King County FCCO Meetings

October – November 2007

FEMA

What is Map Modernization?

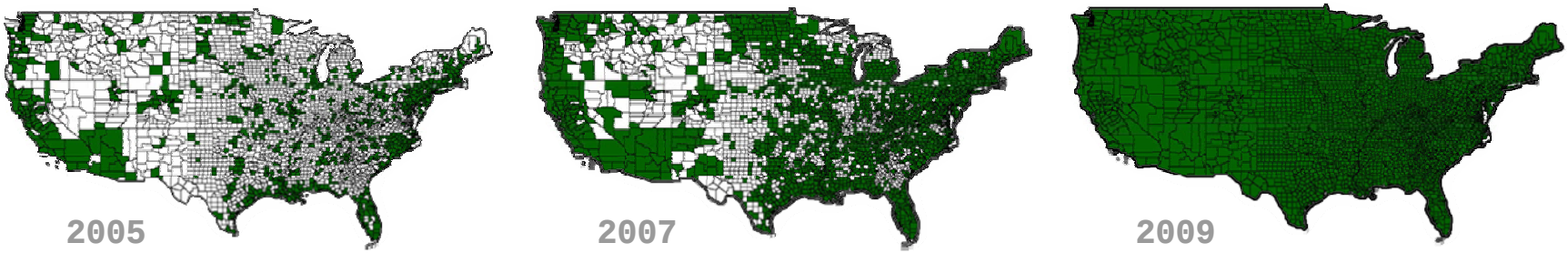
Through Map Modernization…

…FEMA will provide digital flood insurance rate maps and studies…

…for communities nationwide…

…that are more accurate, easier to use, and more readily available.

Why Modernize?



- **Outdated maps (10+ years old)**
- **Physical changes in floodplains – man-made and natural**
- **Digital format enables overlays/analysis**
- **Easier to update maps**
- **Maps are foundation for flood risk reduction and insurance (4.5 million policies, 650 billion coverage)**

Basic Reasons for the NFIP

- Reduce emphasis on structural flood control measures; increase emphasis on nonstructural FPM measures
  - Before 1960, two guiding principles:
    - Actions were always in response to actual flooding
    - The cure was usually a structural project
    - There was no consolidated Federal EM Management
- Reduce Federal disaster costs; shift burden from general taxpayer to floodplain occupants
- Provide insurance coverage not generally available on the private market

Objectives of the NFIP

- Provide a better form of assistance to flood victims – private insurance over federal disaster assistance

- Stimulate sound floodplain management to guide future development
  - Improved connections between Building Codes and FP ordinances
  - Prevent damage to new construction
  - Avoid worsening the flood hazard for existing construction (i.e., the floodway standard)

Purpose of the NFIP

Reduce economic loss caused by flood events

- Create a partnership
- Map the flood risk and assign insurance rates;
- Reduce dependency on structural flood control;
- Promote floodplain management practices;
- Set minimum floodplain construction standards;
- Make flood insurance available.

Ordinances

Cornerstone of floodplain management

- Influenced by level of FIS & FIRM
- Must be legally enforceable
- Applied uniformly
- Take precedence over any less restrictive conflicting laws, ordinances, or codes
- WA Model ordinances available - not mandatory
- Address requirements of Section 60.3 of the NFIP regulations
- Can be administered via International Code

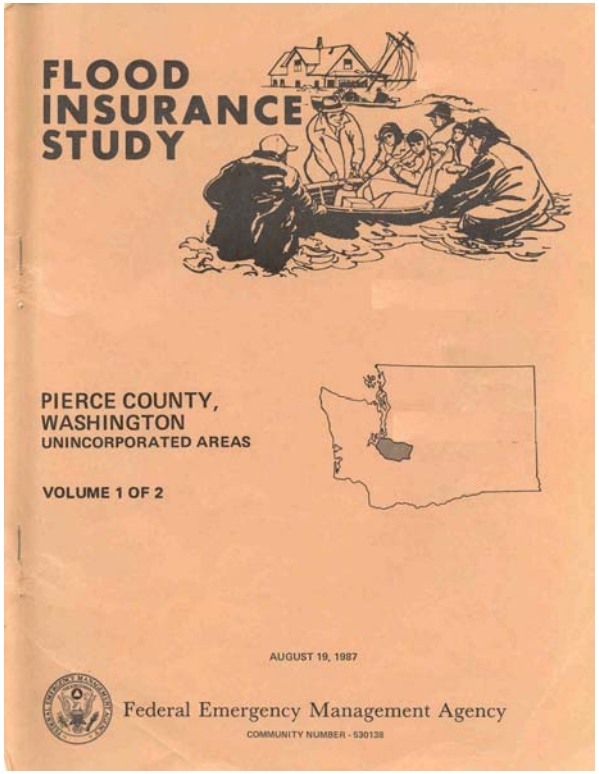
Who Benefits From NFIP?

Other beneficiaries include:

- Risk Managers & Hazard Mitigation Planners
- Emergency Responders

Preliminary FIS: Sept 28, 2007

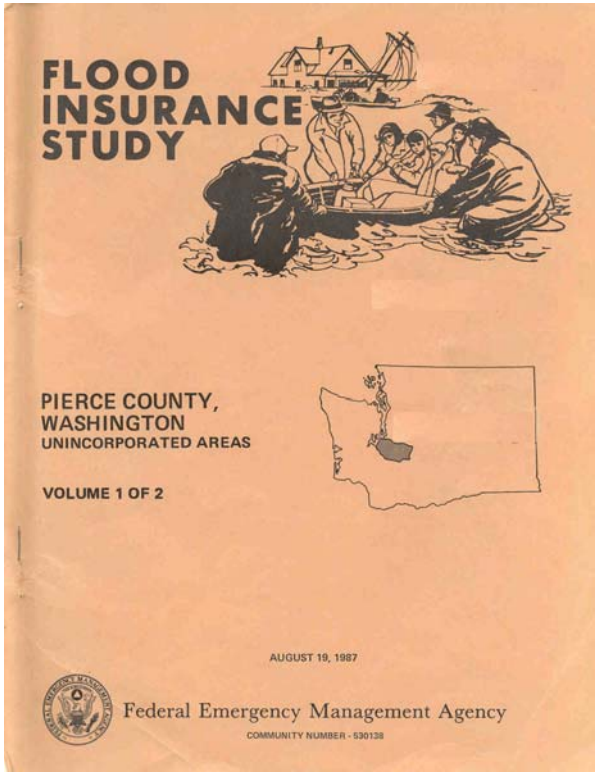
Purpose of Flood Insurance Study



- 1968 law requires FEMA to identify the nation's floodplains and establish flood risk zones
- Set insurance rates for insurance purposes
- Establishes SFHA for lender requirements
- Gives communities data on which to enforce the FPM ordinances required in the NFIP

Preliminary FIS: Sept 28, 2007

Flood Insurance Study (FIS) products

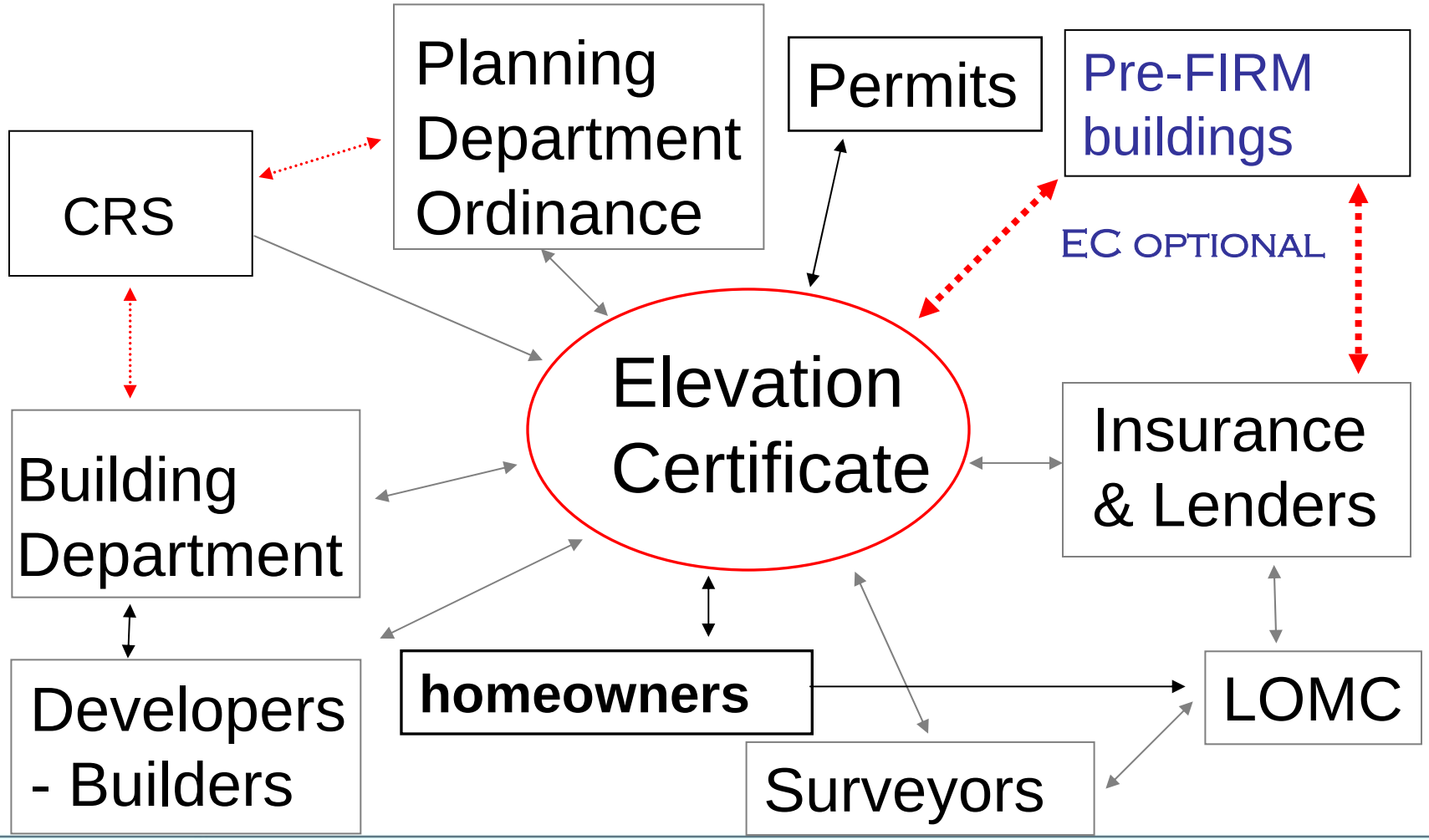


- narrative report of study
- stream profiles for 10, 50 100, 500-yr floods
- Most accurate BFE:
  FIRM is estimated BFE!
- Engineering methods used
- floodway data table contains the BFE within .1’
- Elevations govern over zone!

When Will it Flood?

Flood Frequency Years	Chance in any Year	% chance over 30 yr mortgage
10	*10 out of 100*	*96%*
50	*2 out of 100*	*46%*
100	*1 out of 100*	*26%*
500	*.2 out of 100*	*6%*

Floodplain Management



King County FIS Details

FEMA & Study Contractor

Restudies typically combine

Hydrology

- How much H_20?
- How often will it occur (atmosphere to land to the ocean)?

Hydraulics

- Deals with fluids in motion
- How the H_20 moves in the channel or floodplain?
- What is the flood elevation along a cross section?

Topography

- Compares what ground looks like to water surface elevations
- Forms boundary of FP

Digitization

- Converts existing study data into "geo-spatial" maps
- May include re-verified H&H, vertical datum shift, USGS quad layout, etc

Brief History of this study

- **<u>2003:</u>** $1 billion from Congress
  - National expectations: address high risk, high population, etc areas and leverage local and state efforts – RX creates a priority list
- **<u>FFY 05:</u>** CTP grant to Ecology includes King Co
  - July 2005: Scoping meeting held to discuss King Co study
  - Initial expectation was to produce a “digital conversion” and include some new studies on the Snoqualmie/Skykomish Rivers, Cedar River (via County & Renton), Springbrook Creek (via Renton), as well as additional studies and map revisions conducted locally over last several years

Brief History of this study

- **<u>Aug 2005:</u>** PM 34 Issued: requires FEMA to confirm status of levees prior to showing protection
  - Required FEMA to also re-evaluate North Creek Levees (Bothell) and Green River levees
  - FEMA begins assessing how this might impact the study – ongoing efforts to identify and acquire “best available data”
- **<u>July 2006:</u>** FEMA notifies all communities within King Co of PM 34 issue and requests local certification of levees
  - Communities given a month to provide certification or indicate some other position
  - Several meetings are held between FEMA and King County communities

Brief History of this study

- **<u>Aug 2006:</u>** Communities respond to FEMA request for levee certification documentation.
  - A portion of the Green River levee in Tukwila (west bank) is able to provide the appropriate certification (verified by FEMA in May 2007 based on a March 2007 letter)
  - A portion of the Cedar River in Renton is also re-certified (verified by FEMA in May 2007 based on a Sept 2004 USACE certification)

- **<u>April 2007</u>**: FEMA officially notifies all relevant communities that could not re-certify their levees that their maps would no longer reflect 100-year protection

- **<u>September 2007</u>**: FEMA issues preliminary maps

What's new

Flood Insurance Study

- Follows a USGS Quad layout – countywide coverage with no city "cut-outs"
- Digitized previous data in most city areas
- Green River floodplain mapped on County provided 2' LiDAR topo circa 2006
  - Maps no longer show the Green River confined within levee
  - BFEs from "without levee" scenario were used as best available data (data circa 1980s)
  - The flood elevation was mapped across new topo

What's new

Flood Insurance Study

- New study data for Springbrook Creek completed under a CTP agreement with FEMA
  - Due to Green River BFE, only floodway will be shown on our maps to protect against encroachments
  - Should Green River mapping change, this study may be included on future flood maps
- New study data for Cedar River – two sections, one conducted by County, the other by Renton
- Vertical datum changed
- Levees evaluated

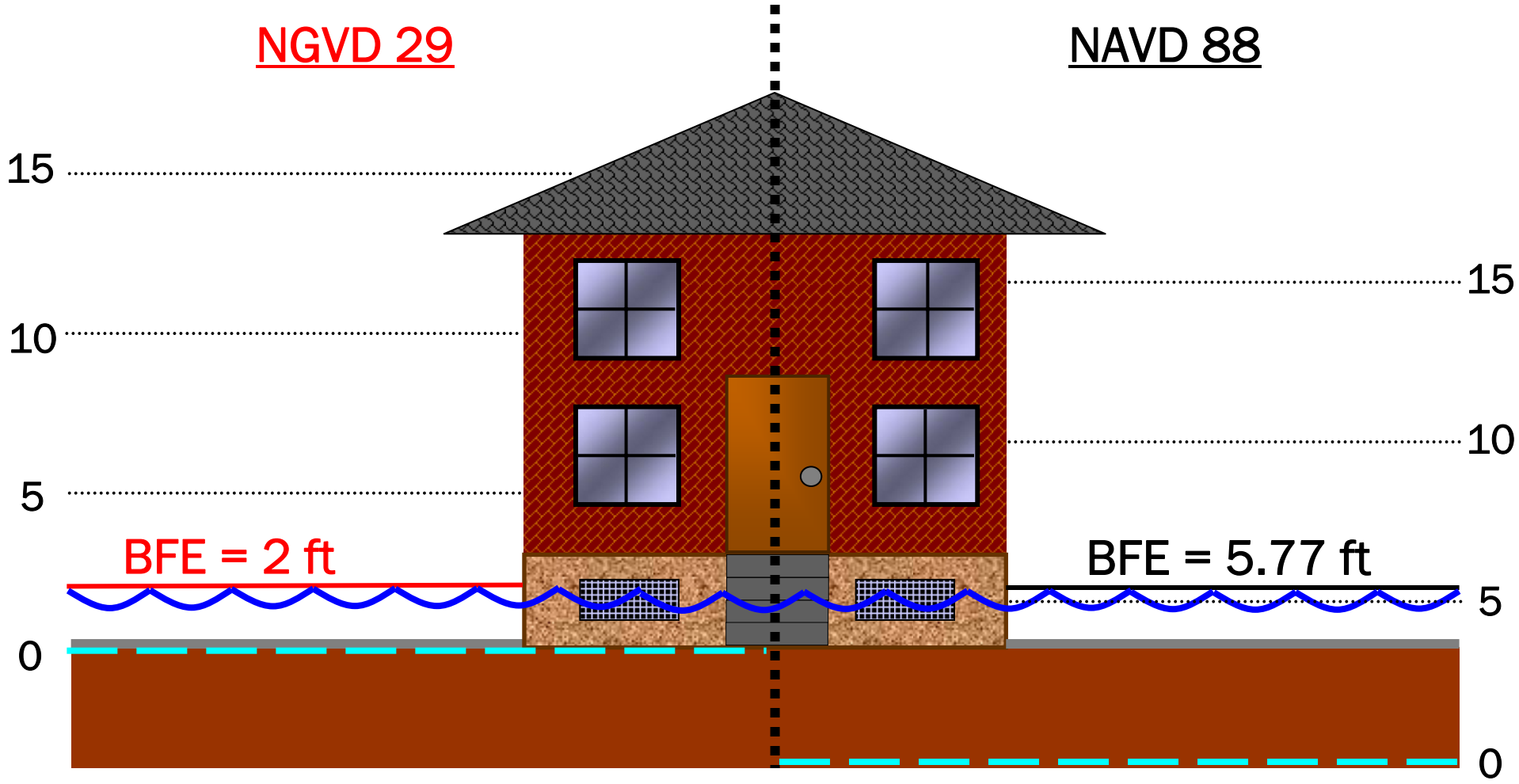
What's new

Vertical Datum Change

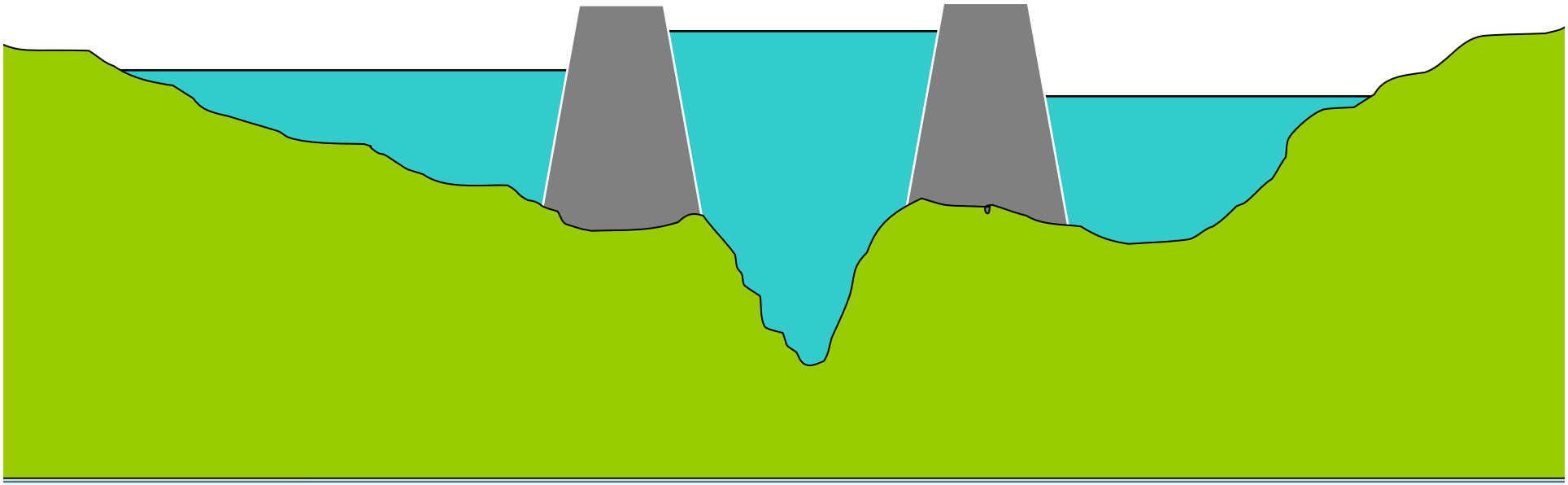
- **NGVD 29**
  - **Based on a mean sea level from 21 tidal stations in the US & 5 stations in Canada**
- **NAVD 88**
  - **Based on the density of the Earth instead of varying values of sea heights**
  - **More accurate**
- **Conversion in Pierce County Varies**
  - **NGVD + (vertical adjustment') = NAVD**
  - **See page 31 of Preliminary FIS Table 4**

Digital Flood Insurance Rate Maps

Vertical Datum and FIRMs (ex uses 3.77' conversion)

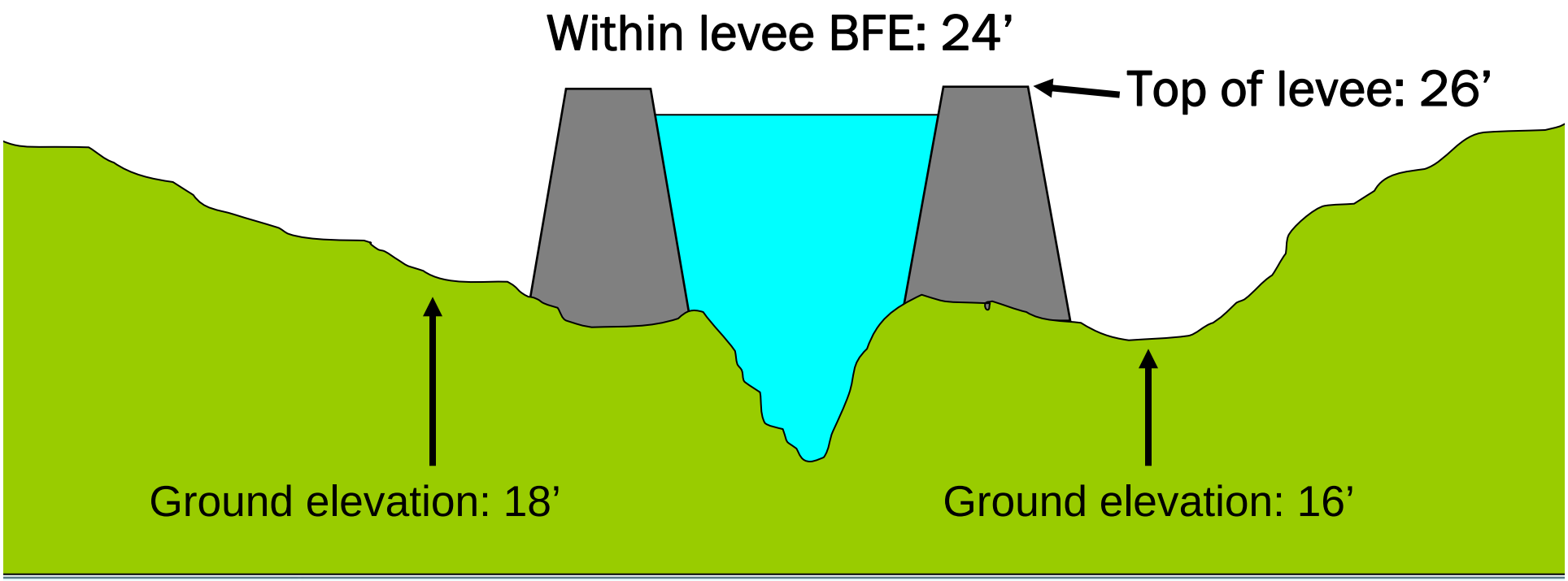


How does FEMA model levees?



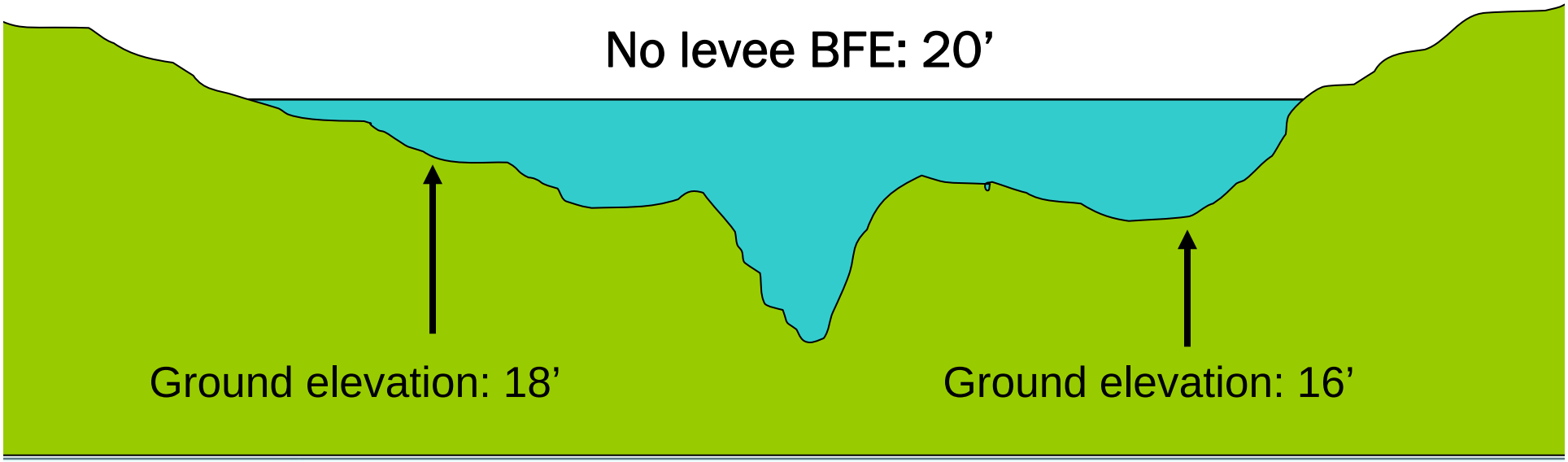
Baseline:
Do the levees have enough freeboard?

- Compare the height of levee to the BFE: Is there 3' of freeboard? Does it have a current maintenance plan?
- If not…



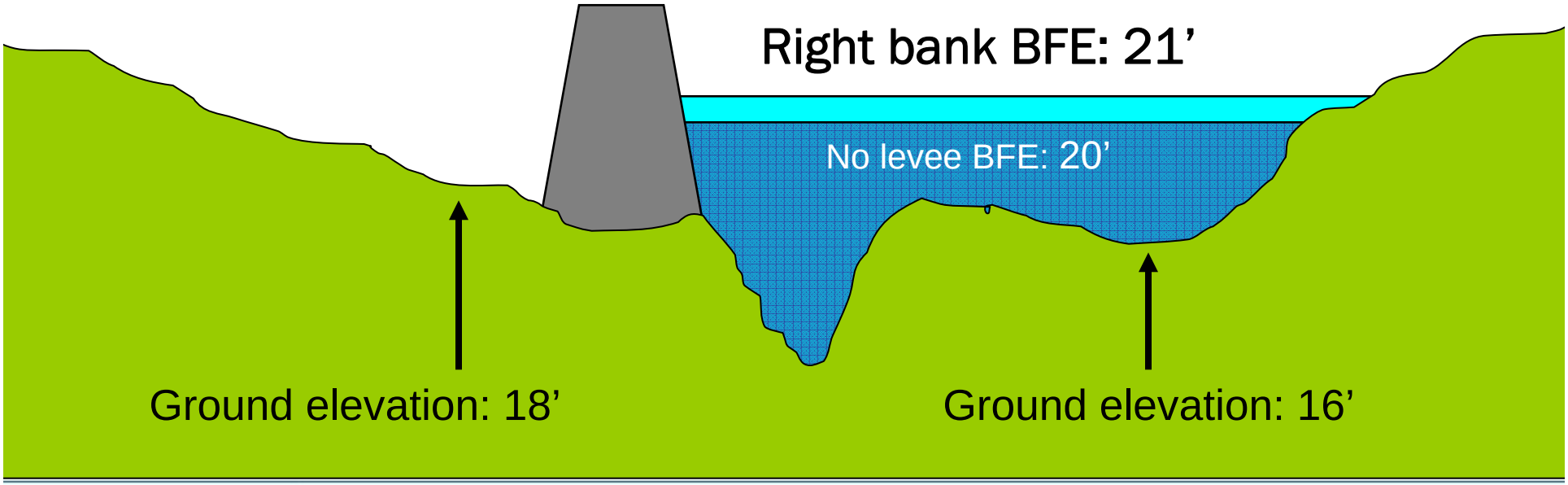
Scenario 1:
Assume no levees exist

- Establishes a baseline for comparison
- Used for calculating the Floodway
- Provides lowest BFEs



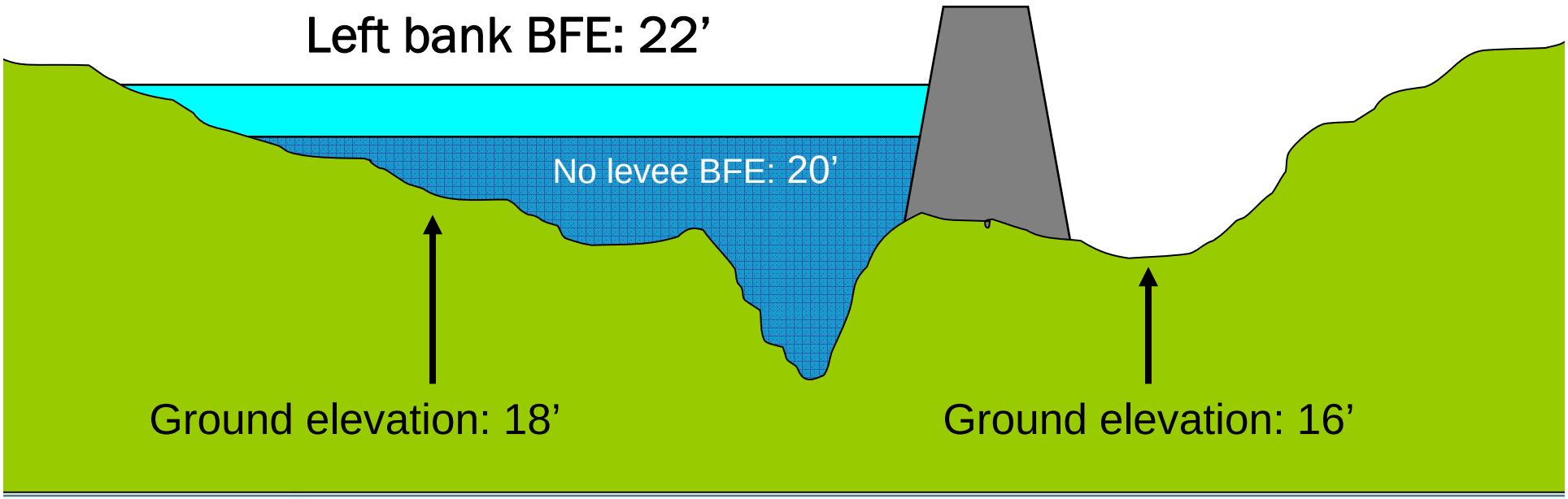
Scenario 2:
Simulate right bank Levee failure

This determines the BFE on the right bank (behind levee)



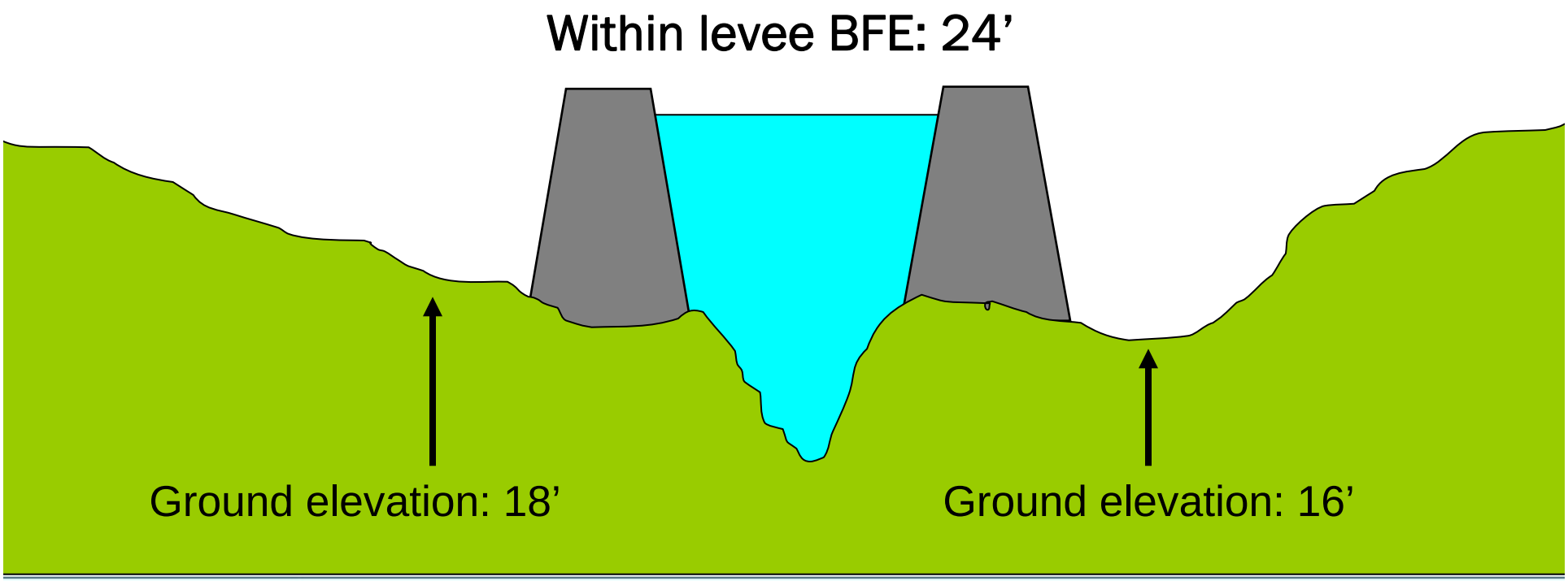
Scenario 3:
Simulate left bank levee failure

- This determines the BFE on the left bank (behind levee)



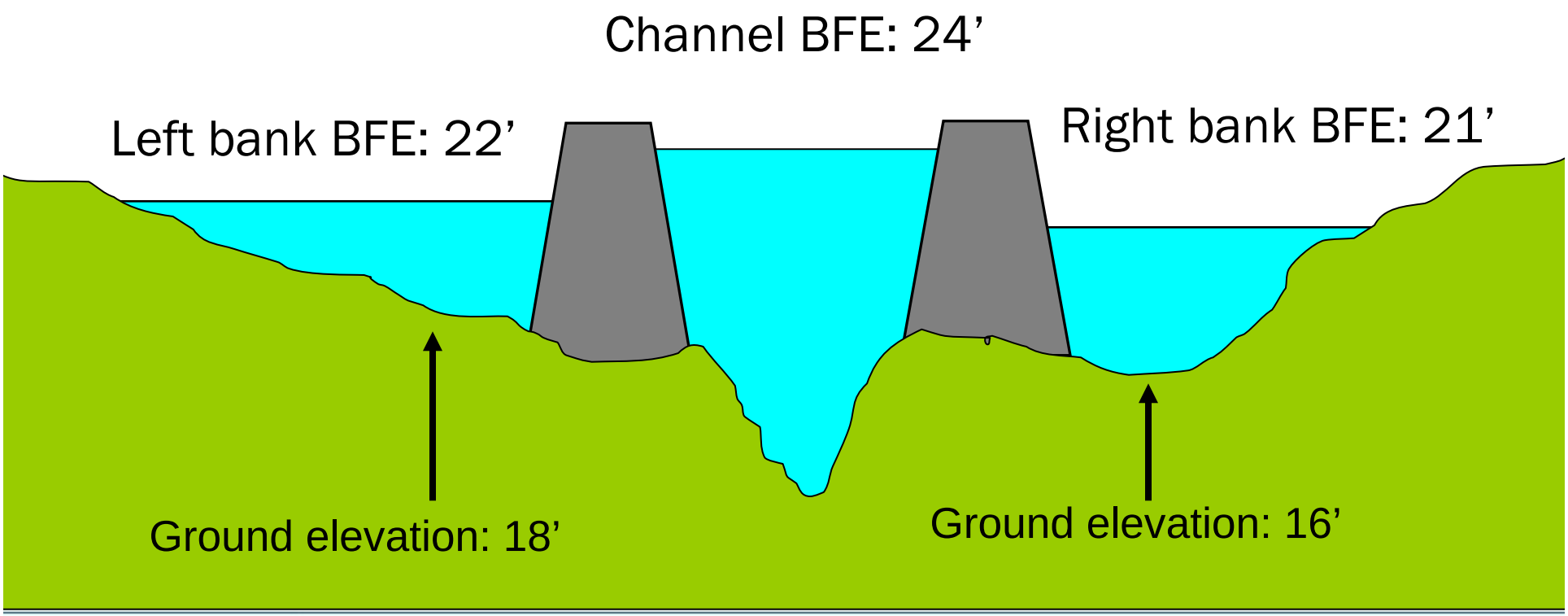
Scenario 4:
Simulate no levee Failures

- Determines the BFE within the levee
- Indicates insufficient freeboard?



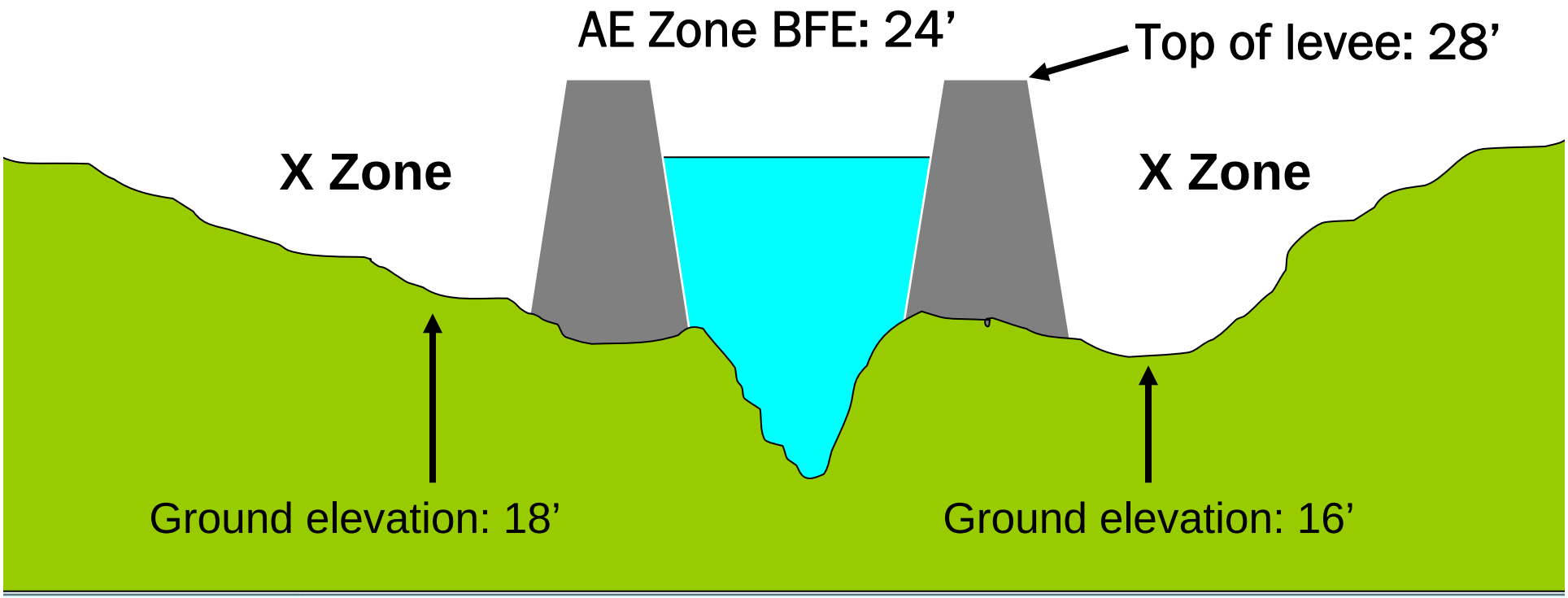
Mapping: Combine the results – Assign risk zone & assign BFE

- Final BFE shown reflects what would occur when a levee fails by factoring in the unknown of where the levee will fail



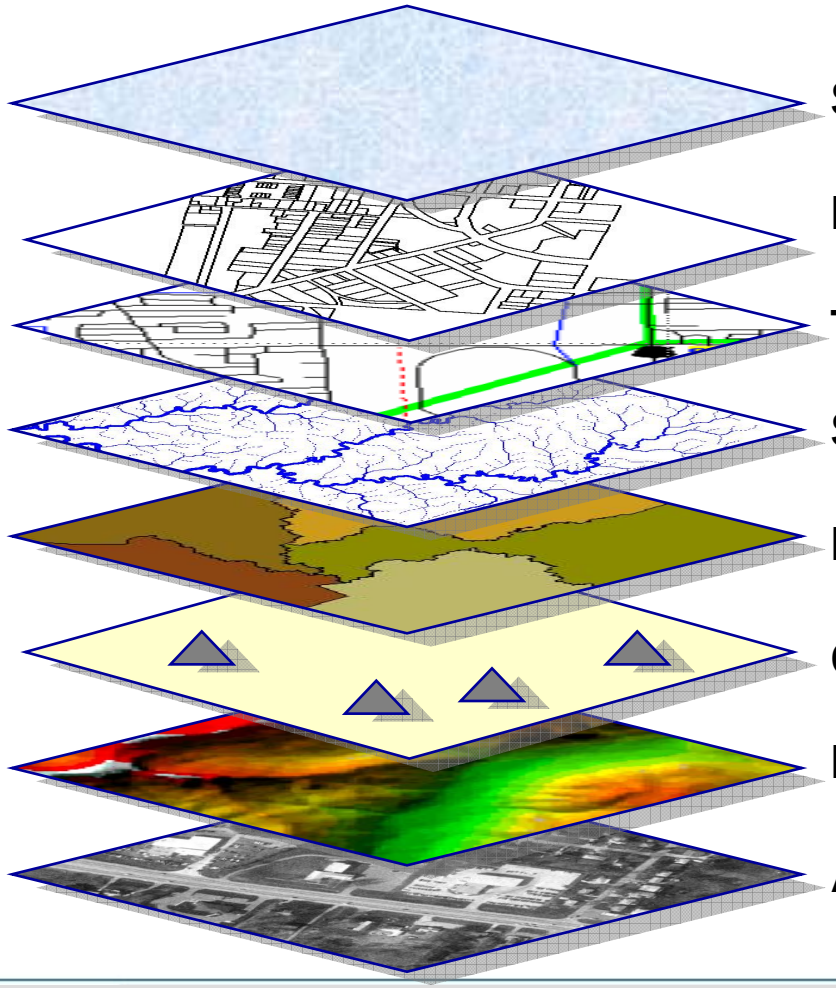
Is the levee accredited?

- Levees must meet standards identified at 44 CFR 65.10
- Based on FEMA Guidelines and Specifications for mapping
- Original interim levee policy: May 15, 1981



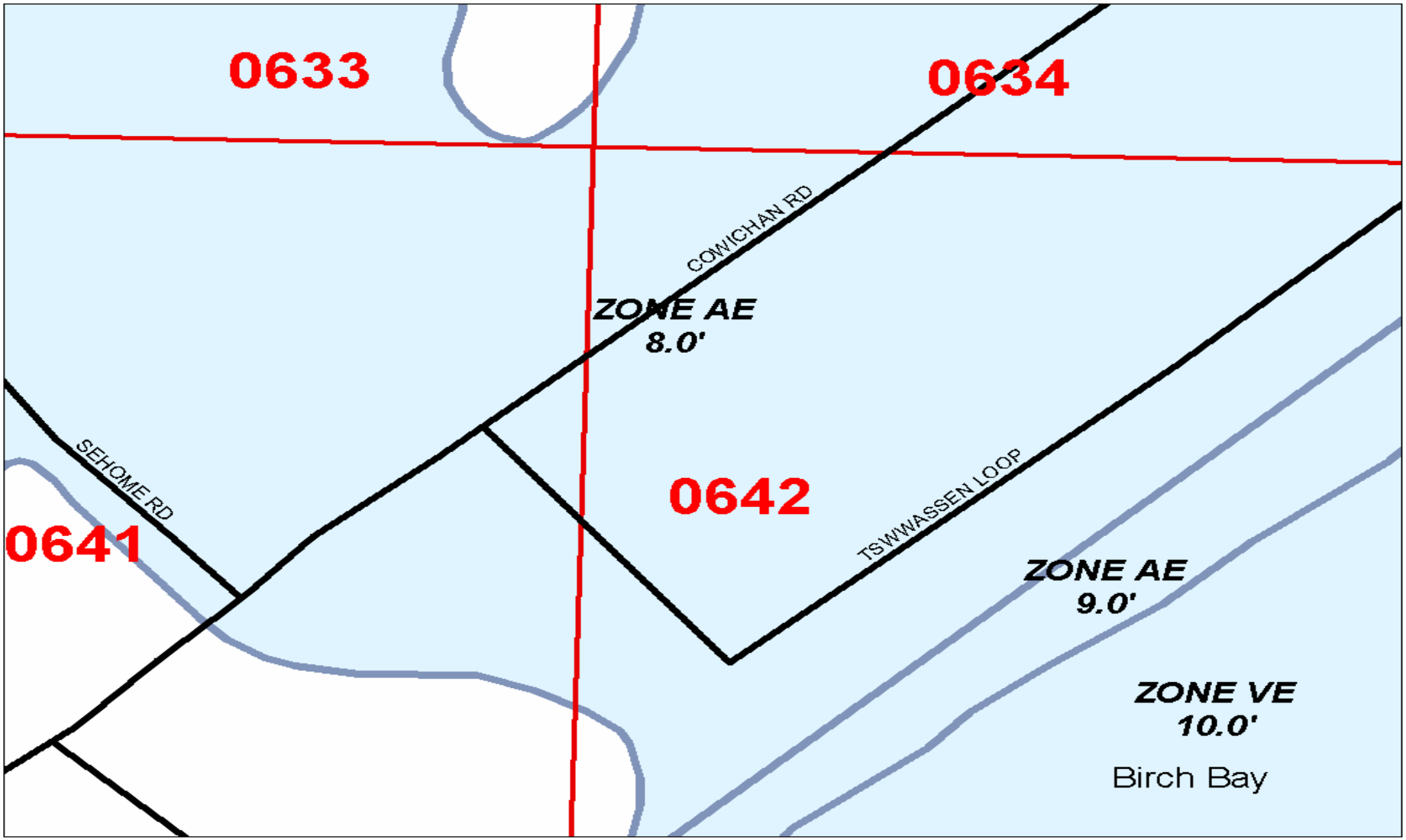
Digital Flood Insurance Rate Maps

Digital Format



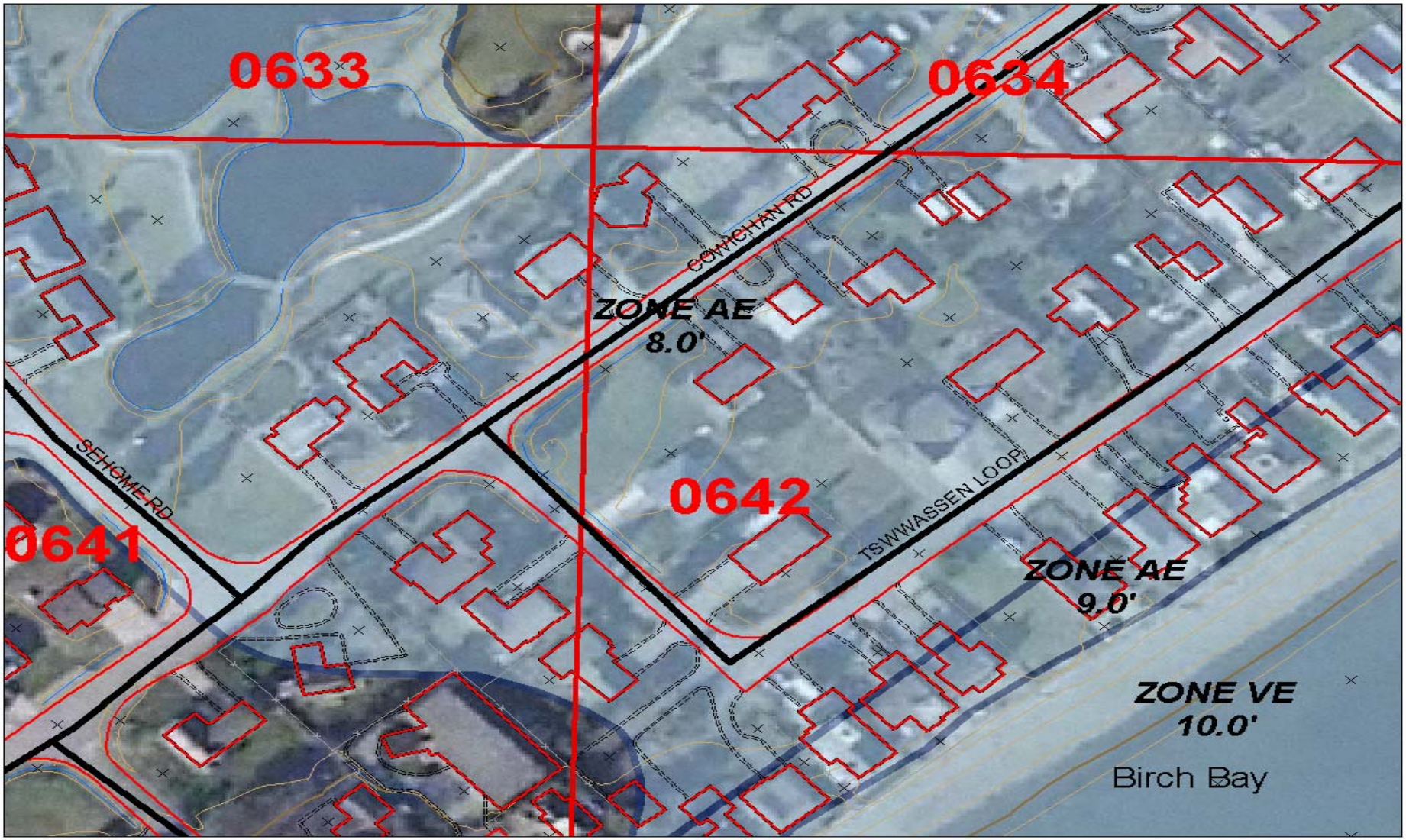
Digital Flood Insurance Rate Maps

Digital Floodplain Data



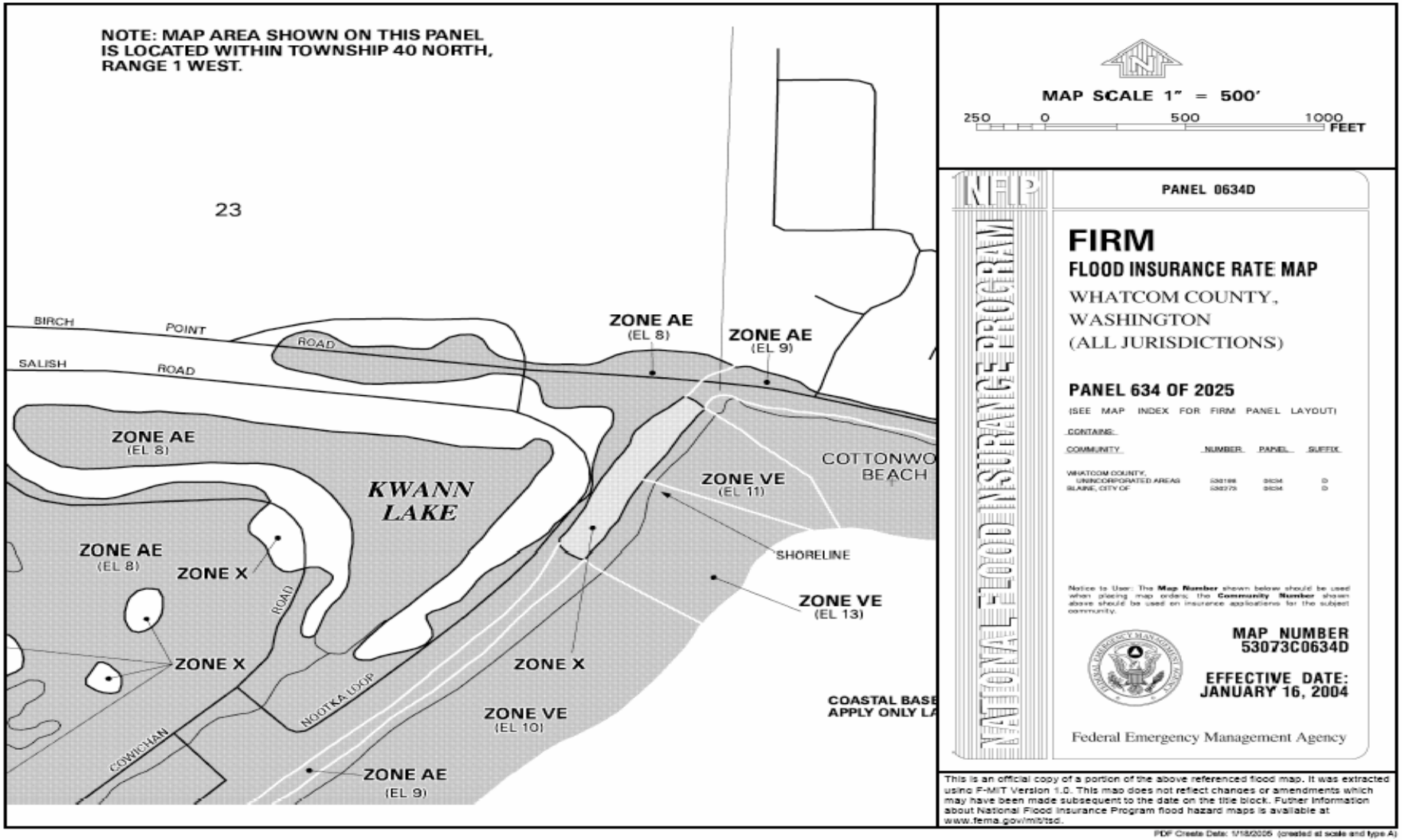
Digital Flood Insurance Rate Maps

Apply local parcel and topo layers…



Digital Flood Insurance Rate Maps

Paper Maps: "FIRMette" tool



Digital Flood Insurance Rate Maps

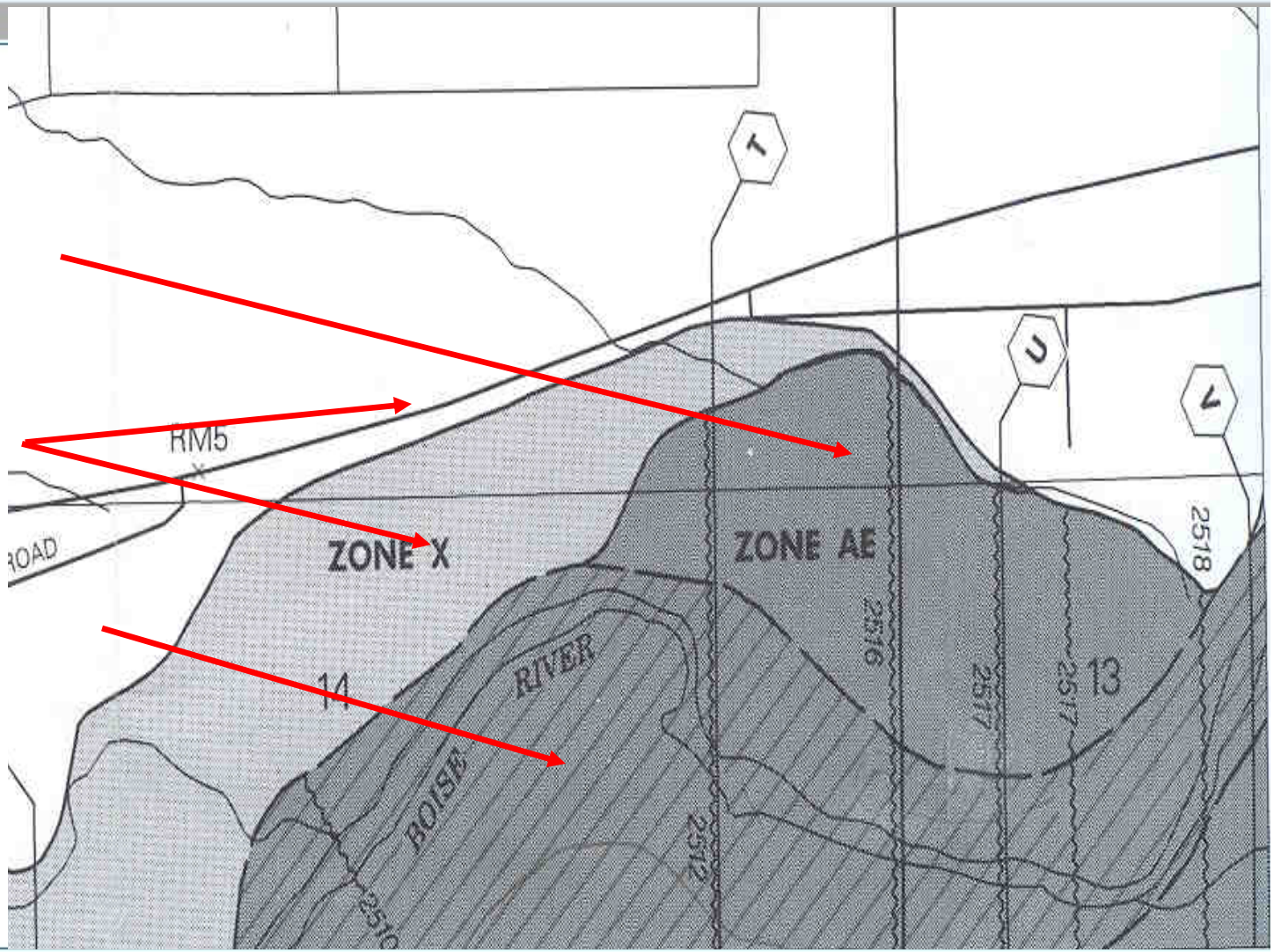
Zone Designation Changes

Old FIRMs	New FIRMs	Definition
A	A	Approximate Floodplain (SFHA)
A1- A30	AE	Detail River Floodplain (SFHA)
A99	A99	Protected by Levee
AH	AH	Shallow Floodplain with BFE
AO	AO	Shallow FP without BFE
B	X (shaded)	500 Year Floodplain
C	X (un-shaded)	Outside 500 Year Floodplain
D	D	Undetermined Floodplain
V	V	Approx Coastal Floodplain
V1-30	VE	Detailed Coastal Floodplain

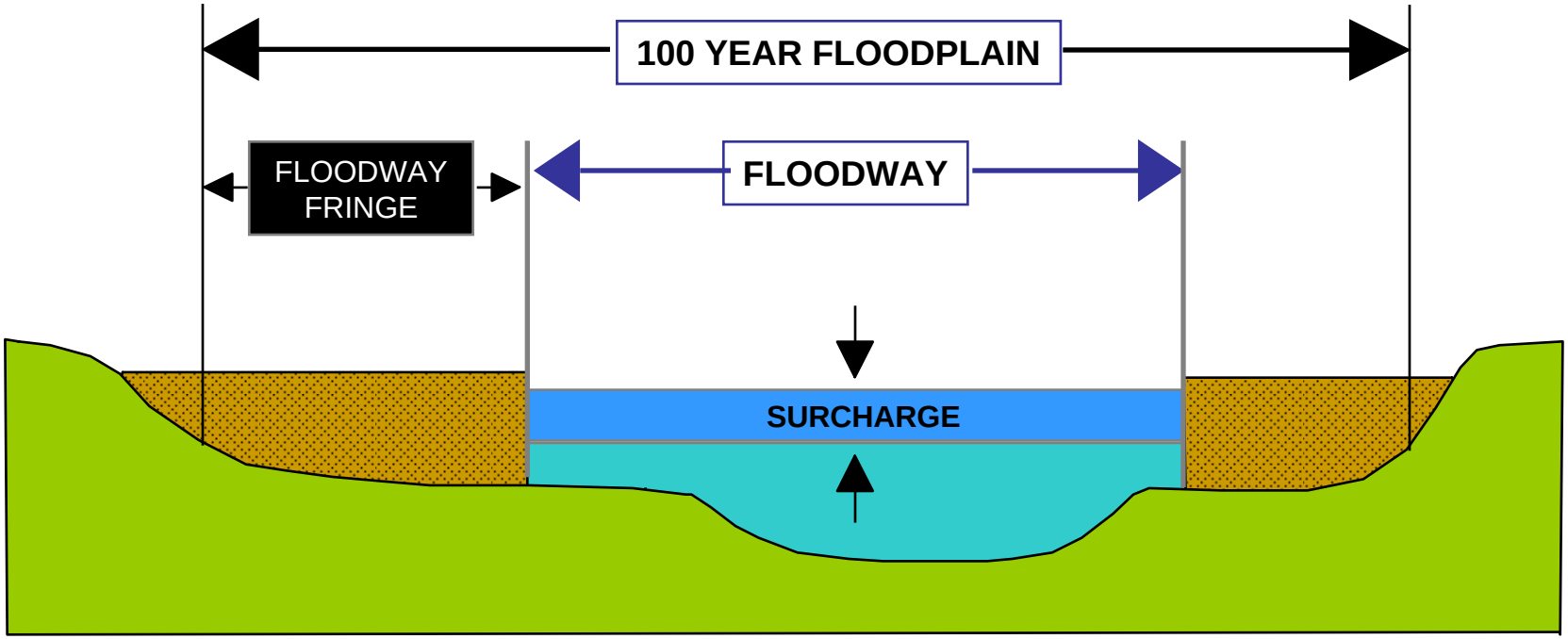
Digital Flood Insurance Rate Maps

FIRM Labels

- **AE Zone**
- **X Zone (shaded)**
- **Floodway**



FLOODWAY SCHEMATIC



FLOODWAY + FLOODWAY FRINGE = 100 YEAR FLOODPLAIN
SURCHARGE NOT TO EXCEED 1.0 FEET

Flood Insurance Ramifications

King County Facts

CRS Class 2 = 40% discount (as of October 1, 2007)

- Participating in the regular phase of the NFIP since 9/29/1978
- 1965 policies with an average premium of $546 / year *WA Average: $606 / year*
- 628 historic claims paid or $11,733,464 policy payouts
- $433 million in insurance coverage
- 82 Repetitive loss buildings
- 8 Severe rep loss sites (insured building with 4+ losses)

Beaux Arts Village Facts

- **Participating in the regular phase of the NFIP since 2/4/2000**
- **0 policies with an average premium of $0 / year** ***WA Average: $606 / year***
- **0 historic claims paid**
- **$0 in insurance coverage**
- **0 Repetitive loss buildings**
- **0 Severe rep loss sites (insured building with 4+ losses)**

Bellevue Facts

CRS Class 5 = 25% discount

Participating in the regular phase of the NFIP since 12/1/1978

- 184 policies with an average premium of $289 / year
  WA Average: $606 / year
- 26 historic claims paid totaling $478,712 in policy payouts
- $43.3 million in insurance coverage
- 2 Repetitive loss buildings
- 0 Severe rep loss sites (insured building with 4+ losses)

Bothell Facts

- Participating in the regular phase of the NFIP since 6/1/1982
- 10 policies with an average premium of $357 / year
  WA Average: $606 / year
- 7 historic claims paid totaling $33,665 in policy payouts
- $2.5 million in insurance coverage
- 0 Repetitive loss building
- 0 Severe rep loss sites (insured building with 4+ losses)

Kenmore Facts

- Participating in the regular phase of the NFIP since 11/13/1998
- 7 policies with an average premium of $776 / year

  WA Average: $606 / year
- 0 historic claims paid
- $1.6 million in insurance coverage
- 1 Repetitive loss buildings
- 0 Severe rep loss sites (insured building with 4+ losses)

Kirkland Facts

- Participating in the regular phase of the NFIP since 6/15/1981
- 15 policies with an average premium of $301 / year
  WA Average: $606 / year
- 2 historic claims paid totaling $8,843 in policy payouts
- $3.3 million in insurance coverage
- 0 Repetitive loss buildings
- 0 Severe rep loss sites (insured building with 4+ losses)

Lake Forest Park Facts

- Participating in the regular phase of the NFIP since 2/15/1980
- 7 policies with an average premium of $721 / year
  WA Average: $606 / year
- 0 historic claims paid
- $1.5 million in insurance coverage
- 0 Repetitive loss buildings
- 0 Severe rep loss sites (insured building with 4+ losses)

Medina Facts

- Participating in the regular phase of the NFIP since 3/16/1979
- 2 policies with an average premium of $352 / year
  WA Average: $606 / year
- 0 historic claims paid
- $700,000 in insurance coverage
- 0 Repetitive loss building
- 0 Severe rep loss sites (insured building with 4+ losses)

Shoreline Facts

- Participating in the regular phase of the NFIP since 3/4/1997
- 2 policies with an average premium of $305 / year
  WA Average: $606 / year
- 0 historic claim paid
- $560,000 million in insurance coverage
- 2 Repetitive loss buildings
- 0 Severe rep loss sites (insured building with 4+ losses)

Woodinville Facts

- Participating in the regular phase of the NFIP since 10/10/1997
- 19 policies with an average premium of $2350 / year
  WA Average: $606 / year
- 0 historic claims paid
- $560,000 million in insurance coverage
- 2 Repetitive loss buildings
- 0 Severe rep loss sites (insured building with 4+ losses

Development

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

** Permits are required for all "development" in the floodplain.*

Substantial Damage

Means damage <u>of any origin</u> sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

* Insured buildings that are SD may be eligible for an additional $30k in coverage to elevate, relocate, demolish, or floodproof (or any combination thereof)

Substantial Improvement

Means any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50% of the *market value* of the structure before the 'start of construction' of the improvement"

- *Substantial Improvement = "new construction"*
- *RCW 86.16 prohibits SI in floodway*
- *Full definition, see 44CFR59.1 or WA Model Ord Section 2.0*

Bank & Lender Responsibility

Flood insurance is required for all mortgage properties which fall under one of the following three criteria:

1. **Federally-backed loan**
2. **Federally-regulated lending institution (FDIC)**
3. **Sold on secondary market through GSE**

*** Rates and mandatory purchase requirements are linked <u>only</u> to the "effective" maps, not the preliminary maps**

Flood Insurance and Preliminary Maps

- New structures in Approximate A Zones can be permitted and built to the preliminary BFE (if available). Insurance rates for such buildings is considerably less than policies that are rated without a BFE.

- *Conversely*…New structures built to a proposed BFE that is <u>lower than the</u> <u>effective</u> BFE may result in a significantly higher flood insurance rate and should not be permitted.

Flood Insurance and Preliminary Maps

- Policies are rated based on the maps in effect at the start of construction
- If a community uses preliminary BFEs, the flood insurance rate is still based on the FIRM in <u>effect on the date of construction</u>.
  - However…If the new maps indicate a more favorable rate, the policy holder will benefit from the lesser rate when the maps become effective.

Flood Insurance Rates

2007 Post FIRM Residential Rates ($100k)

3 ft above BFE = $196

2 ft above BFE = $261

1 ft above BFE = $411

0 ft at BFE = $741

-1 ft below BFE = $2,296

-2 ft below BFE = $2,535

-3 ft below BFE = $2,825

-5 ft below BFE = $5,500

Flood Insurance

Grandfathering Rate Require Documentation

- FEMA will allow the policy holder to continue to benefit from the original rating of that building.
- Policies are transferable from one owner to another (e.g. due sale of property)
- Owner has the option of using the updated maps as the rating criteria for that property or continuing to use the rate established based on the original (old) maps.

Or…

Flood Insurance

Grandfathering Rate Require Documentation

A policy holder can provide sufficient documentation

- The date of the FIRM in effect when building was constructed
- The flood zone from that FIRM in which the property is located
- The Base Flood Elevation (BFE) for that zone (if applicable)
- A copy of the map panel showing the location of the building
- The rating element that is to be grandfathered (rate or zone).
  - Evidence supporting the rating element includes documents such as Elevation Certificates.
  - A letter from the community official verifying this information also is acceptable, as long as the above information is provided.

Flood Insurance

Grandfathering Rates

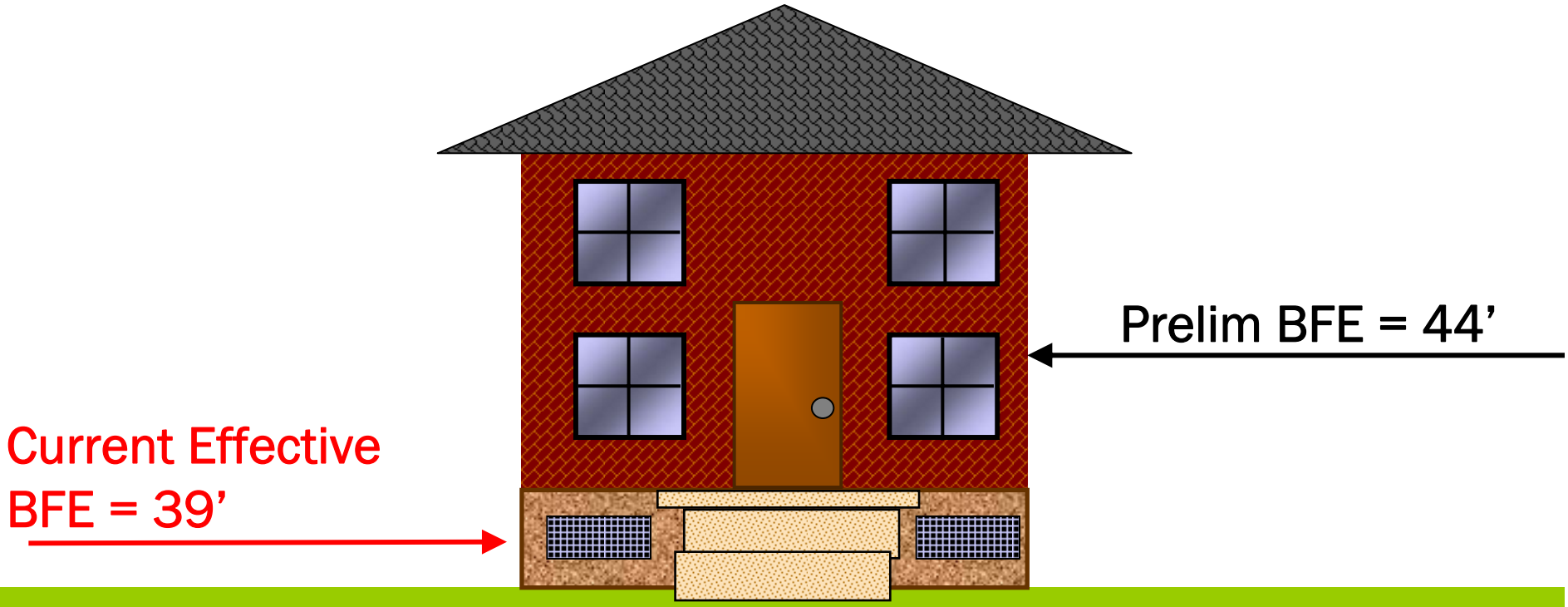
Why use the draft maps for permitting?

- If a building is voluntarily elevated today using the draft BFEs, when the maps become effective, that owner will still be able to pay rates reflecting the additional freeboard!

- **The key to rating buildings built in compliance with old maps is to retain copies of the old maps!**

Grandfathering

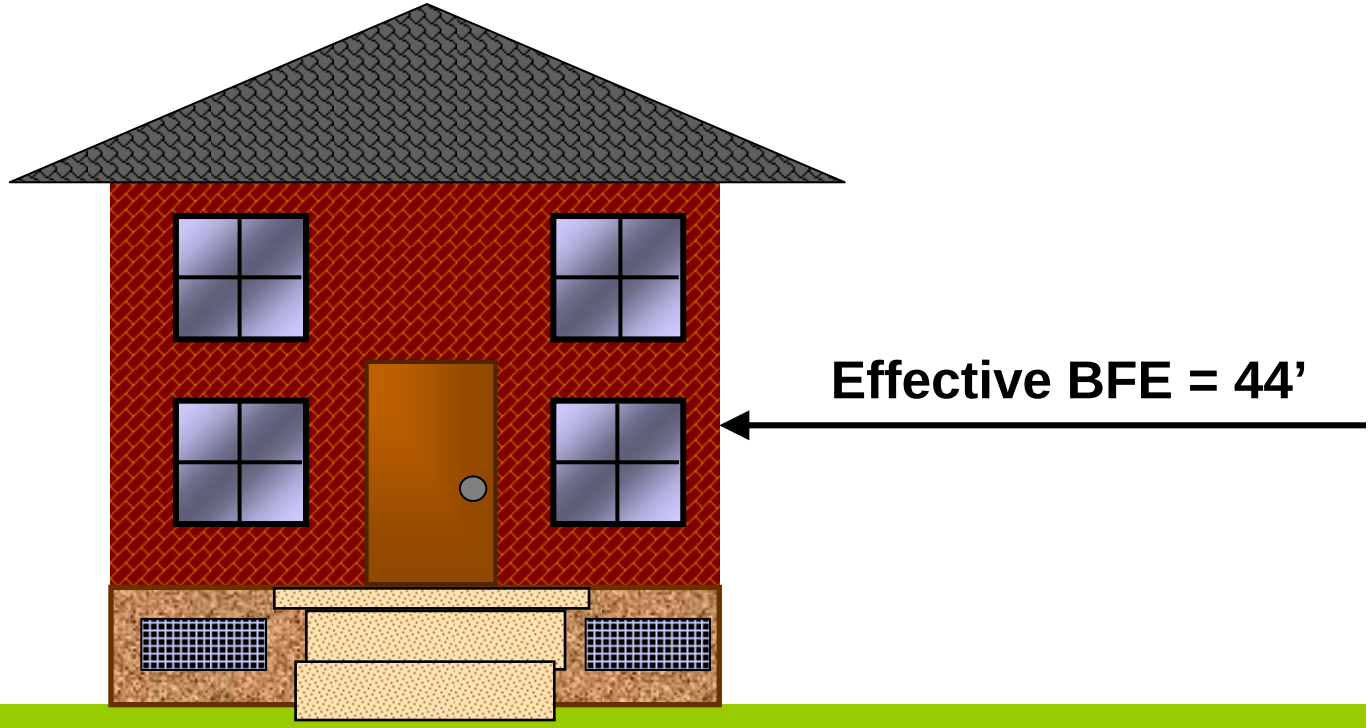
2007 – Existing, Compliant, Post-FIRM Structure



Annual premium: ~$411 (BFE +1’ rate)
for $100,000 insurance

Grandfathering

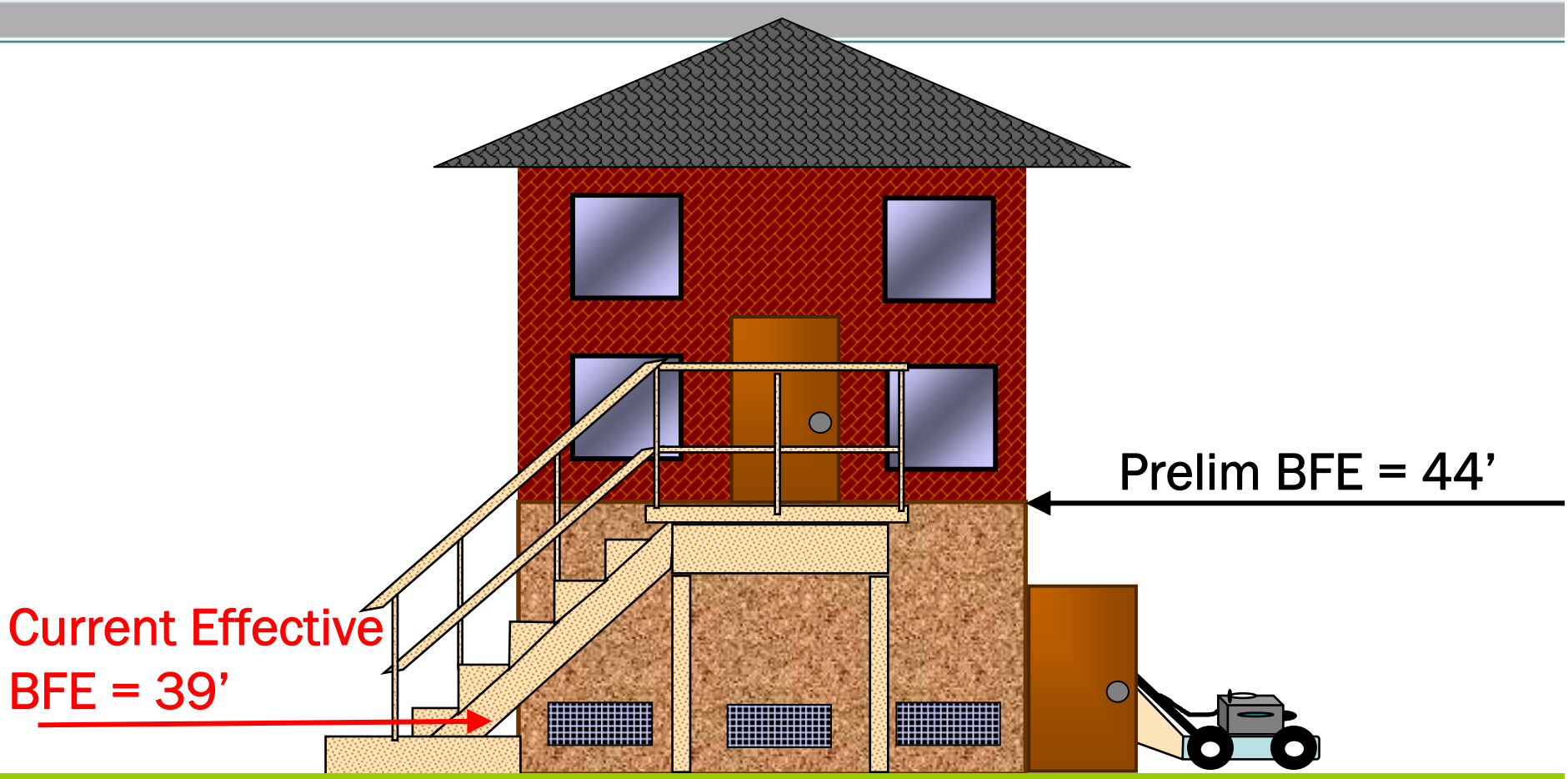
2007 – Existing, Compliant, Post-FIRM Structure: no changes



Grandfathered annual premium: ~$411 (retains BFE +1’ rate) for $100,000 insurance (unless substantially improved)

Grandfathering

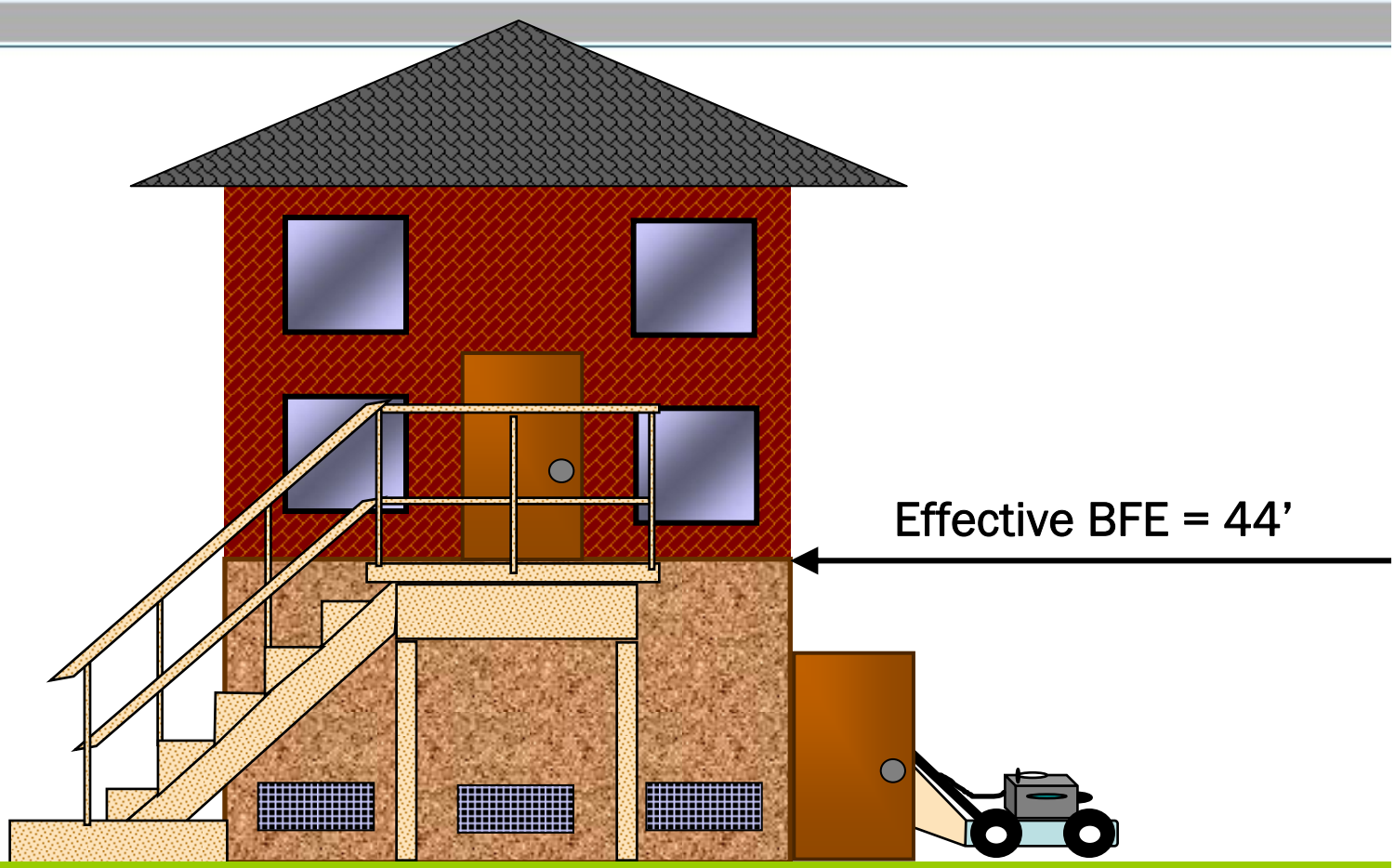
2007 – New construction or substantial improvement



Annual premium: $196 (BFE + 5’ rate)
for $100,000 insurance

Grandfathering

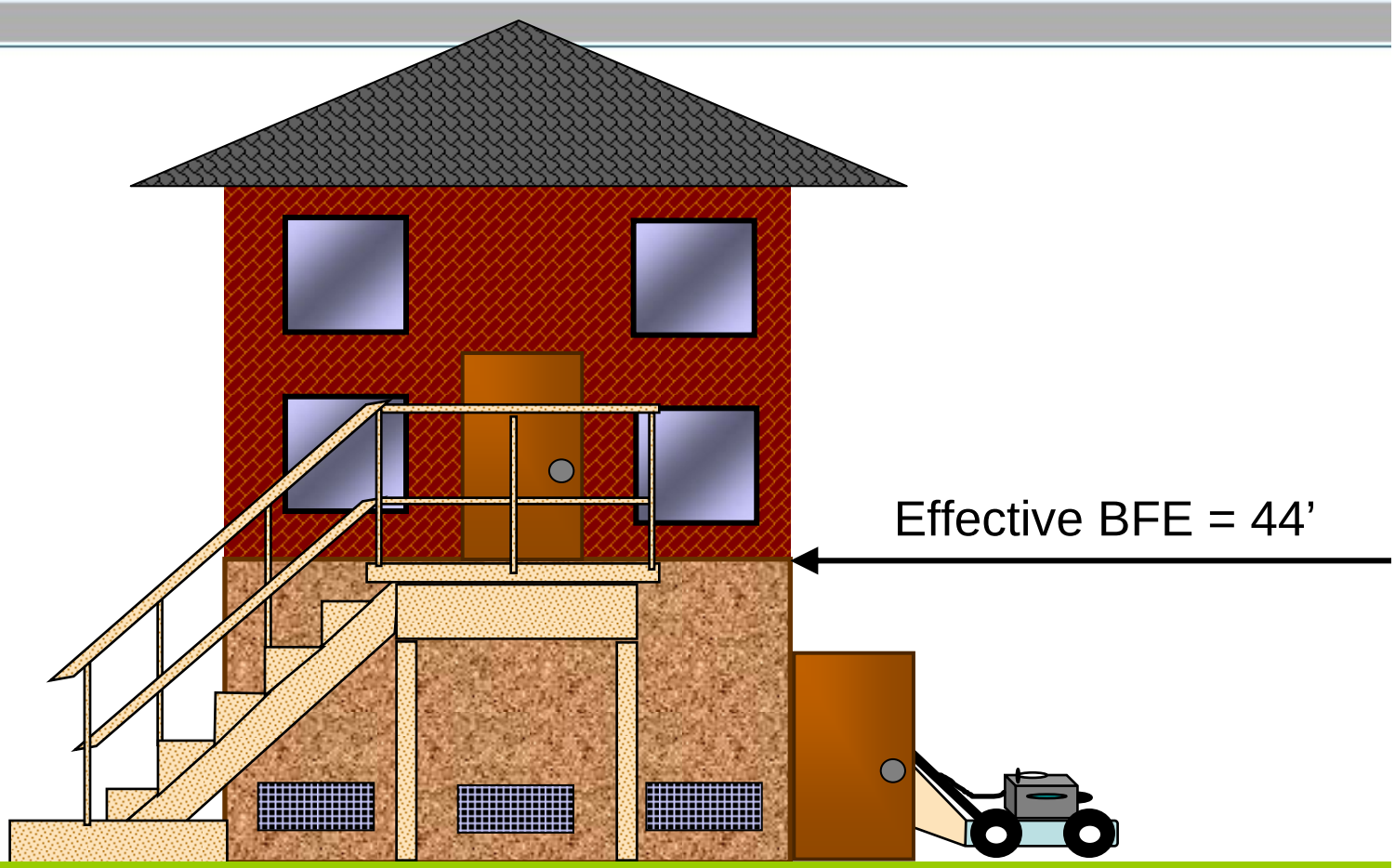
Future new construction or substantial improvement



Annual premium: $196 (retain BFE + 5’ rate)
for $100,000 insurance

Grandfathering

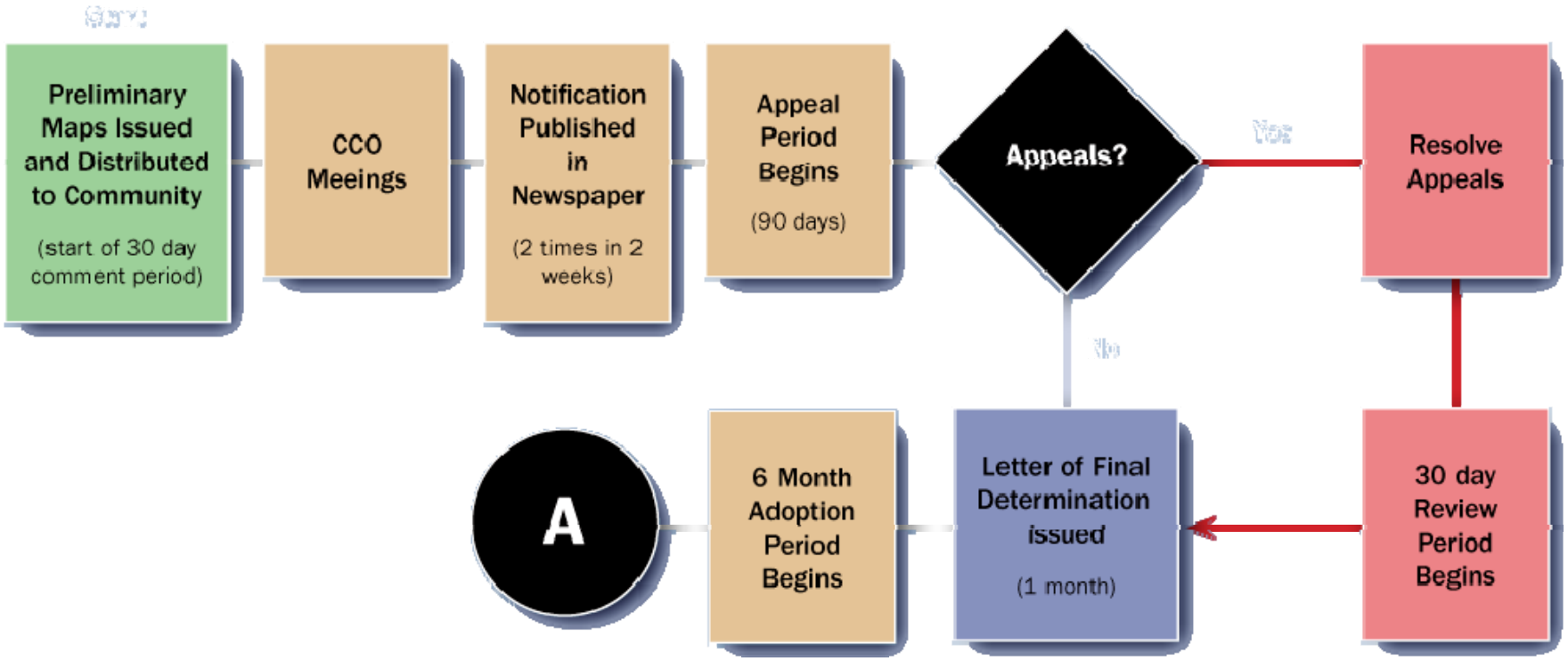
Future New construction or substantial improvement



No grandfathering annual premium: ~$741 (at BFE)
for $100,000 insurance

King County
Adoption Process

Adoption Process



Restudy Process

Timeline of events

- Preliminary maps issued – September 28, 2007
- Hold Final CCO meeting – Oct/Nov 2007
- 90 day appeal period begins after 2nd public notice in local newspaper – est. November 30, 2007
- 90-day appeal period ends – est. February 28, 2008
  - FEMA reviews submitted technical appeals and modifies or maintains maps as appropriate
- FEMA issues "Letter of Final Determination (LFD)" to communities and publishes the BFEs in the Federal Register – est. March 2008
  - Communities have 6 months to adopt the study before the data becomes "effective". *Failure to adopt results in suspension from NFIP*
- Effective date – est. September 2008

90 day Appeal Period

Appeals

- *"requests for changes to proposed BFEs"*
- *Must be based on scientific evidence demonstrating error*
- *<u>FEMA will not accept anecdotal information as the basis of a BFE change on a single lot</u>*

Protests

- *"requests that do not involve BFEs"*
- *floodplain boundaries*
- *corporate limits*
- *road locations*
- *road names*
- *etc.*

Letters of Map Change (LOMC) (ways to appeal at any time)

- **LOMA -** for property owners who believe a property was incorrectly included in a SFHA. An elevation certificate supports a LOMA, but by itself, does not remove the insurance requirement.
- **LOMR –** removes land that has been graded or filled (physical changes) since the date of the map. A LOMR can waive flood insurance requirements.

- **(LOMA) Hotline - 1-877-FEMA-MAP**

Next Steps

- Submit your appeal or protest to your community, or…

- Regional Management Center
  Attn: Debi Heiden
  710 Second Ave., Suite 1160
  Seattle, WA 98104

- **Send additional data requests to:**
  RMC10@mapmodteam.com

Questions & Comments

FEMA Region X **- Ryan Ike, CFM (425) 487-4767**
John Graves, CFM (425) 487-4737
Ecology, NWRO - **Chuck Steele (425) 649-7139**
NFIP Insurance **- Leslie Melville (425) 482-0316**

King County Flood Topics:
www.metrokc.gov/dnrp/wlr/flood/dfirm

Flood Insurance Information:
www.floodsmart.gov

FAQs for Preliminary FIS usage:
www.fema.gov/plan/prevent/floodplain/fis_data.shtm#4

FAQs for residents living behind levees:
www.fema.gov/plan/prevent/fhm