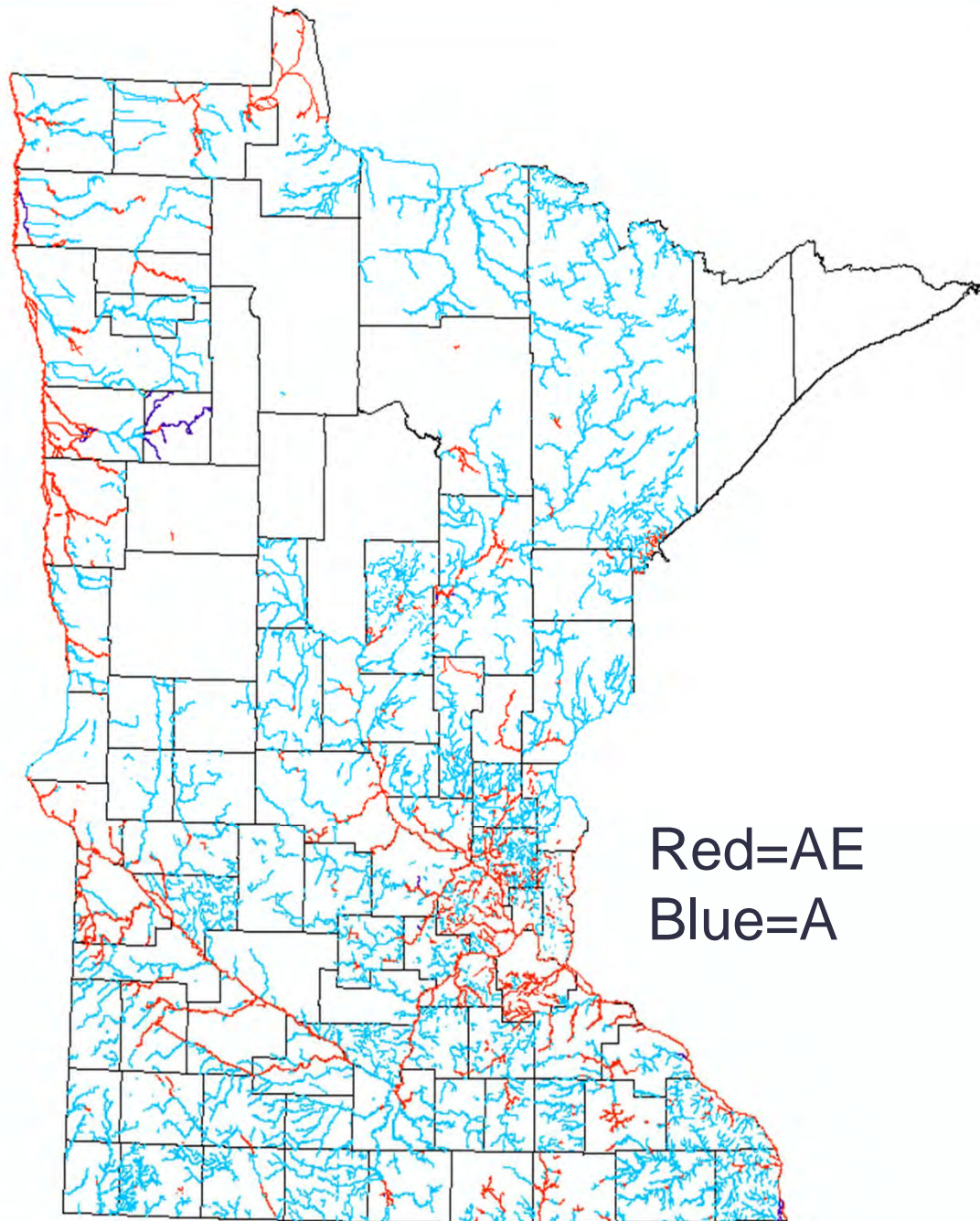


How To Find BFE

- **Current detailed study area:** Use your Flood Insurance Rate Map (FIRM) & Flood Insurance Study (FIS) - DNR can help you learn to interpret
- **Current A Zone, but have Detailed Preliminary:** Can use the preliminary FIRM & FIS as best available data
- **Current A Zone:**
 - Limited detail available?
 - Previous estimate determination? Check with watershed district & DNR; Previous LOMA?
 - Have resident apply for LOMA & request BFE to be determined

Other Sources For BFEs

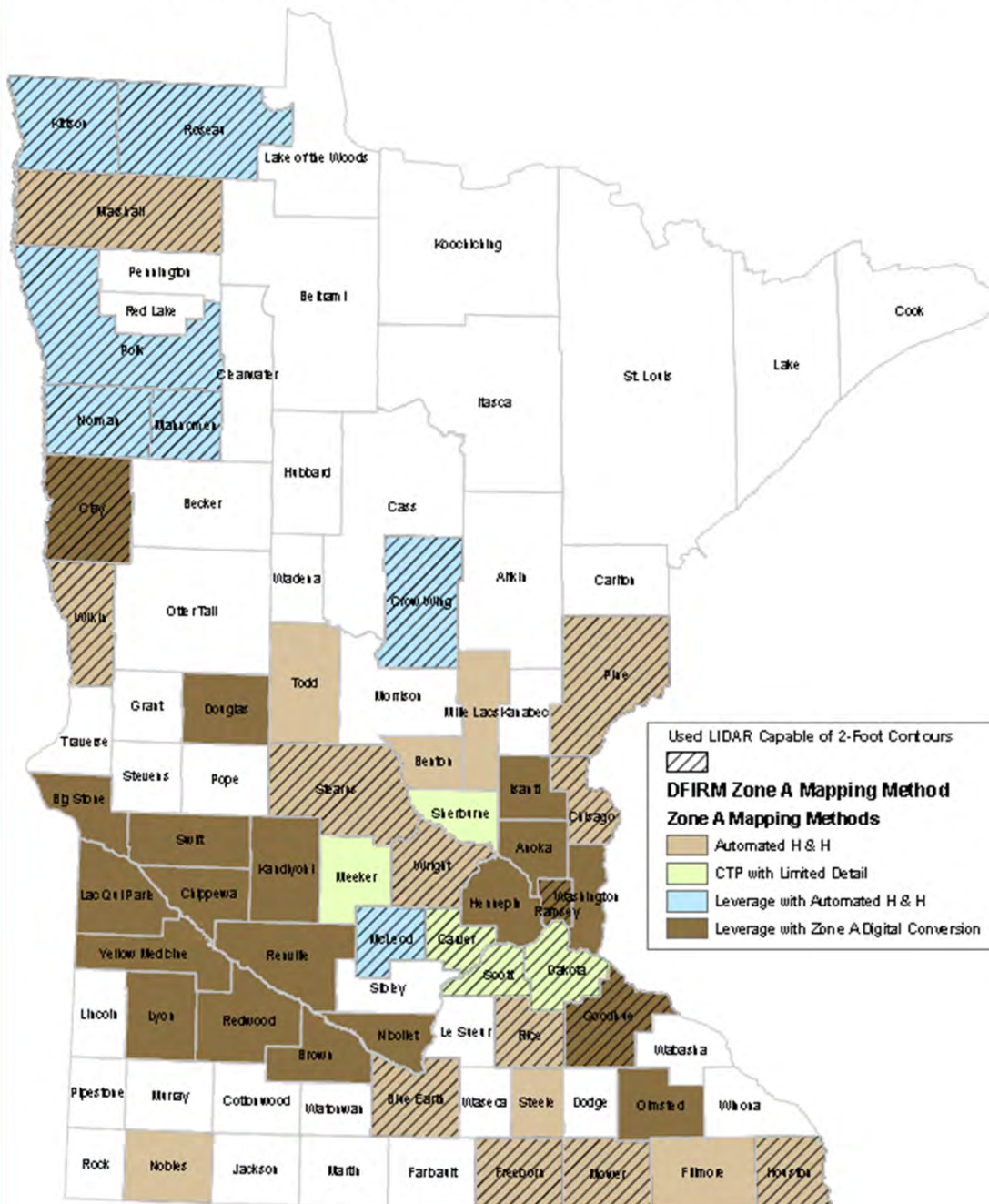
- Previous determinations by DNR, COE, watershed district, etc.
- Letters of Map Change (i.e., LOMAs) in area.
- Bridge data immediately upstream or downstream
- Contour interpolation
- For lakes – use the “shoreland method”



FEMA Mapped Floodplains Zone AE and A

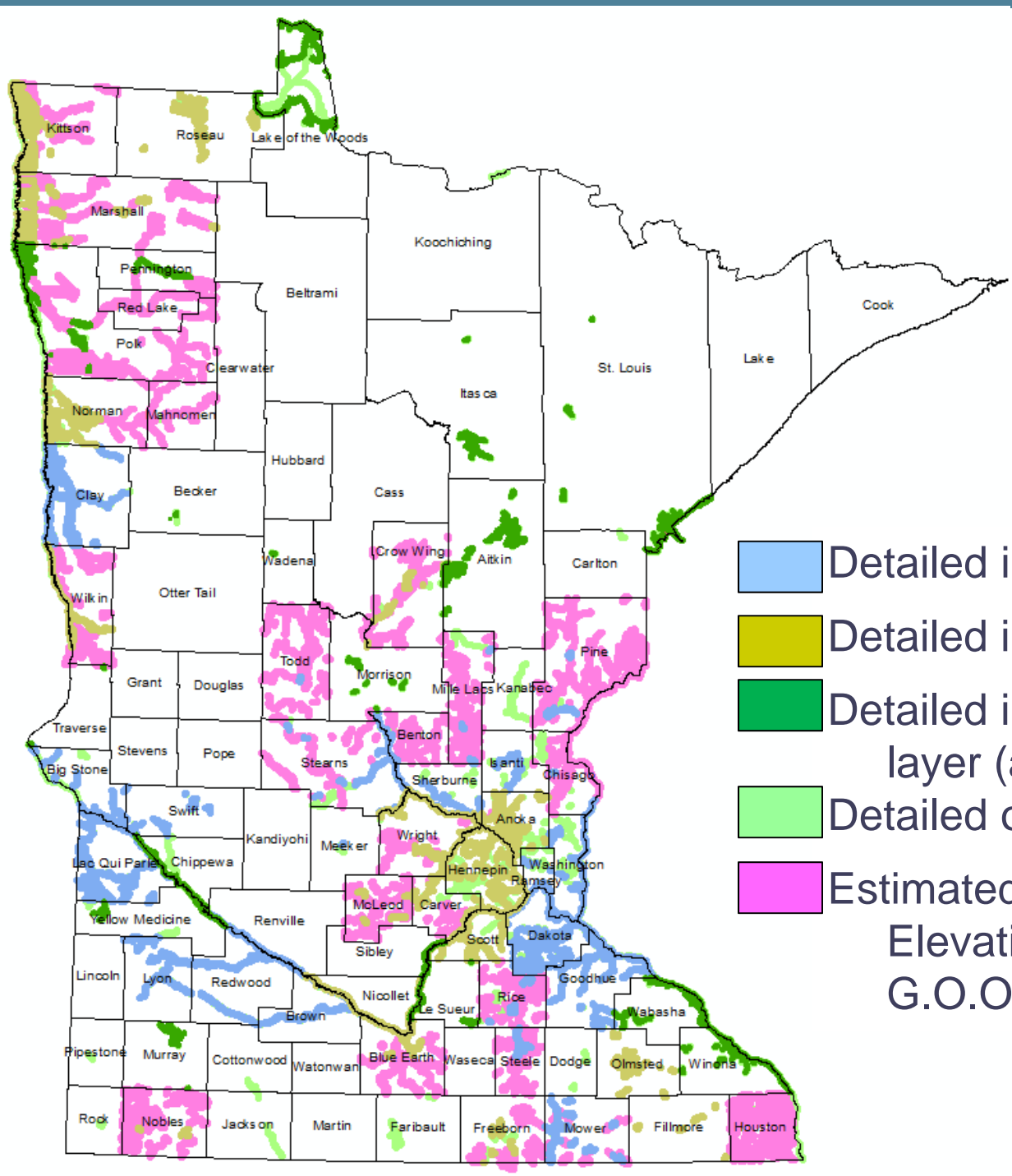
Red=AE
Blue=A

DFIRM Zone A Mapping Methods



Methods for Mapping Zone A Areas in DFIRMs

- Estimated BFEs in counties with:
 - Automated Hydrology and Hydraulic
 - Limited Detailed analyses
 - Leveraged data
- Digital Conversion doesn't provide Estimated BFEs



- Detailed in Effective DFIRM
- Detailed in Preliminary DFIRM
- Detailed in “FEMA Unmodernized” layer (aka Q3)
- Detailed on Paper Maps
- Estimated 1% Water Surface Elevation (available soon in G.O.O.D.)



Benton County: Elk River Tributary 1 Detail

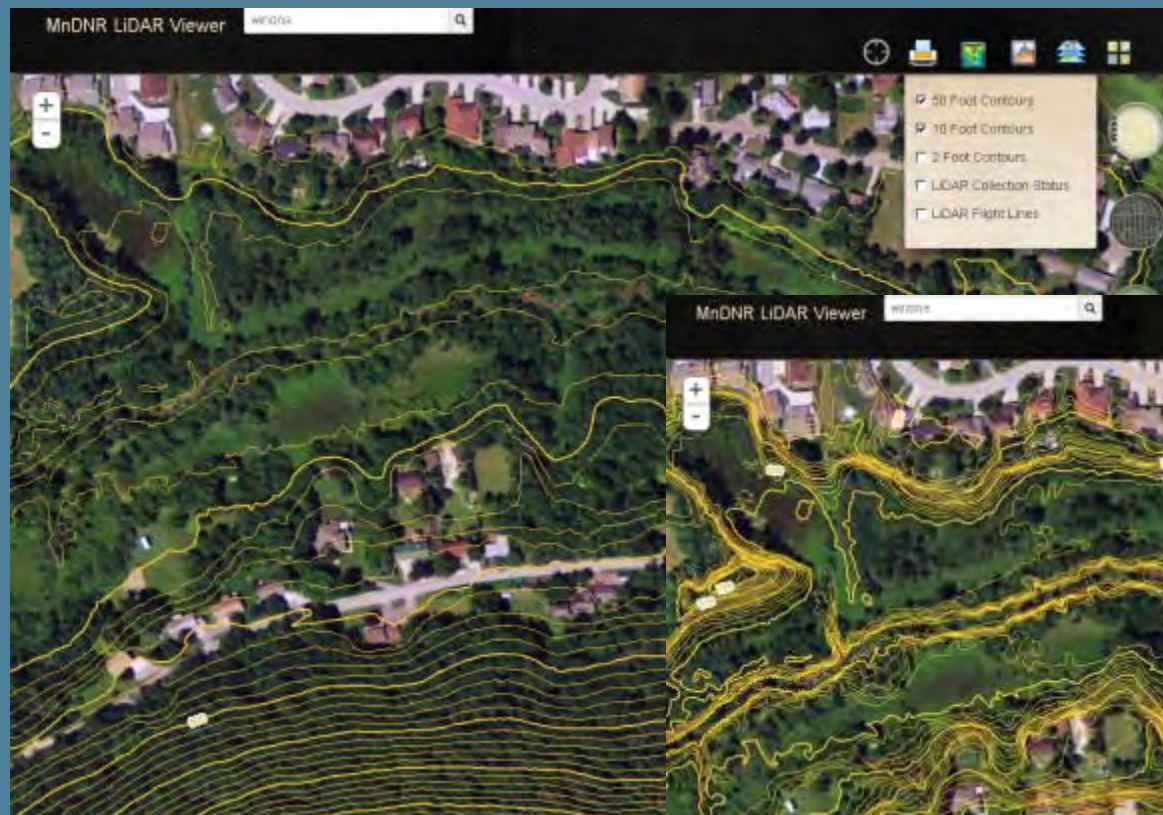


Community Certification of BFE

- Insurance Agents now asking community to “certify” Base Flood Elevations (BFEs)
- Verify the BFE estimate is the “best available data” (you are aware of)
- Insurance manual said “community” had to certify, and could not accept state or federal sources, for a couple years. That got fixed in January 2013 manual.

OTHER RESOURCES COMING

MnDNR LiDAR Viewer – MnTOPO (under development)



GOOD Project – Under Development (Getting Out Our Data)

- DNR staff working on getting floodplain layers into interactive map system
- “Modernized” floodplain data for Zone AE in Map Mod or Risk MAP counties
- “Unmodernized” floodplain data in counties that have older “Q3” layers
- Best available data from Zone A methods in previous slides.

Checking Letters of Map Change

The screenshot shows the FEMA website's GeoPlatform interface. At the top, there is a navigation bar with 'HOME', 'GALLERY', 'MAP', and 'GROUPS'. A search bar is on the right with a 'SIGN IN' button. The main header features the FEMA logo and the text 'FEMA GeoPlatform' with the tagline 'Providing geospatial data and analytics in support of emergency management'. Below this is a carousel of four featured maps: '2013 Colorado Floods Situational Awareness Viewer', 'Food Distribution & Availability', 'FEMA Oklahoma Tornadoes Situation Map', and 'FEMA's National Flood Hazard Layer'. A blue callout bubble points to the 'FEMA's National Flood Hazard Layer' map with the text 'Click on FEMA's National Flood Hazard Layer'. On the left side, there is a 'Product Search by...' section with a search bar and a 'Search' button. Below that is an 'Announcements' section with a paragraph of text and a bulleted list of updates. A blue callout bubble points to the first bullet point with the text 'Go to FEMA GeoPlatform'. At the bottom left, there is a section for 'Preliminary Flood Hazard Data'.

Product Search by...

Address: Map Panel ID

1) Select a Product
Flood Maps

2) Enter a US Address or Place:

Map-based Search

Announcements

We are pleased to announce the successful deployment of **NEW Geographic Information System (GIS) services** for the FEMA Map Service Center (MSC) and Mapping Information Platform (MIP)! These updates and enhancements bring additional capabilities and greater ease-of-use for all users of these systems. Enhancements include:

- Easier use of the Map Product Search, now incorporating a familiar Bing™ Map interface and more flexible search bar
- Replacement of the outdated MapViewer-Web (e-z Print and e-z Identify) with an updated National Flood Hazard Layer (NFHL) service for viewing in Google Earth and display in the FEMA GeoPlatform
- Improvement in the usability of the NFHL WMS service and its implementation in Google Earth
- Updating of the NFHL to the 2012 FIRM Database schema

Plus, these improvements make additional services available to the public for the first time, including access to the National Flood Hazard Layer (NFHL) through REST and WFS services.

Preliminary Flood Hazard Data

New to

- new Ge
- new Ge
- Homeo
- Real Es
- Insurar
- Engine
- Federal

Try our

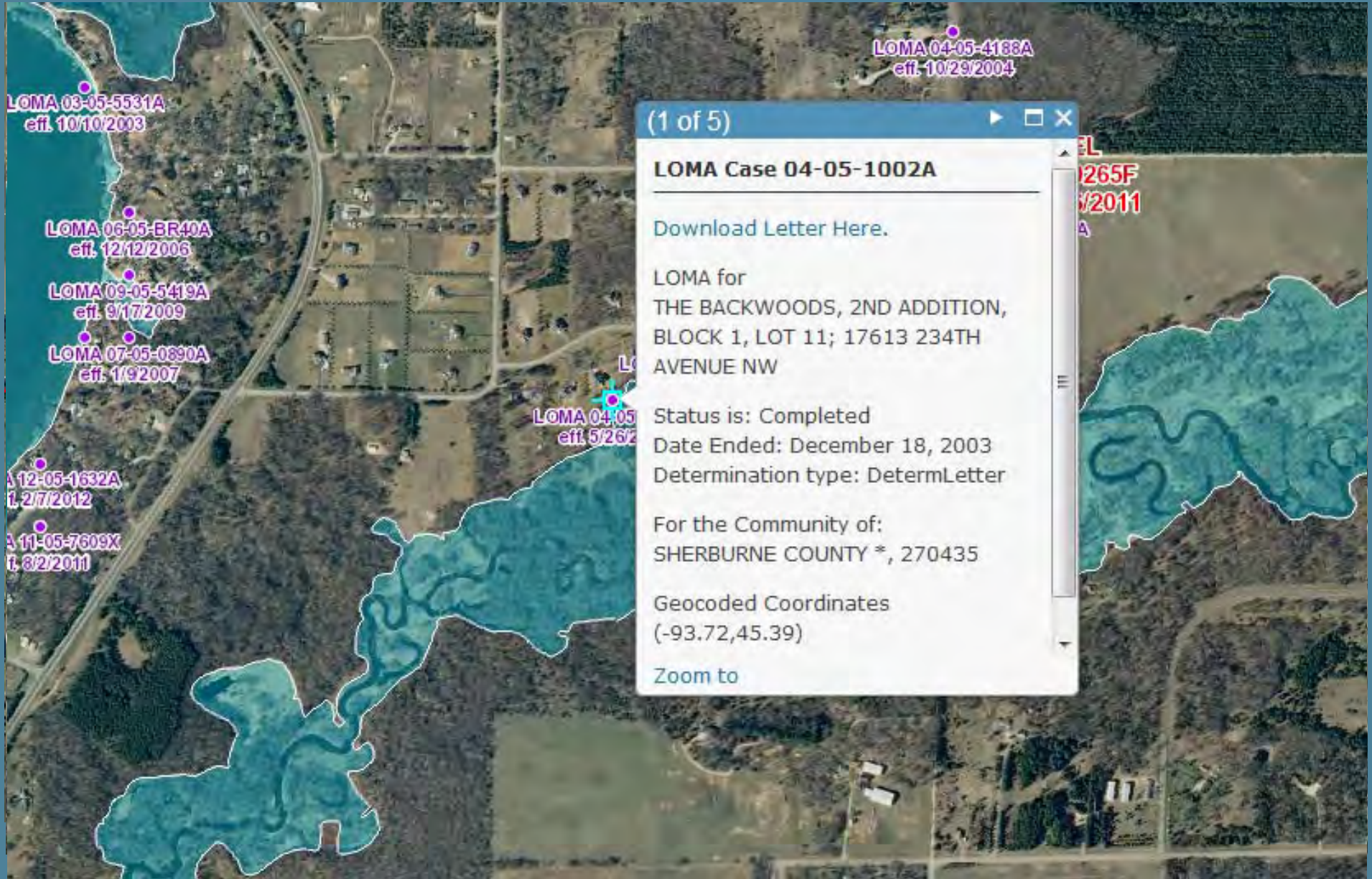
Our staff Friday, 9: (Eastern

More In

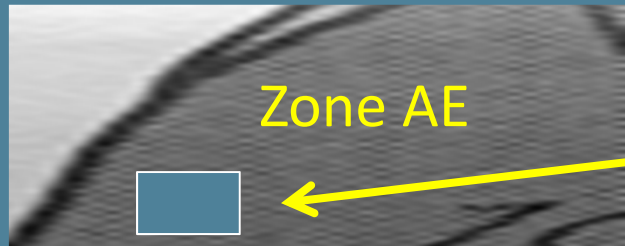
- Docum
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- What is
- How dc
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- Produc
- Price L
- How to
- Need A

FEMA is a partner of the FGDC's National Geospatial Platform Visit: www.geoplatform.gov

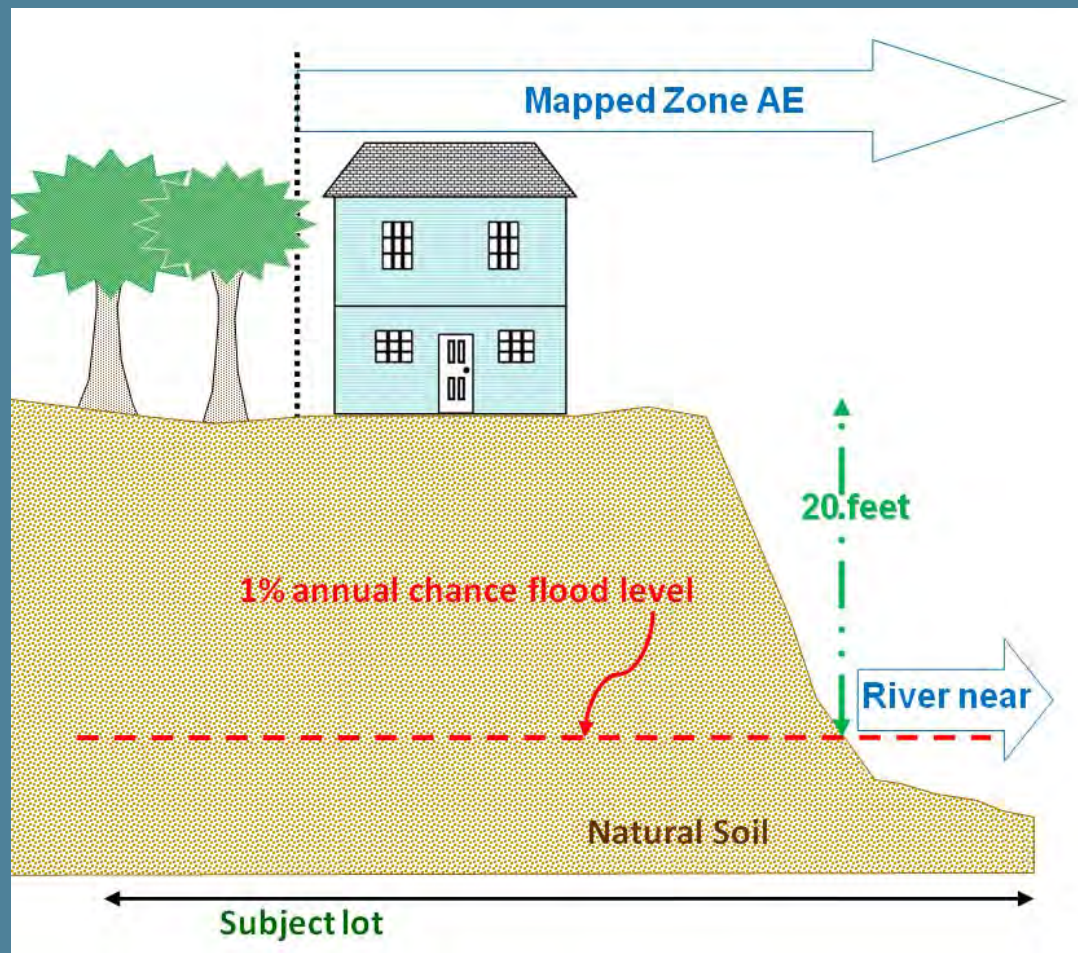
Looking for LOMAs



What's the Option if House is Really High?



Location on FIRM for existing house



- Lender must require flood insurance if they are “in” the Special Flood Hazard Area (Zone A) on the map, no matter how high they really are.
- Can only be changed by FEMA with Letter of Map Amendment (LOMA)

LOMA

Letter of Map Amendment

- A letter from FEMA stating that an existing structure or parcel of land that has not been elevated by fill would not be inundated by the 100-year flood
- The FEMA map is wrong – **better topographic contour lines or a field survey shows site is above BFE**

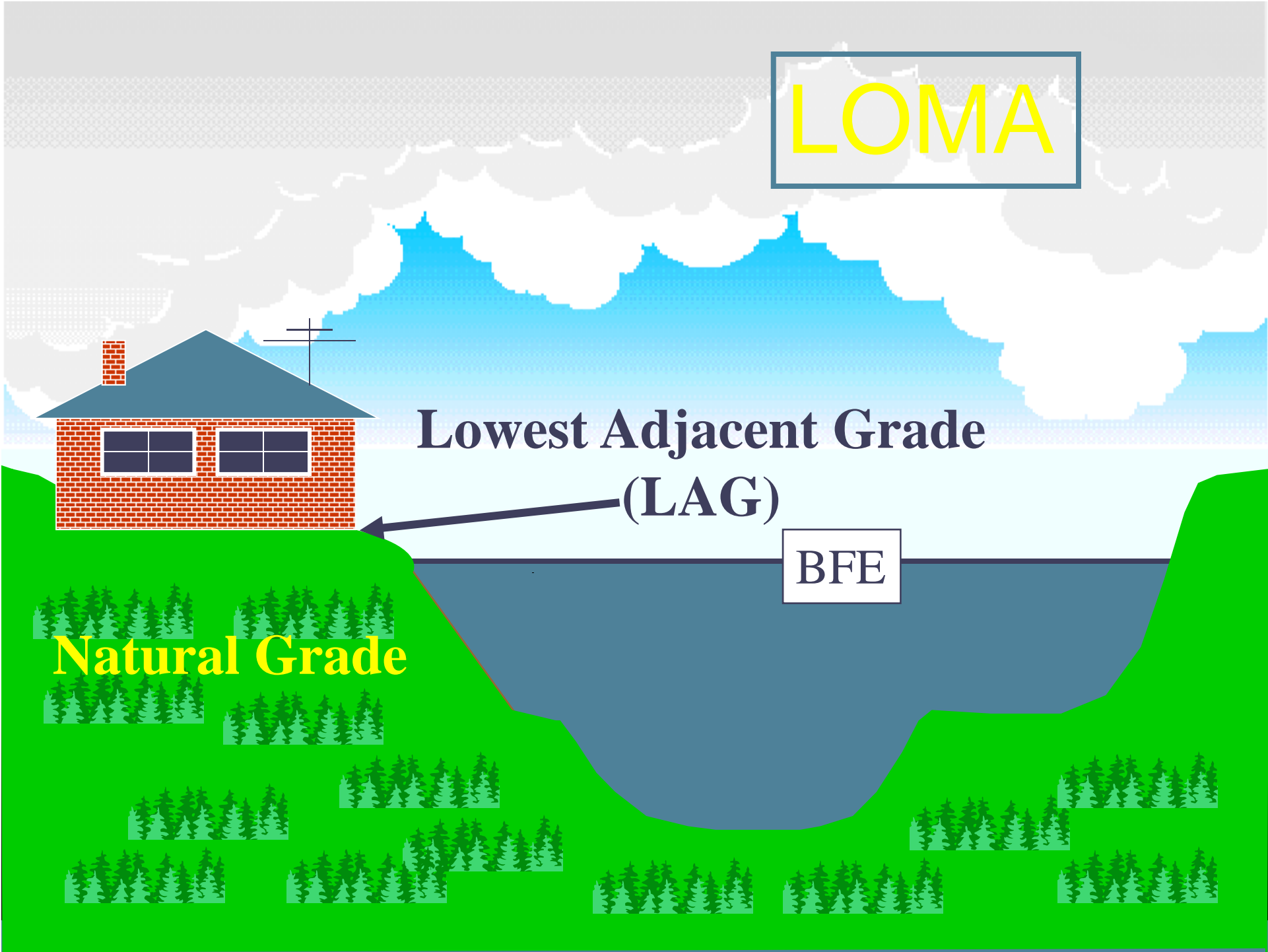


LOMA

Lowest Adjacent Grade
(LAG)

BFE

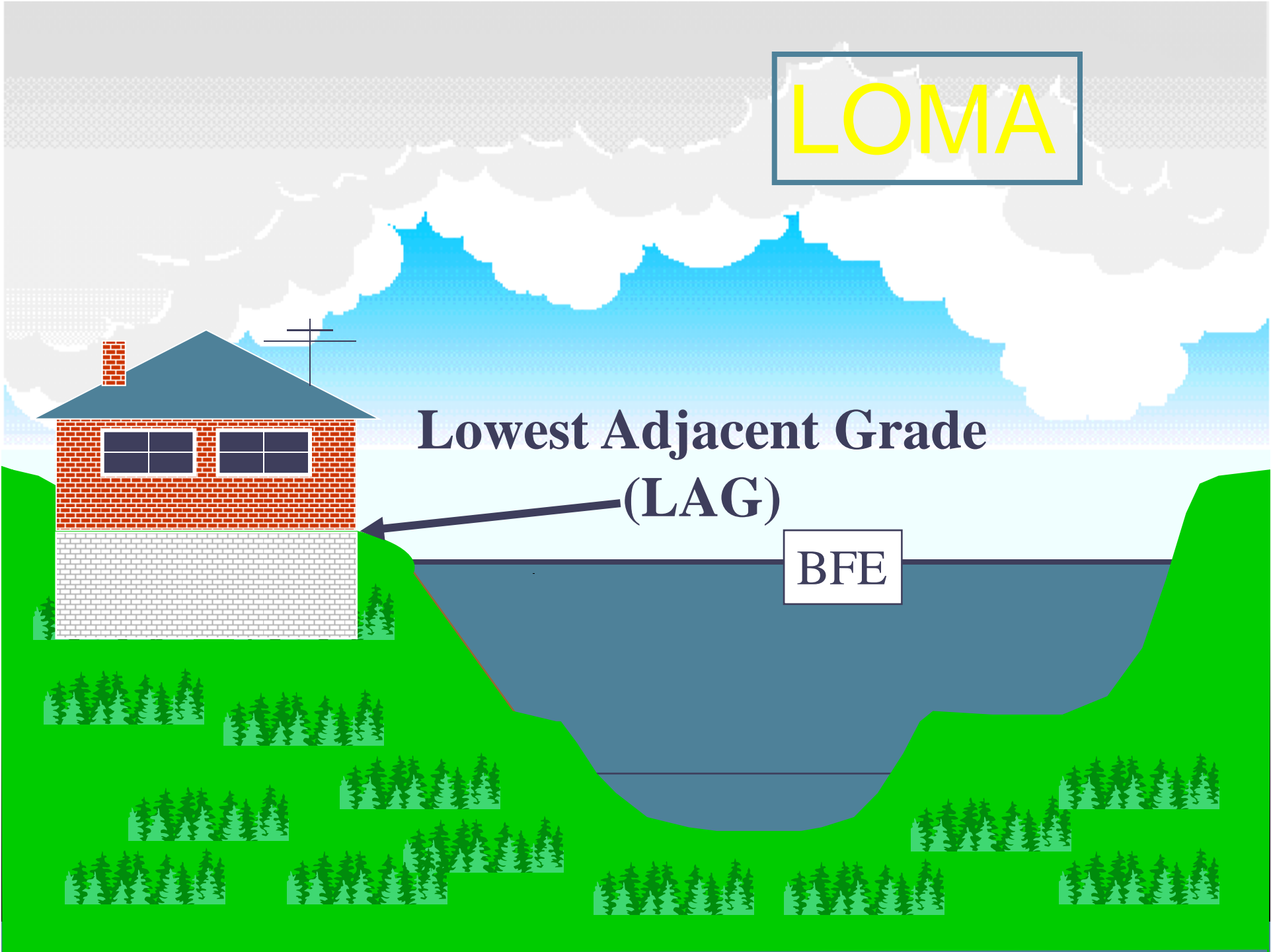
Natural Grade



LOMA

Lowest Adjacent Grade
(LAG)

BFE



Letter of Map Amendment – Out as Shown (LOMA-OAS)



- Provide better information on where **STRUCTURE IS** on the lot
- Don't need survey data
- ~ 15% of LOMA requests

Better Data Now Available in Many Areas for Letters of Map Amendment – Out as Shown (LOMA-OAS) requests



LOMA & LOMA-OAS Guidelines



How to Apply For a Letter of Map Amendment (LOMA) or Letter of Map Amendment – Out as Shown (LOMA-OAS) Using Form MT-EZ

The FEMA Letter of Map Amendment (LOMA) or Letter of Map Amendment - Out as Shown (LOMA-OAS) determination is a no cost application and will state the property or building is correctly shown outside the Special Flood Hazard Area (SFHA) and, therefore, the mandatory flood insurance requirement does not apply. There is no review fee for FEMA to process LOMAs or LOMA-OAS, but there may be costs for surveying, etc., related to preparing the application for the LOMA.

When Can I Submit the LOMA or LOMA-OAS Request?

1. For current effective maps – You can submit at any time.
2. For a preliminary map that is going through the review and adoption process – You will need to wait until that map is less than 60 days from becoming effective. FEMA cannot issue a LOMA or LOMA-OAS for a map that is not effective yet. Since FEMA reviewers are required to make a determination within 60 days of receiving a request, requests that are received more than 60 days in advance cannot be issued for a map that is not yet effective.

Documents Needed to Submit a LOMA or LOMA-OAS

1. **Obtain the FEMA MT-EZ form.** Go to FEMA web site (www.fema.gov) and search for MT-EZ, or directly to www.fema.gov/plans/review/fhm/mt_ez.shtml
2. **Recorded Deed.** Copy of your property Deed. If you do not have a personal copy, contact your county (usually the office of taxation & records, registrar or recorder of titles, etc.). A recorded plat can also be submitted if a recorded deed is not available.
3. **Computer Mapping (aka GIS) Based Flood Map.** A map obtained from your city or county with your property highlighted. Include the best available recent aerial photo that shows your structure, the parcel layer (boundary lines), a scale and north arrow, and a logo or some other proof that a governmental unit prepared the map. If topographic contours are available, include that layer (especially if they are more recent 1 or 2 foot contours).

If possible, have the GIS map at a big enough scale so the reviewer can see a near-by street intersection.

Some cities and counties have interactive maps on their web sites that allow you to print a map like this on your own. In some communities you will need to contact your city or county and request a map like this be prepared, and there may be a charge.

If your county does not have GIS maps available, a tax map can also help the reviewers with your application.
4. **Elevation Data.** If the STRUCTURE is not in the mapped 1% annual chance floodplain (the SFHA or high flood risk area), a survey is not required. If the structure is in, touches, or is very close to the SFHA, a survey or other official topographic data must be included.



At MN
DNR site,
search for
LOMA or
LOMA-
OAS

Use of LiDAR for LOMAs

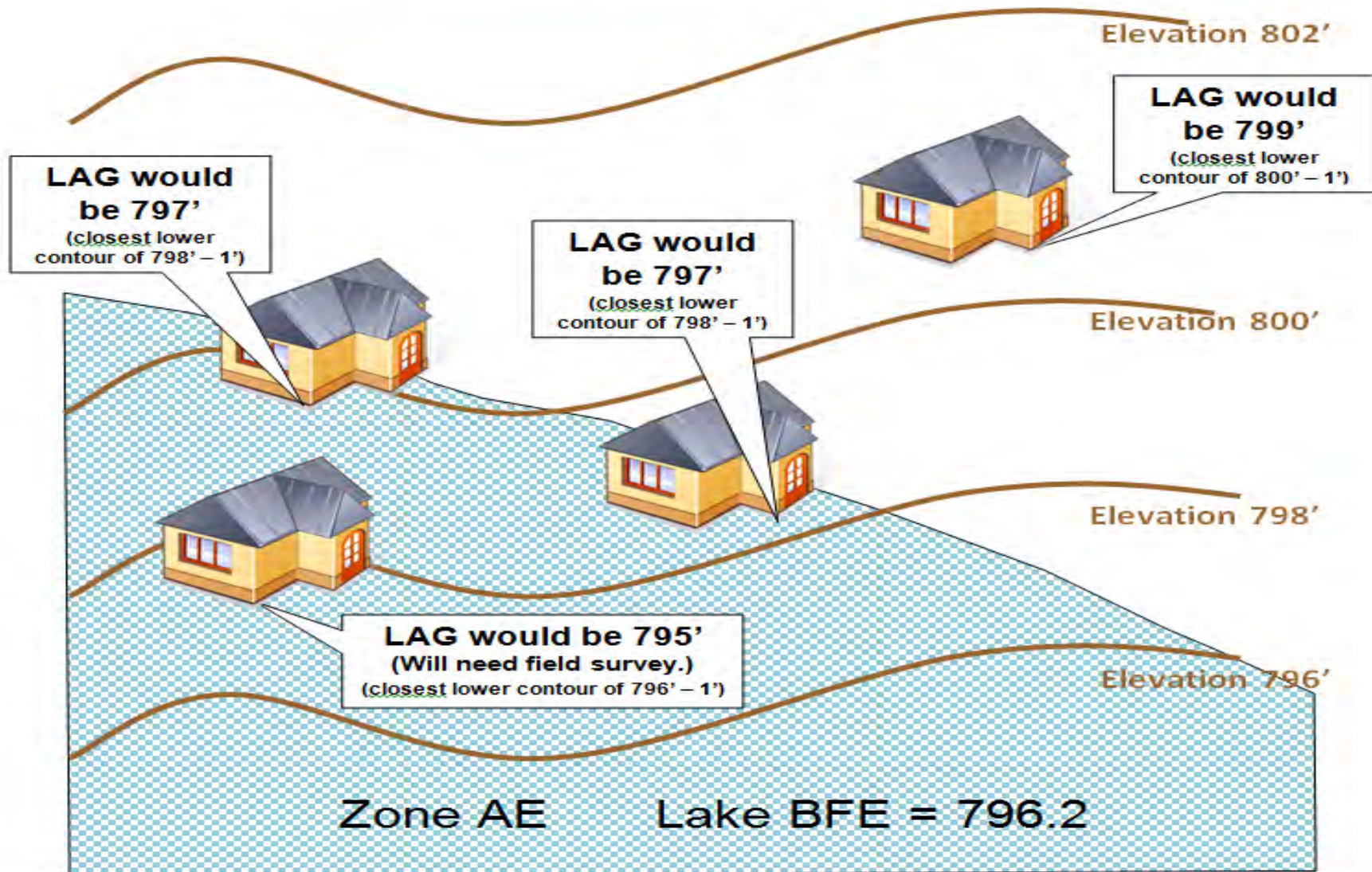
JUST APPROVED in December 2012!

This abbreviated LOMA application process is intended for locations where it is clear that the entire building (or the entire lot) is above the base flood elevation (BFE) based on review of the LiDAR derived contour elevations compared to the base flood elevation.

Examples of How the Lowest Adjacent Grade (LAG) is Determined with Contours Derived from LiDAR

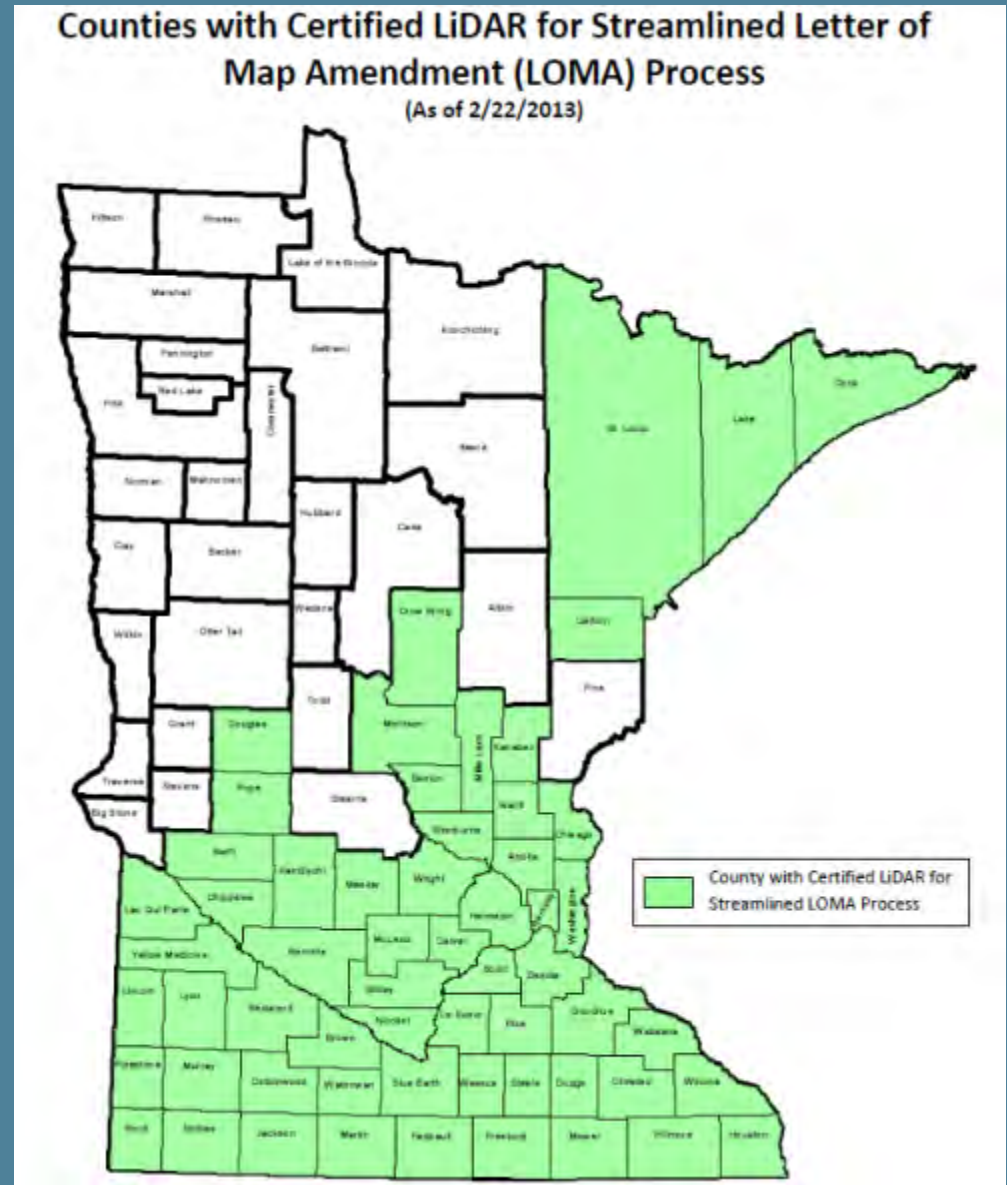
Calculating the Lowest Adjacent Grade (LAG):

1. Determine the closest contour lower than the building footprint
2. Subtract either $\frac{1}{2}$ the contour interval or 1 foot (whichever is greater)



LiDAR Data Collected by Blocks

- SE Minnesota
- SW Minnesota
- Arrowhead Region
- Metro Area
- Individual Counties
- North Central MN
- Red River Valley
- Got certification 8/26/13:
 - Aitkin, Cass, Hubbard, Itasca, Koochiching, Todd & Wadena





- Floodplain Management and Flooding**
- Main page
- Flooding in Minnesota
- Flood Insurance Basics
- Floodplain FAQs
- FEMA Floodplain Maps
- FEMA Forms and Technical Bulletins
- Forms and Guidance for Local Officials
- Flood safety and cleanup

Division of Ecological and Water Resources (Waters)

- Main page
- Contact us
- Permits
- Water resources data
- Forms
- Publications
- Water education (Project WET)
- Water Statutes and Rules

NEW Options for Letters of Map Amendments (LOMAs) & Letters of Map Revision Based on Fill (LOMR-Fs) as of December 2012

Streamlined Letter of Map Amendment (LOMA) Using LiDAR Elevation Data

This abbreviated LOMA application process is intended for locations where it is clear that the entire building (or the entire lot) is above the base flood elevation (BFE) based on review of the LiDAR derived contour elevations compared to the base flood elevation.

What is LiDAR?

"Light Detection and Ranging" is an active remote sensing technology that uses laser light to detect and measure surface features on the earth. LiDAR-derived high-resolution elevation data products are available for many areas of Minnesota.

- [Short slide show about LiDAR](#)

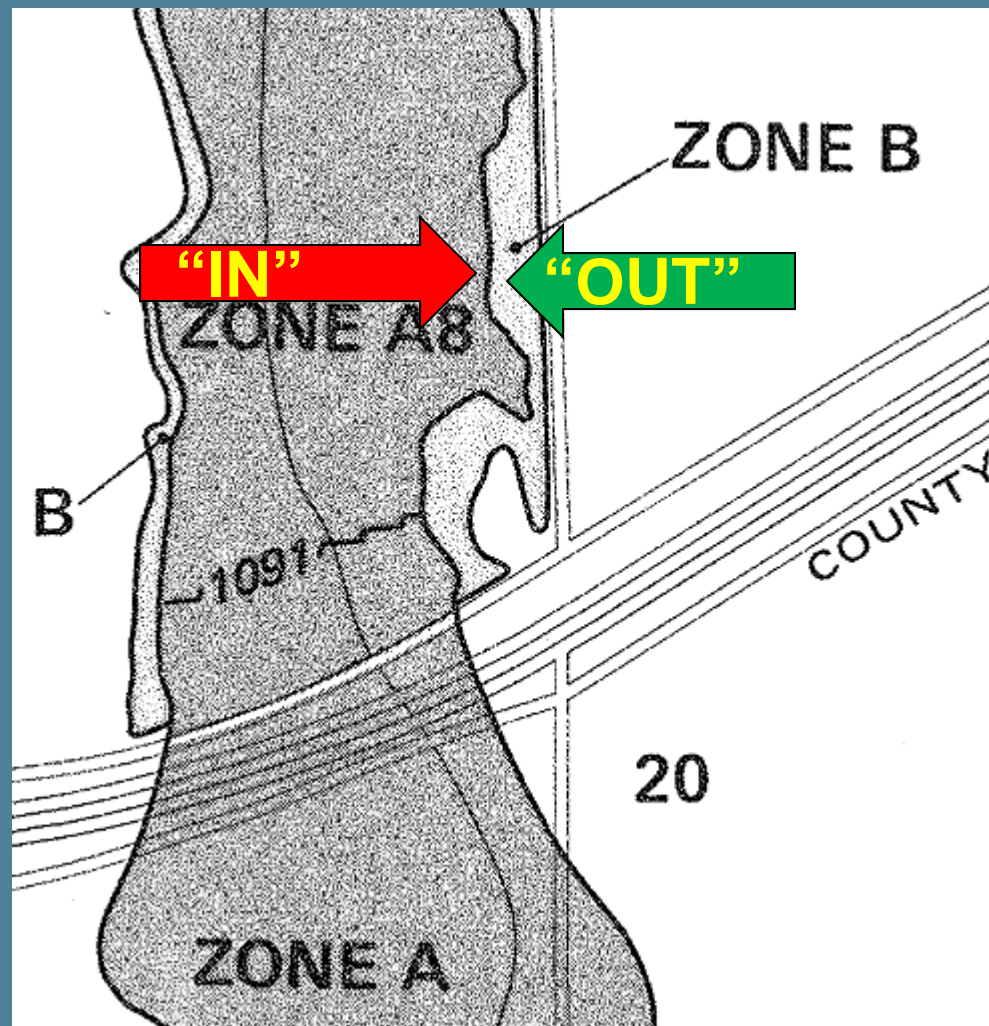
Documents for Streamlined LOMA Process Using LiDAR elevation data:

- a. [Streamlined checklist](#) of information needed for a LOMA using the 2-foot contours from LiDAR
- b. [Attachment for checklist](#) that shows when the 2-foot contours may be used in lieu of a field survey
- c. Certifications for LiDAR:
 - [Map of counties with certified LiDAR](#)
 - [10/22/2012 certification statement](#) for SE MN (Dodge, Fillmore, Freeborn, Houston, Mower, Olmsted, Steele, Wabasha & Winona Counties)
 - [1/2/2013 certification statement](#) for Minnesota River Basin Counties (Brown, Chippewa, Cottonwood, Douglas, Faribault, Jackson, Kandiyohi, Lac Qui Parle, Le Sueur, Lincoln, Lyon, Martin, Murray, Nicollet, Nobles, Pipestone, Pope, Redwood, Renville, Rock, Sibley, Swift, Waseca, Watonwan and Yellow Medicine)

Special Topics

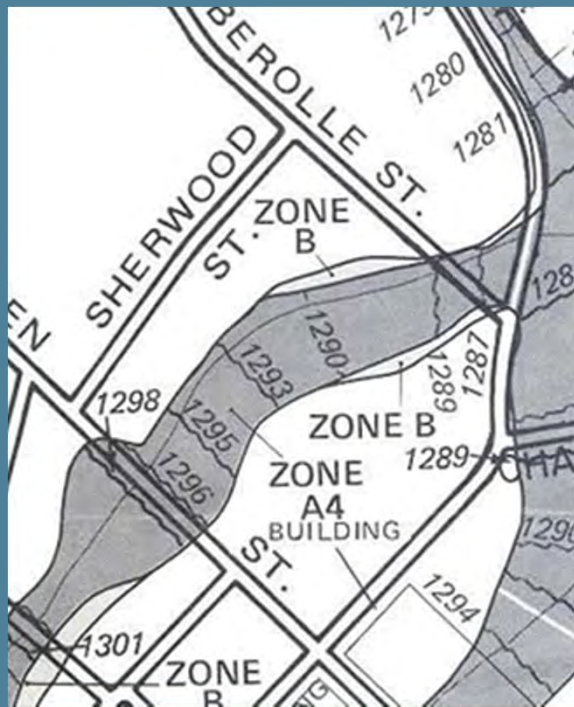
- “In” or “Out” mentality
- Atlas 14
- Decks
- Fuel Tanks

Flood Risk is Seen as Black & White!

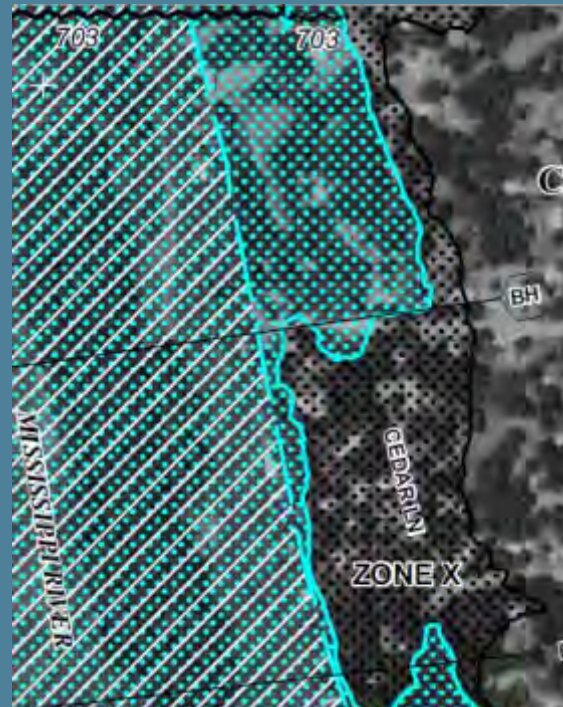


Flood Risk Assessment Methods Evolving . . .

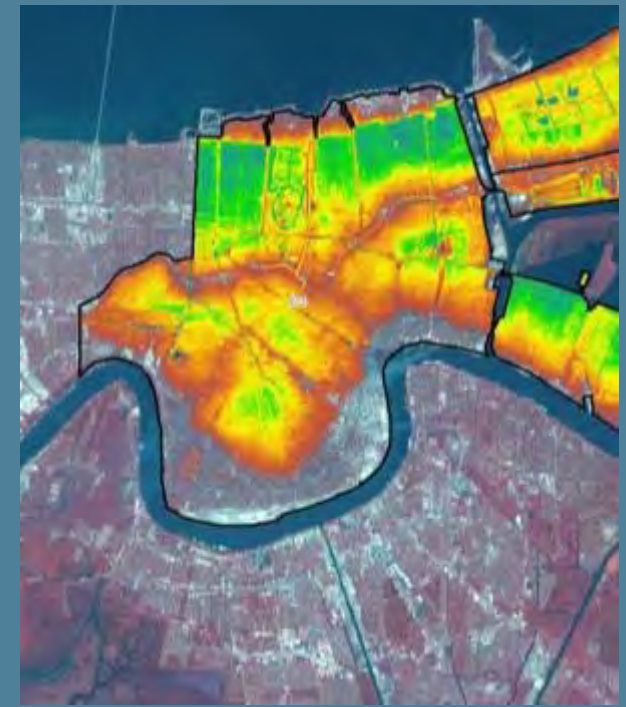
Yesterday



Today

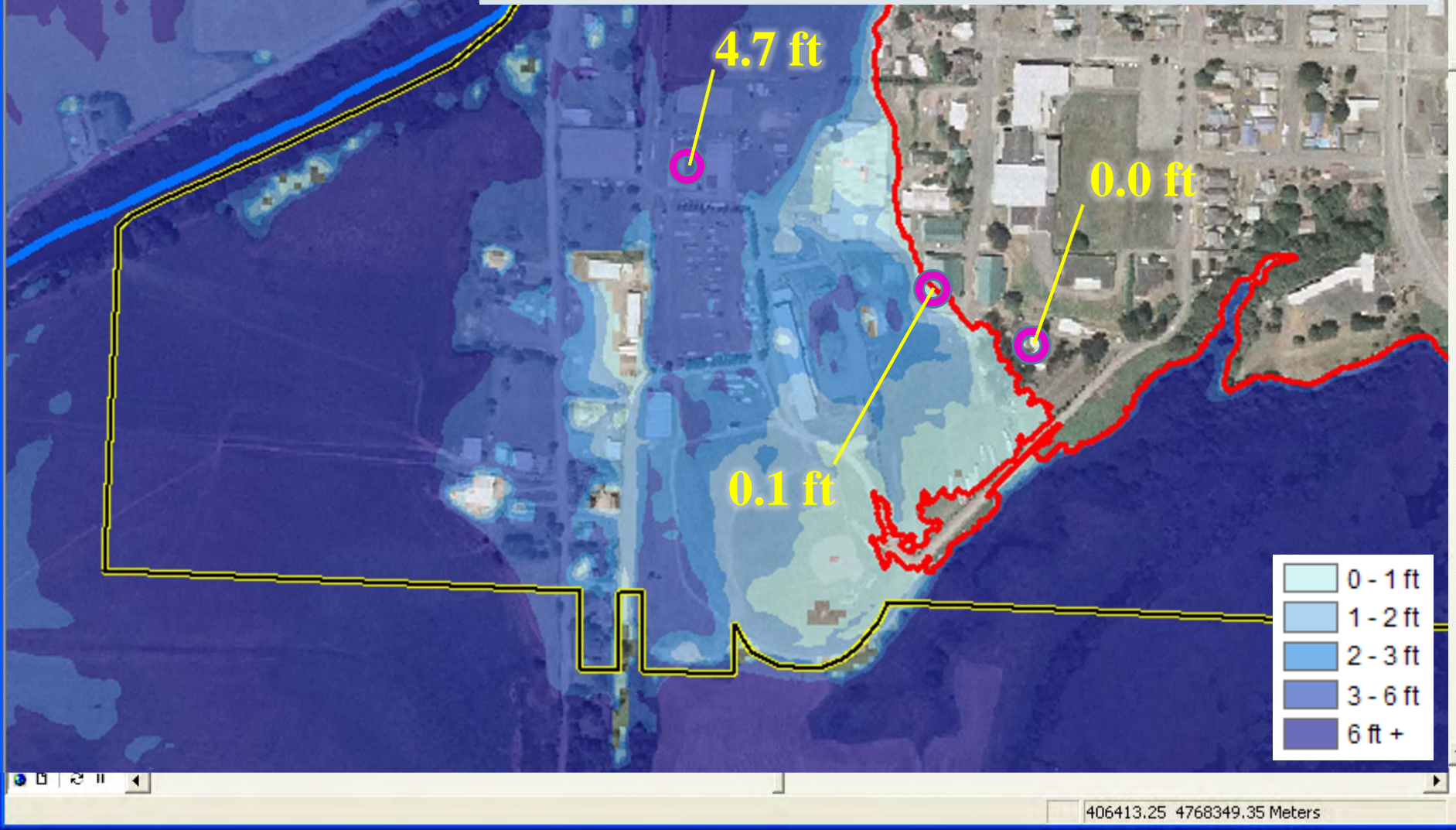


Tomorrow

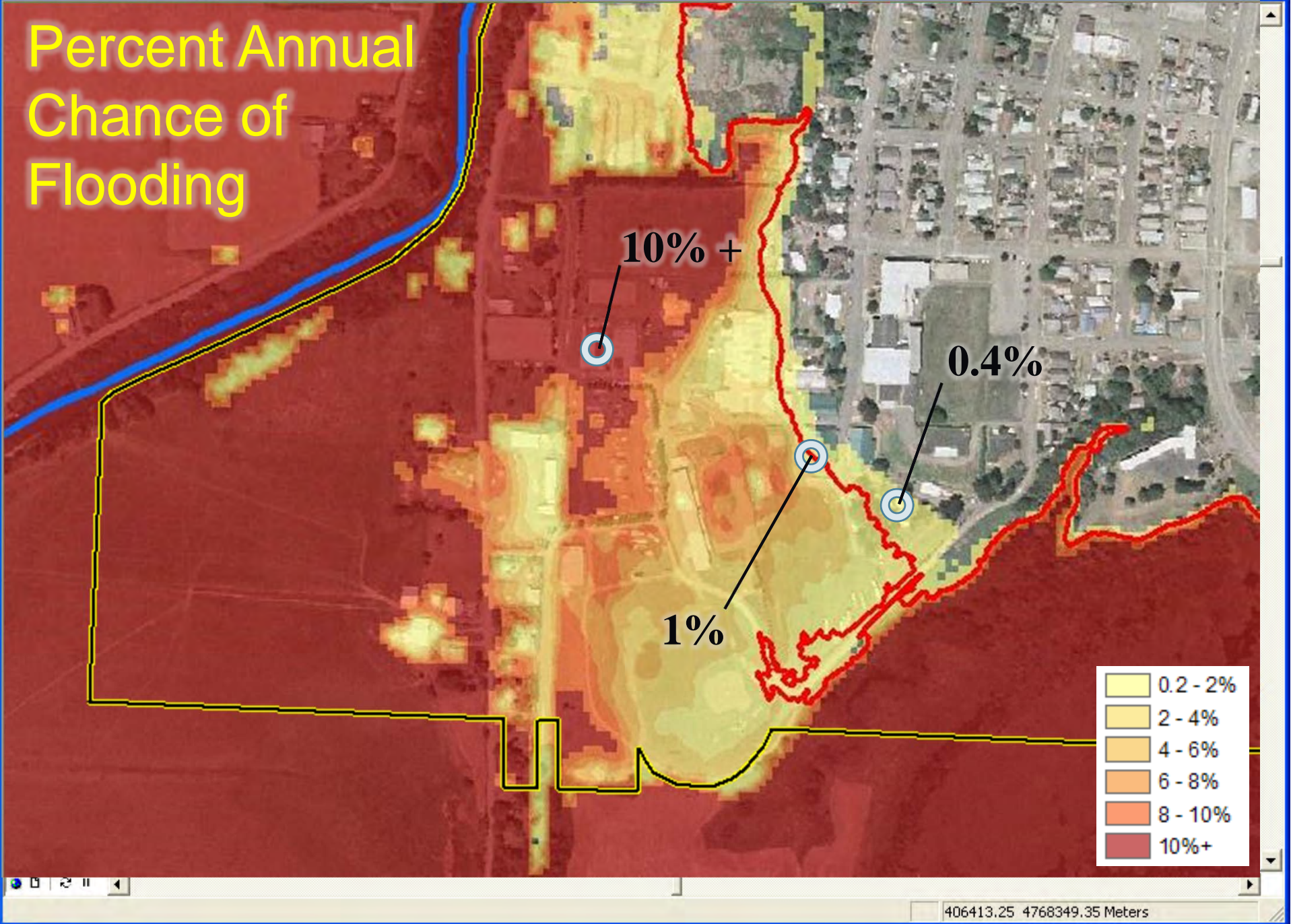


1% Depth
(100-Year)

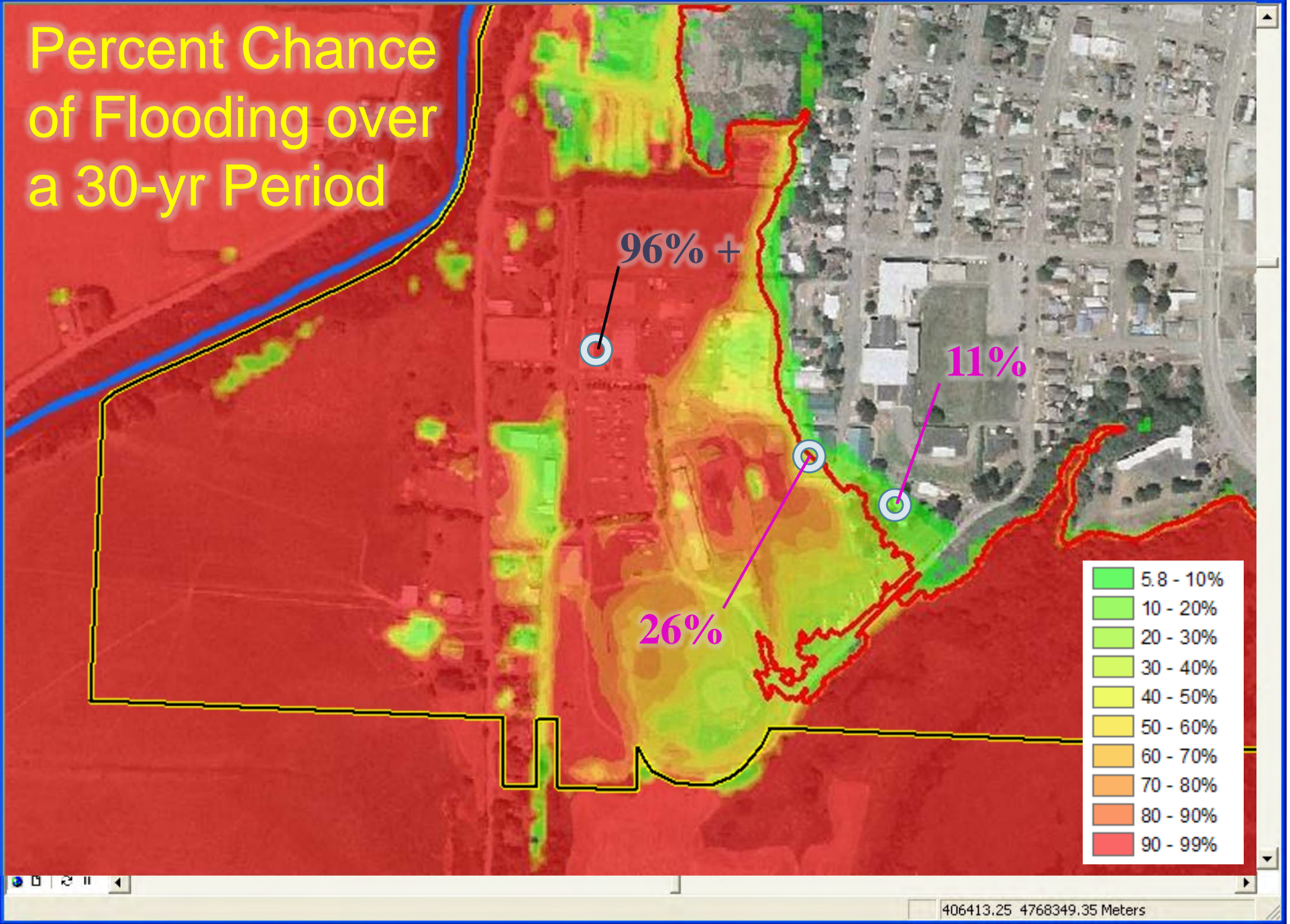
Depth Grid & Percent Risk Examples



Percent Annual Chance of Flooding



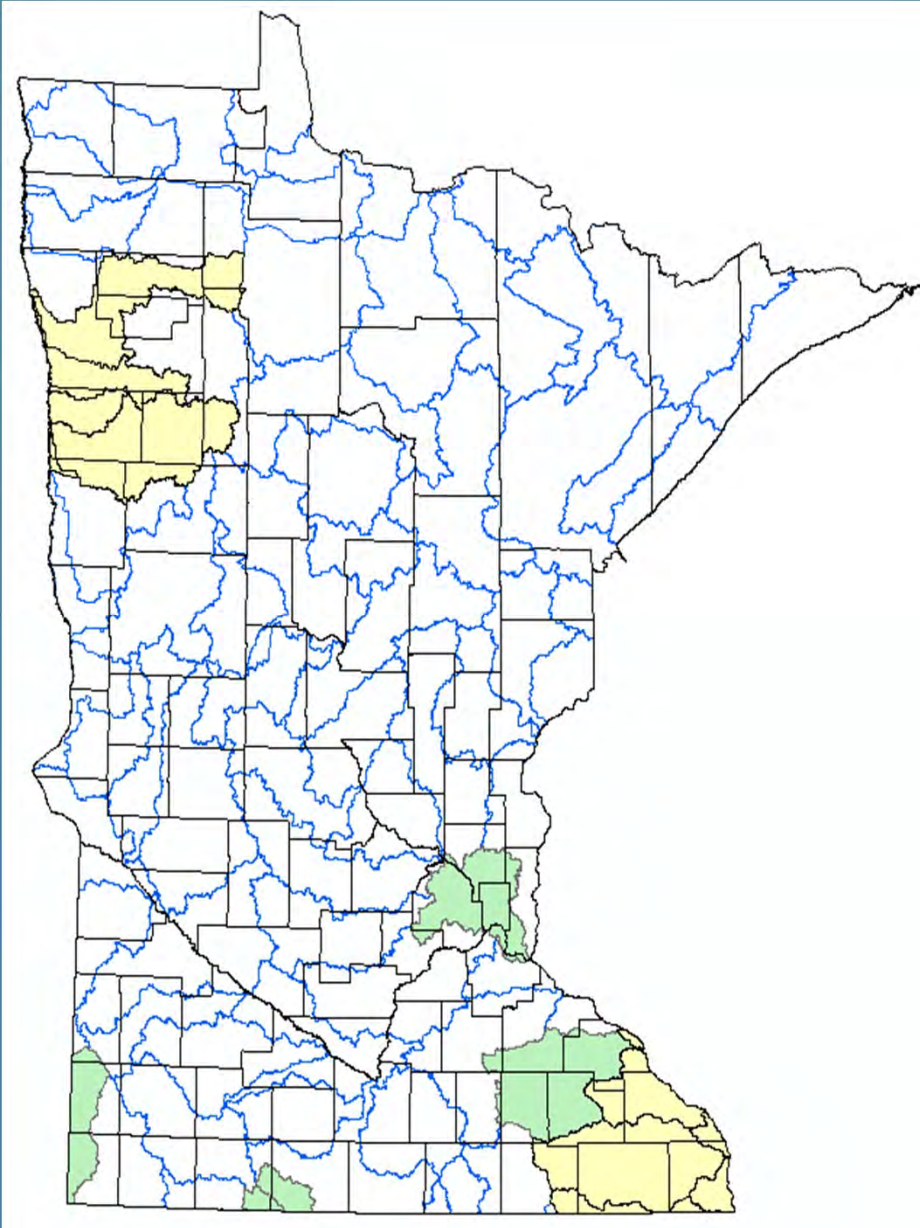
Percent Chance of Flooding over a 30-yr Period



Technology Changing

- Regulatory maps have changed, and continue to change
- Now have “Non-Regulatory Products” being funded through FEMA’s Risk MAP program
 - Changes since last map
 - Depth grid maps
- Can possibly fund if used for “action” like **HIGHER STANDARDS** or mitigation projects!

RiskMap HUC8 Study Areas



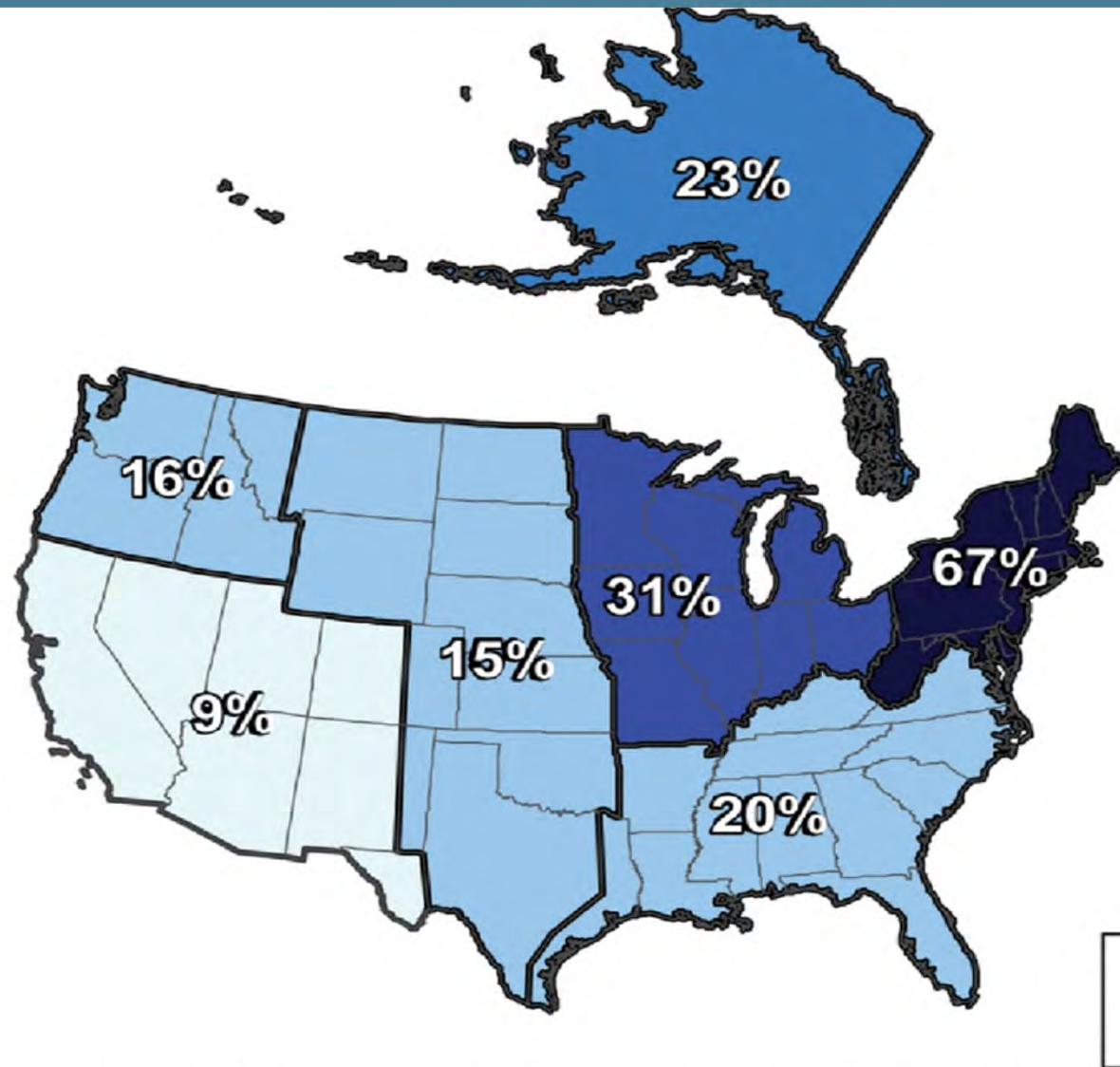
Yellow = Study
in-progress

Green = 2013
start

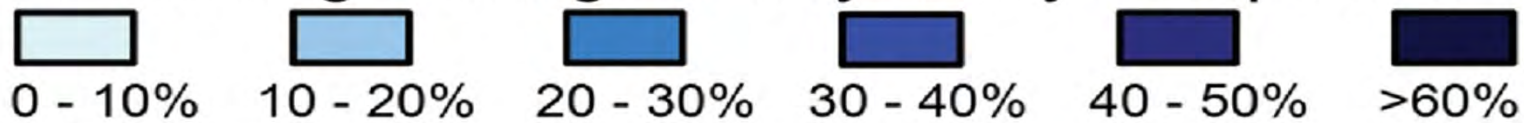
Development & Climate Change Impacts

- Minimum federal regulations don't account for increases in runoff due to development (and maps are updated years after the fact)
- Precipitation patterns are changing
 - ❖ More of the rain in intense storms & anytime between March and November (can't just worry about spring floods anymore)
 - ❖ Update with more years of data
 - Technical Paper 40 (TP 40) – based on 1960 data
 - New Atlas 14 – released in 2013

-



Percentage Change in Very Heavy Precipitation

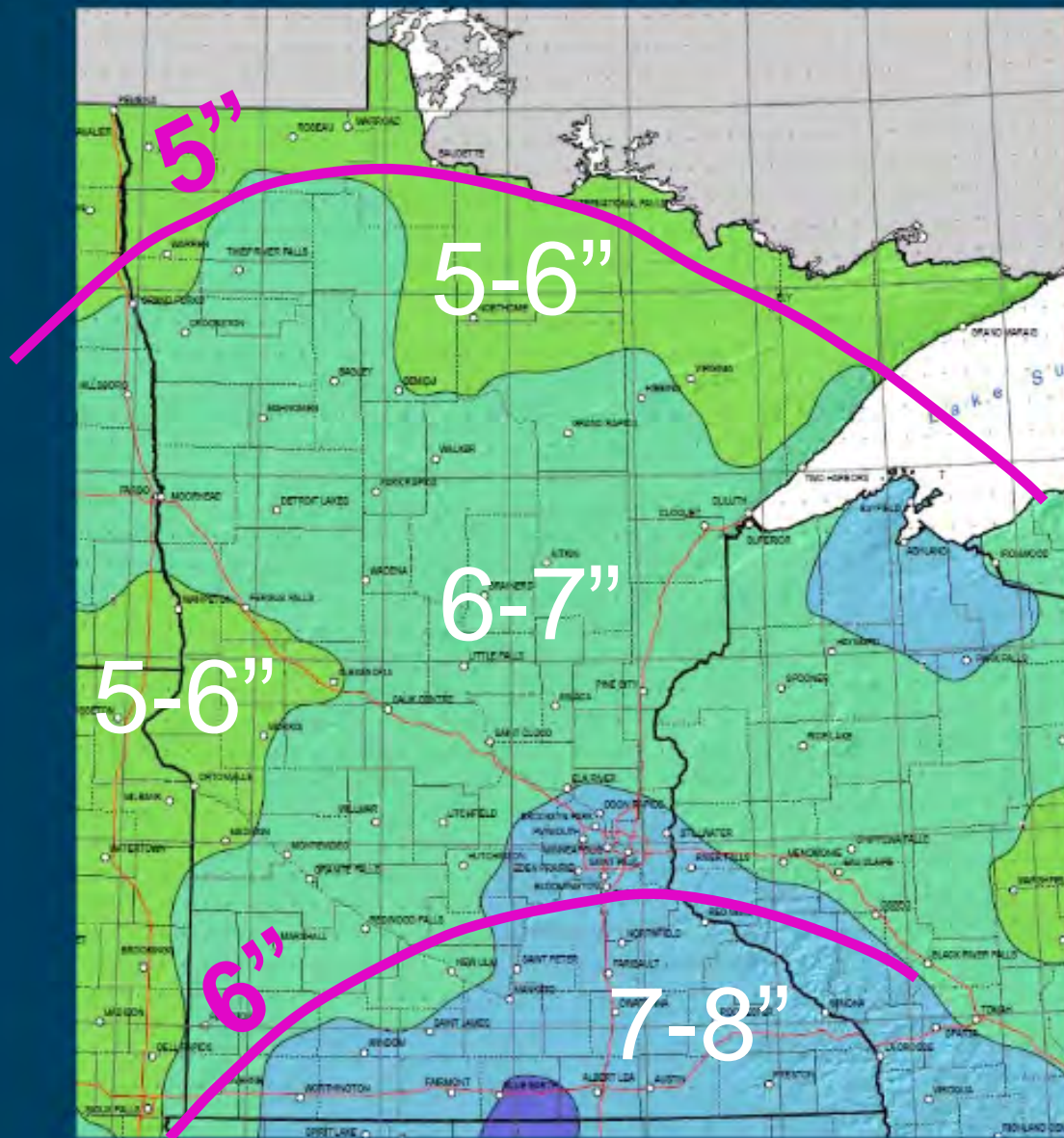


TP-40: 100 year-24 hour



TP-40: based on 1960 data; less stations; shorter record

Atlas 14: 100 year-24 hour



-TP-40

| | |
|-------------|--------------|
| 4.01 - 5.00 | 7.01 - 8.00 |
| 5.01 - 6.00 | 8.01 - 9.00 |
| 6.01 - 7.00 | 9.01 - 10.00 |

Volume II project area



TP-40/Atlas 14 comparisons for Minnesota, South Dakota, North Dakota, and Wisconsin

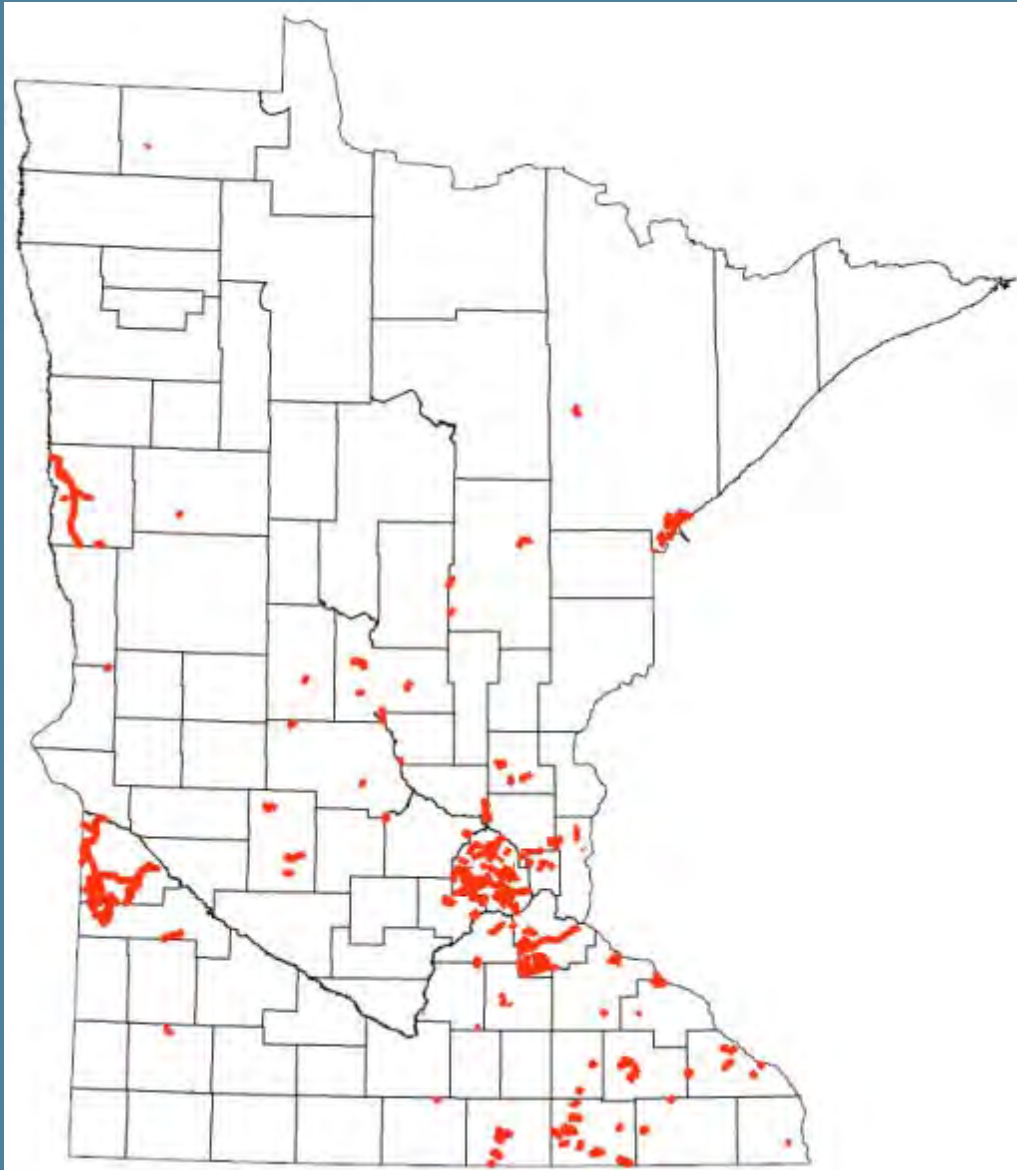
- some significant increases in each state
 - most of Minnesota and Wisconsin, eastern North Dakota, and the Black Hills of South Dakota
 - percent change in 24 hour/ 100 year depths:
 - Minneapolis - 6.0 to 7.9 inches (+32%)
 - Ashland - 5.3 to 7.3 inches (+38%)
 - Fargo - 5.3 to 6.3 inches (+19%)
 - Rapid City - 4.6 to 5.7 inches (+24%)



From Steve Klein presentation to City Engineers Association (1/2013)

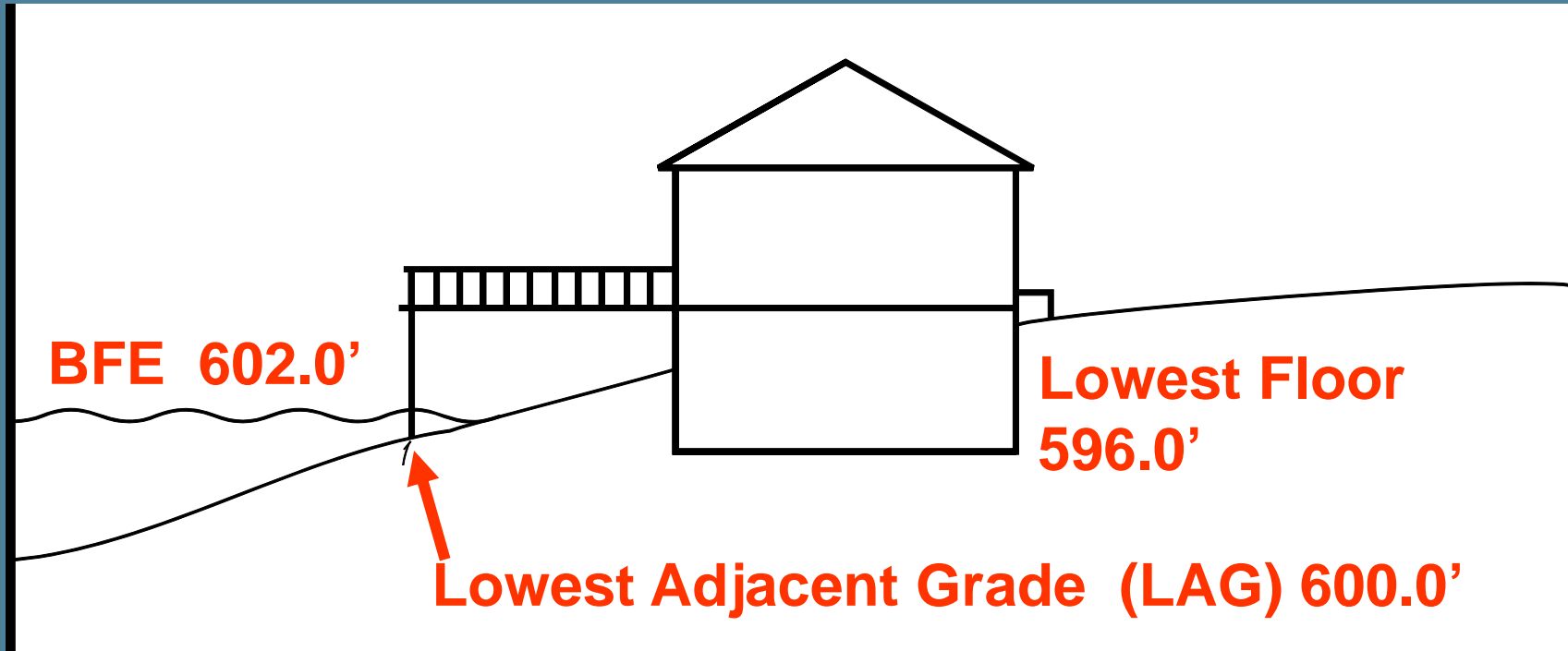


Where Does Atlas 14 Affect Modeling for FEMA Maps?



- Will NOT affect modeling for some methods – e.g., used historical gage data
- WILL affect modeling where the 100—year rainfall was used in model (but maps dated

What About Decks?



If LAG of deck is lower than BFE, considered "IN."

- Won't be eligible for LOMA
- Rating will be based on lowest floor elevation minus BFE
(Rated as -6 in this example.)

ELEVATION CERTIFICATE

IMPORTANT: Follow the instructions on pages 1-9.

OMB No. 1660-0008
 Expiration Date: July 31, 2015

SECTION A - PROPERTY INFORMATION

FOR INSURANCE COMPANY USE

| | | |
|--|----------------------|---|
| A1. Building Owner's Name | Policy Number: | |
| A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. | Company NAIC Number: | |
| City | State | ZIP Code |
| A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.) | | |
| A4. Building Use (e.g., Residential, Non-Residential, Addition, Accessory, etc.) | | |
| A5. Latitude/Longitude: Lat. _____ Long. _____ Horizontal Datum: <input type="checkbox"/> NAD 1927 <input type="checkbox"/> NAD 1983 | | |
| A6. Attach at least 2 photographs of the building if the Certificate is being used to obtain flood insurance. | | |
| A7. Building Diagram Number _____ | | |
| A8. For a building with a crawlspace or enclosure(s): | | A9. For a building with an attached garage: |
| a) Square footage of crawlspace or enclosure(s) _____ sq ft | | a) Square footage of attached garage _____ sq ft |
| b) No. of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade _____ | | b) Number of permanent flood openings in the attached garage within 1.0 foot above adjacent grade _____ |
| c) Total net area of flood openings in A8.b _____ sq in | | c) Total net area of flood openings in A9.b _____ sq in |
| d) Engineered flood openings? <input type="checkbox"/> Yes <input type="checkbox"/> No | | d) Engineered flood openings? <input type="checkbox"/> Yes <input type="checkbox"/> No |

SECTION B - FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

| | | | | | |
|--|------------|---------------------|---------------------------------------|-------------------|---|
| B1. NFIP Community Name & Community Number | | B2. County Name | | B3. State | |
| B4. Map/Panel Number | B5. Suffix | B6. FIRM Index Date | B7. FIRM Panel Effective/Revised Date | B8. Flood Zone(s) | B9. Base Flood Elevation(s) (Zone A0, use base flood depth) |
| B10. Indicate the source of the Base Flood Elevation (BFE) data or base flood depth entered in Item B9: <input type="checkbox"/> FIS Profile <input type="checkbox"/> FIRM <input type="checkbox"/> Community Determined <input type="checkbox"/> Other/Source: _____ | | | | | |
| B11. Indicate elevation datum used for BFE in Item B9: <input type="checkbox"/> NGVD 1929 <input type="checkbox"/> NAVD 1988 <input type="checkbox"/> Other/Source: _____ | | | | | |
| B12. Is the building located in a Coastal Barrier Resources System (CBRS) area or Otherwise Protected Area (OPA)? <input type="checkbox"/> Yes <input type="checkbox"/> No Designation Date: _____ / _____ / _____ <input type="checkbox"/> CBRS <input type="checkbox"/> OPA | | | | | |

SECTION C - BUILDING ELEVATION INFORMATION (SURVEY REQUIRED)

C1. Building elevations are based on: Construction Drawings* Building Under Construction* Finished Construction
 *A new Elevation Certificate will be required when construction of the building is complete.

C2. Elevations - Zones A1-A30, AE, AH, A (with BFE), VE, V1-V30, V (with BFE), AR, AR/A, AR/AE, AR/A1-A30, AR/AH, AR/A0. Complete Items C2.a-h below according to the building diagram specified in Item A7. In Puerto Rico only, enter meters.
 Benchmark Utilized: _____ Vertical Datum: _____
 Indicate elevation datum used for the elevations in items a) through h) below. NGVD 1929 NAVD 1988 Other/Source: _____
 Datum used for building elevations must be the same as that used for the BFE.

Check the measurement used.

| | | |
|--|-------|---|
| a) Top of bottom floor (including basement, crawlspace, or enclosure floor) | _____ | <input type="checkbox"/> feet <input type="checkbox"/> meters |
| b) Top of the next higher floor | _____ | <input type="checkbox"/> feet <input type="checkbox"/> meters |
| c) Bottom of the lowest horizontal structural member (V Zones only) | _____ | <input type="checkbox"/> feet <input type="checkbox"/> meters |
| d) Attached garage (top of slab) | _____ | <input type="checkbox"/> feet <input type="checkbox"/> meters |
| e) Lowest elevation of machinery or equipment servicing the building (Describe type of equipment and location in Comments) | _____ | <input type="checkbox"/> feet <input type="checkbox"/> meters |
| f) Lowest adjacent (finished) grade next to building (LAG) | _____ | <input type="checkbox"/> feet <input type="checkbox"/> meters |
| g) Highest adjacent (finished) grade next to building (HAG) | _____ | <input type="checkbox"/> feet <input type="checkbox"/> meters |
| h) Lowest adjacent grade at lowest elevation of deck or stairs, including structural support | _____ | <input type="checkbox"/> feet <input type="checkbox"/> meters |

SECTION D - SURVEYOR, ENGINEER, OR ARCHITECT CERTIFICATION

This certification is to be signed and sealed by a land surveyor, engineer, or architect authorized by law to certify elevation information. I certify that the information on this Certificate represents my best efforts to interpret the data available. I understand that any false statement may be punishable by fine or imprisonment under 18 U.S. Code, Section 1001.

Check here if comments are provided on back of form. Were latitude and longitude in Section A provided by a licensed land surveyor? Yes No
 Check here if attachments.

| | | | |
|------------------|--------------|----------------|----------|
| Certifier's Name | | License Number | |
| Title | Company Name | | |
| Address | City | State | ZIP Code |
| Signature | Date | Telephone | |

PLACE
SEAL
HERE

FEMA Elevation Certificate

Decks & Stairways on Elevation Certificate

- a) Top of bottom floor (including basement, crawlspace, or enclosure floor) _____ . _____ feet
- b) Top of the next higher floor _____ . _____ feet
- c) Bottom of the lowest horizontal structural member (V Zones only) _____ . _____ feet
- d) Attached garage (top of slab) _____ . _____ feet
- e) Lowest elevation of machinery or equipment servicing the building
(Describe type of equipment and location in Comments) _____ . _____ feet
- f) Lowest adjacent (finished) grade next to building (LAG) _____ . _____ feet
- g) Highest adjacent (finished) grade next to building (HAG) _____ . _____ feet
- h) Lowest adjacent grade at lowest elevation of deck or stairs, including
structural support _____ . _____ feet

Added to more recent Elevation Certificates

Note: Fill in all spaces, or put "NA"



Lower Garvin Brook at Minnesota City

Fuel Tanks

- Tanks & the fuel lines, meters & control panels
- Anchored to prevent buoyancy or movement
- Not allow infiltration of floodways, or leakage during floods
- FEMA focusing on this issue more due to problems seen in major floods

Fuel Tanks

FEMA 348 – “Protecting Building Utilities From Flood Damage” (Nov 1999)



Fill is not suitable for use in areas subject to erosion and scour unless fill has been armoured.

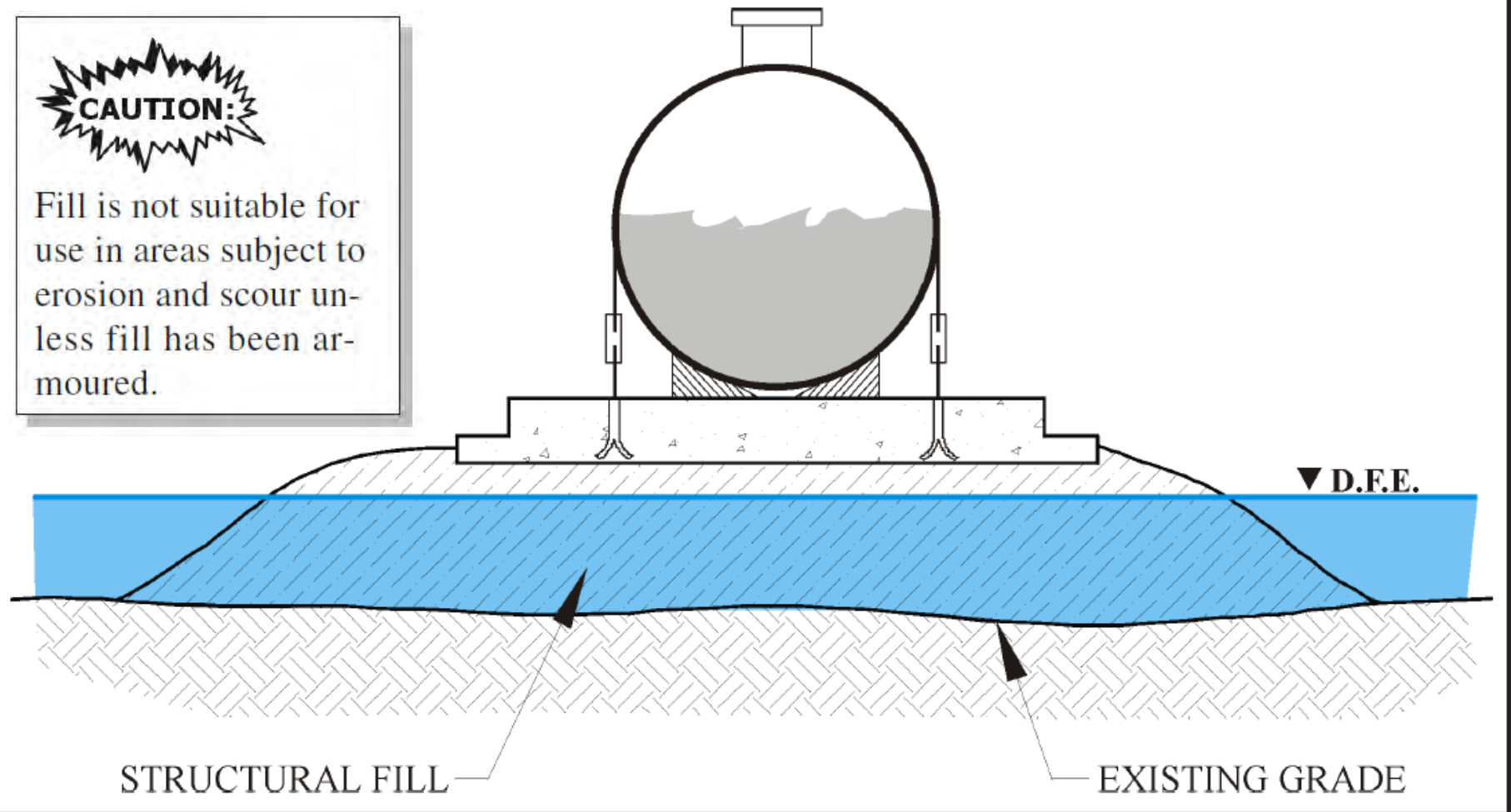
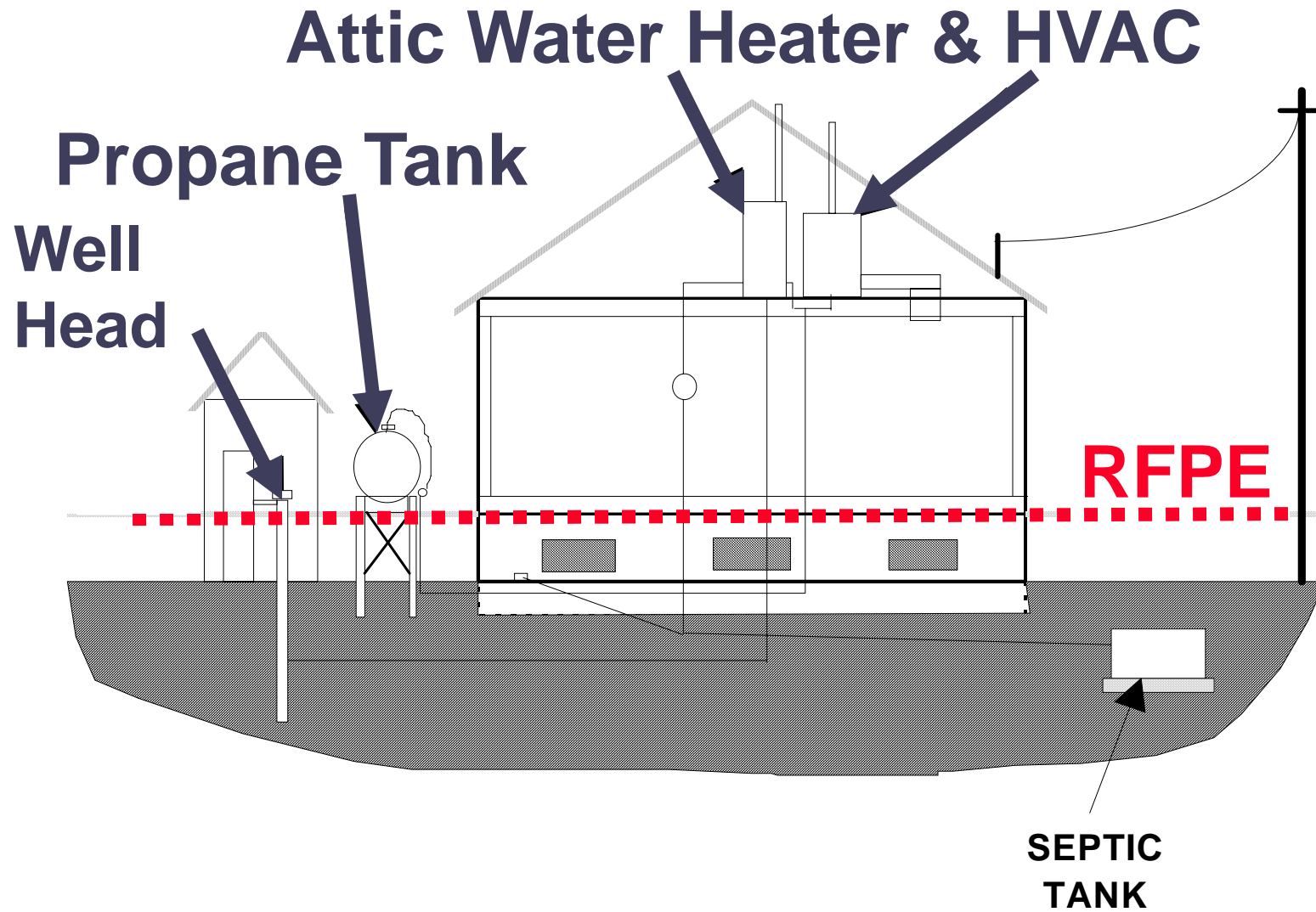


Figure 3.2.3B: A fuel tank elevated on structural fill

Utility Location Schematic



Prevent This!





fool for
inspectors!!

Camo Tank Top

Beautify your unsightly propane tank (and fool the moose who keep trying to mate with it) with this 10-foot long x 37" dia nylon camouflage tank cover. Made for 500-gallon tanks, it would also be useful covering a canoe, small boat or slender hippopotamus. Includes zip-ties to secure it.

42144 NEW! Camo Tank Cover \$19.50/each

Contact Us!

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651-295-5677
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651-259-5713
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