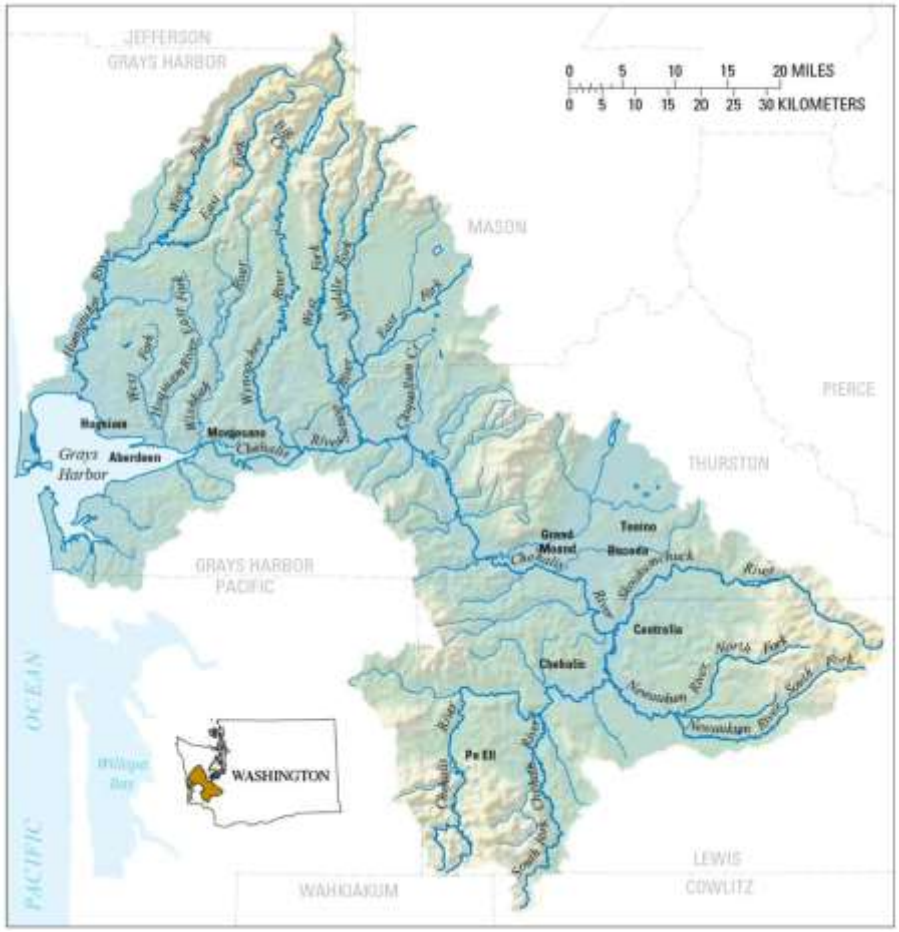
# Adopting Higher Regulatory Standards

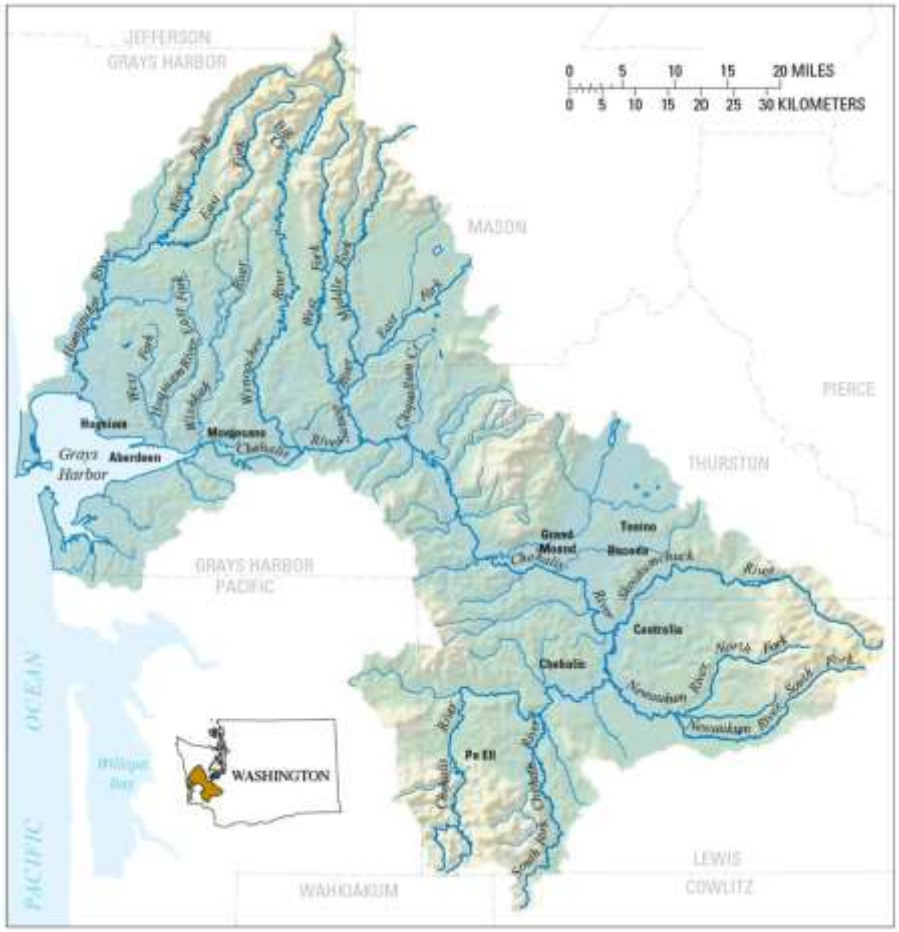



# Adopting Higher Regulatory Standards

French Wetmore, CFM
French & Associates, Ltd.
Steilacoom, WA

Chehalis River Basin Flood Authority

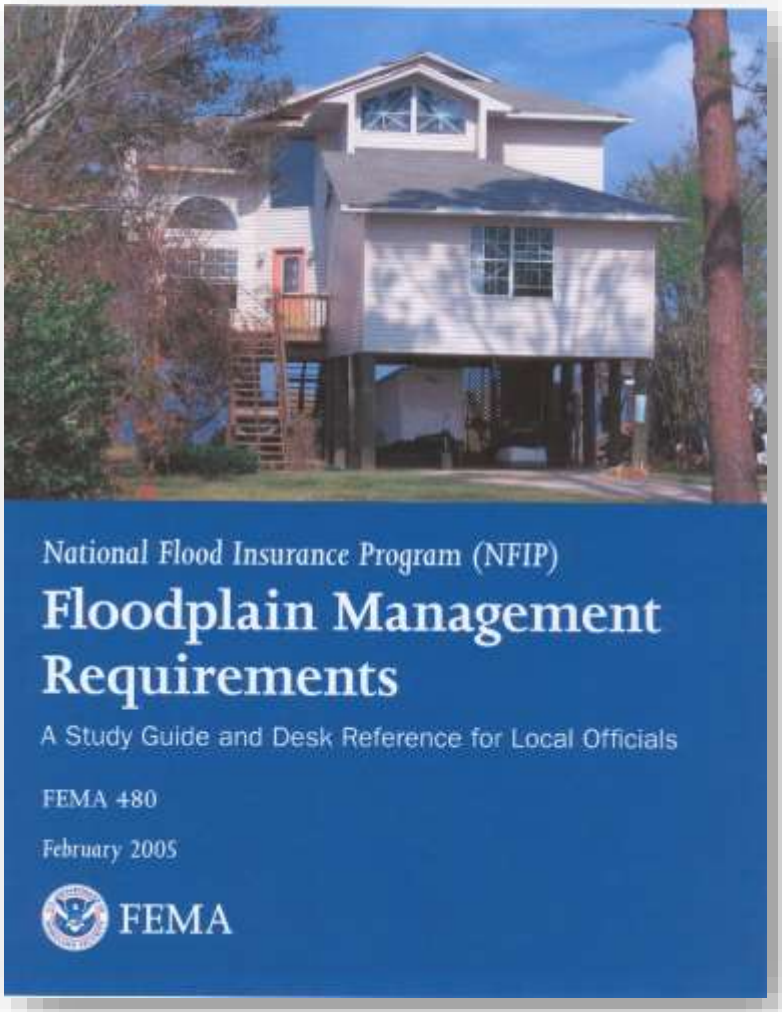
# Adopting Higher Regulatory Standards




## Adopting Higher Regulatory Standards

1. Why Go Higher?
2. Higher Standards
3. Getting Them Adopted

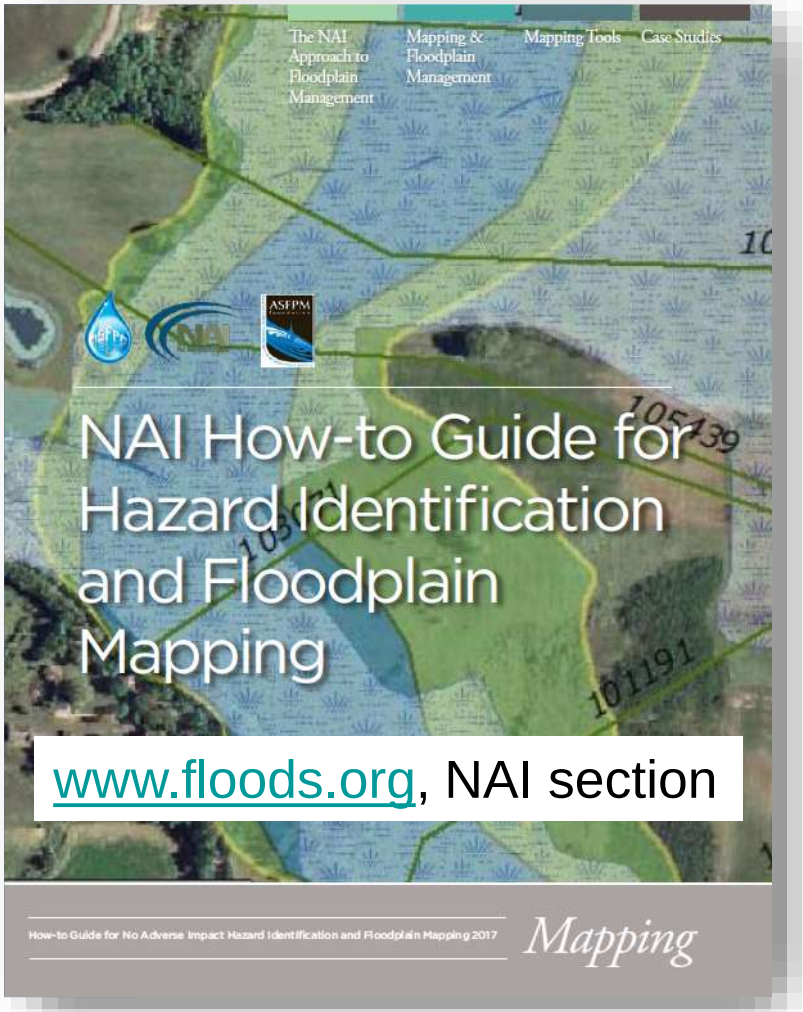
# Adopting Higher Regulatory Standards




## 1. Why Go Higher?

1. NFIP mapping criteria
2. NFIP regulations

# Adopting Higher Regulatory Standards




## 1. Why Go Higher?

### 1. NFIP mapping criteria

→ Map accuracy trade off with costs

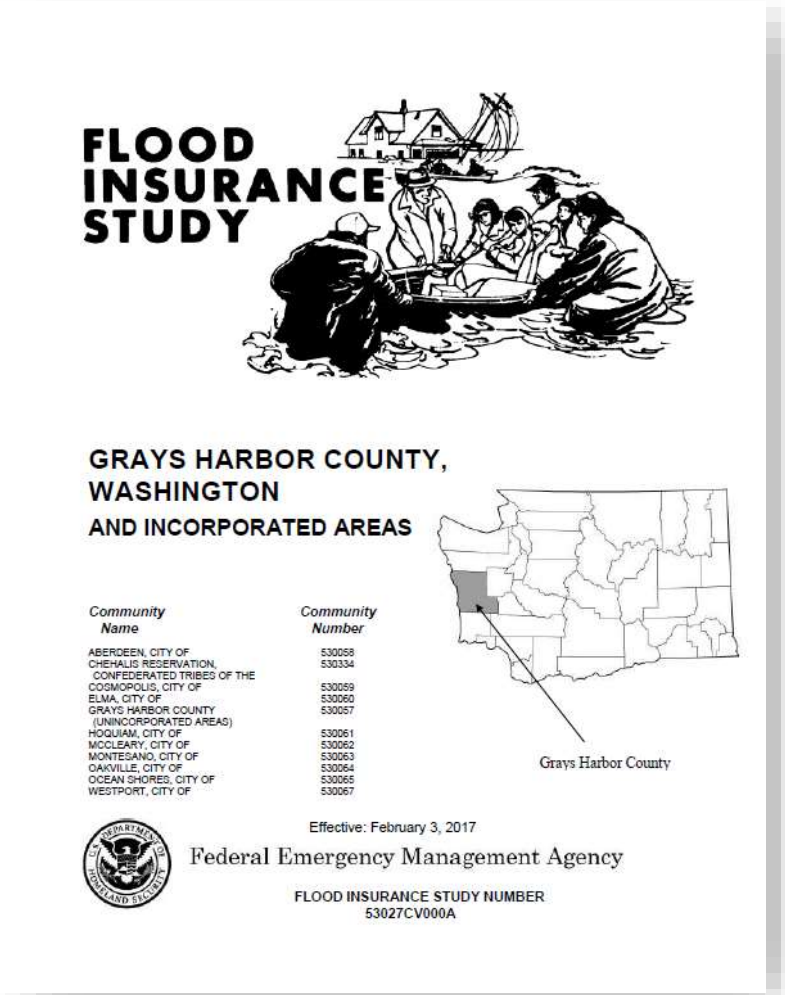
→ 100-year flood standard

→ Map areas already developed or expected to develop

→ Urban: Watershed drains 1 sq. mi.

→ Rural: Watershed drains 10 sq. mi.

# Adopting Higher Regulatory Standards




## 1. Why Go Higher?

Current maps neglect:

→ Smaller, local flooding problems

→ Undeveloped areas

→ Potential obstructions to flow

→ Only look at “clear water” flooding

→ Effects of urbanization

→ Changing climate on storm events

→ Changing climate on sea level

# Adopting Higher Regulatory Standards

## 1. Why Go Higher?

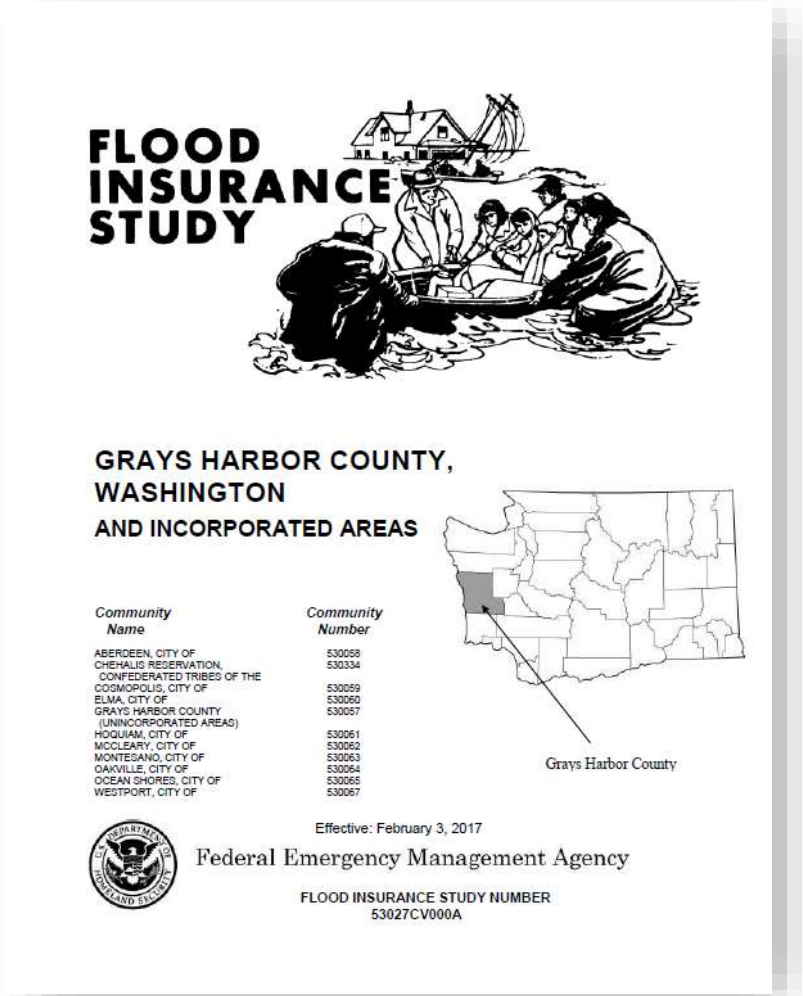
FLOOD INSURANCE

Hoaquim, City of

The hydrologic and hydraulic analyses for this study were performed by the U.S. Army Corps of Engineers (USACE), Seattle District, for the FIA, under Interagency Agreement No. IAA-H-7-76, Project Order No. 11. This work, which was completed in May 1977, covered all significant flooding sources in the City of Hoquiam (Reference 5).

The following detailed flooding sources were not redelineated during the countywide analysis: Bush Creek, Cloquallum Creek (upstream of Cross-Section F), East Fork Wildcat Creek, Newman Creek (upstream of Cross-Section M), Satsop River (upstream of Cross-Section E), Wishkah River, and Wynoochee Creek. These reaches did not have new topographic data available so they were converted/fitted based on the effective FIRMs, new basemap data, and orthophotos.

# Adopting Higher Regulatory Standards

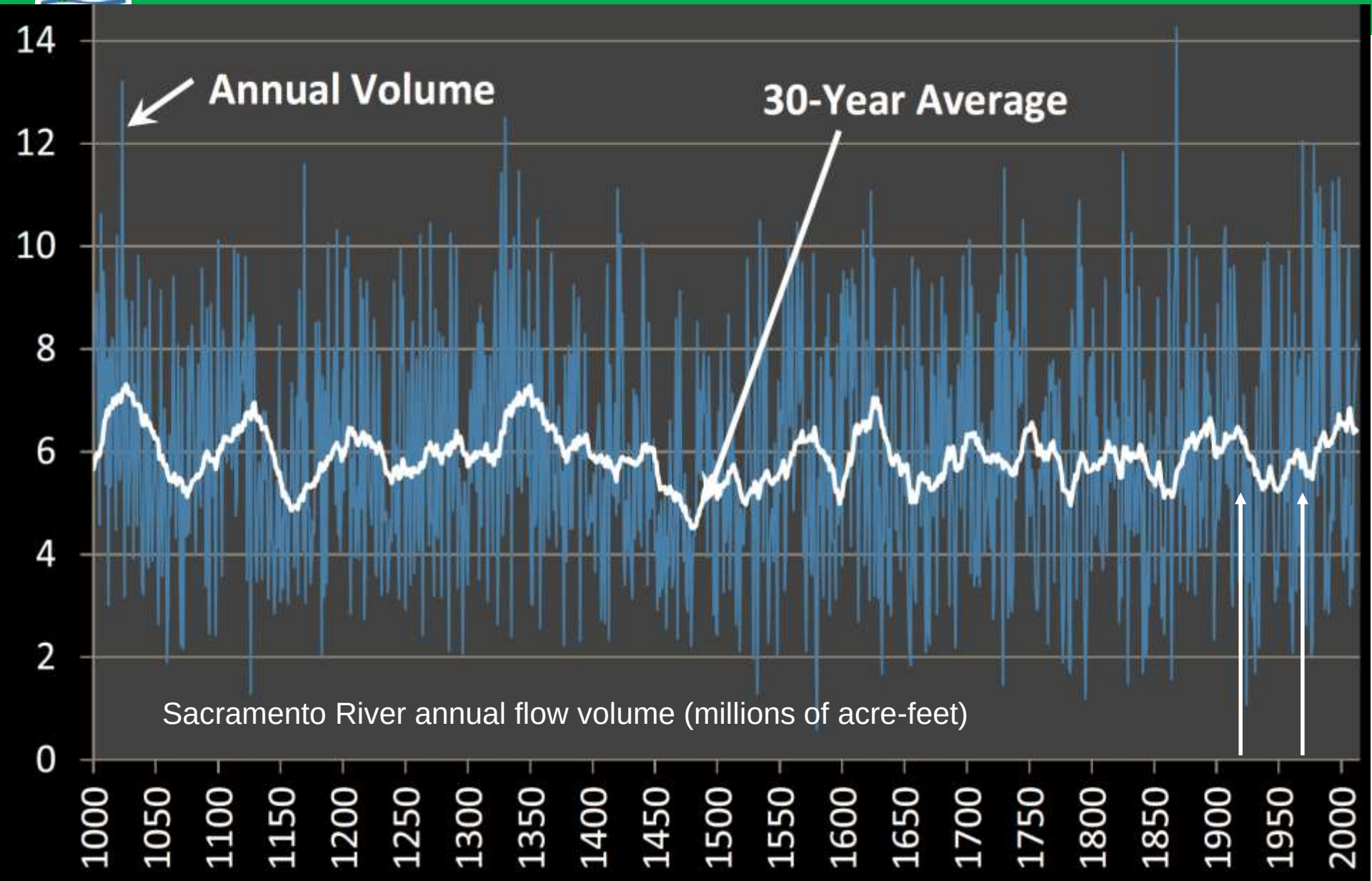



## 1. Why Go Higher?

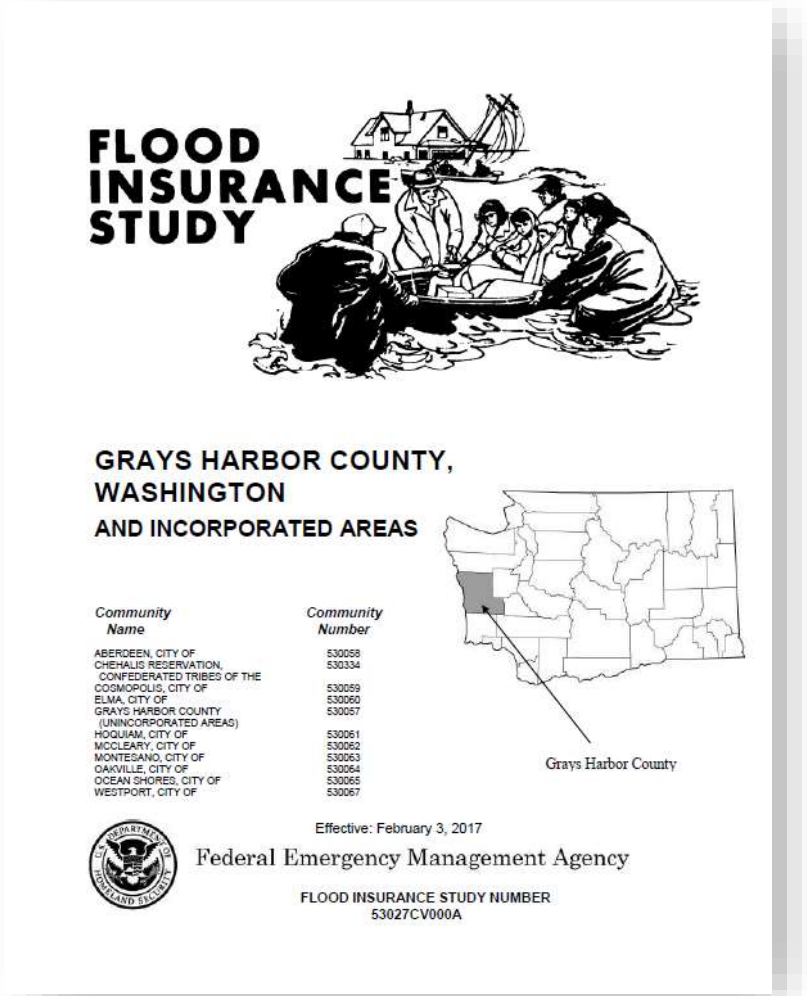
→ Check Flood Insurance Study

→ Older hydrological data based on short time period – less data to extrapolate and estimate a 100-year discharge

# Adopting Higher Regulatory Standards



# Adopting Higher Regulatory Standards




## 1. Why Go Higher?

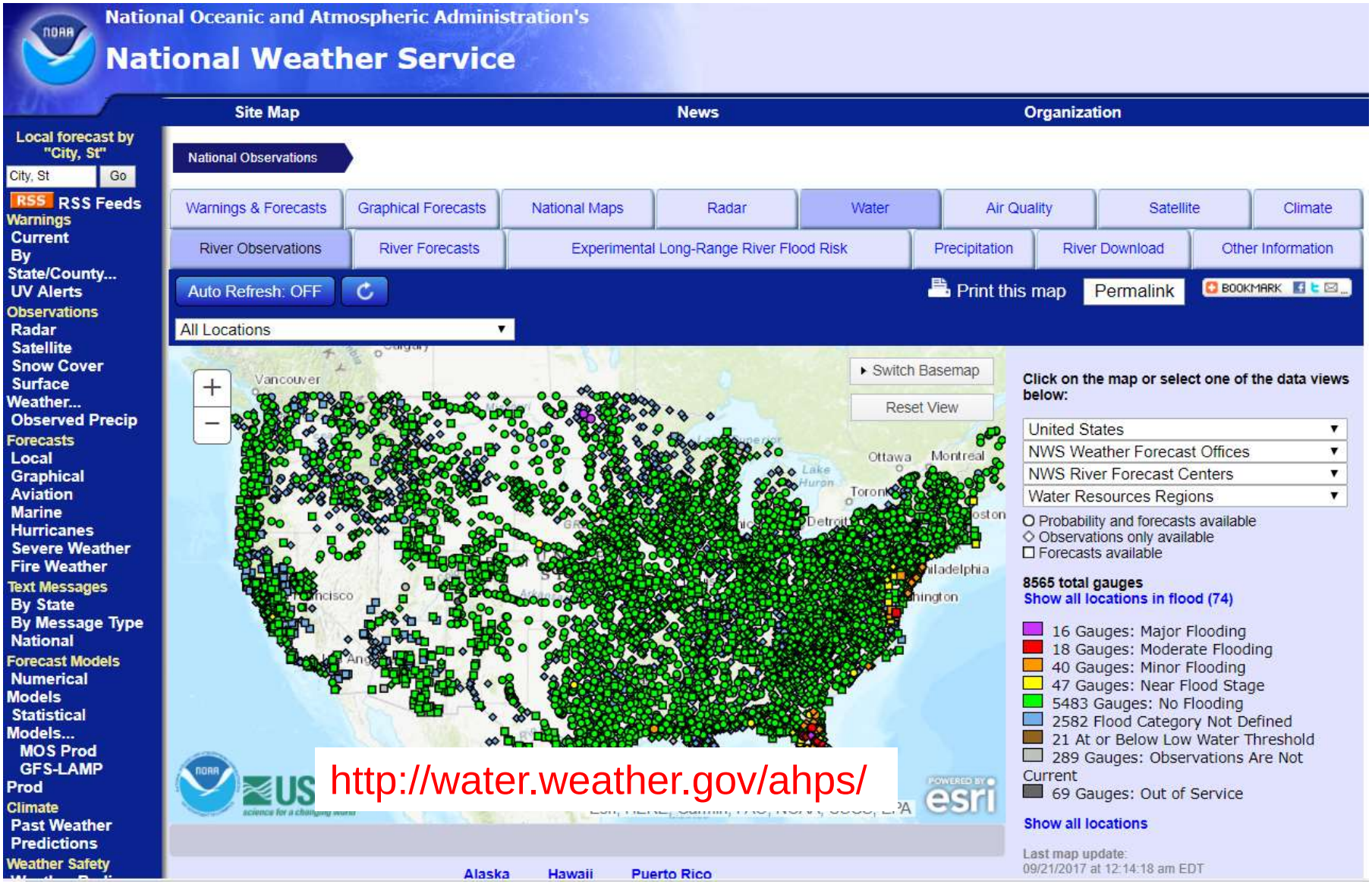
→ Check Flood Insurance Study

→ Older hydrological data based on short time period – less data to extrapolate and estimate a 100-year discharge

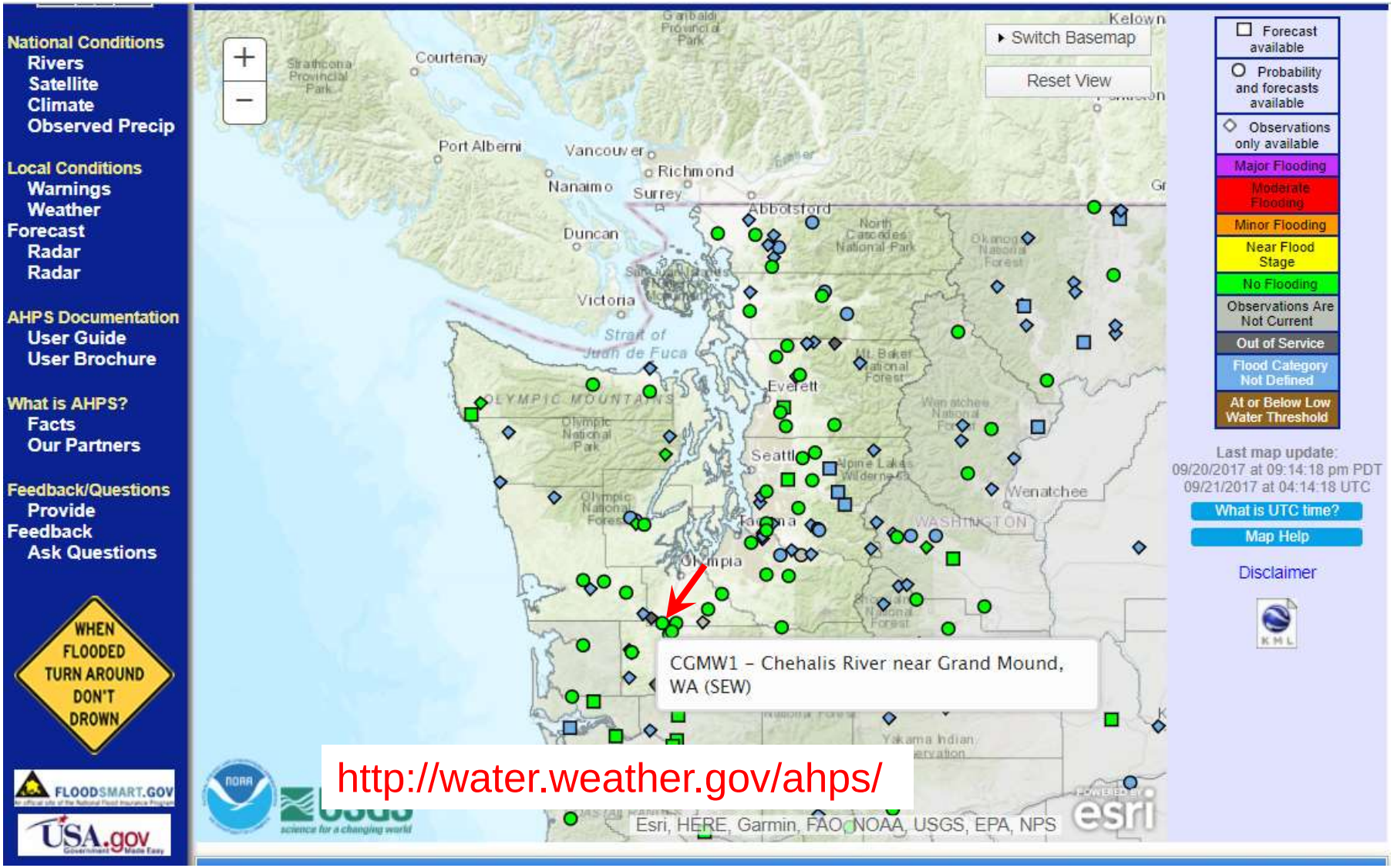
→ The period of gage records was dryer than normal

→ Check your gage records – http://water.weather.gov/ahps/

# Adopting Higher Regulatory Standards



# Adopting Higher Regulatory Standards



# Adopting Higher Regulatory Standards

BFE = 142.85 NGVD

Stage = 19.2 ft

The odds are the BFE on your FIRM is too low to protect your community

**Flood Categories (in feet)**

| | |
|---|---|
| Major Flood Stage: | 17 |
| Moderate Flood Stage: | 15.5 |
| Flood Stage: | 14 |

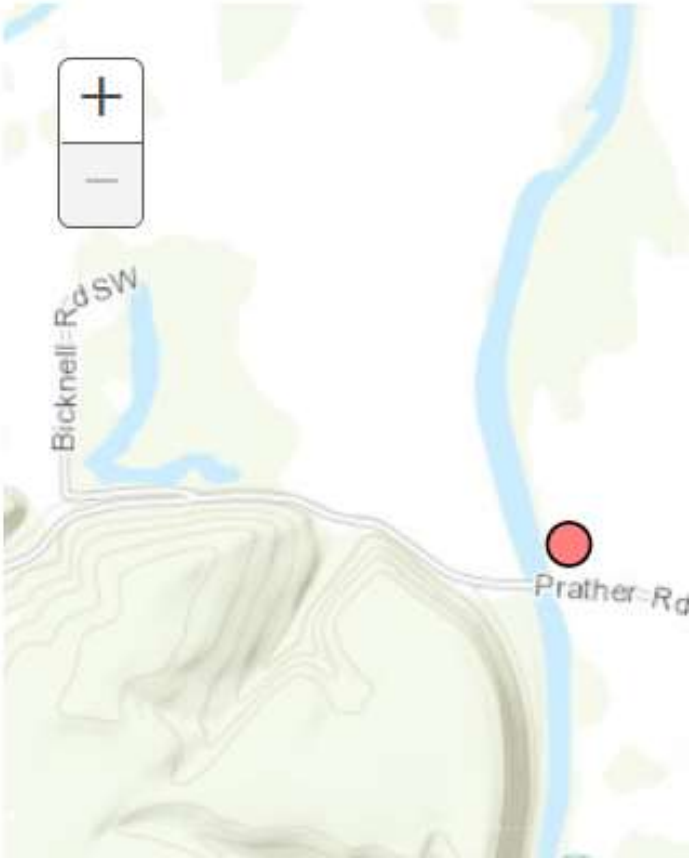
**Historic Crests**

(1) 20.23 ft on 12/04/2007
(2) 19.98 ft on 02/09/1996
(3) 19.34 ft on 01/10/1990
(4) 18.41 ft on 11/25/1986
(5) 18.39 ft on 12/29/1937
Show More Historic Crests

**(P)**: Preliminary values subject to further review.

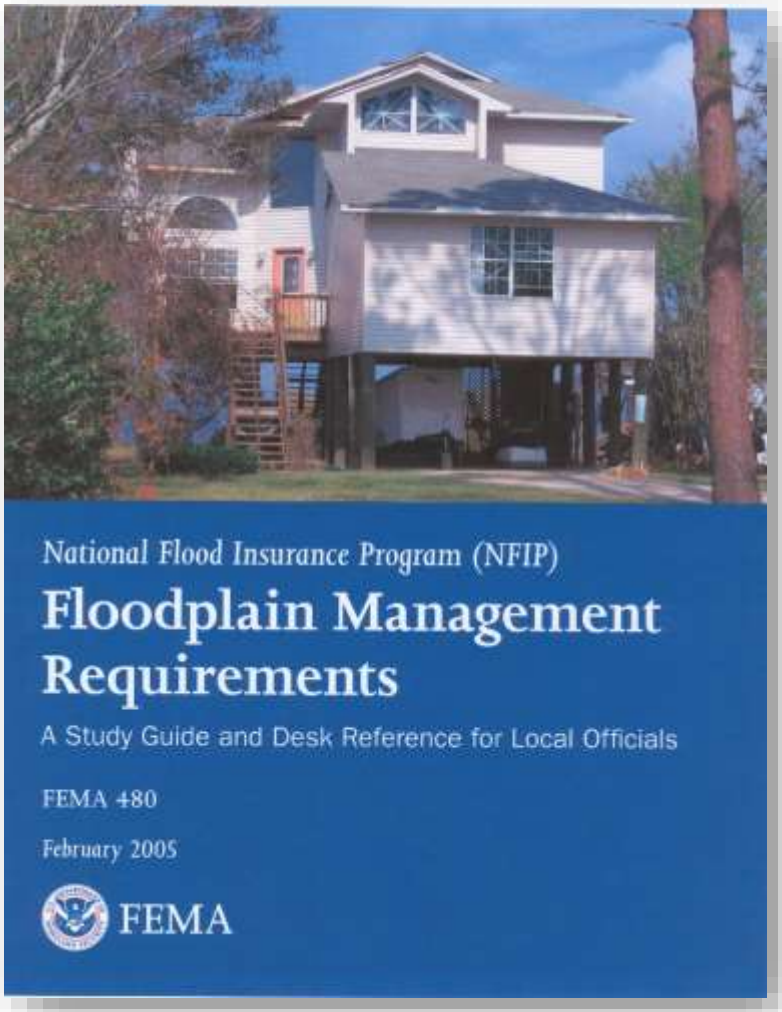
**Recent Crests**

(1) 15.77 ft on 02/10/2017 **(P)**
(2) 14.47 ft on 11/26/2016 **(P)**
(3) 16.84 ft on 12/10/2015 **(P)**
(4) 15.62 ft on 11/19/2015 **(P)**
(5) 14.49 ft on 11/15/2015 **(P)**
Show More Recent Crests




http://water.weather.gov/ahps/

# Adopting Higher Regulatory Standards




## 1. Why Go Higher?

## 2. Regulatory standards

→ National standards (not local)

→ Standards on how to build, not incentives to avoid building

→ Can fill and lose flood storage

→ Can increase velocities

→ Can increase flood heights up to one foot on other properties

→ Same standards for critical facilities and hazardous materials as for other buildings

# Adopting Higher Regulatory Standards

## Contents



## 1. Why Go Higher?

FEMA agrees

→ These are *minimum* standards

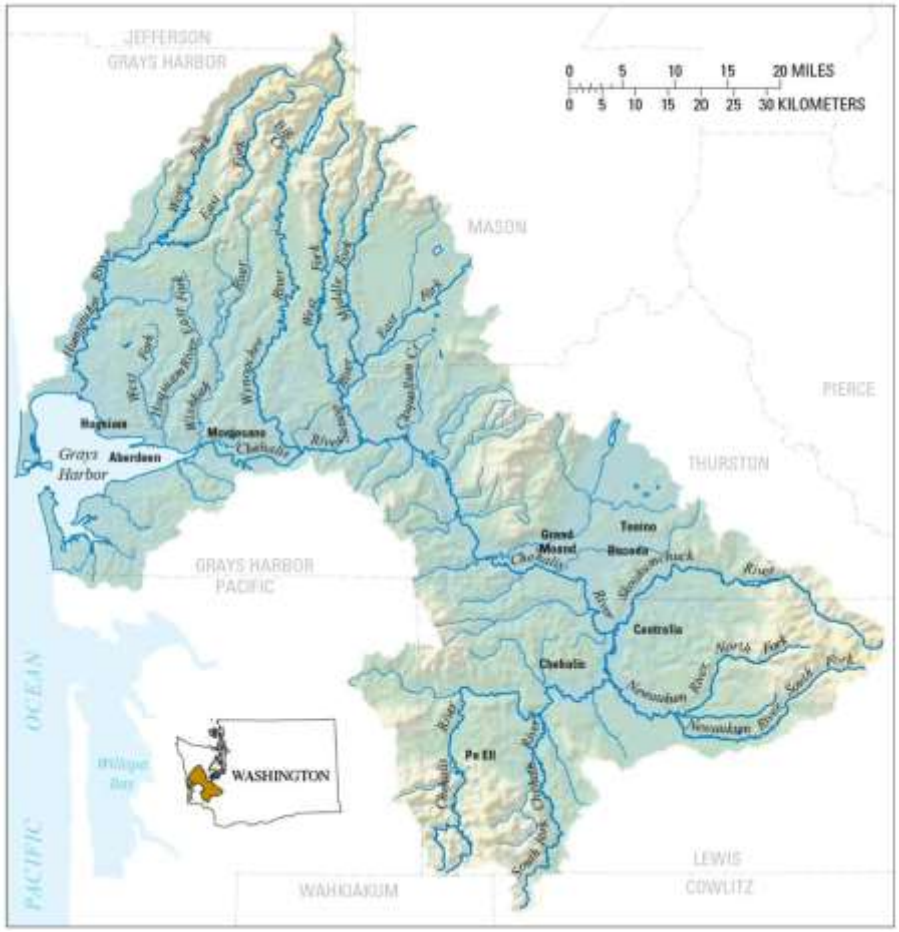
→ 44 CFR 60.1(d):

"…regulations adopted by a State or a community which are more restrictive than the criteria set forth in this part are encouraged and shall take precedence"

→ FEMA 480 *Desk Reference*

→ Community Rating System

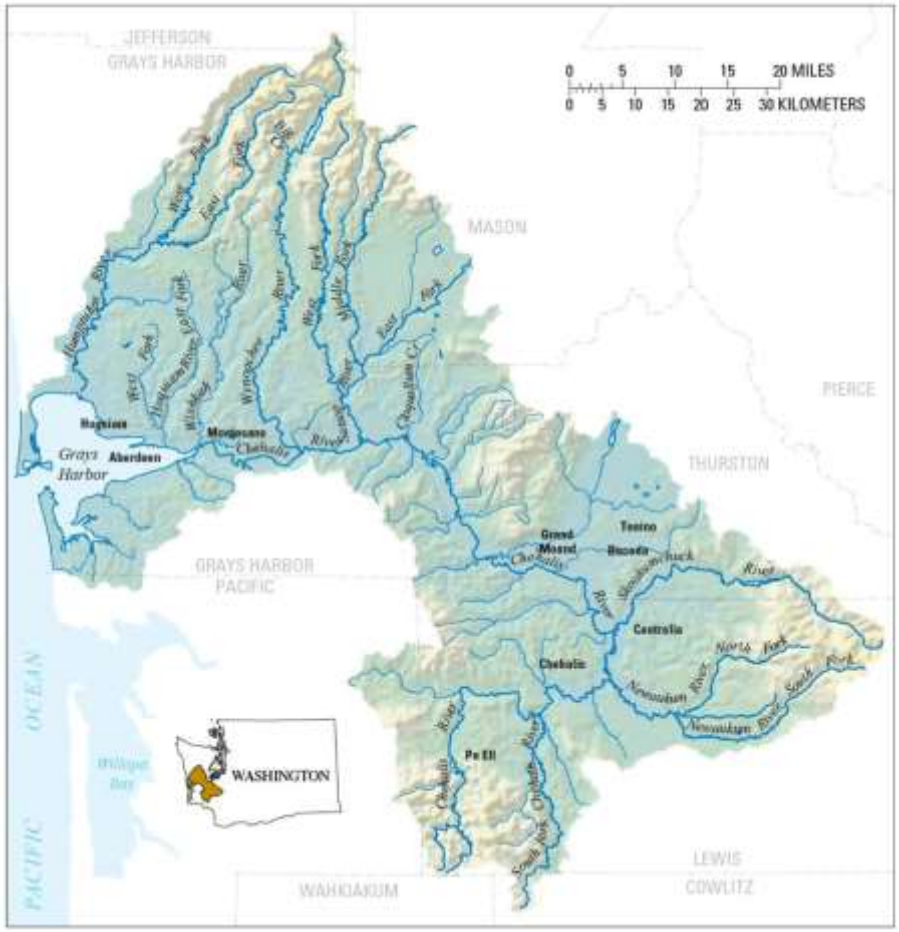
# Adopting Higher Regulatory Standards




## Adopting Higher Regulatory Standards

1. Why Go Higher?
2. Higher Standards
3. Getting Them Adopted

# Adopting Higher Regulatory Standards




## 2. Higher Standards

→ 12 recommendations

- → 3 – Mapping standards
- → 4 – Protect others
- → 4 – Protect buildings
- → 1 – Zoning

→ All optional

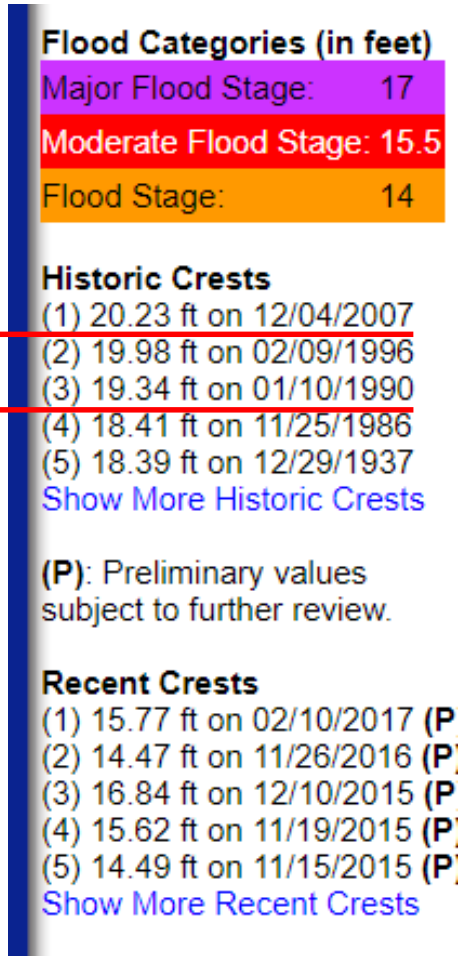
→ All credited by the CRS

# Adopting Higher Regulatory Standards

FOR = Stage 20.23 ft

Stage = 19.2 ft

BFE = 142.85 NGVD




## 2. Higher Standards

### 1. Flood of record

- ✓ Highest recorded flood level
- ✓ 2007 flood map and profiles
- ✓ Future flood level, where higher than BFE

http://water.weather.gov/ahps/

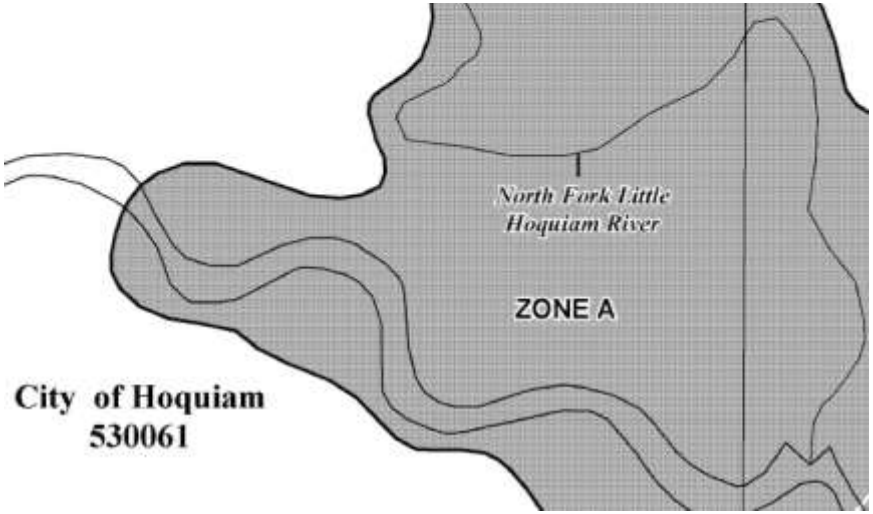
# Adopting Higher Regulatory Standards

## 2. Higher Standards

Existing study adopted
In the ordinance

2. Best available data in
Approximate A Zones


# Adopting Higher Regulatory Standards




## 2. Higher Standards

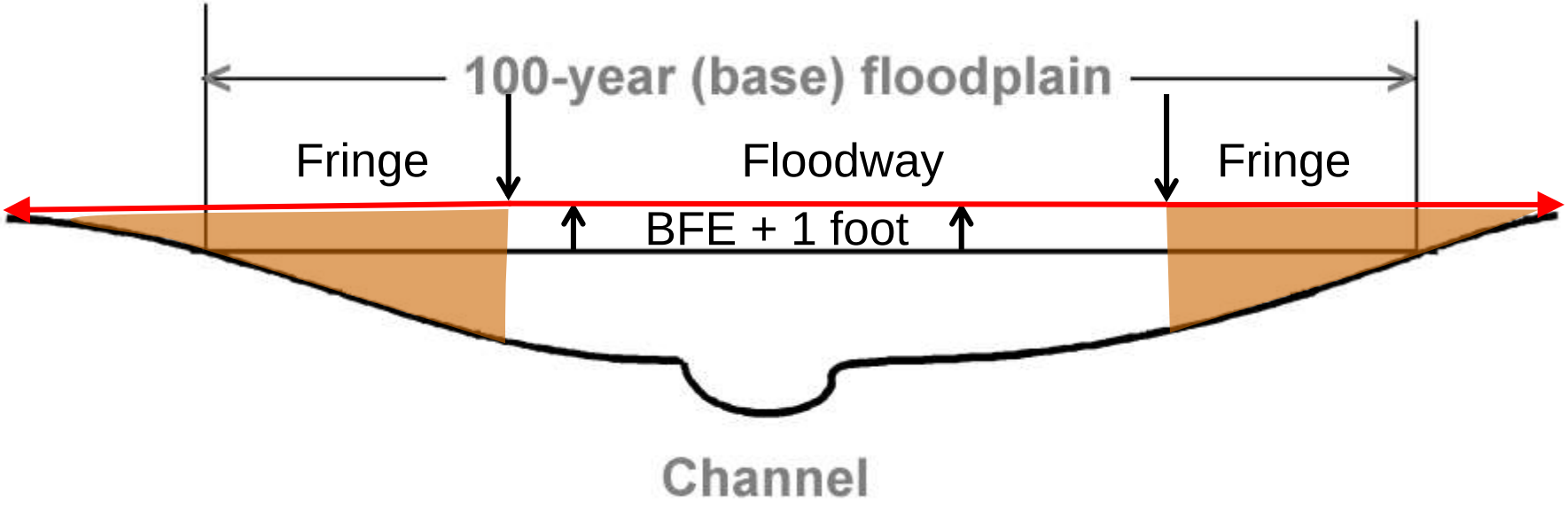
### 3. No available data in Approximate A Zones

In "Zone A" where the Flood Insurance Rate Map and the Flood Insurance Study do not provide a base flood elevation, the City Engineer shall obtain, review and reasonably utilize any base flood elevation data available from a Federal, State or other source. Where no such data are available, the base flood elevation shall be determined by the City Engineer using an approach approved by the Federal Emergency Management Agency for site-specific flood elevation determinations.

# Adopting Higher Regulatory Standards

## 2. Higher Standards

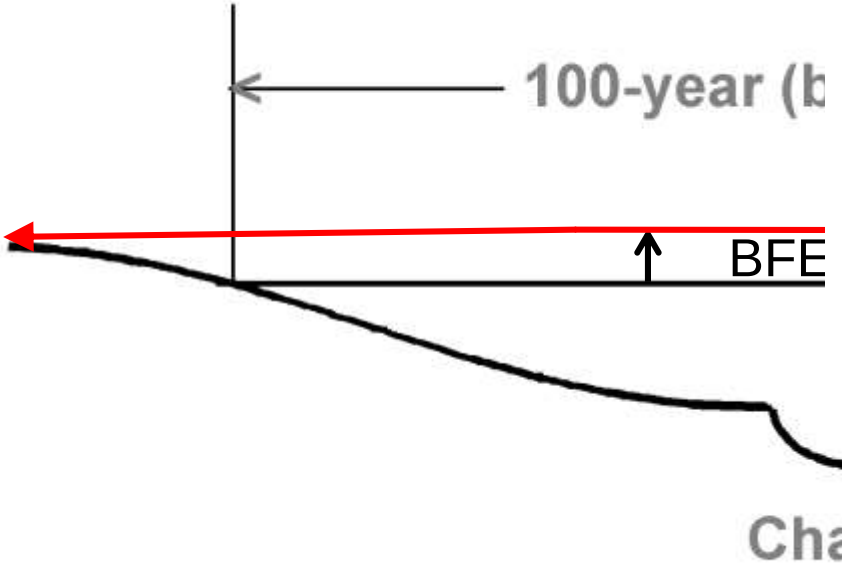
4. No adverse impact



# Adopting Higher Regulatory Standards

## 2. Higher Standards

### 4. No adverse impact




Developer must:

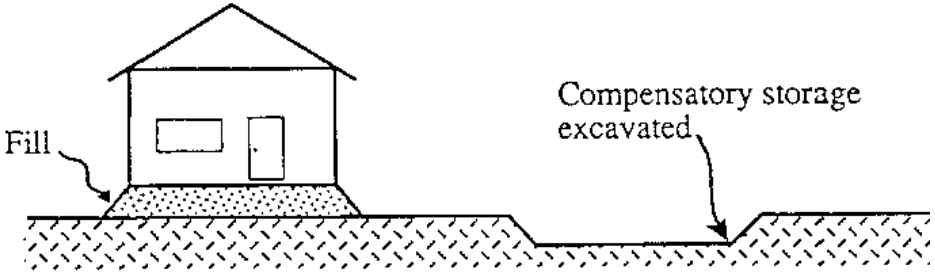
- ✓ Certify no more than 1 ft increase
- ✓ Map the area affected by increase
- ✓ Provide notarized statements from the affected property owners that they do not object.

# Adopting Higher Regulatory Standards


## 2. Higher Standards

### 5. Filling restrictions

- ✓ Prohibit all filling
- ✓ Require compensatory storage
- ✓ Limited to riverine floodplains



# Adopting Higher Regulatory Standards

## 2. Higher Standards

### 6. Critical facilities


Sea Bright, New Jersey


- ✓ Prohibit from floodplain
- ✓ Protect to 500-year flood level
- ✓ Keep access during 500-year flood

# Adopting Higher Regulatory Standards


## 2. Higher Standards

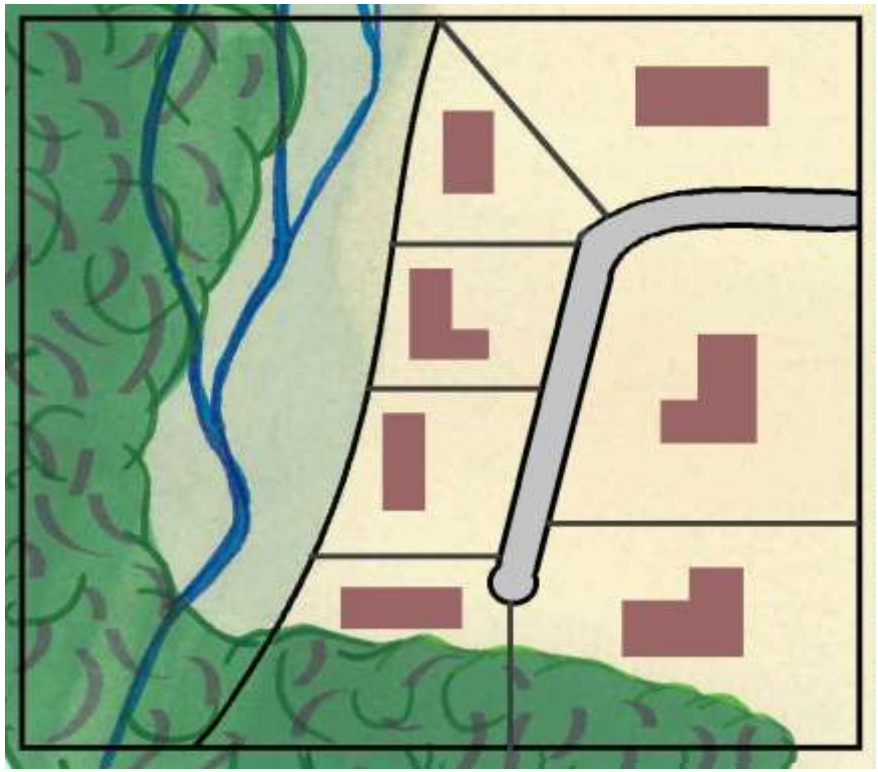
### 7. Hazardous materials

# Adopting Higher Regulatory Standards


## 2. Higher Standards

### 7. Hazardous materials

# Adopting Higher Regulatory Standards



## 2. Higher Standards

### 8. Subdivision Set Asides

- ✓ Allow cluster development/PUDs
- ✓ Incentives, e.g., transfer of development rights
- ✓ Require all lots to have building site out of floodplain (where feasible)

# Adopting Higher Regulatory Standards

| Flood Insurance Premium Comparison | | |
|---|---|---|
| **Zone** | **Height** | **Premium** |
| A | 2 - 4 feet > grade | $1,192 |
| A | 1 foot > grade | $2,277 |
| | | |
| A w/BFE | 2 or more feet > BFE | $447 |
| A w/BFE | 0 - 1 foot > BFE | $1,583 |
| | | |
| AE | 3 feet > BFE → | $343 |
| AE | 2 feet > BFE → | $451 |
| AE | 1 feet > BFE → | $748 |
| AE | At BFE → | $1,578 |

Premiums are for a new single family house, one floor, slab on grade foundation, $100,000 in building coverage, $1,000 deductible, no CRS discount

## Higher Standards

9. Freeboard

# Adopting Higher Regulatory Standards

# Adopting Higher Regulatory Standards

**NONCONVERSION AGREEMENT**
**FOR CERTAIN STRUCTURES IN THE FLOODPLAIN**

Whereas, Permit # _____ has been issued to construct, improve, or repair the property at _____ *[address]* in the Town of Bucoda, WA, Parcel Number _____; and

Whereas, the permitted building has the lowest habitable floor elevated above the Base Flood Elevation (BFE) of _____Ft. and the design and construction of the building meets current building code and flood damage prevention ordinance requirements; and

Whereas, as a condition of a Certificate of Occupancy, the owner must agree to not alter the building at a later date so as to violate the building code or flood damage prevention ordinance requirements,

Now, therefore, the undersigned owner of said property hereby agrees to the following:

1. That the enclosed area below the lowest habitable floor shall be used solely for parking of vehicles, limited storage, or access to the building and will never be used for human habitation without first becoming fully compliant with the flood damage prevention ordinance in effect at the time of conversion.
2. That all interior walls, ceilings, and floors below the BFE shall be unfinished or constructed of flood-resistant materials.
3. That mechanical, electrical, or plumbing devices that service the building shall not be installed below the BFE.
4. That the openings in the walls of the enclosed area below the lowest floor shall not be blocked, obstructed, or otherwise altered to reduce the size of the openings or restrict the automatic entry and exit of floodwater.
5. That any variation in construction beyond what is permitted shall constitute a violation of this agreement and the Town of Bucoda Floodplain Ordinance.
6. That the owner and subsequent owners understand that the Town of Bucoda has a right to inspect inside the premises at any time to verify compliance with this agreement.
7. That this Agreement shall be recorded with the Thurston County Auditor so that subsequent owners are made aware of these restrictions.

_____ Signature of Property Owner

_____ Witness

Printed name: _____ Printed name: _____

Date: _____ Date: _____

# Adopting Higher Regulatory Standards

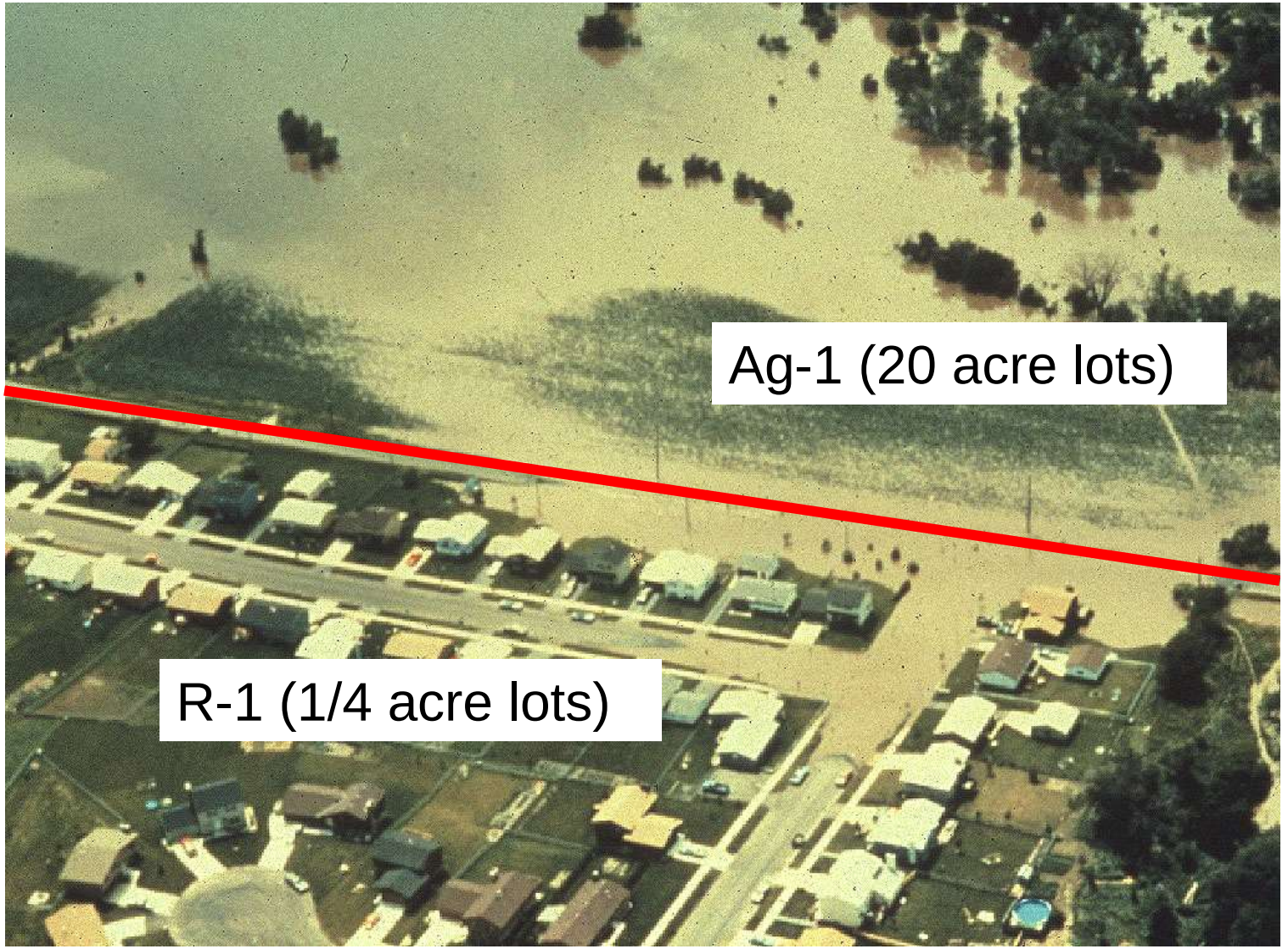
## 2. Higher Standards

### 10.Non-conversion agreement

- ✓ No modifications below the freeboard level that will increase potential damage
- ✓ Community can inspect (with advance notification)
- ✓ Community <u>will</u> inspect (with advance notification)

# Adopting Higher Regulatory Standards

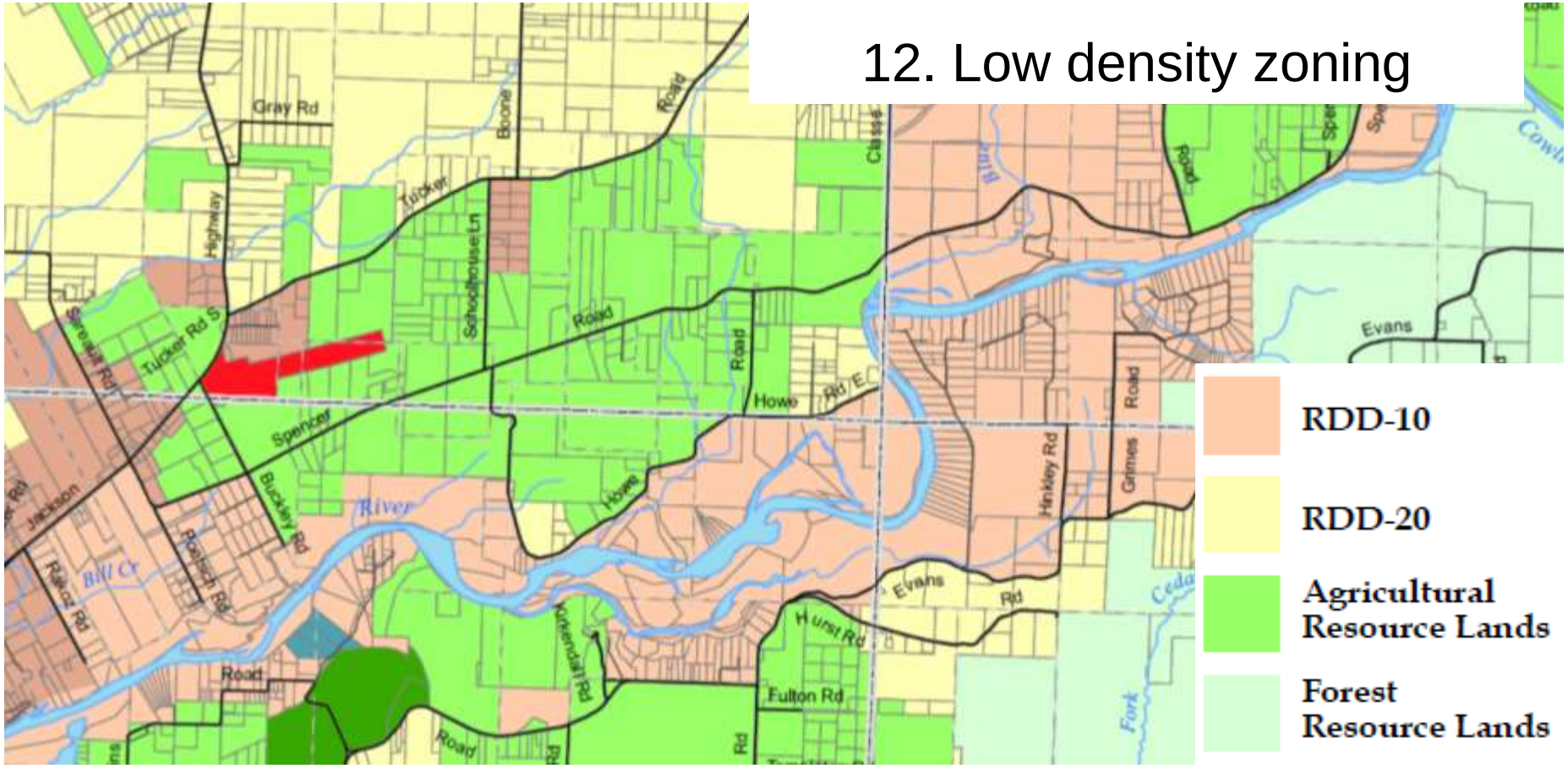
# Adopting Higher Regulatory Standards



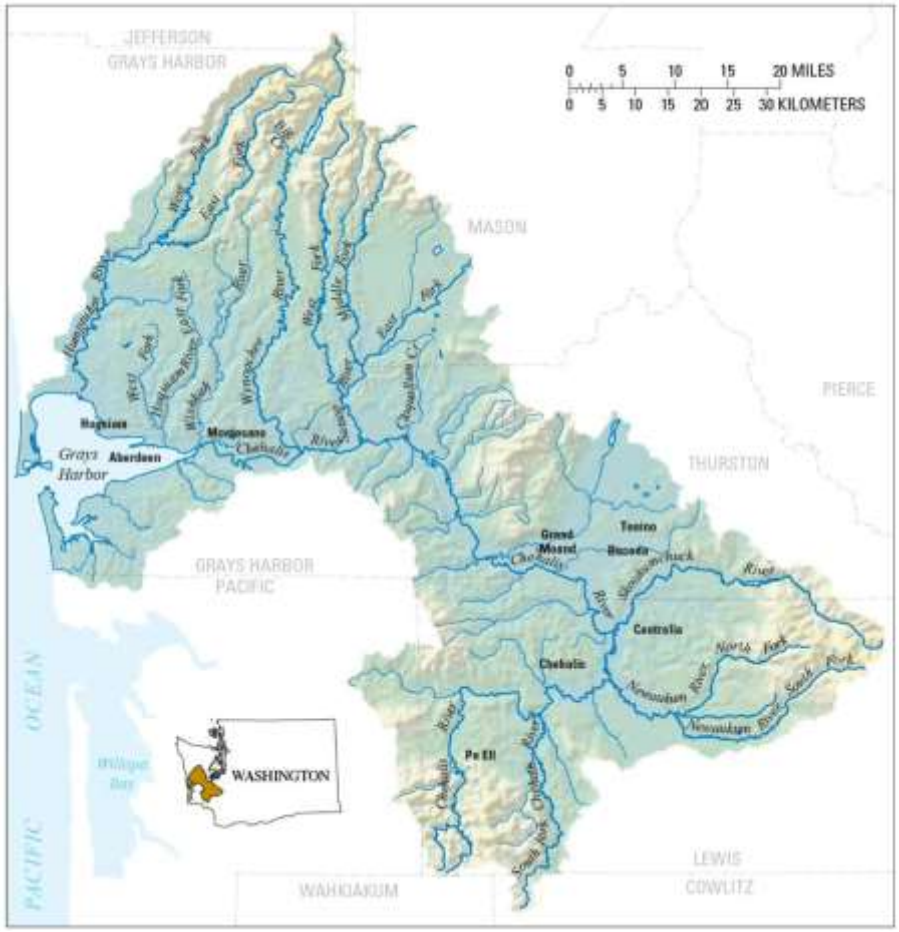
# Adopting Higher Regulatory Standards

## 2. Higher Standards

12. Low density zoning



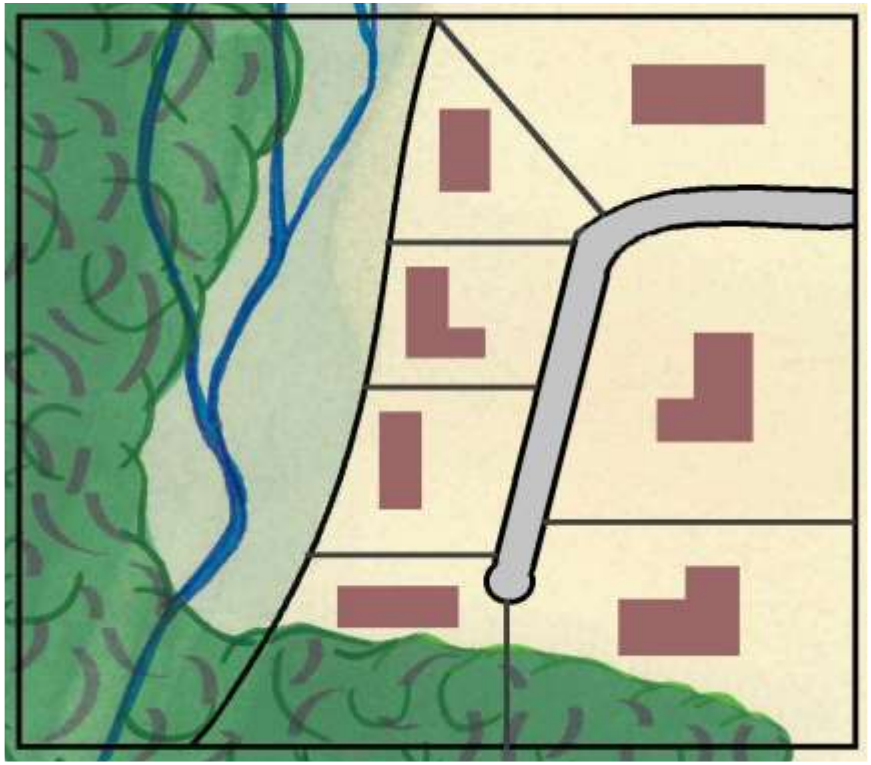
# Adopting Higher Regulatory Standards




# Adopting Higher Regulatory Standards

1. Why Go Higher?
2. Higher Standards
3. Getting Them Adopted

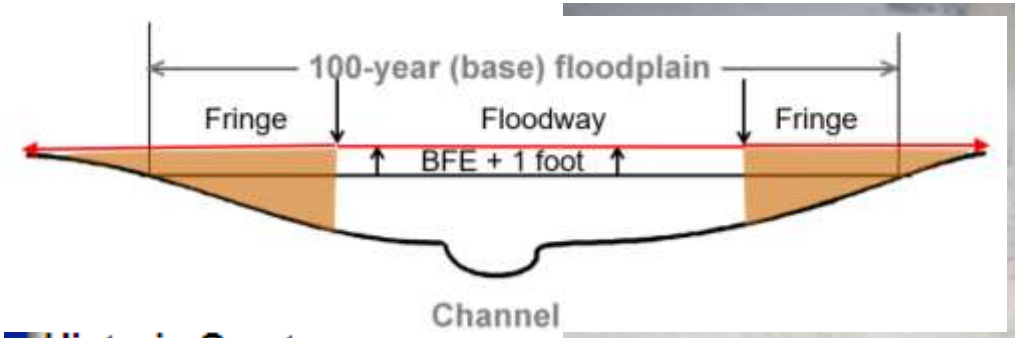
# Adopting Higher Regulatory Standards



## 3. Getting Them Adopted

1. Explain the problem

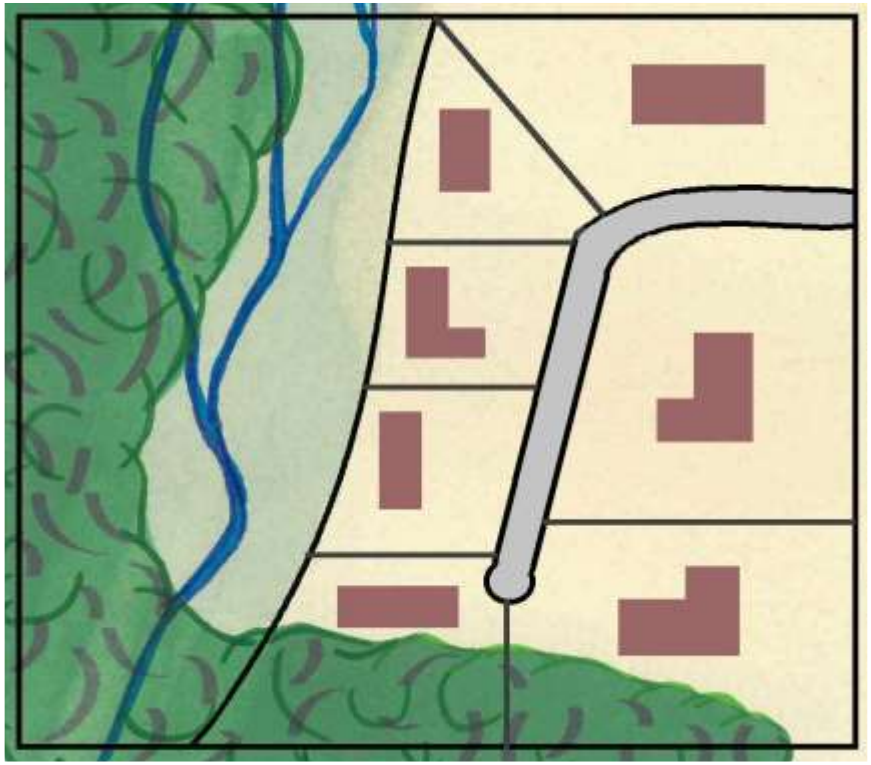
# Adopting Higher Regulatory Standards




**Historic Crests**
(1) 20.23 ft on 12/04/2007
(2) 19.98 ft on 02/09/1996
(3) 19.34 ft on 01/10/1990
(4) 18.41 ft on 11/25/1986
(5) 18.39 ft on 12/29/1937
Show More Historic Crests

**(P)**: Preliminary values

# Adopting Higher Regulatory Standards



## 3. Getting Them Adopted

1. Explain the problem
2. Show the benefits

# Adopting Higher Regulatory Standards

## 3. Getting Them Adopted

| Flood Insurance Premium Comparison | | |
|---|---|---|
| **Zone** | **Height** | **Premium** |
| No BFE A | 2 - 4 feet > grade | $1,192 |
| A | 1 foot > grade | $2,277 |
| | | |
| A w/BFE | 2 or more feet > BFE | $447 |
| A w/BFE | 0 - 1 foot > BFE | $1,583 |
| | | |
| AE | 3 feet > BFE | $343 |
| AE | 2 feet > BFE | $451 |
| AE | 1 feet > BFE | $748 |
| AE | At BFE | $1,578 |

Premiums are for a new single family house, one floor, slab on grade foundation, $100,000 in building coverage, $1,000 deductible, no CRS discount

1. Explain the problem
2. Show the benefits

70% of A Zone rate
- No available flood data
- Best available flood data

Freeboard

Flood of record

47%, 29%, 22% of at BFE rate

# Adopting Higher Regulatory Standards

## 3. Getting Them Adopted

### The Costs & Benefits of Building Higher


Assn. of State Floodplain Managers

www.floods.org

### Costs of Building Higher

Under the rules of the National Flood Insurance Program, buildings must be protected to the Base Flood Elevation (BFE). Therefore, the cost of freeboard is just the additional cost of building higher than the minimum NFIP standard.

A study conducted by ASFPM in February 2017 estimated the approximate cost of building higher for a 2,000-square foot house. The study assumed the house was constructed to NFIP standards and then estimated the additional cost of building higher than the BFE (see table below).

| Foundation Type* | Cost per add'l foot |
|---|---|
| Concrete block piers | $890 |
| Crawlspace with concrete block walls | $1,850 |
| Crawlspace with poured concrete walls | $2,155 |
| Stem wall with fill | $2,345 |
| Fill only | $4,470 |

Using a house on fill with a stem wall (as illustrated on the cover), here are the average construction costs for building higher:

### Return on Investment

The owner of a building built higher will realize savings in two ways. The most important is when the area floods again and the building is not damaged. Also, the owner doesn't have to relocate, repair and rebuild.

Another form of savings is a reduced cost in flood insurance, which is required by most lenders. For example, using a 2,000-square foot home with a stem wall foundation with the floor 2 feet above the BFE (with fill underneath).

| | |
|---|---|
| Additional cost of construction: | $4,690 |
| Annual flood insurance premium built to the BFE: | $2,147 |
| Annual flood insurance premium built 2 feet above the BFE: | $734 |
| Annual flood premium savings: | $1,413 |
| Number of years to pay off $4,690 via premium savings: | 3.3 years |
| Added savings realized during a 30-year mortgage: | $37,300* |

# Adopting Higher Regulatory Standards

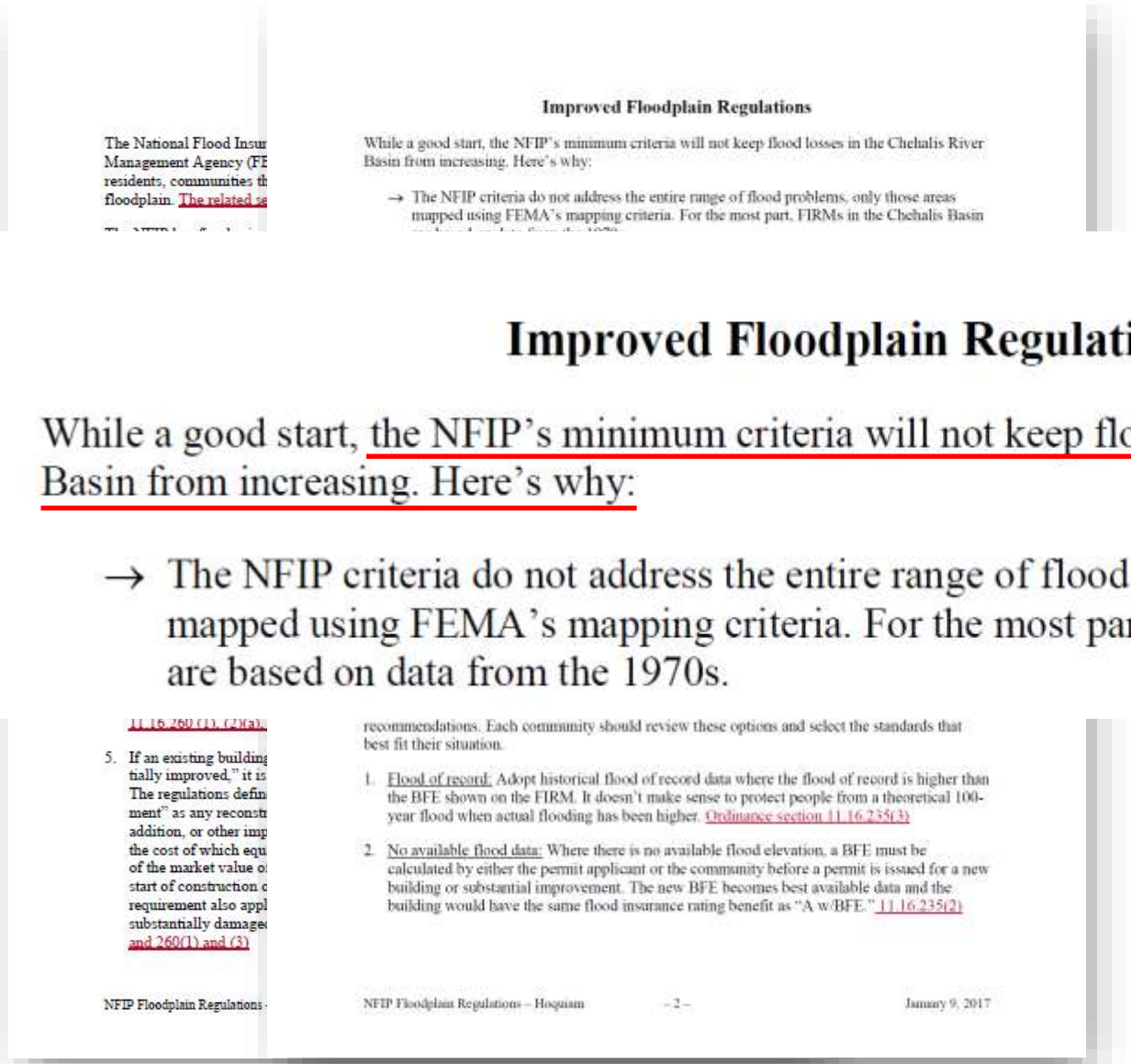
| | | | |
|---|---|---|---|
| **Community:** | HOQUIAM, CITY OF | **State:** | WASHINGTON |
| **County:** | GRAYS HARBOR COUNTY ▼ | **CID:** | 530061 |

**Current CRS Class = 10** *[Printable Version]*

| CRS Class | | TOTAL | SFHA * | X-STD/AR/A99 ** | PRP *** |
|---|---|---|---|---|---|
| | PIF | 905 | 896 | 5 | 4 |
| | PREMIUM | $1,238,370 | $1,233,828 | $3,183 | $1,359 |
| | AVERAGE PREMIUM | $1,368 | $1,377 | $637 | $340 |
| 09 | Per Policy | $68 | $69 | $32 | $0 |
| | Per Community | $61,851 | $61,691 | $159 | $0 |
| 08 | Per Policy | $137 | $138 | $32 | $0 |
| | Per Community | $123,542 | $123,383 | $159 | $0 |
| 07 | Per Policy | $205 | $207 | $32 | $0 |
| | Per Community | $185,233 | $185,074 | $159 | $0 |
| | | | | | |
| | | | | | |
| 05 | Per Policy | $341 | $344 | $64 | $0 |
| | Per Community | $308,775 | $308,457 | $318 | $0 |

"What If" CRS savings – get from ISO/CRS Specialist

# Adopting Higher Regulatory Standards



The National Flood Insur
Management Agency (FE
residents, communities th
floodplain. The related se

**Improved Floodplain Regulations**

While a good start, the NFIP's minimum criteria will not keep flood losses in the Chehalis River Basin from increasing. Here's why:

→ The NFIP criteria do not address the entire range of flood problems, only those areas mapped using FEMA's mapping criteria. For the most part, FIRMs in the Chehalis Basin


## Improved Floodplain Regulations

While a good start, the NFIP's minimum criteria will not keep flood losses in the Chehalis River Basin from increasing. Here's why:

→ The NFIP criteria do not address the entire range of flood problems, only those areas mapped using FEMA's mapping criteria. For the most part, FIRMs in the Chehalis Basin are based on data from the 1970s.


11.16.260 (1), (2)(a),

5. If an existing building
tially improved," it is
The regulations defin
ment" as any reconstr
addition, or other imp
the cost of which equ
of the market value o
start of construction c
requirement also appl
substantially damage
and 260(1) and (3)

recommendations. Each community should review these options and select the standards that best fit their situation.

1. Flood of record: Adopt historical flood of record data where the flood of record is higher than the BFE shown on the FIRM. It doesn't make sense to protect people from a theoretical 100-year flood when actual flooding has been higher. Ordinance section 11.16.235(3)

2. No available flood data: Where there is no available flood elevation, a BFE must be calculated by either the permit applicant or the community before a permit is issued for a new building or substantial improvement. The new BFE becomes best available data and the building would have the same flood insurance rating benefit as "A w/BFE." 11.16.235(2)

# Adopting Higher Regulatory Standards

The National Flood Insur
Management Agency (FE
residents, communities th
floodplain. The related se

The NFIP has five basic r

1. The community must
shown on its Flood In
the base (100-year) fl
the community's ordi
shortcomings in its or

2. All development in th
defined as any manm
limited to buildings o
or drilling operations,

3. Development along a
in flooding on other p
cumulative effect of t
cause any increase in
combined with all oth
foot increase in flood

4. New buildings may b
the base flood. The lo
flood elevation (BFE)
right show three typic
fill, on piers, or on a f
Nonresidential buildi
or floodproofed to or
11.16.260 (1), (2)(a),

5. If an existing building
tially improved," it is
The regulations defin
ment" as any reconstr
addition, or other imp
the cost of which equ
of the market value o
start of construction c
requirement also appl
substantially damage
and 260(1) and (3)

NFIP Floodplain Regulations -

**In**

While a good start, the NFIP's
Basin from increasing. Here's

→ The NFIP criteria do n
mapped using FEMA's
are based on data from

→ They neglect greater th
unmapped local hazard
levels. For example, at
FIRM's base flood elev

→ They focus on how to b

→ The NFIP minimum cri
increased, which can ac

→ They treat all buildings
that store hazardous ma

For these reasons, the Chehalis
Managers, and other knowledg
higher regulatory standards in
NFIP regulations:

> The criteria set forth in this s
> management regulations.... A
> adopting more comprehensiv
> officials may have access to i
> human safety, higher standar
> Therefore, any flood plain ma
> more restrictive than the crite
> Code of Federal Regulations,

**The following higher standar**
recommendations. Each comm
best fit their situation.

1. Flood of record: Adopt his
the BFE shown on the FIR
year flood when actual flo

2. No available flood data: W
calculated by either the per
building or substantial imp
building would have the sa

NFIP Floodplain Regulations – Hoq

3. No adverse impact: Where there
allow new developments to incr
either prohibit any increase or r
acceptable to the affected prope
flowage easement or otherwise
11.16.250(7)(a)

4. Filling restrictions: Filling anyw
compensatory storage would be
coastal flooding. 11.16.250(7)(

5. Freeboard: Where new building
improvements of existing buildi
to the base flood elevation plus
insurance rates are significantly
right). This is because insurance
ence has proven that these build
less flood damage. 11.16.250(4
260(1), 260(3)(a)

6. Critical facilities: New critical f
prohibited from the 500-year fl
ted from damage and loss of ac
year flood. Examples of critical
schools, hospitals, nursing hom
plants, hazardous materials site
bridges, etc. 11.16.260(4) and (

7. Non-conversion agreements: A
walls would be required to sign
elevation will not be converted
damage. This could be limited t
tempt a future owner to remode

8. Substantial improvement trackin
tracked for five years or more. T
improvement project, completio
improvement, thereby getting a
11.16.200

The following standards are recom

9. Subdivision set asides: New sub
set aside all or part of their floo

10. Low density zoning: Existing zo
10 acres would not be amended
review the zoning district map

NFIP Floodplain Regulations – Hoquiam

It is also recommended that all permit plan reviews, final inspections, and project approvals be conducted by a **Certified Floodplain Manager**. The CFM could be a community employee, contractor, or circuit rider who helps several communities with floodplain management issues. This administrative measure does not have to be included in the ordinance.

Adoption of these standards is credited under the Community Rating System (CRS), which provides a discount on flood insurance premiums for properties in a participating community.

Additional materials are available on the CRS. The table below identifies the community's current amount of flood insurance coverage and the dollar savings for different CRS classes.

**Community:** HOQUIAM, CITY OF **State:** WASHINGTON
**County:** GRAYS HARBOR COUNTY **CID:** 530061

Current CRS Class = 10 (Printable Version)

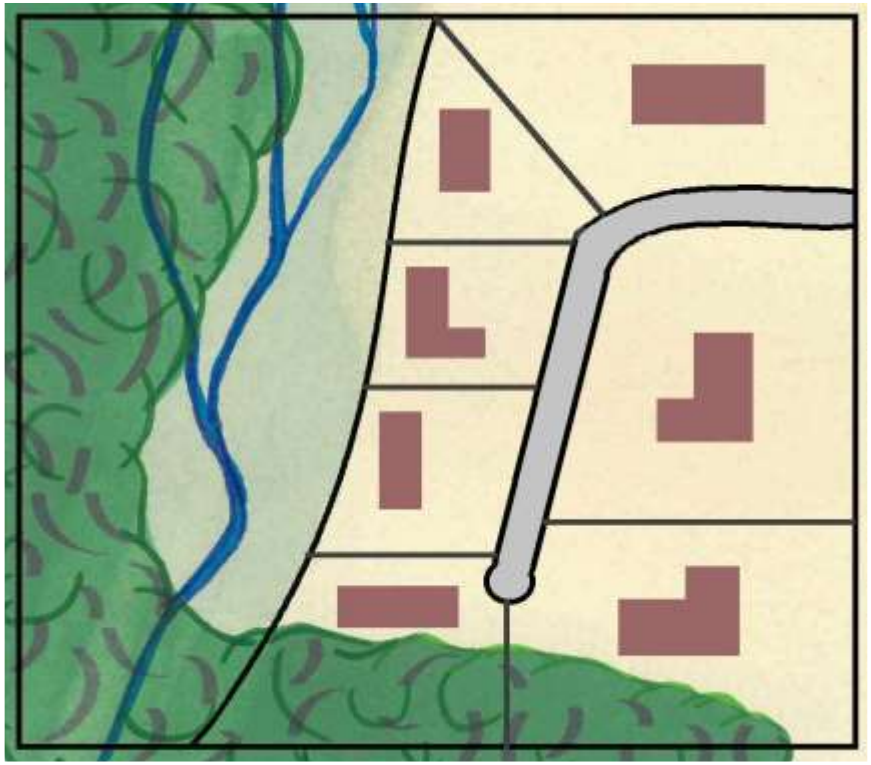
| CRS Class | | TOTAL | SFHA * | X-STD/AR/A99 ** | PRP *** |
|---|---|---|---|---|---|
| | NF | 905 | 896 | 5 | 4 |
| | PREMIUM | $1,238,370 | $1,233,829 | $3,163 | $1,359 |
| | AVERAGE PREMIUM | $1,368 | $1,377 | $637 | $340 |
| 09 | Per Policy | $68 | $69 | $32 | $0 |
| | Per Community | $61,651 | $61,651 | $159 | $0 |
| 08 | Per Policy | $137 | $138 | $32 | $0 |
| | Per Community | $123,643 | $123,383 | $159 | $0 |
| 07 | Per Policy | $205 | $207 | $32 | $0 |
| | Per Community | $185,233 | $185,074 | $159 | $0 |
| 06 | Per Policy | $273 | $275 | $64 | $0 |
| | Per Community | $247,064 | $246,766 | $318 | $0 |
| 05 | Per Policy | $341 | $344 | $64 | $0 |
| | Per Community | $308,775 | $308,457 | $318 | $0 |
| 04 | Per Policy | $409 | $413 | $64 | $0 |
| | Per Community | $370,467 | $370,148 | $318 | $0 |
| 03 | Per Policy | $478 | $482 | $64 | $0 |
| | Per Community | $432,158 | $431,840 | $318 | $0 |
| 02 | Per Policy | $546 | $551 | $64 | $0 |
| | Per Community | $493,849 | $493,531 | $318 | $0 |
| 01 | Per Policy | $614 | $620 | $64 | $0 |
| | Per Community | $555,541 | $555,223 | $318 | $0 |

* SHFA (Zones A, AE, A1-A30, V, V1-V30, AO, and AH): Discount varies depending on class.

** SFHA (Zones A99, AR, AR/A, AR/AE, AR/A1-A30, AR/AH, and AR/AO): 10% discount for Classes 1-6; 5% discount for Classes 7-9.

*** Preferred Risk Policies are not eligible for CRS Premium Discounts.

# Adopting Higher Regulatory Standards



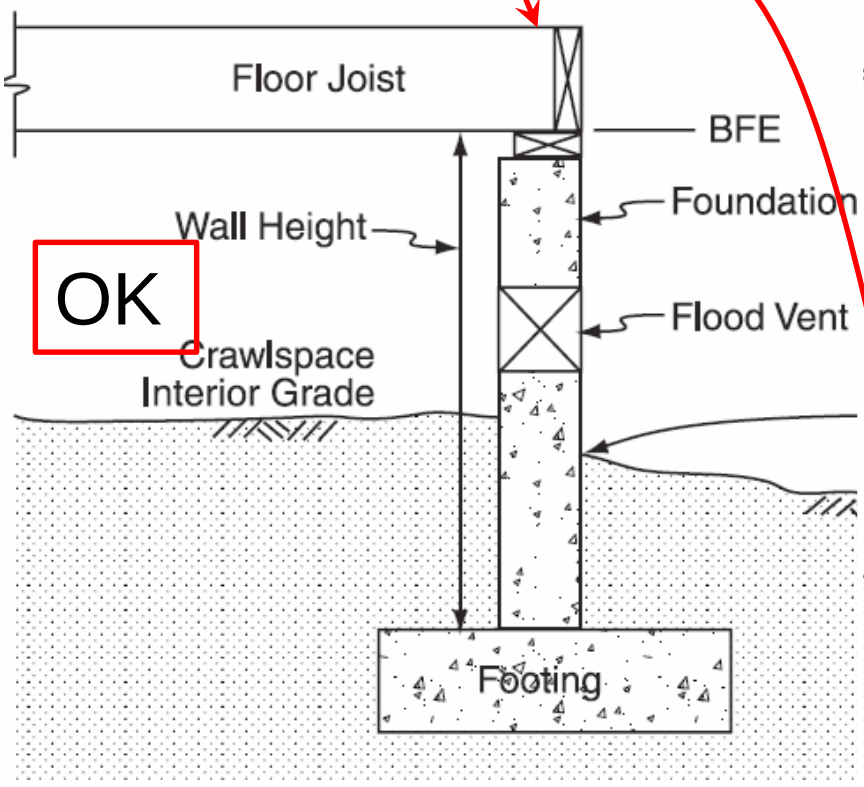
## 3. Getting Them Adopted

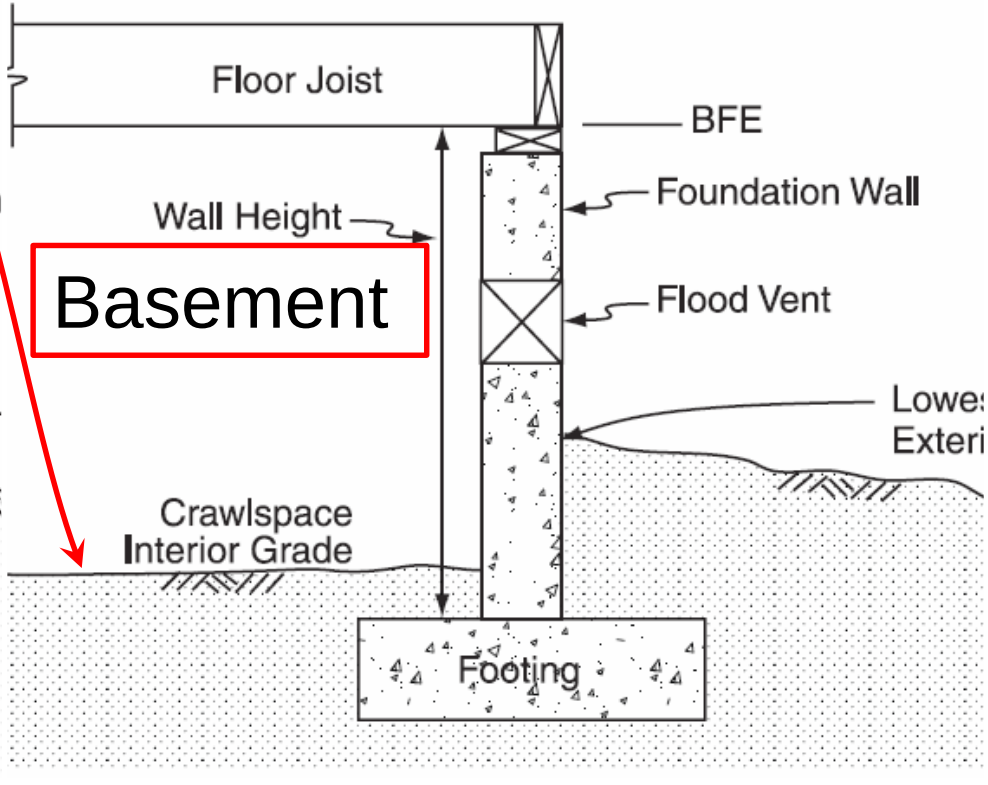
1. Explain the problem
2. Show the benefits
3. Make sure staff agrees
4. Work with those affected
5. Improve the ordinance at the same time

# Adopting Higher Regulatory Standards

## 3. Getting Them Adopted

Lowest Floor

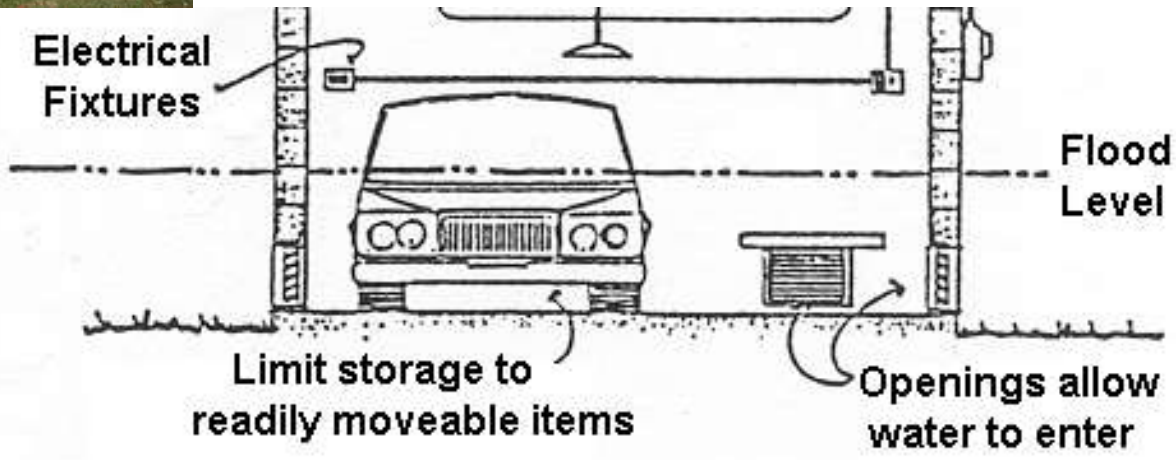


# Adopting Higher Regulatory Standards

## 3. Getting Them Adopted

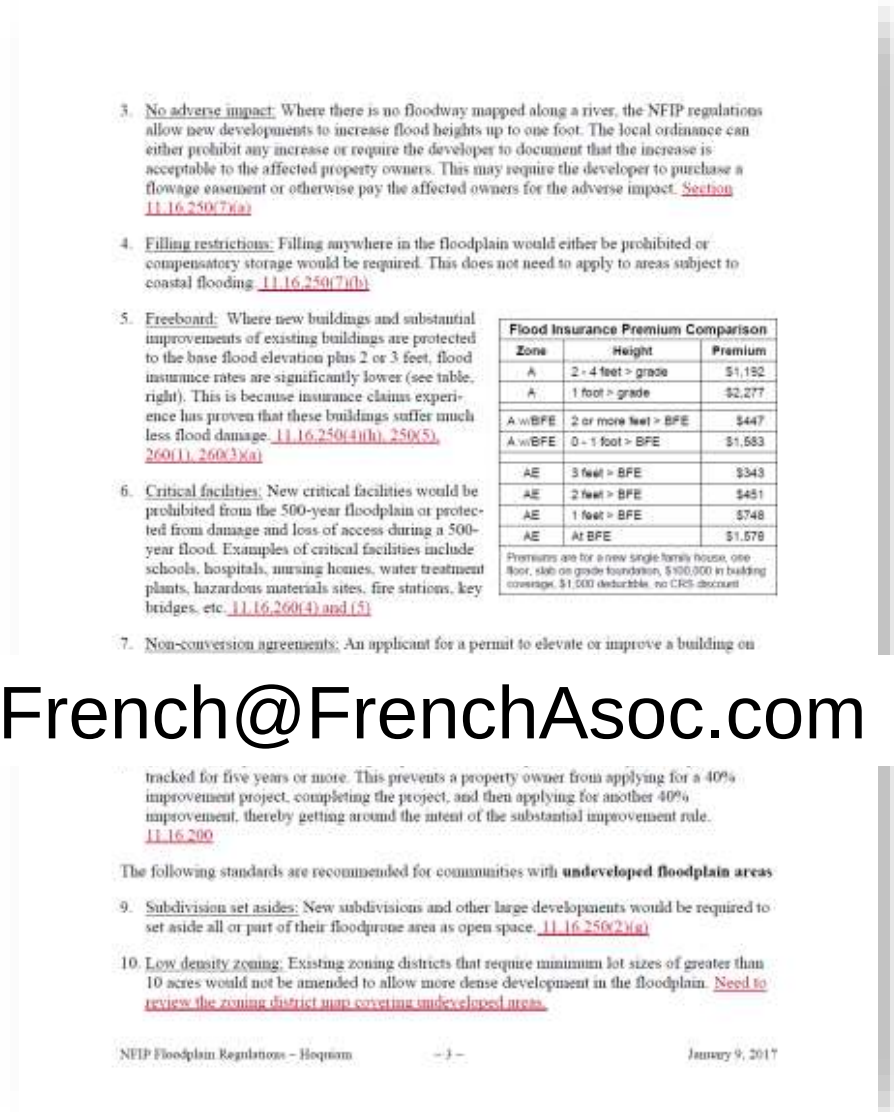
- ✓ Clarify projects that don't need a floodplain development permit
- ✓ Consistent standards for all manufactured homes
- ✓ Small accessory buildings



# Adopting Higher Regulatory Standards

| Status of Adoption of Improved Regulatory Standards – January 31, 2017 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Recommended Standard | Grays Harbor County | Aberdeen | Cosmopolis | Elma | Hoquiam | Montesano | Oakville | Lewis County | Centralia | Chehalis | Napavine | Pe Ell | Thurston County | Bucoda |
| 1 | Flood of record | | A | A | A | A | A | A | | | A | | | A | |
| 2 | Best available data | | NR | NR | A | NR | A | A | | NR | NR | NR | NR | | A |
| 3 | No available data | | A | A | NR | A | NR | NR | | NR | NR | NR | NR | | NR |
| 4 | No adverse impact | | A | A | A | A | A | A | | NR | | NR | NR | | NR |
| 5 | Filling restrictions | | A | A | A | A | A | A | | P | | | | A | A |
| 6 | Critical facilities | | A | A | A | A | A | A | P | P | P | P | P | A | P |
| 7 | Hazardous materials | | A | A | A | A | A | A | | | | | | | |
| 8 | Subdivision set asides | | A | A | A | A | A | A | A | P | P | | | P | |
| 9 | Freeboard (3 feet) | P | P | A | | A | A | A | P | P | P | P | P | P | P |
| 10 | Non-conversion agreements | | A | A | A | A | A | A | | | | | | | |
| 11 | Substantial imprv't tracking | | A | A | A | A | A | A | A | A | | | | P | |
| | | | | | | | | | | | | | | | |
| | A = Adopted | | 9 | 10 | 9 | 10 | 10 | 10 | 3 | 1 | 1 | | | 3 | 2 |
| | P = Partial adoption | 1 | 1 | | | | | | 1 | 4 | 3 | 2 | 2 | 3 | 2 |
| | NR = Not relevant | | 1 | 1 | 1 | 1 | 1 | 1 | | 3 | 2 | 3 | 3 | | 2 |

# Adopting Higher Regulatory Standards



3. No adverse impact: Where there is no floodway mapped along a river, the NFIP regulations allow new developments to increase flood heights up to one foot. The local ordinance can either prohibit any increase or require the developer to document that the increase is acceptable to the affected property owners. This may require the developer to purchase a flowage easement or otherwise pay the affected owners for the adverse impact. Section 11.16.250(7)(a)

4. Filling restrictions: Filling anywhere in the floodplain would either be prohibited or compensatory storage would be required. This does not need to apply to areas subject to coastal flooding. 11.16.250(7)(b)

5. Freeboard: Where new buildings and substantial improvements of existing buildings are protected to the base flood elevation plus 2 or 3 feet, flood insurance rates are significantly lower (see table, right). This is because insurance claims experience has proven that these buildings suffer much less flood damage. 11.16.250(4)(h), 250(5), 260(1), 260(3)(a)

| Flood Insurance Premium Comparison | | |
|---|---|---|
| Zone | Height | Premium |
| A | 2 - 4 feet > grade | $1,192 |
| A | 1 foot > grade | $2,277 |
| | | |
| A w/BFE | 2 or more feet > BFE | $447 |
| A w/BFE | 0 - 1 foot > BFE | $1,583 |
| | | |
| AE | 3 feet > BFE | $343 |
| AE | 2 feet > BFE | $451 |
| AE | 1 feet > BFE | $748 |
| AE | At BFE | $1,578 |

Premiums are for a new single family house, one floor, slab on grade foundation, $100,000 in building coverage, $1,000 deductible, no CRS discount

6. Critical facilities: New critical facilities would be prohibited from the 500-year floodplain or protected from damage and loss of access during a 500-year flood. Examples of critical facilities include schools, hospitals, nursing homes, water treatment plants, hazardous materials sites, fire stations, key bridges, etc. 11.16.260(4) and (5)

7. Non-conversion agreements: An applicant for a permit to elevate or improve a building on

French@FrenchAsoc.com

tracked for five years or more. This prevents a property owner from applying for a 40% improvement project, completing the project, and then applying for another 40% improvement, thereby getting around the intent of the substantial improvement rule. 11.16.200

The following standards are recommended for communities with **undeveloped floodplain areas**

9. Subdivision set asides: New subdivisions and other large developments would be required to set aside all or part of their floodprone area as open space. 11.16.250(2)(a)

10. Low density zoning: Existing zoning districts that require minimum lot sizes of greater than 10 acres would not be amended to allow more dense development in the floodplain. Need to review the zoning district map covering undeveloped areas.

NFIP Floodplain Regulations – Hoquiam – 3 – January 9, 2017

Adopting Higher Regulatory Standards

1. Why Go Higher?
2. Higher Standards
3. Getting Them Adopted