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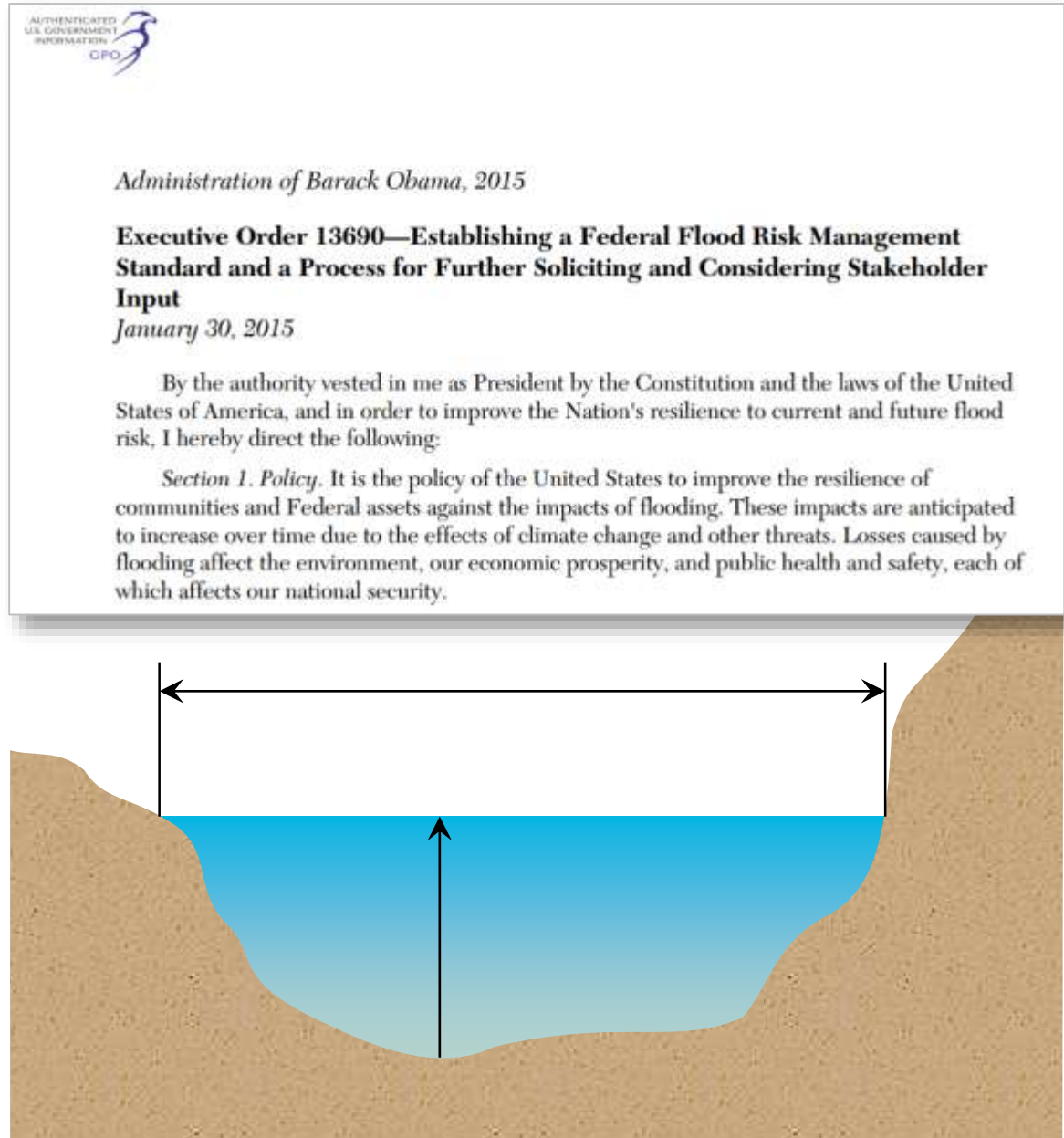
Climate Change Policy Update: Overview of Federal Agency Responses to Executive Order 13690 and the Federal Flood Risk Management Standard

Dr. Shane Parson, PE, CFM, AECOM



Agenda

- Executive Order 13690 and Federal Flood Risk Management Standard (FFRMS) Overview
- FEMA Approach
- HUD Approach
- DOD Approach



Storytime

Global Warming? Climate Change? Recurrent Flooding?

JULIET: "What's in a name? That which we call a rose, By any other name would smell as sweet."

—*Romeo and Juliet* (1594-1596)

THE DUDE: “Yeah, well, you know, that’s just, like, your opinion, man.”

— *The Big Lebowski* (1998)



Word Cloud from 2007 IPCC Report from <http://qk12glacier.bu.edu/wordpress/pasquarella/data-sets/ipcc-report-word-clouds/>

Language Development: How we do describe “it”?



What color is “Climate Change” like?



How do we use plain language to describe our topic?

Make	When activities are being done
It	To certain types of structures
Last	What standards should we use to minimize damages from flooding

Executive Order 13690 and Federal Flood Risk Management Standard (FFRMS)

Executive Order 11988 (1977)

- Issued May 1977 by President Carter governing federal “actions” in the floodplains



AP/White House

What does EO 11988 cover?

MAKE: Acquiring, managing, and disposing of...

IT: Federal lands and facilities (including federally undertaken, financed, or assisted construction and improvements) within...

LAST: 1% annual chance floodplain (Base Flood Event)

- Take action to reduce the risk of flood loss; minimize the impact of floods on human safety, health and welfare; and restore and preserve the natural and beneficial values served by floodplains

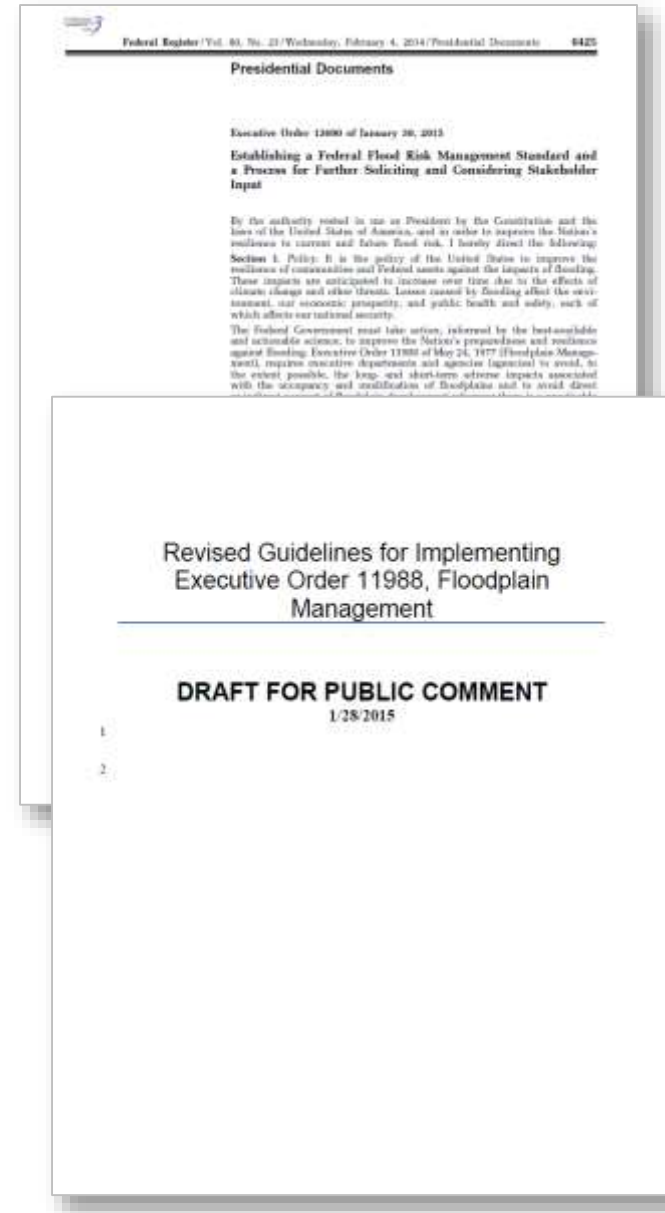
Executive Order 13690 and Federal Flood Risk Management Standard (FFRMS) (2015)

- Issued January 2015 by President Obama, EO 13690 amends EO 11988 and establishes the Federal Flood Risk Management Standard (FFRMS)
- What does EO 13690 cover?
 - MAKE:** Acquiring, managing, and disposing of...
 - IT:** Federal lands and facilities (including federally undertaken, financed, or assisted construction and improvements) within...
 - LAST:** Floodplains as defined by FFRMS options (higher vertical elevation and corresponding horizontal floodplain than current Base Flood Elevation)



FFRMS Components

- On February 5, 2017, FEMA, published a draft of revisions to the 1978 Floodplain Management Guidelines. The draft Guidelines contain the basic interpretation of Executive Order 11988, as amended by EO 13690 and the FFRMS.
- EO13690 also requires agencies to develop Implementation Plans describing how each agency will update its existing policies, procedures and/or regulations to comply with the new requirements.
- Different approaches for Critical vs. Non-Critical Actions
- Three different approaches to determine a construction or Design Flood Elevation (DFE) (and corresponding horizontal floodplain extent)



FFRMS: Critical vs. Non-Critical

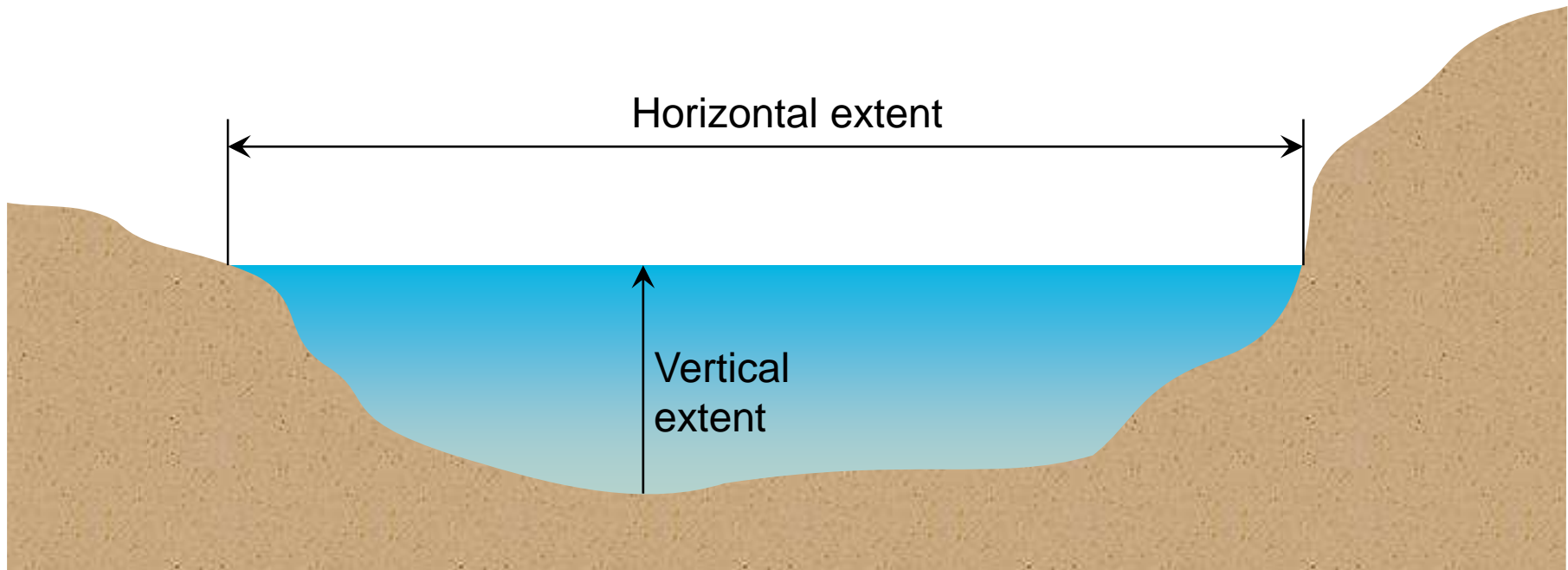
EO 13690 says, “A critical action is any activity for which even a slight chance of flooding is too great.”

- Similar to, but not identical, to the Flood Design Classes 3 and 4 from ASCE 24-14
- Non-critical:
 - Flood Design Class 1: Temporary structures, accessory and minor storage
 - Flood Design Class 2: Most residential, commercial, and industrial structures not in Class 3 or 4
- Critical:
 - Flood Design Class 3: Buildings with large number of people, schools, jails, smaller healthcare, smaller power generation, minor hazardous materials
 - Flood Design Class 4: Essential facilities for emergency response and recovery, hospital, fire, police, EMT, shelters, EOCs, major power generation, aviation facilities, major hazardous materials

FFRMS:

Construction or Design Flood Elevation Approaches

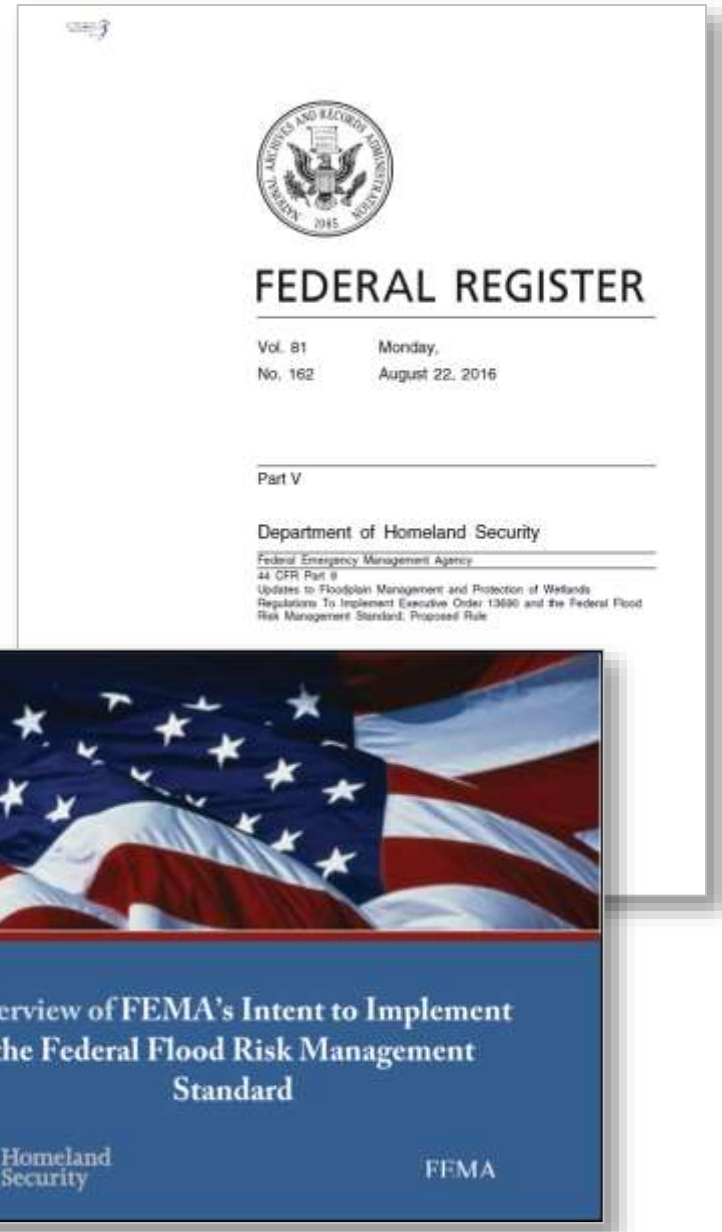
- Climate-Informed Science Approach (CISA)
- Freeboard Value Approach (FVA) : 100-year (1%-annual-chance) flood elevation plus freeboard of 2 or 3 feet (building criticality)
- The 0.2-percent-annual-chance Flood Approach (0.2PFA): 500-year (0.2%-annual-chance) flood elevation



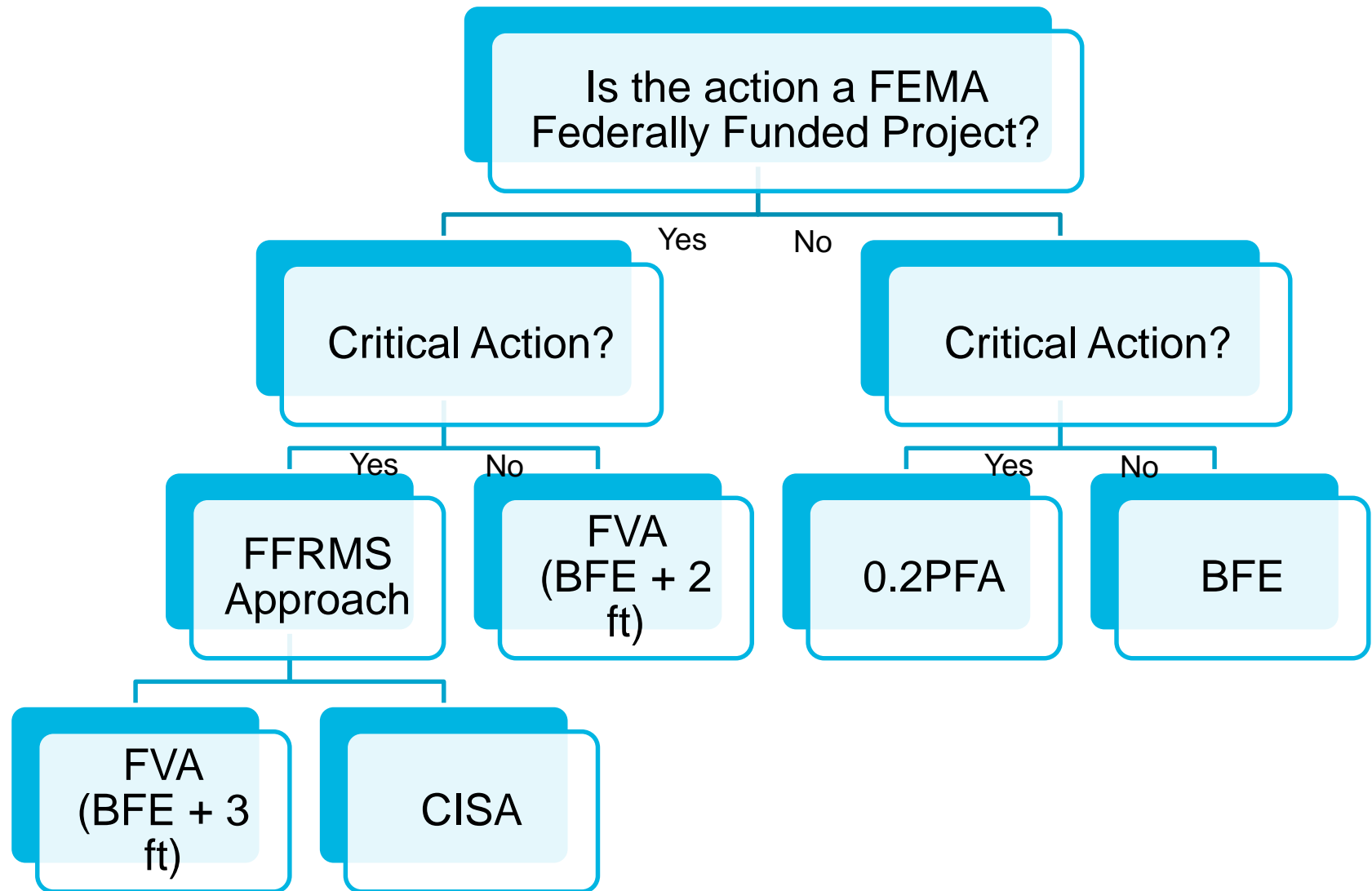
FEMA Approach

FEMA's Approach to EO 13690 and FFRMS

- Issued Federal Register Notice in August 2016 for Proposed Rule to Implement EO 13690 and FFRMS
- What does FEMA propose?
 - MAKE:** FEMA projects that include acquiring, managing, and disposing of...
 - IT:** Critical and Non-Critical Actions (and FEMA funded projects) within...
 - LAST:** FFRMS floodplains (with different options based on critically)



FEMA Approaches



Comparison of ASCE 24-14 Requirements with FFRMS FVA

FLOOD DESIGN CLASS	CRITICAL OR NON-CRITICAL ACTION	ZONE A (OTHER THAN COASTAL A)		COASTAL HIGH HAZARD AND COASTAL ZONE A	
		ASCE 24-14	FFRMS FVA	ASCE 24-14	FFRMS FVA
1	Non-critical	DFE	BFE+2ft	BFE or DFE	BFE+2ft
2	Non-critical	BFE+1ft or DFE	BFE+2ft	BFE+1ft or DFE	BFE+2ft
3	Mostly critical	BFE+1ft or DFE	BFE+2ft or BFE+3ft	BFE+2ft or DFE	BFE+2ft or BFE+3ft
4	Critical	BFE+2ft or DFE, or 500-year	BFE+3ft	BFE+2ft or DFE, or 500-year	BFE+3ft

ASFPM Comments

- Develop action plan for CISA usage for both coastal and riverine locations
- Should use the Highest of CISA, FVA, or 0.2PFA for critical facilities
- Keep guidance to not allow critical action in 0.2PFA if there is a suitable site outside of 0.2PFA floodplain
- Concerns that critical facilities are allowed in Coastal High Hazard Areas
- Removal requirement for no new construction in floodways and coastal high hazard areas
- Concerns about exceptions



HUD Approach

HUD's Approach to EO 13690 and FFRMS

- Issued Federal Register Notice in October 2016 for Proposed Rule to Implement EO 13690 and FFRMS
- What does HUD propose?
 - MAKE:** HUD assisted or financed project (new construction or substantial improvement) for
 - IT:** Critical and Non-Critical Actions (and HUD funded projects) within
 - LAST:** FFRMS floodplains (with different options based on critically)
- Also revise HUD Minimum Property Standards for one-to-four unit housing under HUD mortgage insurance and low-rent public housing programs to FVA (BFE + 2 ft).

 **Federal Register** / Vol. 81, No. 209 / Friday, October 28, 2016 / Proposed Rule 74967

Legal Information: Carine L. Rosalia, (202) 485-6892.

SUPPLEMENTARY INFORMATION: On September 8, 2016, the Department published a notice of Proposed rulemaking (NPRM), to amend requirements for accreditation of agencies and approval of persons to provide adoption services in intercountry adoption cases. (See 81 FR 62322.) The NPRM provided a comment period of 60 days, which expires on November 7, 2016.

In response to a request for extension, the Department extends the comment period until November 22, 2016. This will provide 75 days for the public to submit comments on this rule. Further information, including the text of the Proposed rule, can be found in the NPRM.

Dated: October 18, 2016.

Theodore E. Casey,
Acting Deputy Assistant Secretary, Overseas Citizen Service, Bureau of Consular Affairs,
U.S. Department of State.
(901) 205-3030 (Ext. 09-25-16, 343) and
BILLING CODE 4710-06-P

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

24 CFR Parts 50, 55, 58, and 200
(Docket No. FR-5717-P-01)

RIN 2501-AD02

Floodplain Management and Protection of Wetlands: Minimum Property Standards for Flood Hazard Exposure: Building to the Federal Flood Risk Management Standard

AGENCY: Office of the Assistant Secretary for Community Planning and Development, HUD.

ACTION: Proposed rule.

SUMMARY: This proposed rule would revise HUD's regulations governing floodplain management to require, as part of the decision making process established to ensure compliance with Executive orders on Floodplain Management and Federal Flood Risk Management, that a HUD assisted or financed (including mortgage insurance) project involving new construction or substantial improvement that is situated in an area subject to floods be elevated or floodproofed between 1 and 3 feet above the base flood elevation as determined by best available information.

The proposed rule would also revise HUD's Minimum Property Standards for one-to-four unit housing under HUD

mortgage insurance and low-rent public housing programs. Building to the proposed standards will, consistent with the Executive orders, increase resiliency to flooding, reduce the risk of flood loss, minimize the impact of floods on human safety, health, and welfare, and promote sound, sustainable, long-term planning informed by a more accurate evaluation of flood risk that takes into account possible sea level rise and increased development associated with population growth.

This document also proposes to revise a categorical exclusion available when HUD performs the environmental review under the National Environmental Policy Act (NEPA) and related Federal laws by making it consistent with changes to a similar categorical exclusion that is available to HUD grantees or other responsible entities when they perform those environmental reviews. This change will make the review standard identical regardless of whether HUD or a grantee is performing the review.

DATES: Comment Due Date: December 22, 2016.

ADDRESSES: Interested persons are invited to submit comments regarding this proposed rule to the Regulations Division, Office of General Counsel, Department of Housing and Urban Development, 451 7th Street SW., Room 10276, Washington, DC 20410-0500. Communications must refer to the above docket number and title. There are two methods for submitting public comments. All submissions must refer to the above docket number and title.

1. *Submission of Comments by Mail.* Comments may be submitted by mail to the Regulations Division, Office of General Counsel, Department of Housing and Urban Development, 451 7th Street SW., Room 10276, Washington, DC 20410-0500.

2. *Electronic Submission of Comments.* Interested persons may submit comments electronically through the Federal eRulemaking Portal at www.regulations.gov. HUD strongly encourages commenters to submit comments electronically. Electronic submission of comments allows the commenter maximum time to prepare and submit a comment, ensures timely receipt by HUD, and enables HUD to make them immediately available to the public. Comments submitted electronically through the www.regulations.gov Web site can be viewed by other commenters and interested members of the public. Commenters should follow the instructions provided on that site to submit comments electronically.

Note: To receive consideration as public comments, comments must be submitted through one of the two methods specified above. Again, all submissions must refer to the docket number and title of the rule.

No Facsimile Comments, E-mail, or FAX Comments are acceptable.

Public Inspection of Public Comments. All properly submitted comments and communications submitted to HUD will be available for public inspection and copying between 9 a.m. and 5 p.m. weekdays at the above address. Due to security measures at the HUD Headquarters building, an appointment to review the public comments must be scheduled in advance by calling the Regulations Division at 202-708-3035 (this is not a toll-free number). Individuals with speech or hearing impairments may access this number via TTY by calling the Federal Relay Service at 800-877-8339. Copies of all comments submitted are available for inspection and downloading at www.regulations.gov.

FOR FURTHER INFORMATION CONTACT: Danielle Schopp, Director, Office of Environment and Energy, Office of Community Planning and Development, Department of Housing and Urban Development, 451 7th Street SW., Room 7250, Washington, DC 20410-0005, telephone number 202-402-4442. For inquiry by phone or email, contact Elizabeth Zapata, Environmental Review Division, Office of Environment and Energy, Office of Community Planning and Development, at 202-402-3036 (this is not a toll-free number), or email to: Elizabeth.E.Zapata@hud.gov. For questions regarding the Minimum Property Standards, Robert L. Frazier, Housing Program Policy Specialist, Office of Housing, Home Valuation Division, 202-708-2121. Persons with hearing or speech impairments may access this number through TTY by calling the toll-free Federal Relay Service at 800-877-8339.

SUPPLEMENTARY INFORMATION:

I. Background

In the United States, floods caused 4,500 deaths from 1950 to 2005.¹ With climate change and associated sea-level rise, flooding risks have increased over time, and are anticipated to continue increasing. The National Climate Assessment (May 2014). For example,

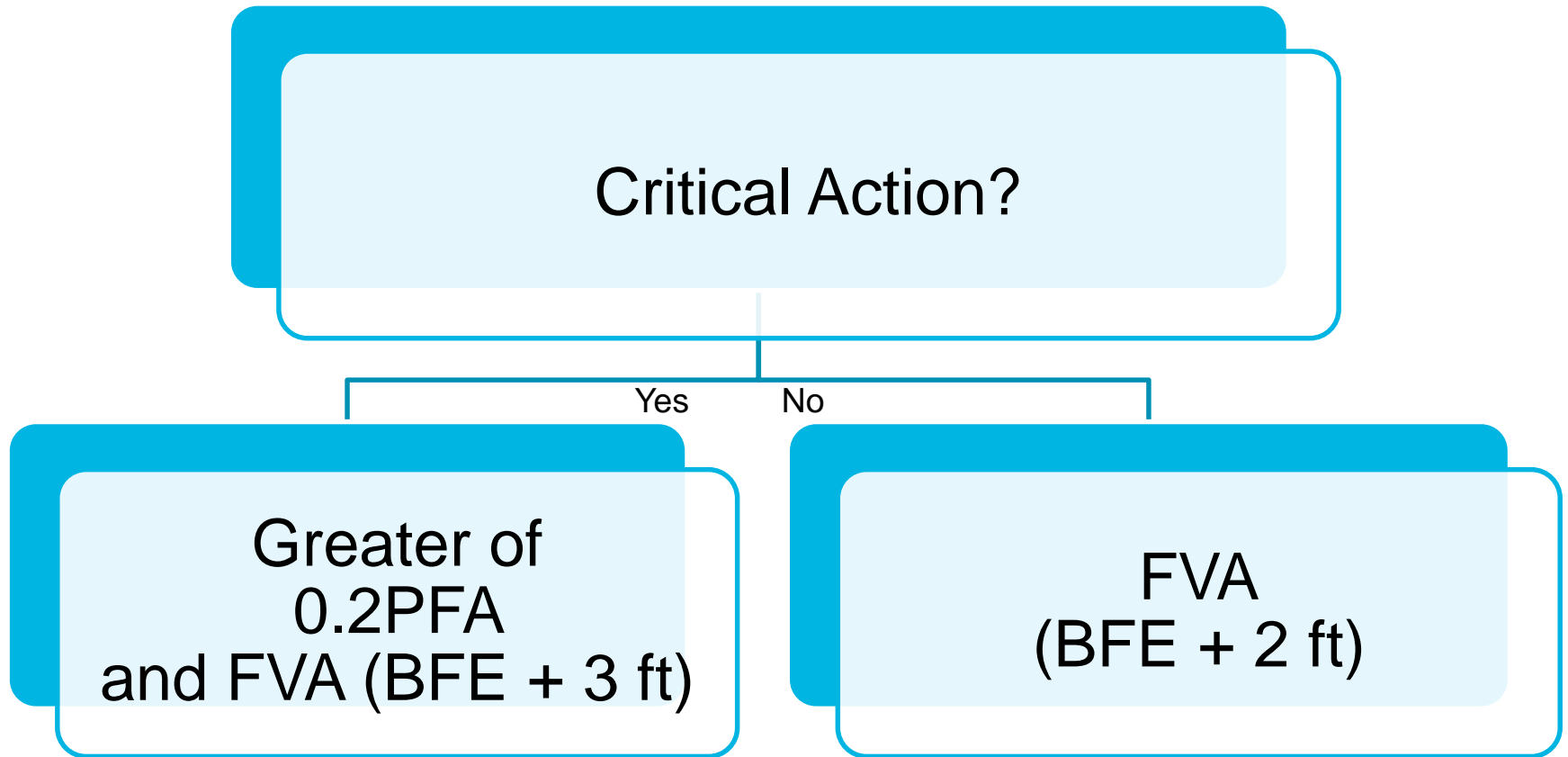
¹ "Flood Fatalities in the United States," Sharon E. Adley and Walker S. Adley, *Journal of Applied Meteorology and Climatology*, Available at: <http://journals.americanmetsoc.org/doi/10.1175/JAMC1402.1>.

EO 13690 and FFRMS

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AECOM

HUD Approach



ASFPM Comments

- Strong support of revision of Minimum Property Standards to FVA (BFE + 2 ft.)
- Concerns that Minimum Property Standard only addresses vertical elevation, not expanded horizontal extent of FFRMS floodplain
- Concerns with no action plan to include CISA in the future
- Concerns with categorical exclusion for structure footprint increase
- Concerns that proposed rule does not include manufactured housing
- Should use the Highest of CISA, FVA, or 0.2PFA for critical facilities



DOD Approach: USACE and NAVFAC

USACE's Approach to EO 13690 and FFRMS

- Issued Federal Register Notice in December 2016 for Proposed Rule to Implement EO 13690 and FFRMS
- What does USACE propose through a new draft Engineer Circular (EC)?
 - **Make:** USACE elements with Civil Works responsibility for
 - **It:** Critical and Non-Critical Actions within
 - **Last:** FFRMS floodplains (CISA approach unless justification for other FFRMS approaches)

91150 Federal Register / Vol. 81, No. 242 / Friday, December 16, 2016 / Notices

(viii) *Date Report Delivered to Congress:* December 7, 2016.

* as defined in Section 47(b) of the Arms Export Control Act.

POLICY JUSTIFICATION

Government of Morocco—Radio Frequency (RF) TOW 2A, Radio Frequency (RF) Missile (RCM-71-4B-RF and Support)

The Government of Morocco has requested a possible sale of one thousand two-hundred (1,200) TOW 2A, Radio Frequency (RF) Missiles (RCM-71-4B-RF) and four-hundred (400) TOW 2A, Radio Frequency (RF) Missiles (Fly-to-Boat Air Acceptance Missiles). Also included with this request is U.S. Government and contractor engineering, technical and logistic support services, and other related elements of logistics and program support. The estimated MDL sale is \$101 million. The total estimated value is \$108 million.

This proposed sale will contribute to the foreign policy and national security of the United States by helping to improve the security of a Major Non-NATO Ally that continues to be an important force for the political stability and economic progress in North Africa. This proposed sale directly supports Morocco and serves the interests of the Moroccan people and the United States.

The proposed sale of TOW 2A Missiles and technical support will advance Morocco's efforts to develop an integrated ground defense capability. Morocco will have no difficulty absorbing this equipment into its armed forces.

The proposed sale of this equipment and support will not alter the basic military balance in the region.

The principal contractors involved in this program are Raytheon Missile Systems, Tucson, Arizona. There are no known offset agreements proposed in connection with this potential sale.

Implementation of this proposed sale will require the U.S. Government or contractor representatives to travel to Morocco.

There will be no adverse impact on U.S. defense readiness as a result of this proposed sale.

Transmittal No. 16-52

Notice of Proposed Issuance of Letter of Offer Pursuant to Section 36(b)(1) of the Arms Export Control Act, as Amended

Arms

Item No. vii

(viii) *Sensitivity of Technology:*

1. The Radio Frequency (RF) TOW 2A Missile (RCM-71E-4B-RF) is designed to defeat armored vehicles, reinforced

urban structures, field fortifications and other such targets. TOW missiles are fired from a variety of TOW launchers in the U.S. Army, USMC, and FMS customer forces. The TOW 2A-RF missile can be launched from the same launcher platforms as the existing wire-guided TOW 2A missile without modification to the launcher. The TOW 2A missile (both wire & RF) contains two trackers for the launcher to track and guide the missile in flight.

Guidance commands from the launcher are provided to the missile by a RF link contained within the missile cue. The hardware, software, and technical publications provided with the sale thereof are UNCLASSIFIED. However, the system itself contains sensitive technology that instructs the system on how to operate in the presence of countermeasures.

2. The highest level of classified information that must be disclosed in training to use the end item is UNCLASSIFIED. The highest level of classified information that must be disclosed in maintenance of the end item is UNCLASSIFIED. The highest level of classified information that could be disclosed by sale of the end item is SECRET. The highest level of classified information that could be revealed by testing the end item is SECRET. The highest level of classified information that could be revealed by reverse engineering of the end item is SECRET.

3. If a technologically advanced adversary were to obtain knowledge of the specific hardware and software elements, the information could be used to develop countermeasures that might reduce weapon system effectiveness or be used in the development of a system with similar or advanced capabilities.

4. All defense articles and services listed in this transmittal have been authorized for release and export to the Government of Morocco.

DOI Doc. 2016-30229 Filed 12-15-16; 8:45 and BILLING CODE 5010-10-P

DEPARTMENT OF DEFENSE

Department of the Army, Corps of Engineers

Implementation of Executive Orders on Floodplain Management and Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input

AGENCY: U.S. Army Corps of Engineers, D-3.

ACTION: Notice.

SUMMARY: The U.S. Army Corps of Engineers (USACE) has developed draft internal agency implementation guidance for the Executive Order on Floodplain Management to incorporate the new requirements of the Executive Order on Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input. USACE is seeking feedback from partners, other government and non-government stakeholders, Tribes, and members of the general public on the proposed draft guidance that has been developed.

DATES: Comments must be submitted on or before January 30, 2017.

ADDRESSES:

Email: USACE-EO13690@usace.army.mil and include "Implementation Comments", in the subject line of the message.

Mail: HQ, U.S. Army Corps of Engineers, ATTN: EO13690/303W-HS/3606, 441 E Street NW, Washington, DC 20314-1000.

Hand Delivery/Courier: Due to security requirements, we cannot receive comments by hand delivery or courier.

FOR FURTHER INFORMATION CONTACT: Mr. Stephane Bruy, Headquarters, Office of Homeland Security, Washington, DC at 202-761-4827.

SUPPLEMENTARY INFORMATION: Executive Order 11868, Floodplain Management, was issued in 1977 and directed agencies to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development whenever there is a practicable alternative. EO 11868 applied to Federal agencies carrying out its responsibilities for:

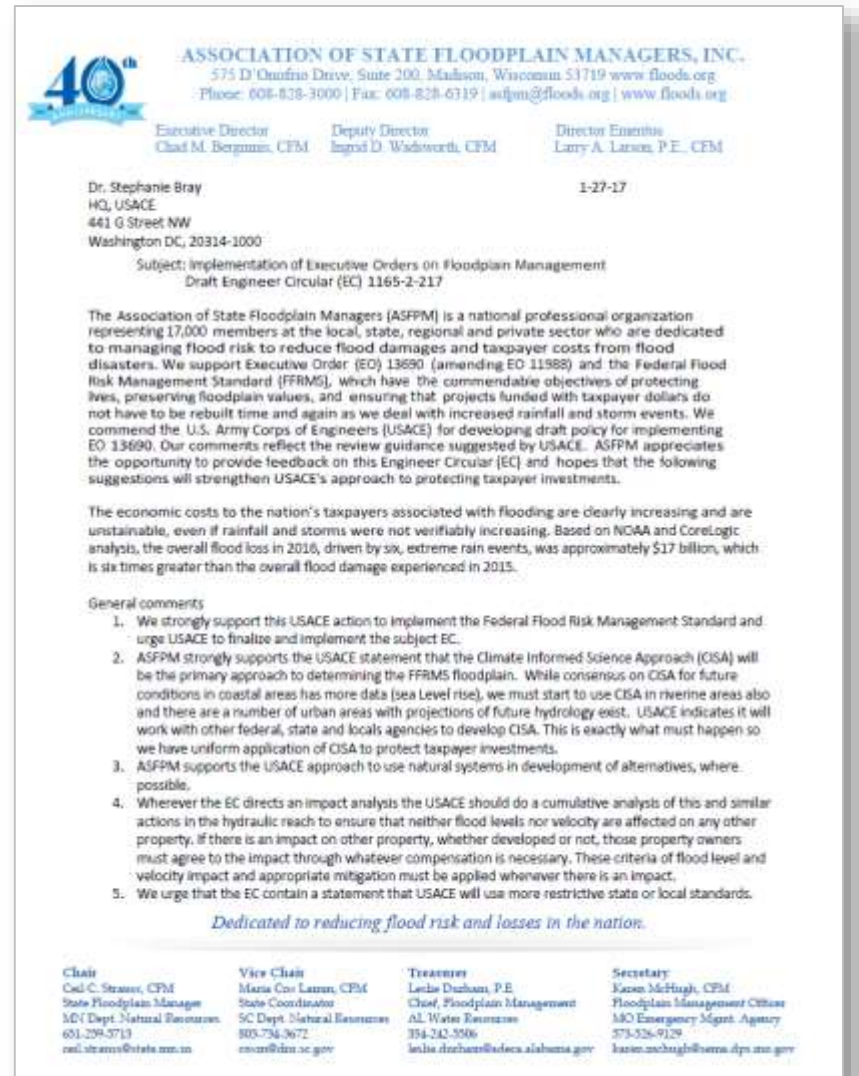
- Acquiring, managing, and disposing of Federal lands and facilities;
- Providing federally-undertaken, financed, or assisted construction and improvements;
- Conducting Federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulation, and licensing activities.

If required agencies performing Federal actions in the base Floodplain (floodplain associated with the 1 percent annual chance (also known as 1 percent annual exceedance probability) flood) to do the following:

1. Determine if a proposed action is in the base Floodplain that area which has a one percent or greater chance of flooding in any given year;
2. Conduct early public review, including public notice.

ASFPM Comments

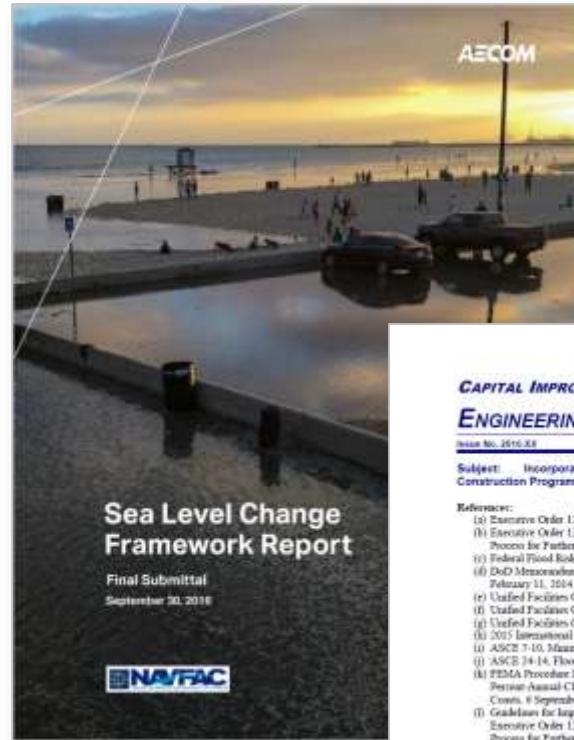
- Strong support of CISA as primary approach and commitment to develop processes for both coastal and riverine areas
- Support of use of natural systems as development alternatives where possible
- Should add statement to use more restrictive state or local standards.
- Concerns about exempting infrastructures such as levees, dunes, beaches, and seawalls from FFRMS approaches.



What would CISA Approach look like?

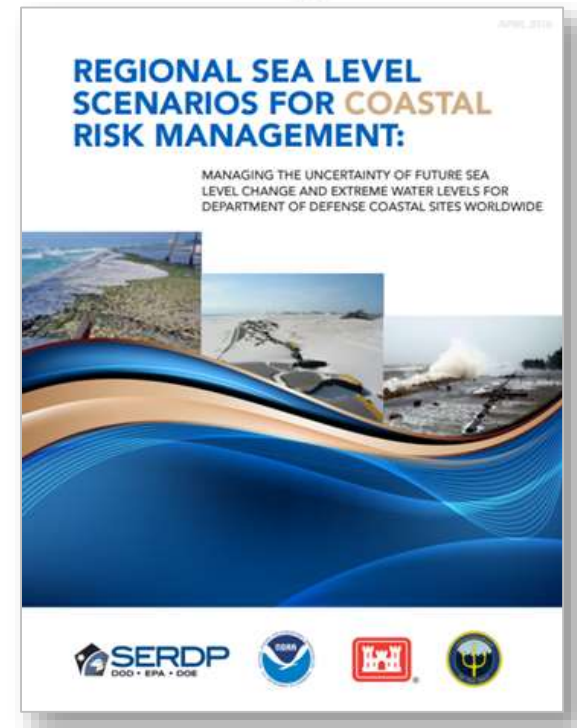
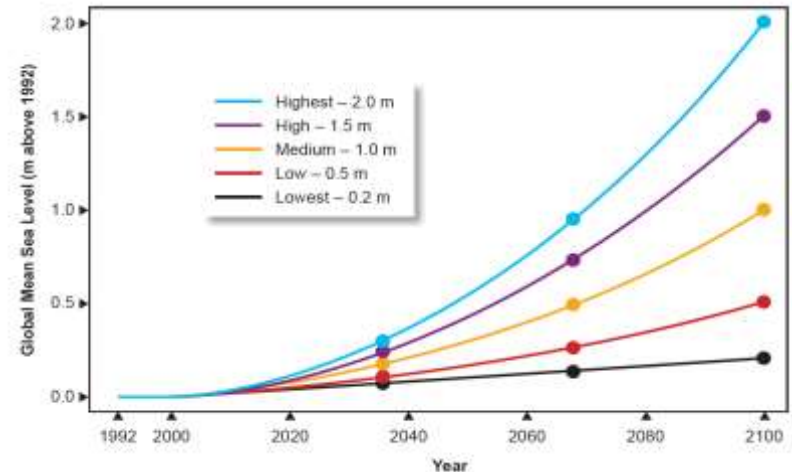
NAVFAC example:

- Task order with National Institute of Building Services (NIBS) and AECOM to develop Sea Level Change (SLC) Framework Report and draft EC Bulletin
- How to incorporate SLC into process of calculating Design Flood Elevation (DFE) from Building Code, DOD Unified Facilities Criteria (UFC) Guidance, and support Ecs
- Address EO 13690 and FFRMS



Sea Level Change Data

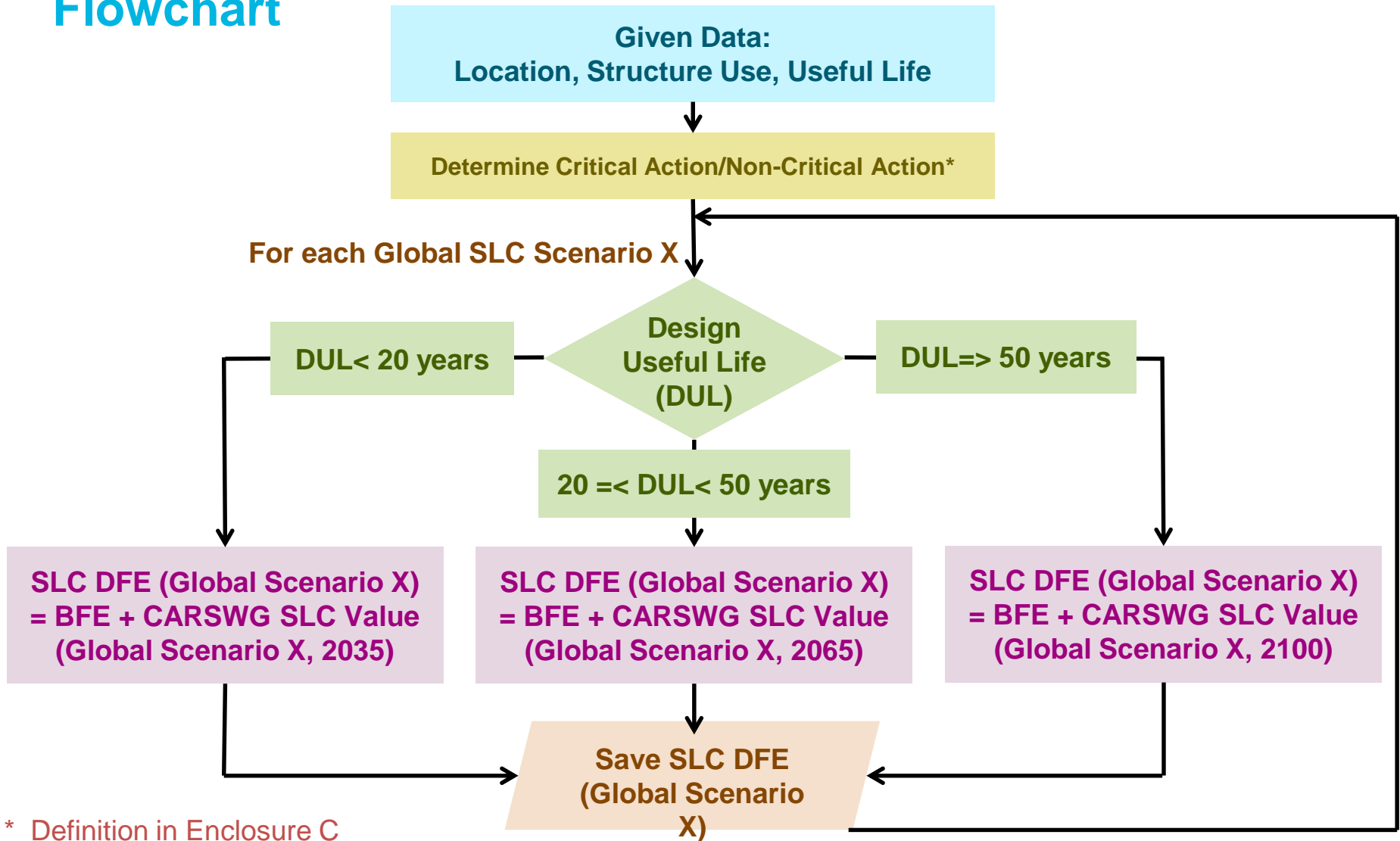
- Coastal Assessment Regional Scenario Working Group (CARSWG)
- 1774 sites globally
- Global SLC values and local adjustments
- Three time periods: 2035, 2065, 2100
- Five scenarios: lowest, low, medium, high, highest
- Some sites include extreme water level data
- Data available to authorized users
- <https://sealevelscenarios.serdp-estcp.org/>



Suggested Approach (from draft EC)

- C. Determine project location, use/occupancy, and design useful life (DUL)
- D. Determine minimum flood elevation based on UFC and IBC
- E. Determine if Critical or Non-Critical Action
- F. Determine SLC DFE using CARSWG data for Climate Informed Science Approach (CISA)
- G. Determine DFE for Freeboard Value Approach (FVA)
- H. Determine DFE for 0.2% Flood Approach (0.2FPA)
- I. Compare all DFEs
- J. Select final DFE
- K. If SLC DFE > all others, consider re-evaluating horizontal extent of floodplain

Flowchart



* Definition in Enclosure C

Example: Administration Building

Norfolk Naval Shipyard Administration Building, DUL=35 years

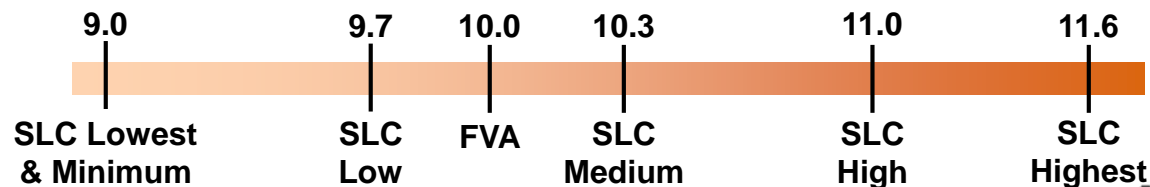
Moderate risk to public (non-critical action) → Flood Design Class 2
Minimum Elevation (Class 2) = BFE + 1 foot = 8 + 1 = 9 feet NAVD88

UFC Risk Category = II → Calculate SLC for all 5 Global Scenarios

Design Useful Life = 35 years → use 2065 scenario

Global Scenario - 2065	FEMA BFE	CARSWG SLC Value	SLC DFE
Lowest	8 feet NAVD88	1.0 feet	9.0 feet NAVD88
Low		1.7 feet	9.7 feet NAVD88
Medium		2.3 feet	10.3 feet NAVD88
High		3.0 feet	11.0 feet NAVD88
Highest		3.6 feet	11.6 feet NAVD88

FVA DFE (non-critical) = BFE (Zone AE) + 2ft = 10 feet NAVD88
0.2% FPA DFE = not available



Example: Fire Station

Norfolk Naval Shipyard Fire Station, DUL=75 years

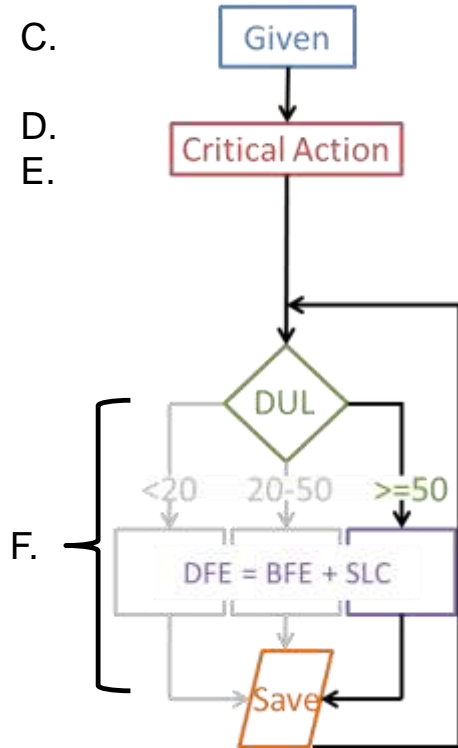
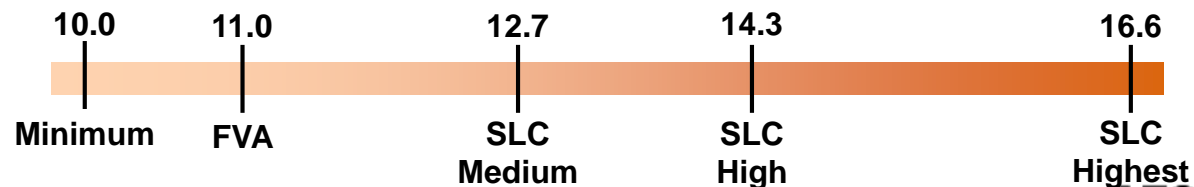
Essential/critical to public (critical action) → Flood Design Class 4
Minimum Elevation (Class 4) = BFE + 2 foot = 8 + 2 = 10 feet NAVD88

UFC Risk Category = V → Calculate SLC 3 highest Global Scenarios

Design Useful Life = 75 years → use 2100 scenario

Global Scenario - 2100	FEMA BFE	CARSWG SLC Value	SLC DFE
Medium	8 feet NAVD88	4.7 feet	12.7 feet NAVD88
High		6.3 feet	14.3 feet NAVD88
Highest		8.6 feet	16.6 feet NAVD88

FVA DFE (critical) = BFE (Zone AE) + 3ft = 11 feet NAVD88
0.2% FPA DFE = not available



G.
H.
I.

Now what do we do?

MACBETH: "Life's but a walking shadow, a poor player, That struts and frets his hour upon the stage, And then is heard no more. It is a tale, Told by an idiot, full of sound and fury, Signifying nothing.."

—*Macbeth* (1606)

THE DUDE: "This is a very complicated case, Maude. You know, a lotta ins, a lotta outs, a lotta what-have-yous. And, uh, a lotta strands to keep in my head, man. Lotta strands in old Duder's head."

—*The Big Lebowski* (1998)



In plain language?

Make Yes

It We

Last Can





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Questions?

Shane Parson

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