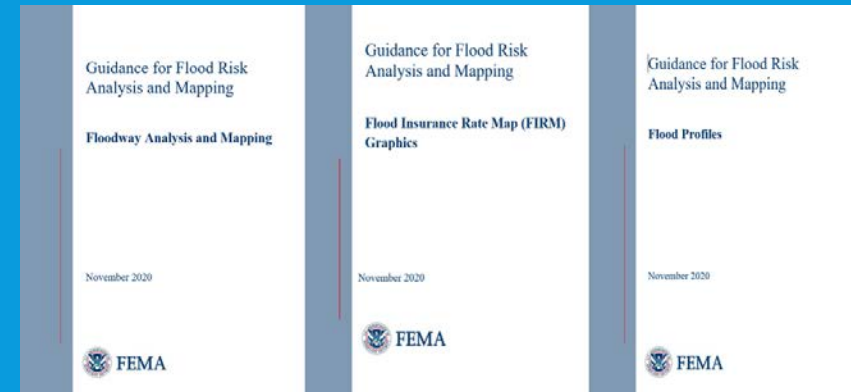




# Cooperating Technical Partners Information Exchange

## *2D Floodways: Proposed Revisions to FEMA Floodway Guidance*

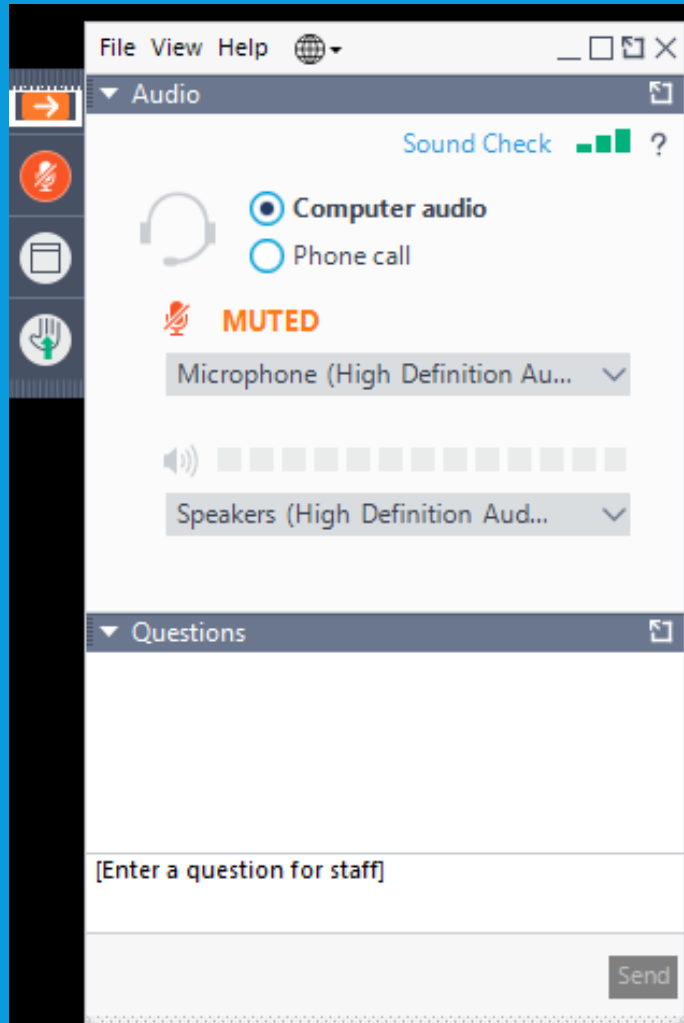


**ASFPM Flood Science Center**

**July 14, 2020**



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- All lines will be automatically be muted.



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- Submitted questions not asked during the webinar will be answered by the presenters and posted as a document on the webinar event page at [floodsciencecenter.org](http://floodsciencecenter.org)



# Continuing Education Credits

- Certified Floodplain Managers and Certified Planners are eligible for 1 CEC for participating in this webinar.
- You must have registered individually and indicated you are a CFM and/or AICP at time of registration.
- Eligibility for CEC is dependent on your time spent viewing the webinar, as determined by the webinar software.



*Attending this webinar in a group setting or only viewing the recording is NOT eligible for CEC.*



# Additional Logistics

- To suggest future CTP webinar topics, please contact Alan Lulloff at [alan@floods.org](mailto:alan@floods.org) or type a suggested topic into the Questions panel today.



**ASFPM CFM CECs will be automatically applied.**



**Certificates of Attendance will be emailed.**

**Processing will take a few weeks.** Please contact [cfm@floods.org](mailto:cfm@floods.org) with any certificate issues only after a few weeks have elapsed.

- A follow-up email with link to slides and recording will be sent **in about a week or so.**

**Thank You for Joining Us!**



# ASFPM Mapping and Engineering Standards Committee Cooperating Technical Partners Subcommittee

## Co-chairs:

- Brooke Seymour, P.E., CFM - [bseymour@udfcd.org](mailto:bseymour@udfcd.org)  
Mile High Flood District
- Vacant

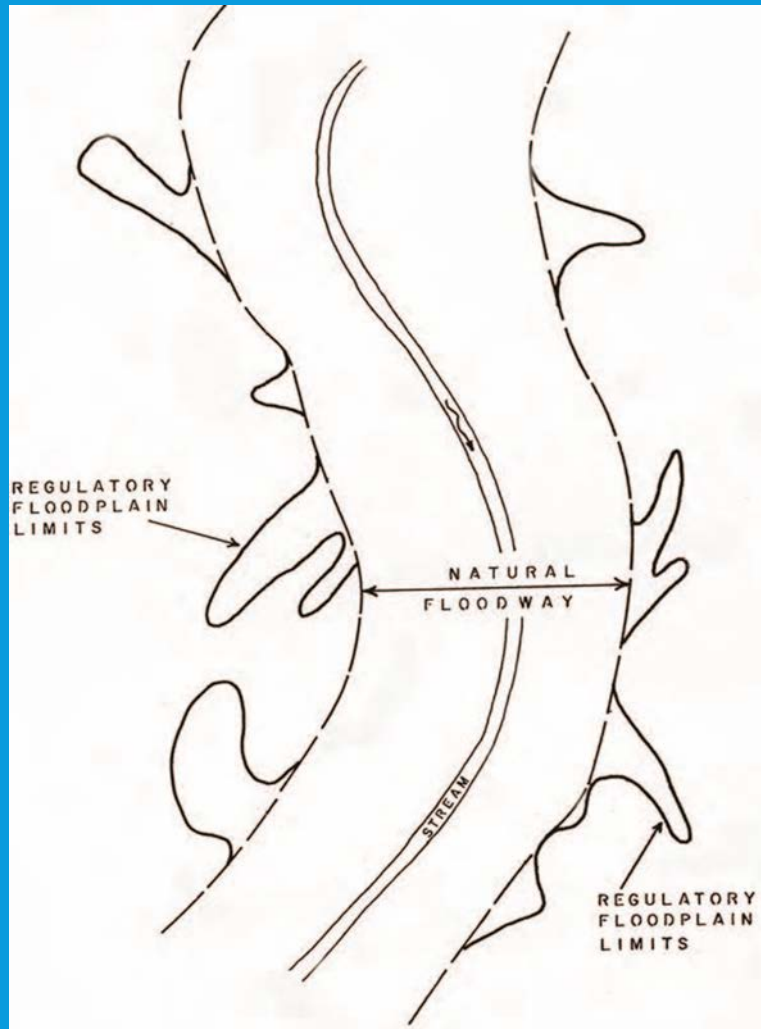
## Goals:

- *Identify common concerns*
- *Provide opportunities for information exchange*
- *Identify training needs*
- *Promote and document the value of CTPs*

# CTP Webinar: 2D Floodways – Proposed Revisions to FEMA Floodway Guidance

Alan Lulloff		ASFPM Flood Science Center
Laura Algeo		FEMA
Brian Koper		FEMA
Andy Bonner		AECOM (Compass PTS)
Sarada Kalikavaya		Atkins (STARR II PTS)

# First Consideration for Designating Floodway



"All of the floodplain of the selected flood included, except those shallow areas and embayments ... where there was ponding but little, if any flow."



# Current FEDERAL Floodway Definition initially published in 24 CFR 1909.1 on April 1, 1978

## Title 44 CFR Part 60, Section 59.1

"A floodway is defined as the channel of a river or other watercourse and the adjacent land areas that **must be reserved** in order to discharge the base flood without **cumulatively increasing the water-surface elevation by more than a designated height.**"

# NFIP Floodway Definition

## Title 44 CFR Part 60, Section 60.3

... the community shall

60.3 (d) (2) **Select** and adopt a regulatory floodway based on the principle that the area chosen for the regulatory floodway must be designed to carry the waters of the base flood, **without increasing the water surface elevation of that flood more than one foot** at any point;

# Why was Floodway Surcharge concept established?

**James Goddard**  
1978 Report:

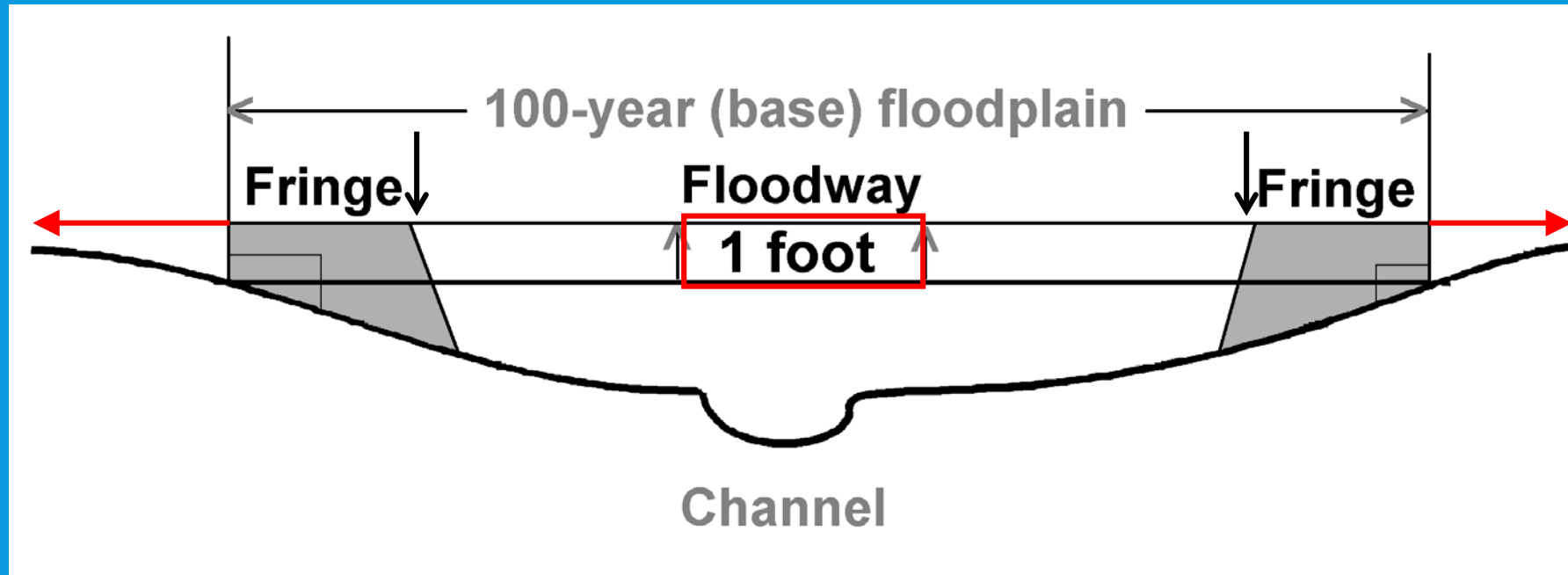
*Origin and Rationale  
of Criterion Used in  
Designating Floodways*



# Compromise – to allow some development

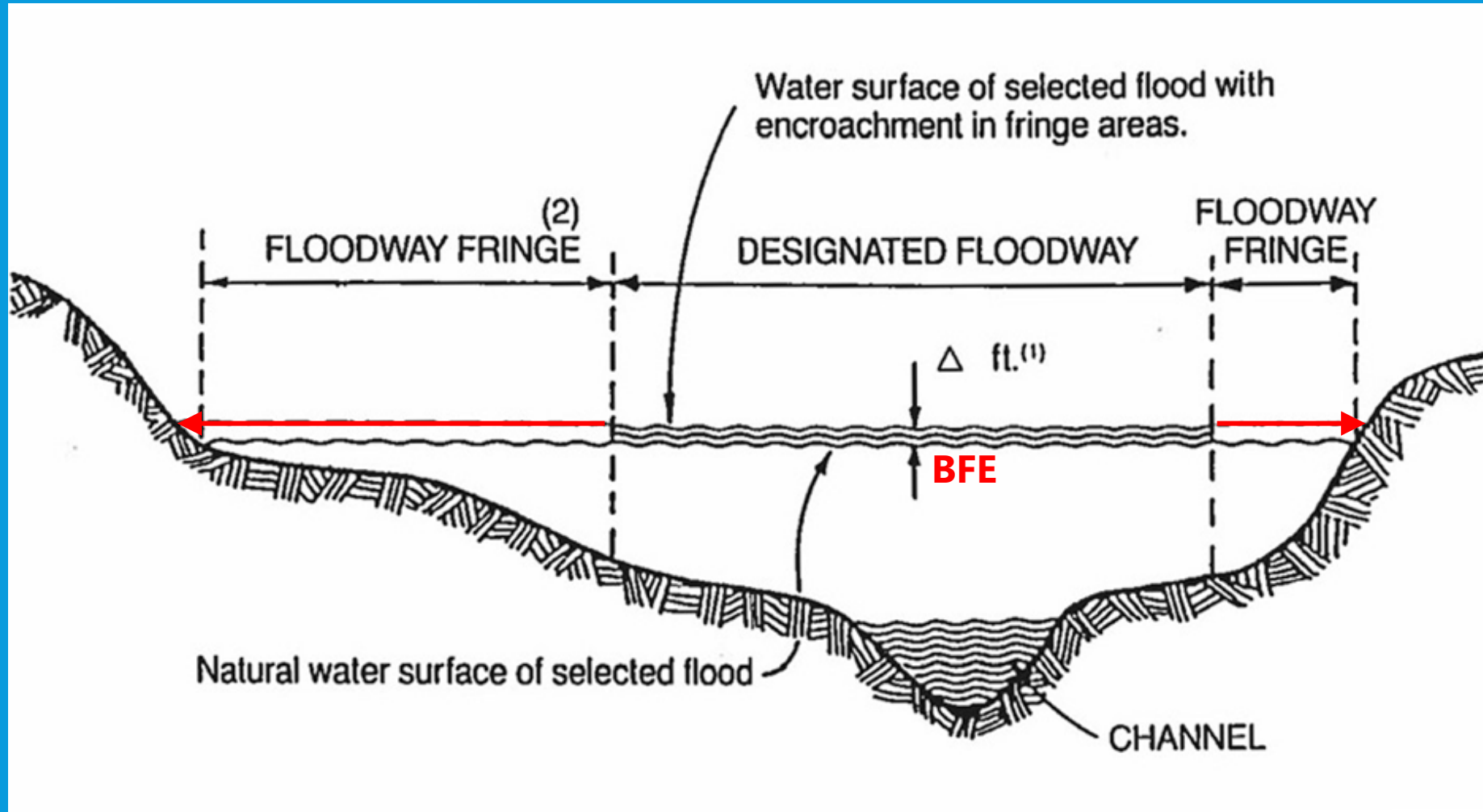
An approach that allowed encroachment ... providing it would not cause an unreasonable increase in flood heights. The criterion evolved as being reasonable amount was no more than one foot.

# Floodway Surcharge



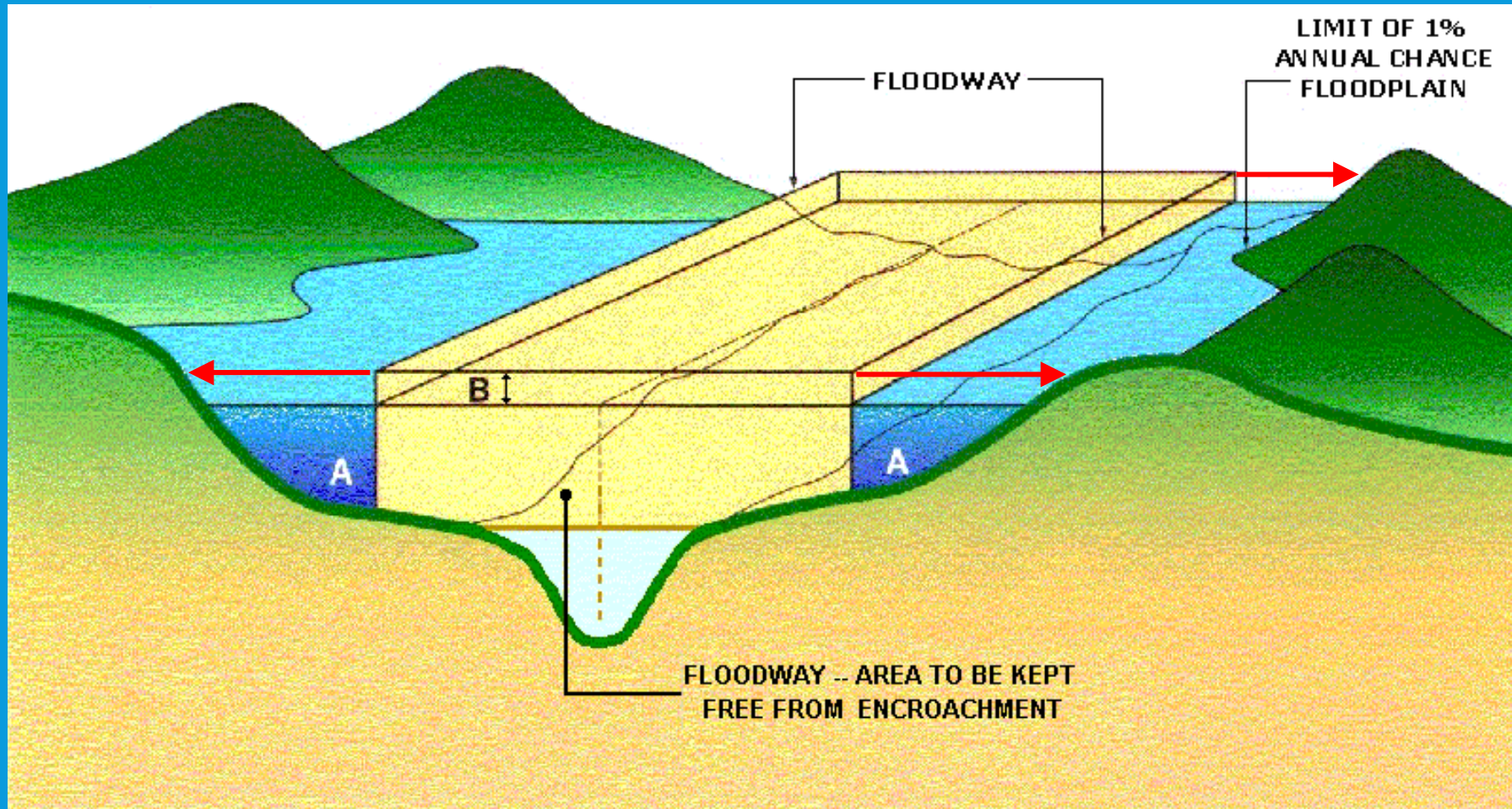
# Portion of Natural FW becomes FW Fringe

(Source: 1987 USACE Publication prepared for FEMA)





# Perspective View



# Why was Floodway Surcharge concept established?

According to Goddard:

**“It was to be a minimum criterion intended as a regional standard, recognizing that there were urbanizing areas ...(with) existing development where ... a much smaller rise might be appropriately considered.”**



# States that allow less of a surcharge

Wisconsin	0.00
Illinois	0.1 (measureable amt.)
Indiana	0.1 (measureable amt.)
Michigan	0.1 (measureable amt.)
New Jersey	0.2
Minnesota	0.5 (if no structures impacted)
Montana	0.5
Colorado	0.5



**The Floodway Encroachment Standard:  
Minimizing Cumulative Adverse Impacts**



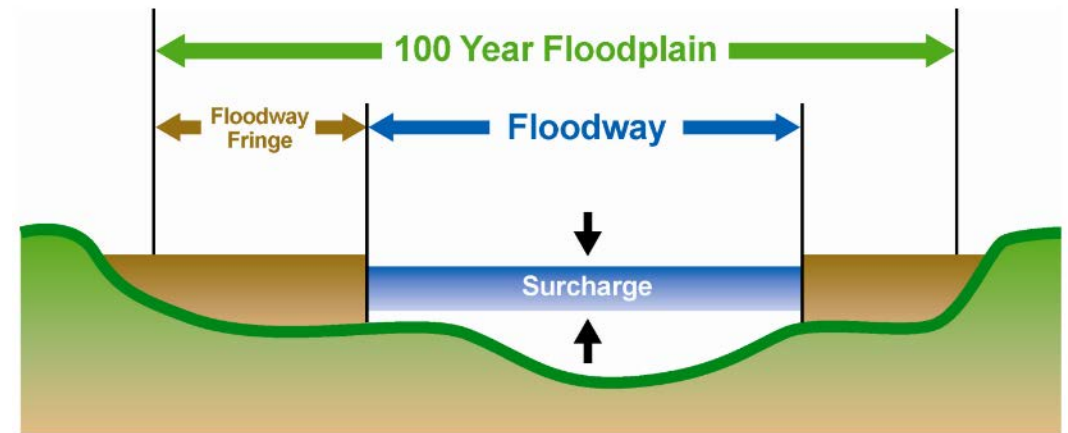
**June 2013**

# Agenda

- 1 2D Floodway Updates: Defining the Need
- 2 Integrated Project Team (IPT) Background and its Goals
- 3 FEMA RMD FY20 Standards Updates
- 4 2D Floodway New Surcharge Averaging Practices
- 5 2D Floodway Profiles and BFE Use
- 6 FY20 Guidance Updates & Highlights
- 7 FY20 Guidance and Standards Timeline and Comment Period
- 8 Next Steps & Additional Exploration
- 9 Questions/Discussion

# 2D Floodway Updates: Defining the Need

- Floodway regulatory requirements in CFR written base on 1D modeling approaches
- Floodway guidance and standards similarly based on 1D concepts and approaches
- HEC-RAS 5.0 was released in 2016 – since then more attention on riverine analyses being performed in 2D
- As more 2D modeling gets performed, the need to update the standards and guidance around floodway development has increased, especially as it relates to how floodway surcharges will be evaluated for compliance against standards and regulations



*Source: FEMA Guidance for Flood Risk Analysis and Mapping*

# Integrated Project Team (IPT) Background



## MEMBERSHIP

### Executive Sponsor:

Luis Rodriguez, FEMA Risk Management Directorate

### Executive Sponsor:

Rachel Sears, FEMA Mitigation Directorate

### Vice-Chair:

Laura Algeo, FEMA Risk Management Directorate

### Membership:

Production and Technical Services (PTS)

Cooperating Technical Partners (CTP)

FEMA Regions

Federal Highway Administration (FHWA)

Colorado 2-Dimensional Consortium (C2DC)

United States Army Corps of Engineers (USACE)

Community Engagement and Risk Communication (CERC)



## PURPOSE

- Define how FEMA will evaluate regulatory compliance for floodways developed from 2D models.



## OUTCOME

- Define recommendations for short-term changes and additions to existing standards and guidance.
- Define additional recommendations in the long-term for senior leadership on CFR changes.

# Goals of the IPT

## Short-Term (Phase 1)



### Allowable Approaches

Determine allowable approaches to define floodway when base analysis has been performed in 2D (1D floodway, steady state equivalent, 2D unsteady only, etc.)



### Surcharge Compliance Criteria

Identify floodway surcharge compliance criteria (new floodways and no-rise) that will ensure we meet regulatory descriptions of compliance



### Guidance & Standards

Other 2D guidance/standards updates needed for how to display the results; such as profiles, Floodway Data Tables (FDT), Base Flood Elevations (BFEs) on Flood Insurance Rate Maps (FIRMs), etc.



### Training Needs

Identify training needs for floodplain managers to effectively administer and manage floodplains and floodways developed from 2D models

## Long-Term (Phase 2)



### Revisiting Encroachment-Based Floodway

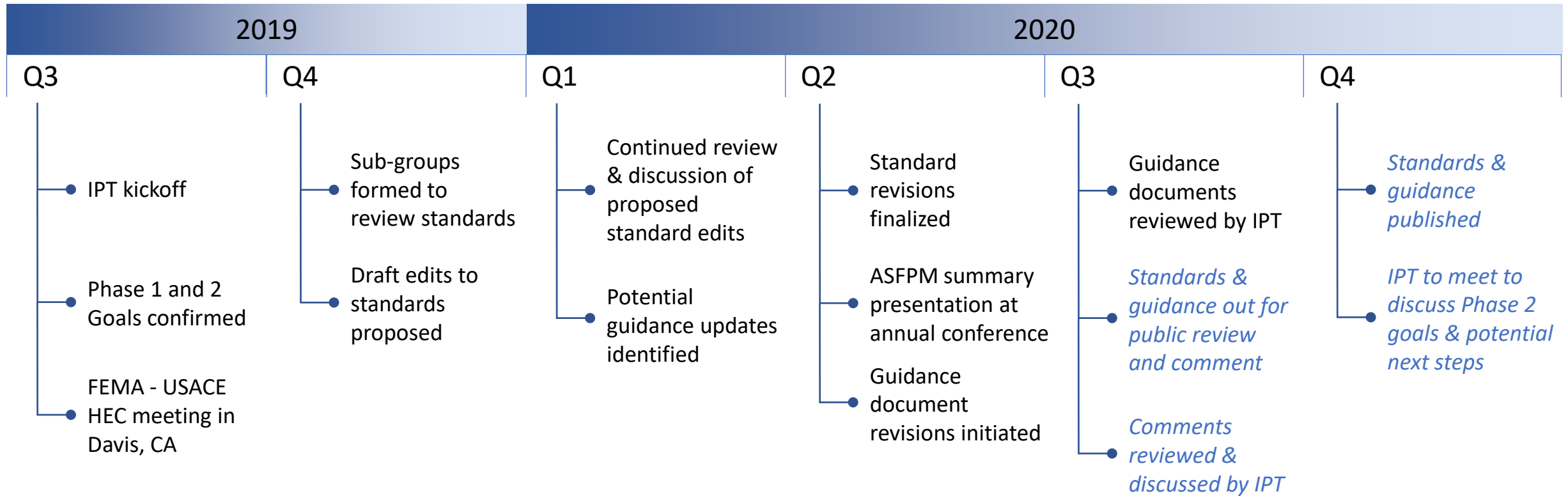
Alternatives to encroachment-based floodway that still help effectively manage floodplain development



### Code of Federal Regulations (CFR)

Definition of path to accomplish CFR changes

# 2D Floodway IPT Timeline



*Future activity planned*

# FEMA RMD FY20 Standards Reviewed

## Group 1 (Averaging, Floodway Setup)

SID 69

SID 70

SID 73

SID 77

SID 99

## Group 2 (Tie-ins, Profiles)

SID 65

SID 66

SID 71

SID 78

SID 79

SID 128

## Group 3 (Outputs)

SID 75

SID 335

SID 417

## Legend

No Updates

Minor Updates

Rescind

Significant  
Updates



# FEMA RMD FY20 Standards Reviewed: Group 1

SID	Topic	Summary of Revision
69	Allowable surcharge values	Change language to allow for negative surcharges
70	Stream forming boundary between two states	No change
73	Equal conveyance	Removed “equal conveyance” as a required methodology and changed language to account for an “equitable consideration of both overbanks” across the study area.
77	Coincident peaks	Changed to require coincident frequency analysis or documented historical observations if using backwater starting condition.
99	Floodways in shallow flooding zones	Rescind

**Legend**

No Updates

Minor Updates

Rescind

Significant Updates

# Significant Standard Updates (Group 1)

- SID 73

SID #	Standard Language (Current)
73	An equal conveyance reduction method must be used to establish the minimal regulatory floodway, except where an initial equal conveyance floodway is adjusted in coordination with FEMA and the impacted communities.

SID #	Standard Language (Proposed)
73	A methodology based on equitable consideration of both overbanks must be used to establish the minimal regulatory floodway. Variations to this approach must be made in coordination with FEMA and the impacted communities.

# Significant Standard Updates (Group 1)

- SID 77

SID #	Standard Language (Current)
77	Unless the coincident peak situation is assumed, floodway computations for tributaries must be developed without consideration of backwater from confluences.

SID #	Standard Language (Proposed)
77	Floodway computations for tributaries must be developed without consideration of backwater from confluences <b>unless a coincident frequency analysis or detailed historical observations prove otherwise. If either of these exceptions is used, it must be done in coordination with FEMA.</b>

# FEMA RMD FY20 Standards Reviewed: Group 2

SID	Topic	Summary of Revision
65	BFEs must agree within 0.5 ft.	No change. Clarification to be added to Guidance
66	Split/diverted flow paths	Change to clarify that significant flow paths are needed in 1D only
71	Floodway tie-ins	No change. Tie-ins to be specifically distinguished in Guidance
78	Flood profiles	Clarifies that flood profiles can't cross in when modeled in 1D
79	Flood profiles	Clarified for just 1D
128	Flood profiles	Provides for 2D models that BFEs be printed on FIRM up to 0.1 foot as needed to match the model and if they can't, then profiles and/or an FIS report insert (described in Guidance) would be needed.

## Legend

No Updates

Minor Updates

Rescind

Significant Updates

# Significant Standard Updates (Group 2)

- SID 128

SID #	Standard Language (Current)
128	For floodplains mapped from 2-D models, separate Flood Profiles for significant flow paths must be created.

SID #	Standard Language (Proposed)
128	For floodplains mapped from 2D models, <b>printed BFE lines on the FIRM must match modeled water surface elevations and must be plotted at intervals sufficient to interpolate accurate BFEs in between printed BFE lines. If this is not possible,</b> separate Flood Profiles for significant flow paths <b>and/or FIS Report inserts must also</b> be created.

# FEMA RMD FY20 Standards Reviewed: Group 3

SID	Topic	Summary of Revision
75	Floodway Data Table	References the introduction of floodway evaluation lines. Standard simplified. Examples will be added to the FIS Report Tech Ref and Guidance.
335	Floodway agreement across regulatory components	Added terminology on evaluation lines (Additional detail to be added in Guidance)
417	Non-regulatory flood risk products and datasets	No change. Floodway surcharge grid postponed until a later cycle to allow for additional exploration.

## Legend

No Updates

Minor Updates

Rescind

Significant Updates

# Significant Standard Updates (Group 3)

## • SID 75

SID #	Standard Language (Current)
75	<p>For each stream with cross sections where a floodway was determined under the scope of work, a Floodway Data Table compliant with the FIS Report Technical Reference must be prepared as part of the hydraulic analysis. The Floodway Data Table must contain an entry for each lettered, mapped cross section that includes the following information:</p> <ul style="list-style-type: none"><li>• Cross-section identification shown in a georeferenced spatial file;</li><li>• Stream or profile baseline station of the cross section;</li><li>• Width of the floodway at the cross section;</li><li>• Wetted area of the cross section under encroached conditions;</li><li>• Average velocity of the floodwaters at the cross section under encroached conditions;</li><li>• The greater of BFEs from all flooding sources, including from backwater, affecting the cross section (regulatory elevation);</li><li>• The BFE from the existing conditions model (without-floodway elevation);</li><li>• The BFE from the encroached existing conditions model (with-floodway elevation); and</li><li>• Difference between with- and without-floodway elevations (surcharge).</li></ul>
SID #	Standard Language (Proposed)
75	<p>For each stream where a floodway was determined under the scope of work, a Floodway Data Table compliant with the FIS Report Technical Reference must be prepared as part of the hydraulic analysis. The Floodway Data Table must contain an entry for each lettered, mapped cross section <b>or evaluation line and must</b> include the information <b>outlined in the FIS Report Technical Reference.</b></p>

# 2D Floodway - Surcharge Averaging Practices

## Addressing

SID 69

SID 75

SID 335

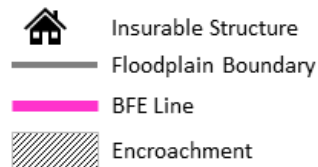
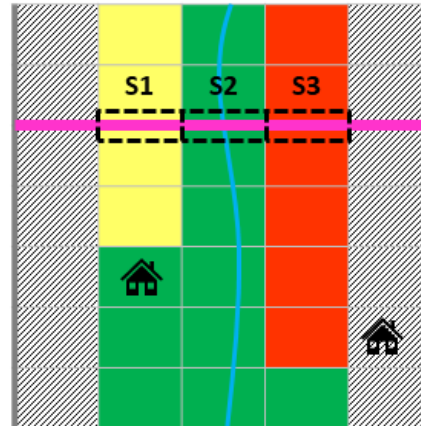
## Why

- 2D Floodway (unsteady) tend to be wider than 1D steady-state alternative
- 2D Floodway encroachment process is more time-consuming
- 2D Floodways have many more evaluation points (cells or nodes) than 1D models (cross sections)
- Can have negative surcharges while also decreasing impact

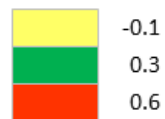
## How

- Average 2D surcharge results over an “evaluation line”
  - BFE Line
  - Alternative Line Generated in Model
- Additional criteria for contributing cells that impact structures

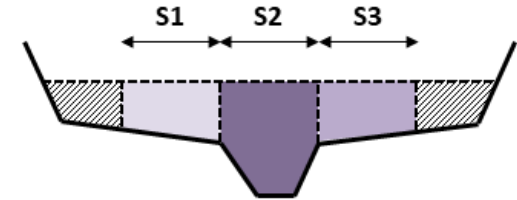
- ① Calculate surcharge at each cell, and divide BFE line into segments



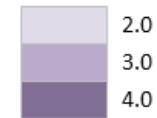
Surcharge,  $\Delta$  (ft.)



- ② Calculate unit discharge for each segment



Unit Discharge,  $q$  ( $\text{ft}^2\text{s}^{-1}$ )



- ③ Calculate unit discharge weighted surcharge average ( $\bar{\Delta}_{BFE}$ ) for all segments along BFE line

$$\bar{\Delta}_{BFE} = \frac{\Delta_{S1}q_{S1} + \Delta_{S2}q_{S2} + \Delta_{S3}q_{S3}}{q_{S1} + q_{S2} + q_{S3}}$$

$$\bar{\Delta}_{BFE} = \frac{(-0.1)(2.0) + (0.3)(3.0) + (0.6)(4.0)}{2.0 + 3.0 + 4.0}$$

$$\bar{\Delta}_{BFE} = 0.34 \text{ ft.}$$



# 2D Floodway Profiles and BFE Placement

## Addressing

SID 66

SID 78

SID 79

SID 128

## Why

- 2D outputs provide detail about overbank flooding
- Detail is lost when a single profile line is used to represent the water surface

## How

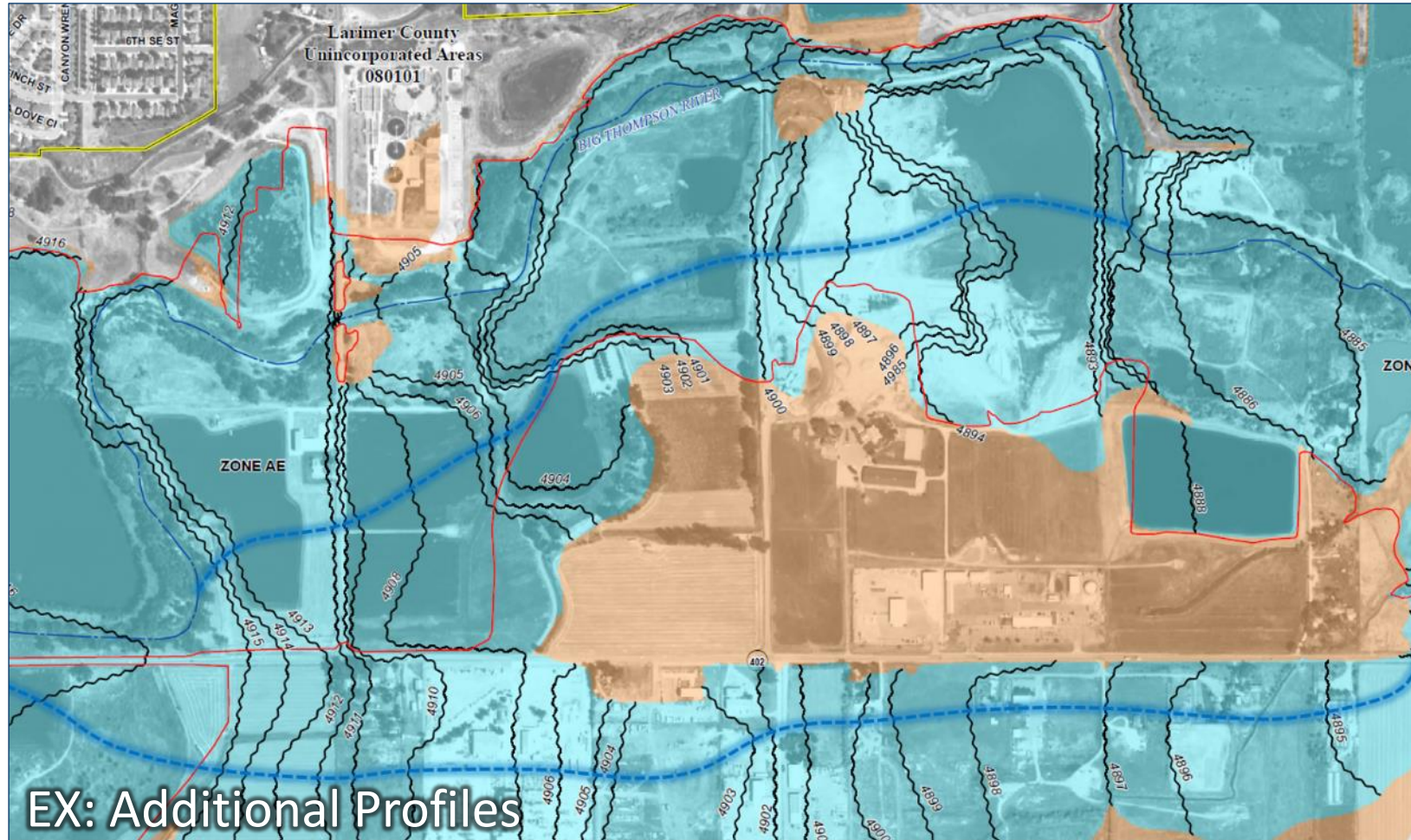
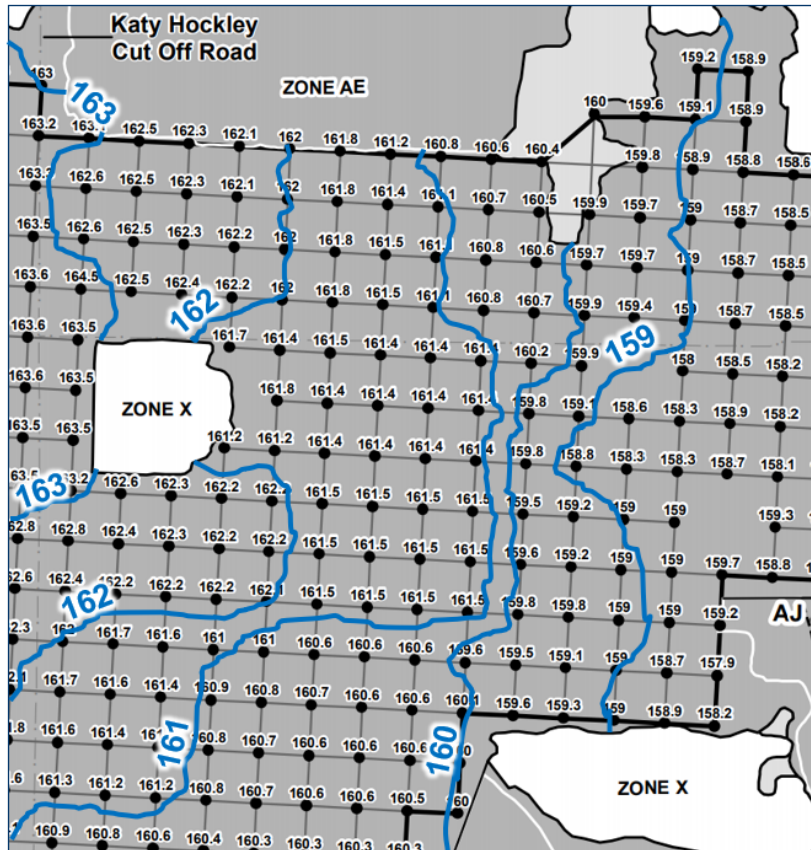
- Provide options to best capture the data
- Additional requirements for BFE placement; must be able to interpolate a WSEL from the BFE lines that matches the model
- If not, must create separate profile line for significant flow path AND/OR include FIS inserts of WSEL grid





# 2D Floodway Profiles and BFE Placement (cont'd)

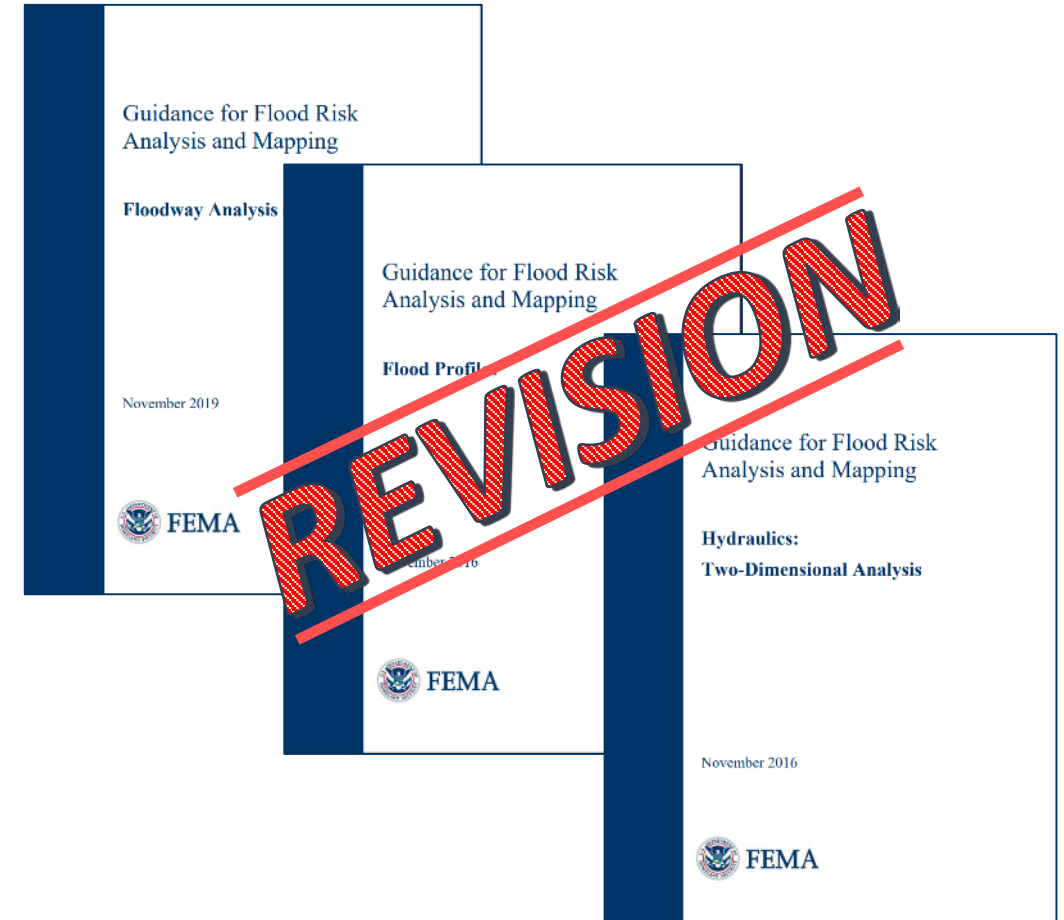
EX: FIS Insert



# POLL QUESTION

# FEMA RMD FY20 Guidance Updates

- Proposed Standards updates will require updates to guidance to elaborate on new concepts and better define revisions
  - Floodway Analysis and Mapping
  - Two-Dimensional Analysis
  - Mapping Base Flood Elevations on Flood Insurance Rate Maps
  - Flood Profiles
  - And several others listed on accompanying handouts



# FEMA RMD FY20 Guidance Highlights

Document	Summary of Revisions
Guidance: Hydraulics: Two-Dimensional Analysis (Nov 2016) Guidance: Levee (Feb 2019)	Minor updates – language revised to match SID 65 and SID 73 updates
Guidance: Flood Insurance Study (FIS) Report (Nov 2016) Guidance: Data Capture (Workflow Details) (Feb 2019)	Minor updates – references to 2-D based FDT example and references to evaluation lines added
Technical Reference: Flood Insurance Study (FIS) Report (Feb 2019) ▲	Template added for FDT based on evaluation lines
Guidance: FIRM Database (Nov 2019) Guidance: General Hydraulic Considerations (Nov 2016) Guidance: LOMR Incorporation (May 2016) Guidance: Combined Coastal and Riverine Floodplains (May 2015) Guidance: Contiguous Community Matching (May 2016) Guidance: FIRM Graphics (Nov 2019) Guidance: Riverine Mapping and Floodplain (Nov 2019)	Minor updates – reference to evaluation lines and attributing in S_XS spatial file
Guidance: Mapping Base Flood Elevations on Flood Insurance Rate Maps (Nov 2019) ▲	Discussion on evaluation line and BFE placement, as well as FIS Grid Inserts
Guidance: Data Capture – General (May 2017)	Minor updates
Guidance: Floodway Analysis and Mapping (Nov 2019) ▲	Definition of evaluation line, discussion of placement. Discussion of 2-D floodway setup, initial encroachment screening and encroachment techniques. Discussion of no-rise with evaluation lines.
Guidance: MT-1 Technical Guidance (Nov 2019) ▲	Use of 2D profiles, BFEs, and FIS Grid Inserts. Examples of BFE determination using BFEs generated from a 2-D WSEL grid. Example of BFE determined from FIS Grid Insert.
Guidance: Profile Baseline Guidance (Nov 2015)	Minor updates – Revised language and examples based on SID 128
Guidance: Flood Profiles (Nov 2016) ▲	Revised language based on SID 128 updates. Added discussion on FIS Grid Inserts.

▲ Additional detail on revisions included in later slides



# Technical Reference: FIS Report

- Table 24: Example of Floodway Data Table with evaluation line references

LOCATION		FLOODWAY <sup>2</sup>			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88) <sup>2</sup>			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A <sup>3</sup>	82,440	1,395	23,879	4.9	22.5	22.2	23.2	1.0
B <sup>3</sup>	84,620	2,208	42,275	2.7	22.8	22.8	23.8	1.0
C <sup>3</sup>	86,800	2,500	45,371	2.6	23.1	23.1	24.1	1.0
D <sup>3</sup>	89,600	3,921	72,926	1.6	23.3	23.3	24.3	1.0
E <sup>3</sup>	121,600	5,548	88,146	1.3	24.0	24.0	25.0	1.0
F <sup>3</sup>	123,550	6,965	129,249	0.9	24.0	24.0	25.0	1.0
G <sup>3</sup>	126,250	7,598	138,886	0.8	24.0	24.0	25.0	1.0
H <sup>3</sup>	128,400	6,440	125,613	0.9	24.1	24.1	25.1	1.0
H <sup>3</sup>	128,400	6,440	125,613	0.9	24.1	24.1	25.1	1.0
I <sup>3</sup>	130,300	7,170	133,927	0.8	24.1	24.1	25.1	1.0
J <sup>3</sup>	132,250	6,701	128,508	0.9	24.1	24.1	25.1	1.0
K <sup>3</sup>	133,050	7,198	131,137	0.8	24.1	24.1	25.1	1.0
L <sup>3</sup>	135,700	6,116	113,706	1.0	24.1	24.1	25.1	1.0

<sup>1</sup>Feet above mouth

<sup>2</sup>Values reported are based on averages calculated across evaluation lines. Refer to model result grids for modeled variability in elevation and surcharge across the floodway.

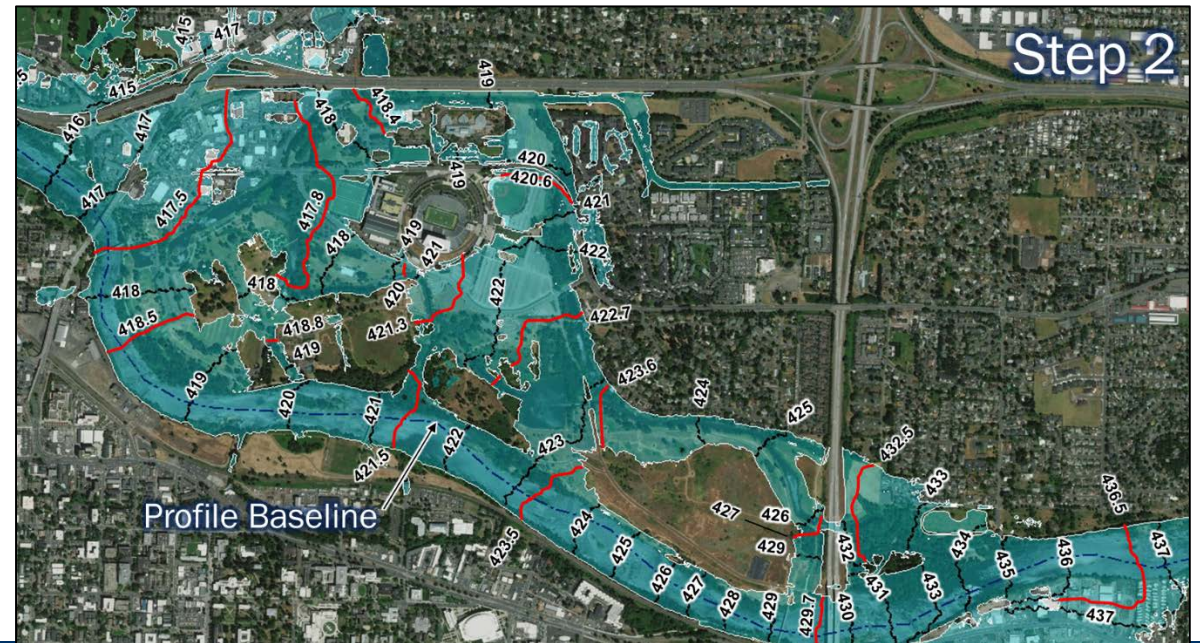
<sup>3</sup>Floodway computed by 2D or hybrid 1D, 2-D model at this location

TABLE 24	FEDERAL EMERGENCY MANAGEMENT AGENCY			FLOODWAY DATA				
	FLOOD COUNTY, STATE							
	AND INCORPORATED AREAS			FLOODING SOURCE: INUNDATION RIVER				

Footnotes informing user results are based on 2D model

# Guidance: Mapping Base Flood Elevations on Flood Insurance Rate Maps

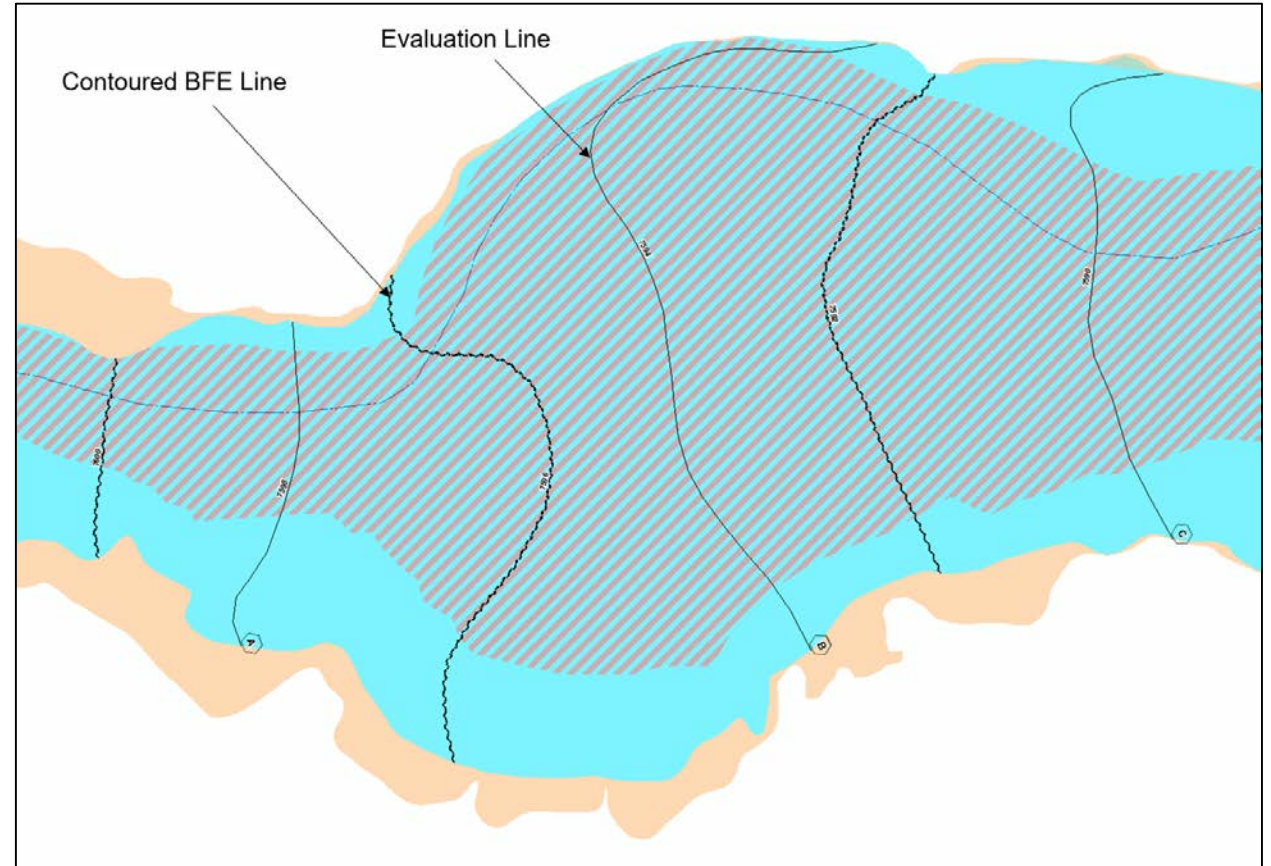
- Section 4.0: Evaluation Lines and BFE Considerations for 2D Models
  - Description of evaluation line and BFE placement
  - Addition of BFE lines where BFE interpolation surface vs. the original model WSEL grid exceeds 0.1 ft
  - Example of decimal BFE placement in 2D area





# Guidance: Floodway Analysis and Mapping

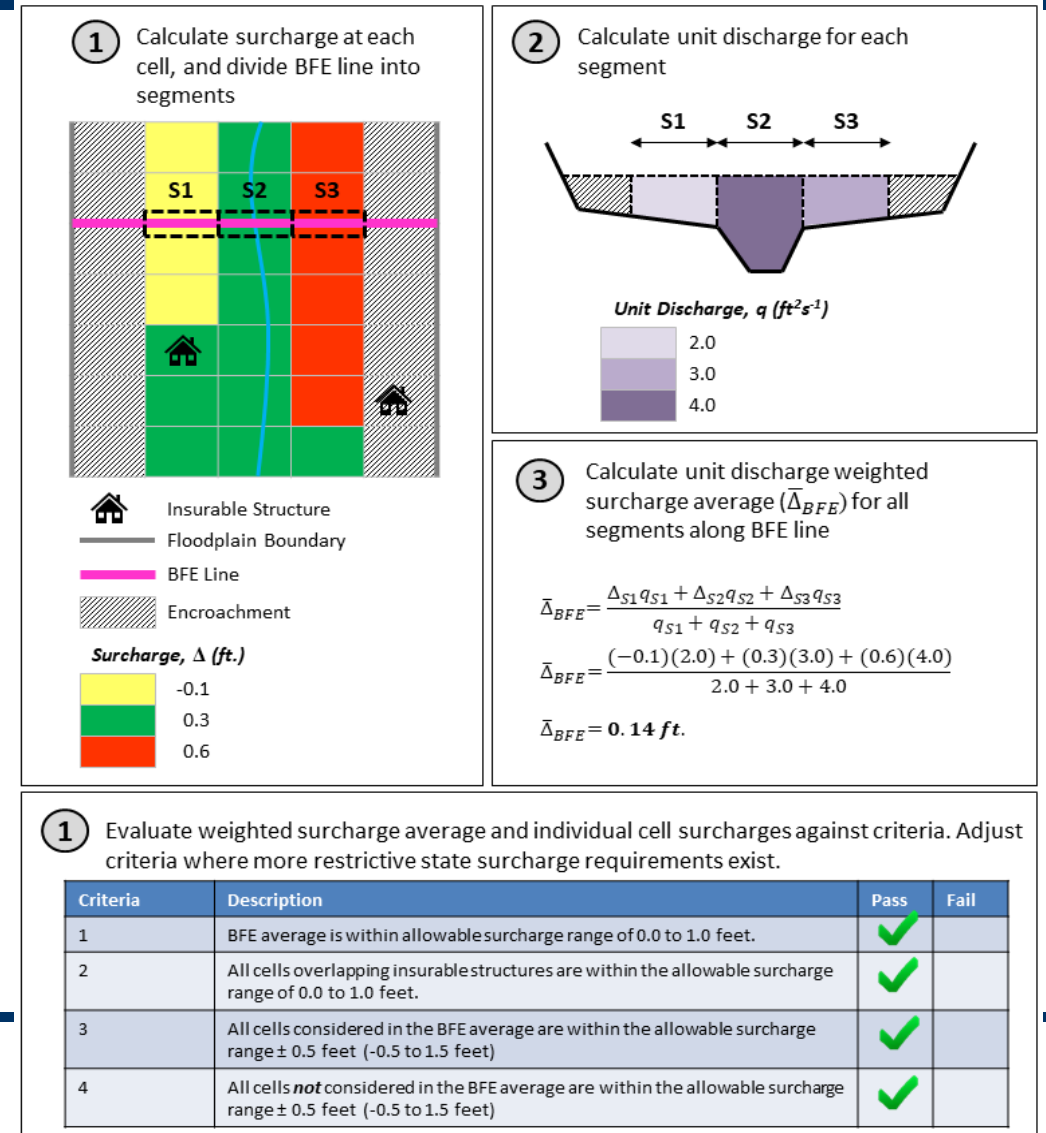
- Section 5.1: Floodway Analysis
  - Introduction of “equitable consideration” from SID 73 revision
- Section 5.1.2: Two-Dimensional Floodway Analysis
  - Introduction of an “evaluation line” for averaging and reporting results of a 2-D floodway
  - Guidance on plotting evaluation lines
  - Discussion on evaluation lines vs. BFE lines





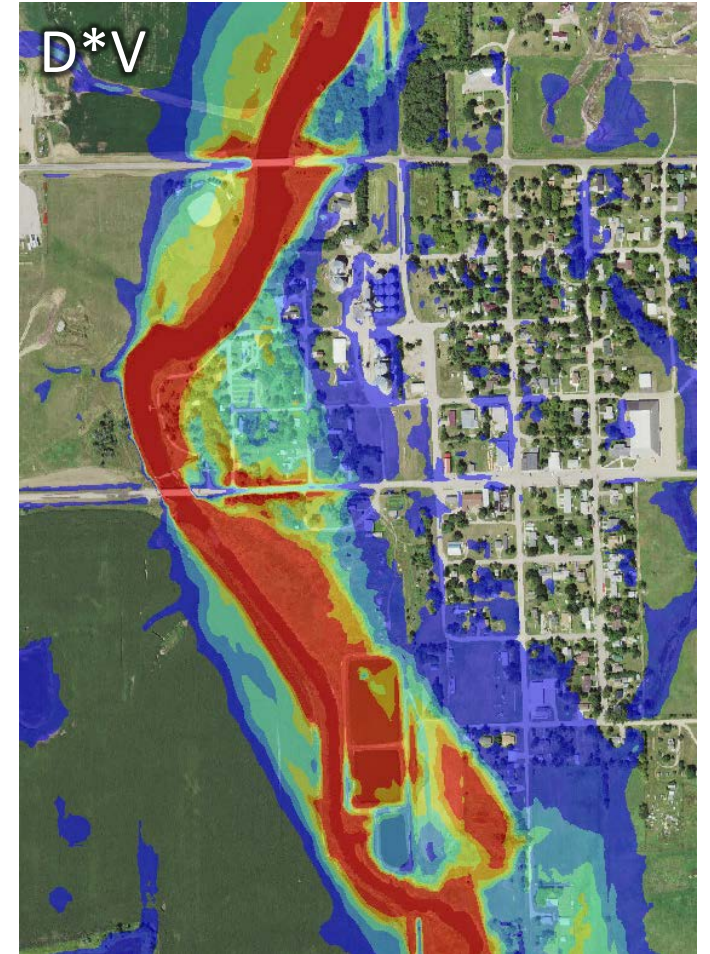
# Guidance: Floodway Analysis and Mapping

- Section 5.1.2: Two-Dimensional Floodway Analysis (cont'd)
  - Discussion on surcharge averaging and additional 0.5 ft tolerance when averaging
  - requirements for surcharges at insurable structures (no additional surcharge tolerance allowed)
- Section 5.2.4: Negative Surcharges
  - Instances where negative surcharges may be permitted – expanding on revised language in SID 65



# Guidance: Floodway Analysis and Mapping

- Section 5.3.2
  - Guidance on floodway model setup for riverine inflow and rain-on-grid base flood models
  - Discussion of Depth x Velocity (DxV) initial screening (one approach for “equitable consideration” – SID 73)
    - Additional description of hazard-based classifications and their potential benefits
  - Discussion on common encroachment techniques for 2D models
    - Raised terrain
    - Null cells in FW fringe
    - Lateral weirs
  - Description of Floodway Validation/Surcharge Analysis
    - Evaluation lines
    - Point/Grid evaluations for insurable structures

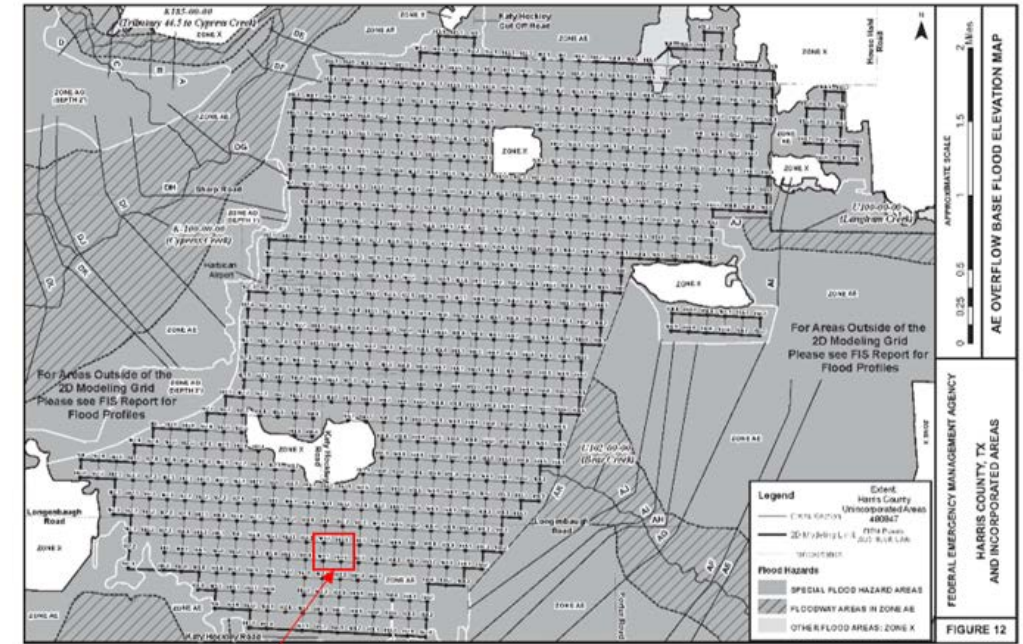


# Guidance: Floodway Analysis and Mapping

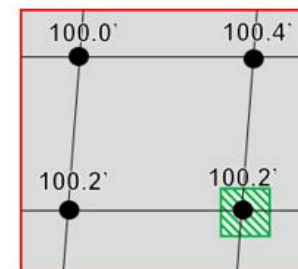
- Section 8.0: Floodway Data Table
  - Reference to examples for 2-D based floodways in revised Technical Reference
- Section 11.3: How a No-Rise Certification is Developed
  - References to evaluation lines where a no-rise is done using a 2-D model
- Section 11.4: Evaluating “No-Rise” Analyses Submitted by Engineers
  - Evaluating no-rise at evaluation lines
  - Guidance on evaluation line placement when a no-rise is being performed so that impacts from development are not overlooked

# Guidance: MT-1 Technical Guidance

- Section 4.2: Riverine SFHA Methodology
  - Added evaluation line references
  - Describes the use of different data sources (FDT, profiles, and FIS Report Grid Inserts) and their applicability for 2-D model results
  - Discusses evaluation line references on a FDT
  - Described limitations of flood profiles and importance of BFEs for 2D results
  - Added discussion on FIS Report Grid Inserts, along with an example of how a BFE may be determined
    - Alternative FIS Grid Inserts under development

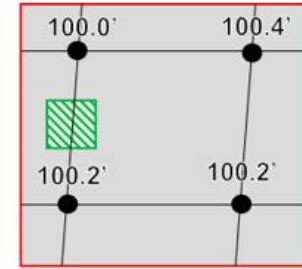


**Ex. 1:** Subject on a reported BFE



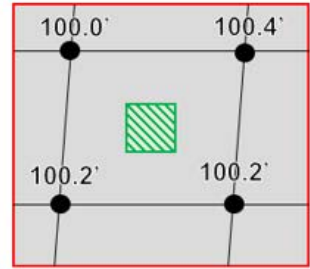
BFE = 100.2'

**Ex. 2:** Subject on line between reported BFEs



$BFE = (100.0 + 100.2')/2$   
BFE = 100.1'

**Ex. 3:** Subject between multiple reported BFEs



$BFE = (100.0 + 100.2' + 100.2' + 100.4')/4$   
BFE = 100.2'



# Guidance: Flood Profiles

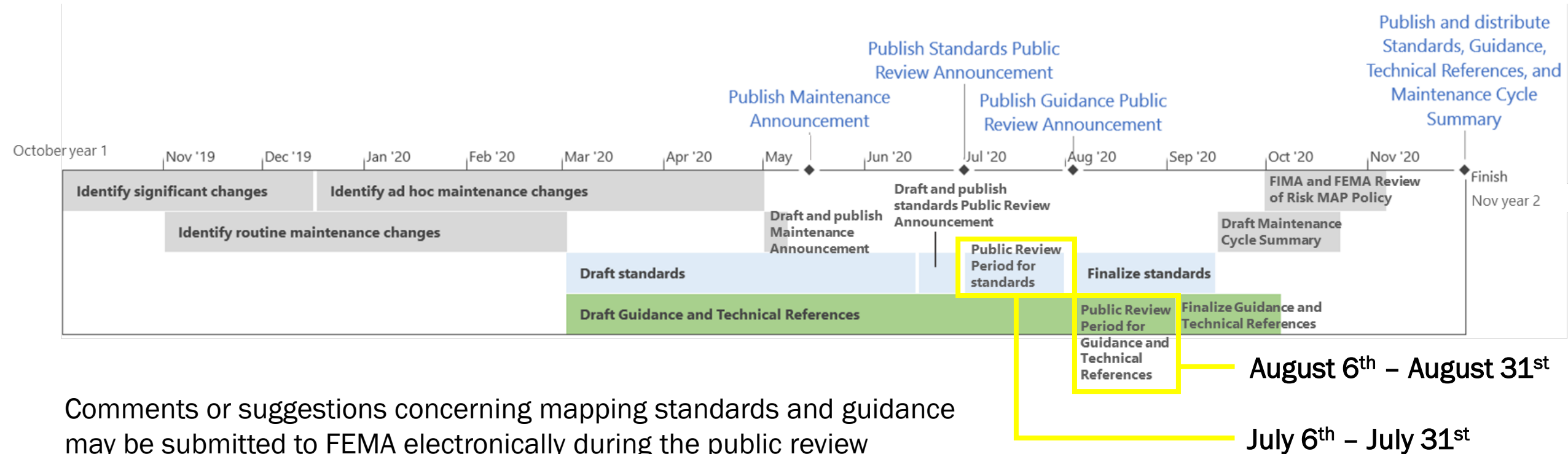
- Section 2.3: 2-D Studies
  - Discussion on profiles vs. BFEs vs. FIS Grid Inserts for 2-D model result display
  - References to evaluation lines added throughout
  - Description of the FIS Grid Inserts and situations where they should be used
- Section 3.1: Cross-Sections and Evaluation Lines
  - Discussion on appropriate formatting of evaluation lines references on a profile
- Section 3.2: Profile Lines
  - Discussion on drawdowns from 2-D model result
- Section 4.0: FIS Inserts for 2D Modeling
  - Description of the FIS Grid Inserts and situations where they should be used

# POLL QUESTION

# FEMA RMD FY20 Guidance & Standards Timeline

The **Standards** are currently going through their public review period (month of July).

The **Guidance** will be starting its public review period in August.



Comments or suggestions concerning mapping standards and guidance may be submitted to FEMA electronically during the public review periods by sending an email message to [FEMA.GS@riskmapcds.com](mailto:FEMA.GS@riskmapcds.com)

# FEMA RMD FY20 G&S Public Review Announcement

[EXTERNAL] FEMA PUBLIC REVIEW ANNOUNCEMENT



FEMA-RMD-Comms <fema-rmd-comms@fema.dhs.gov>

To: Nakagaki, Michael; Brown, Vincent

Cc: Lloyd, Alec

Reply Reply All Forward ...

Tue 7/7/2020 8:50 AM

FEMA PUBLIC REVIEW ANNOUNCEMENT

## Fall 2020 Guidance and Standards Review of Policy Changes

FEMA maintains guidelines and standards to support the Risk Mapping, Assessment and Planning (Risk MAP) program. These specifically define how to apply the statutory and regulatory requirements for the National Flood Insurance Program (NFIP). These standards also outline how to use Flood Risk Projects, how to process Letters of Map Change (LOMCs), and related Risk MAP activities. More information is available on [FEMA.gov](https://www.fema.gov).

FEMA has a maintenance plan for these guidelines and standards and is updated annually. This summary relates to the 2020 update, which FEMA will release in November 2020.

A summary of the planned changes was [published](#) in June 2020. Those changes are:

### Significant Changes

Topic	Description
2D Floodways	Revise the standards and guidance on modeling and mapping the regulatory floodway using a two-dimensional (2D) model. Update standards (SIDs) associated with floodway analyses and technical approaches and outputs. Also update multiple technical references, guidance documents, and templates.
Coastal Zone Management Act (CZMA) Compliance	Create SIDs and guidance to clarify how to issue consistency determinations for the CZMA.
Automated Map Production (AMP)	Revise associated SIDs, technical references, guidance documents, and templates to allow flexibility in Flood Insurance Rate Map (FIRM) panel layout as the AMP tool is introduced into the Risk MAP workflow per SID 630.

- Email announcement went out on July 7
- 2D Floodways is a “Significant Change”
- Summarizes each standard being updated

Example:

SID #	Implementation	Primary Keyword	Original Standard	Revised Standard
73	Effective immediately	Floodway	An equal conveyance reduction method must be used to establish the minimal regulatory floodway, except where an initial equal conveyance floodway is adjusted in coordination with FEMA and the impacted communities.	A methodology based on equitable consideration of both overbanks must be used to establish the minimal regulatory floodway. Variations to this approach must be made in coordination with FEMA and the impacted communities.

### How to Submit Comments to FEMA

You may provide comments via email at: [FEMA-GS@fema.dhs.gov](mailto:FEMA-GS@fema.dhs.gov).

Comments received prior to July 31, 2020, will be reviewed and addressed as appropriate before the standards are finalized.



# Next Steps and Additional Exploration



*Testing Additional Floodway Alternatives*



*Exploring New Tools with HEC to Expediate 2D Floodway Analyses*

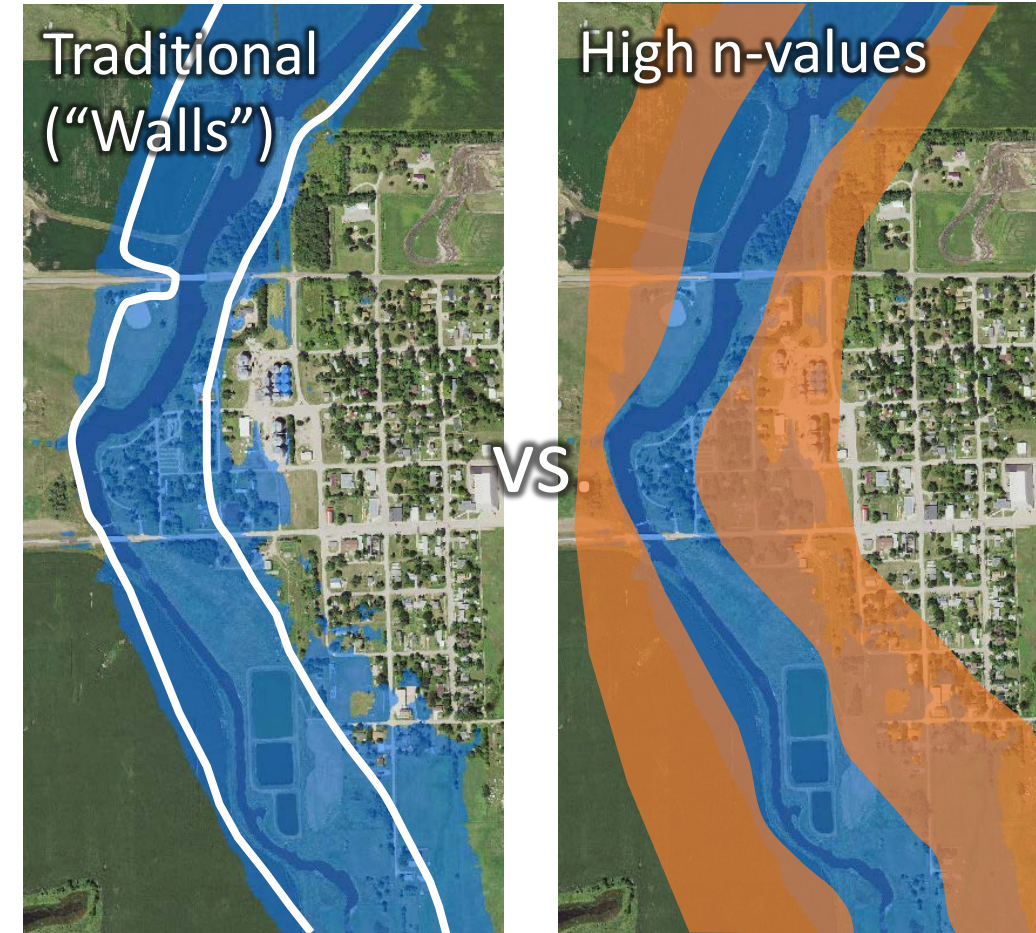


*Continue Identifying Needed Long-Term Updates and Best Practices*



# Additional 2D Floodway Alternative Testing

- Across multiple geographies and topographic characteristics...
  - Steady-state vs. Unsteady-state floodways
  - Floodway width sensitivity based on traditional floodways (complete overbank blockage) vs. high overbank n-values
  - Floodway width/surcharge sensitivity based on evaluation lines vs. full grid cell evaluation
  - D\*V classification bands (straight D\*V and Australian curves) vs. surcharge-based floodway delineations



# HEC-RAS Exploration

- 2D Floodway
  - Different starting points for equitable overbank encroachment methods for 2D floodways –  $D*V$ , discharge, equal volume, weighted, manual modifications.
  - More automated 2D floodway creation and surcharge reporting
  - Investigate new outputs from evaluation such as energy map/changes to velocities, etc.
- Archiving tool from RAS- to properly archive and compress data so it can be put back together
- Mapping comparison tools within RAS Mapper-
  - improving inundation mapping for backwater and editing, comparison tool, to see changes in models
- General speed improvements and GPU processing development to facilitate multiple runs more economically

# Long-Term Updates and Best Practices

- Review need for additional, future G&S updates based on outcomes of floodway sensitivity tests and feedback from Mapping Partners
- Revisit IPT “Phase 2” long-term topics – alternatives to encroachment-based floodways and potential CFR revisions



**FEMA**



# Questions & Discussion

**Alan Lulloff, P.E., CFM**  
[alan@floods.org](mailto:alan@floods.org)

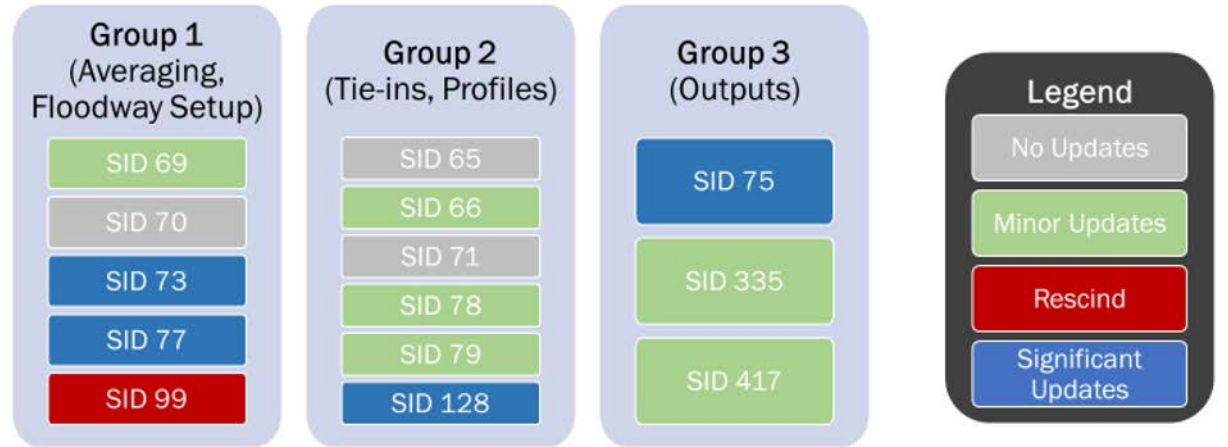
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## FEMA RMD FY20 Standards Reviewed



Cooperating  
Technical  
Partners  
Information  
Exchange



**ASFPM Flood  
Science Center**



# Poll Question

**Please rate this webinar.**



# Continuing Education Credits

- Certified Floodplain Managers and Certified Planners are eligible for 1 CEC for participating in this webinar.
- You must have registered individually and indicated you are a CFM and/or AICP at time of registration.
- Eligibility for CEC is dependent on your time spent viewing the webinar, as determined by the webinar software.



*Attending this webinar in a group setting or only viewing the recording is NOT eligible for CEC.*





# Closing Comments

- To suggest future CTP webinar topics, please contact Alan Lulloff at [alan@floods.org](mailto:alan@floods.org) or type a suggested topic into the Questions panel today.



**ASFPM CFM CECs will be automatically applied.**



**Certificates of Attendance will be emailed.**

**Processing will take a few weeks.** Please contact [cfm@floods.org](mailto:cfm@floods.org) with any certificate issues only after a few weeks have elapsed.

- A follow-up email with link to slides and recording will be sent **in about a week or so.**

**Thank You for Joining Us!**