

Pre-Implementation Compliance Measures Workshop – Model Ordinance Approach

Thursday, November 13, 2024, 9:00 – 11:30 am



FEMA

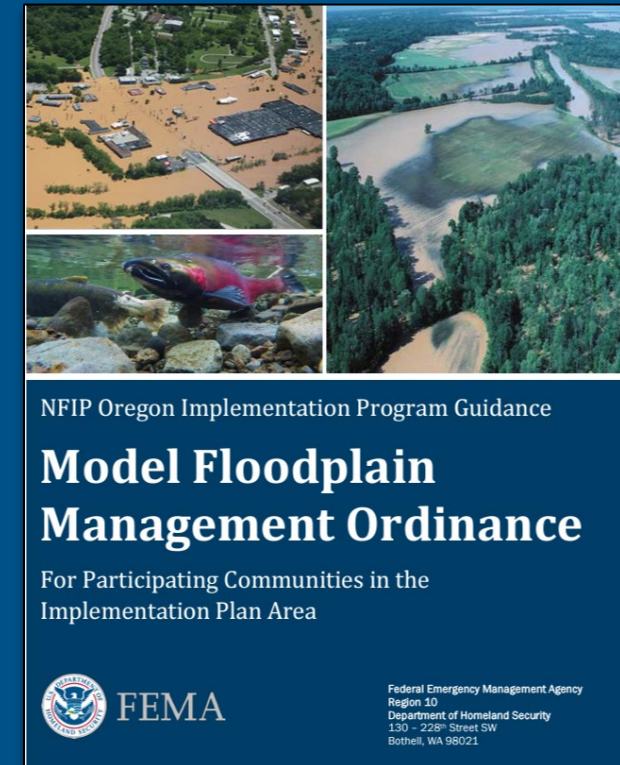
Workshop Purpose

- FEMA will provide in-depth information about the Model Ordinance Pre-Implementation Compliance Measure (PICM).
- Provide an opportunity for Oregon National Flood Insurance Program (NFIP) floodplain managers to ask questions and discuss issues related to implementing the PICM for Endangered Species Act (ESA) compliance.



Agenda

- Welcome and Introductions
- PICM Overview
- Presentation on the Model Ordinance Approach
- Introduction to Technical Assistance
- Time for questions



Meeting Guidelines

- Honor the agenda
- Participate actively and respectfully.
- Provide your name and affiliation each time you speak.
- Be mindful of your speaking time.
- Hold questions until designated times.
 - Keep questions focused on content presented.

Zoom Instructions

- Open Participants window to see who is in the meeting



- Turn microphone/video on/off



- Chat is reserved for Zoom technical difficulties



- Use Raise Hand feature (or *9 if calling in) to ask a question



Introductions

PICM Overview

Pre-Implementation Compliance Measures (PICMs)

- FEMA developed PICMs for participating NFIP communities to comply with Endangered Species Act (ESA) requirements in the interim period while the full implementation is being reviewed under NEPA.
- The PICM options are:

Prohibit all new development

Prohibit all new development in the floodplain.

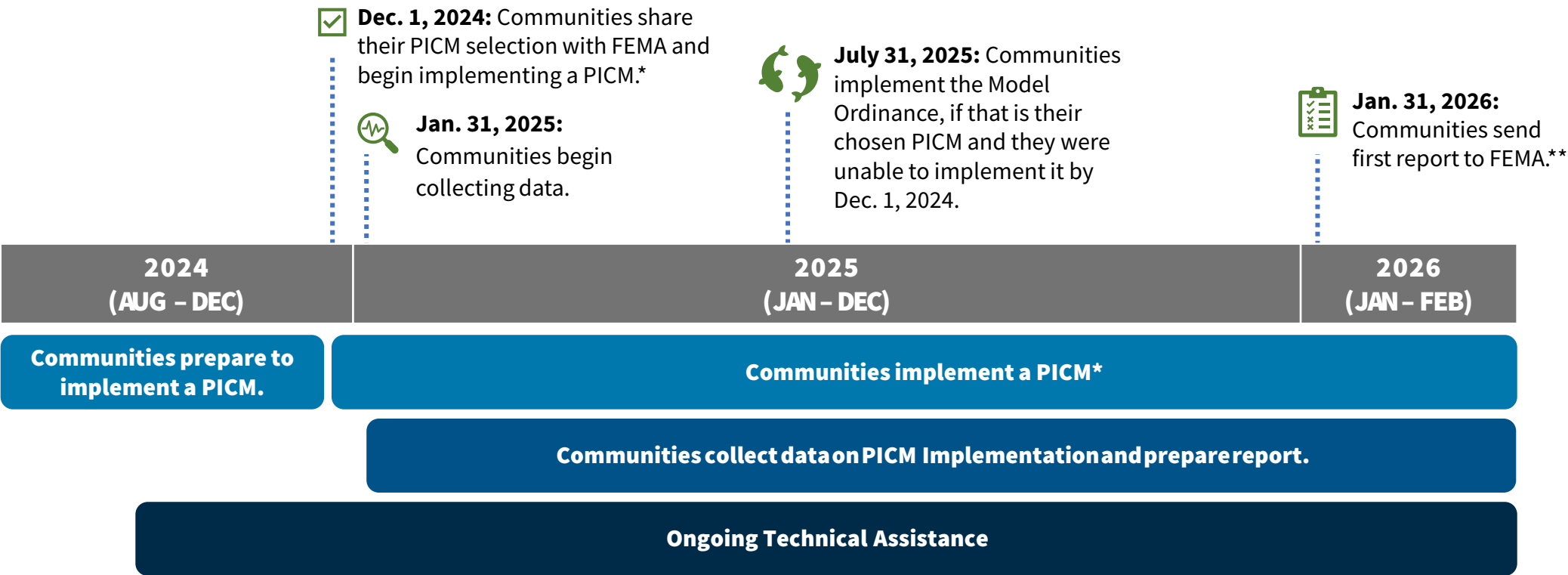
Model Ordinance

Incorporate the ESA into local floodplain ordinances.

Permit-by-Permit

Require permit applicants to develop a Floodplain Habitat Assessment documenting that their proposed development in the Special Flood Hazard Area will achieve no net loss.

PICM Implementation Timeline

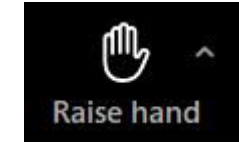


*If a community chooses the Model Ordinance approach and is unable to put it in place by Dec. 1, the community must implement the Permit-by-Permit approach or prohibit all new development in the Special Floodplain Hazard Area until they are able to implement the Model Ordinance approach, which must be implemented by July 31, 2025.

**FEMA will provide a reporting tool. If report is not provided, it will result in a community visit.

Questions?

- To enter the discussion queue, use the "Raise your hand" button or press *9 on your phone. Please lower your hand once you are done speaking.
- If unable to speak, use the chat for technical assistance. Refrain from sidebar conversations.



Model Ordinance Approach

Model Ordinance Presentation

- How the Model Ordinance Approach Ensures NFIP-ESA Compliance
- Section 6
 - No Net Loss Standards, Overview, and Origins
 - Things to Know Before Mitigating for No Net Loss
 - Floodplain Storage and Undeveloped Space
 - Water Quality and Impervious Surfaces
 - Vegetation and Trees
 - Activities Exempt from No Net Loss
 - Riparian Buffer Zone
 - Model Ordinance Review Criteria

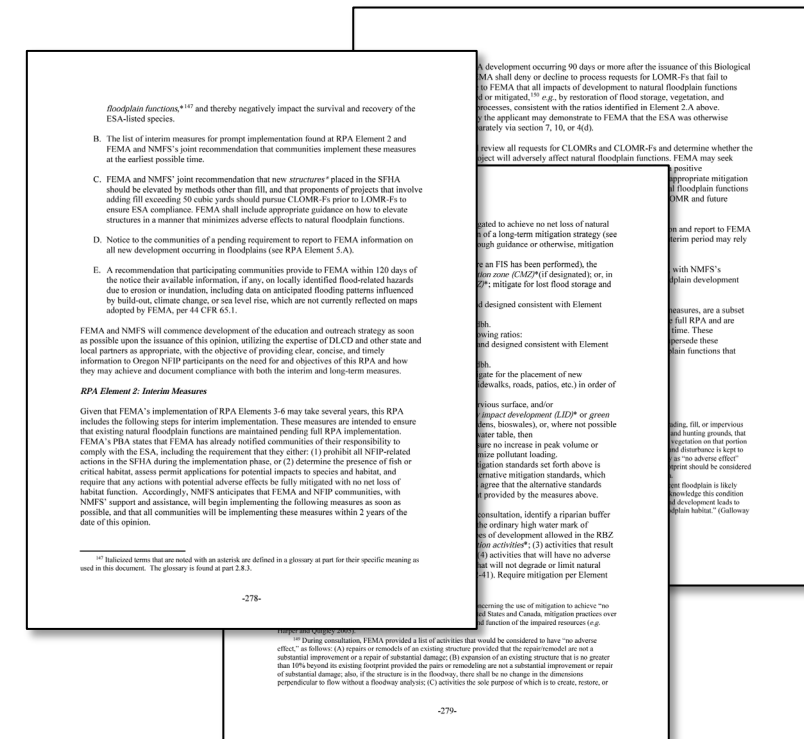
How the Model Ordinance Approach Ensures NFIP-ESA Compliance

- Attempts to mitigate impacts of development within the SFHA and ensure the no net loss of the floodplain functions.
- FEMA has developed clear and measurable requirements for mitigation to meet the no net loss standards set forth.
 - Mitigation ratios based on the floodplain function/proxy affected and location of development.
 - 170-foot riparian buffers based off OHWM and MHHW
 - Beneficial Gain standard in the RBZ for non-exempt uses
- Adoption of the PICM Model Ordinance by a community ensures that development meets NFIP-ESA compliance as standards are already built into the code.

Section 6 – No Net Loss Standards, Overview, and Origins

2016 National Marine Fisheries Service BiOp - Reasonable and Prudent Alternative (RPA) Element 2. (Pg. 278) (cont'd)

- What is no net loss?
 - The underlying basis of what we are asking communities to do to ensure ESA compliance
 - Definition: “Any development action resulting in negative impacts to one or more key floodplain functions that are then mitigated or avoided to offset said impacts.”



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Section 6 – No Net Loss Standards, Overview, and Origins

How is no net loss achieved?

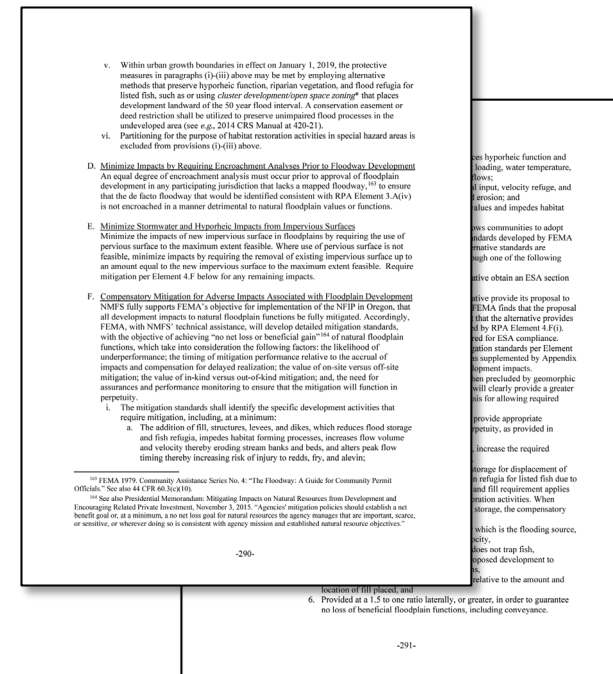
- Avoiding negative effects to floodplain functions
- Minimizing remaining effects
- Replacing, compensating, offsetting, or rectifying any residual or adverse effects

Mitigation ensures no net loss, avoidance and minimization just help get us there.

Section 6 – No Net Loss Standards, Overview, and Origins

2016 National Marine Fisheries Service BiOp - Reasonable and Prudent Alternative (RPA) Element 4,(F) (Pg. 290-291)

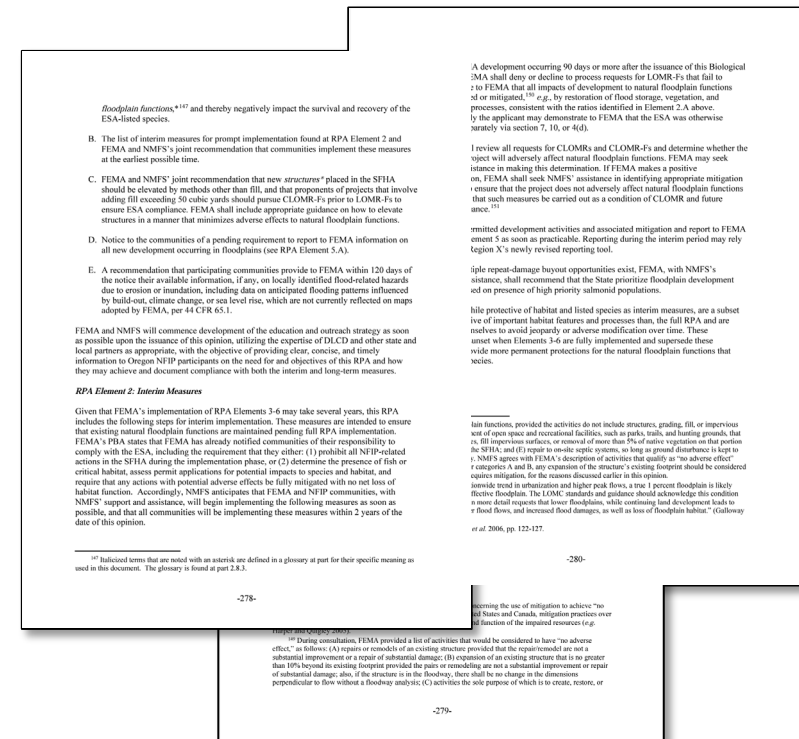
- “The mitigation standards shall identify the specific development activities that require mitigation, including at a minimum...”
 - A. “The addition of fill, structures, levees, and dikes, which reduces flood storage and fish refugia...”
 - B. “The addition of impervious surfaces....”
 - C. “Vegetation removal....”
 - D. “Bank armoring....”



Section 6 – No Net Loss Standards, Overview, and Origins

2016 National Marine Fisheries Service BiOp - Reasonable and Prudent Alternative (RPA) Element 4,(F) (Pg. 290-291)

- In short: The BiOp identified three floodplain functions for FEMA to mitigate to achieve no net loss when development activities occur.
 - Floodplain storage (A & D)
 - Water quality (B)
 - Vegetation (C)



Section 6 – No Net Loss Standards, Overview, and Origins

Translating floodplain functions into measurable actions

- FEMA has translated mitigation of the floodplain functions into three specific actions that, when mitigated, provide value to the functions. These actions are commonly referred to as proxies.

Floodplain Function	Proxy (No net loss of...)	Mitigates Against
Floodplain storage	Undeveloped space	Developed space
Water quality	Pervious surfaces	Impervious surface
Vegetation	Trees	Trees removed

Section 6 – Things to Know Before Mitigating for No Net Loss

- **Timing:**
 - Mitigation for floodplain storage and water quality occurs before, or at the very least, concurrent with the loss of floodplain functions.
- **Mitigation location preferences (in hierarchical order)**
 1. The lot or parcel where floodplain functions were affected.
 2. The same reach of the waterbody where development is proposed.
 3. The SFHA within the same hydrologically connected area as the proposed development (i.e., same watershed). Mitigation occurring outside of this area will double the amount required to ensure no net loss.

Determining Reach

- **Reach:** A section of a stream or river along which similar hydrologic conditions exist, such as discharge, depth, area, and slope. It can also be the length of a stream or river (with varying conditions) between major tributaries or two stream gages, or a length of river for which the characteristics are well described by readings at a single stream gage.
- **GIS Layers:** National Flood Hazard Map; National Hydrography Dataset
- A reach typically begins at one of the following areas:
 - Boundary of an agricultural area having flood damages.
 - Boundary where agricultural damages change significantly.
 - Boundary of an urban area or any other area of high potential flood damage for which levees or other local protective works may be proposed.
 - Junction of a major tributary and the main stream.
 - Station where the streamflow is gaged/
 - Installation controlling streamflow, such as a weir or a culvert in a high road fill.
 - Installation restricting streamflow, such as a bridge/
 - Site proposed for a floodwater-retarding or other structure.
 - Section where shape or hydraulic characteristics of the channel or valley change greatly.
 - Section where channel control creates large storage upstream/
 - Major political boundaries.
 - Points of diversions.

(USDA, 1998)

Section 6 – No Net Loss Standards, Overview, and Origins

To Recap

- No Net Loss: “Any development action resulting in negative impacts to one or more key floodplain functions that are then mitigated or avoided to offset said impacts.”
 - Achieved through avoidance -> minimization -> mitigation
- Floodplain Functions: What we are mitigating to ensure ESA compliance
 - Translated into proxies for measurable action
 - Floodplain storage -> un/developed space
 - Water quality -> im/pervious surface
 - Vegetation -> trees

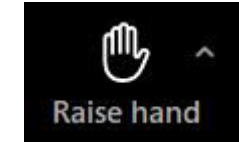
Section 6 – No Net Loss Standards, Overview, and Origins

To Recap (cont'd)

- Mitigation should be occurring, at the very least, at the same time as development.
- Mitigation should be occurring where floodplain functions are being impacted.

Questions?

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Section 6 – Floodplain Storage and Undeveloped Space

- Definition: The volume of flood capacity and fish accessible/egress-able habitat **from the existing ground to the Base Flood Elevation** that is undeveloped.
- Two components are needed when assessing impact to and mitigating this function:
 - Flood storage volume
 - Fish accessibility/egress-ability
- Examples of development:
 - Addition of fill
 - Structures
 - Vaults or tanks

Section 6 – Floodplain Storage and Undeveloped Space

How developed space is mitigated:

- Lost undeveloped space is replaced at a 1.5:1 ratio in the RBZ-fringe, 2:1 in the RBZ and Floodway.
- Mitigation applies only when there is a net increase of developed space to the project area's footprint
 - Example: If 1,000 cubic feet of existing developed space is removed, and 1,200 cubic feet of developed space is added, only 200 cubic feet of the developed space would have to be mitigated by the ratios.

Section 6 – Floodplain Storage and Undeveloped Space

How developed space is mitigated (cont'd):

- Hydrologically connected to the flooding source.
- Designed to not increase flood velocity.
- Designed to fill and drain that minimizes fish stranding and entrapment to the greatest extent possible.

Section 6 – Water Quality and Impervious Surfaces

When development actions add impervious surface to the SFHA, mitigation can occur in one of three ways:

1. A 1:1 replacement of area covered by impervious surface with pervious surface.
2. The use of low-impact development or green infrastructure practices that are certified or documented by a qualified professional.
 - Template for LID Stormwater Manual for Oregon
 - [Department of Environmental Quality : Template for LID Stormwater Manual for Western Oregon : Total Maximum Daily Loads : State of Oregon](#)
 - [Central Oregon Stormwater Manual](#): Appendix 11B Low-Impact Development
3. If the above methods are not feasible, require stormwater retention and management.

Section 6 – Water Quality and Impervious Surfaces

Stormwater Management

- Used when ratios or LID/Green Infrastructure practices are infeasible.
- Includes pollution reduction treatment for post-construction stormwater runoff from net increases to impervious surfaces.
- Includes water quantity treatment (retention and detention facilities) unless the water is discharging into the ocean. Retention facilities must:
 - Limit discharge to match pre-development peak discharge rates for 10-year peak flows.
 - Treat stormwater to remove sediment and pollutants so that 80% of suspended solids are removed from stormwater prior to discharge.
 - Be designed to not entrap fish and drain to the source of flooding.
 - Be certified by a qualified professional.

Section 6 – Water Quality and Impervious Surfaces

Stormwater Management (cont'd)

- Practices for multi-parcel facilities (including subdivisions) have enforceable operation and maintenance agreements to ensure that the system functions as designed. Agreement requirements include:
 - Access to the stormwater treatment facilities by the community.
 - A legally binding document identifying parties responsible for maintenance.
 - Operation and maintenance manuals that include the maintenance of stormwater controls that include vegetation and soil permeability.
 - Operational and maintenance manuals on site and made available to the community for inspection for a duration of five years.

Section 6 – Vegetation and Trees

- The size of a tree has an effect on the ecosystem and floodplain functions that they provide to ESA-listed species and essential fish habitat.
- Ratios to mitigate against trees removed vary based off tree size and location
 - $6'' < \text{dbh} \leq 20''$
 - $20'' < \text{dbh} \leq 39''$
 - $39'' < \text{dbh}$

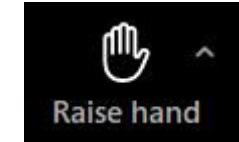


Section 6 – Vegetation and Trees

- Replacement trees must be native species occurring naturally in the Level III ecoregion where the impact is occurring.
 - [Level III and IV Ecoregions of the Continental United States | US EPA](#)
 - Replacement trees are assumed to be saplings and sizes commonly found at nurseries, but can be bigger.
- Exceptions to tree mitigation:
 - Routine silviculture practices that do not meet the definition of development.
 - Removal of hazard trees.
 - Standard dead, dying, or diseased trees or ones with a structural defect that make it likely to fail in whole or in part and that presents a potential hazard to a structure or as defined by the community.
 - Pre-emptive removal of documented susceptible trees to manage the spread of invasive species.

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Section 6 – Activities Exempt from No Net Loss

Yes! There are exceptions where mitigation is not needed to ensure no net loss on development.

Examples of some exceptions listed in the model ordinance:

- Normal maintenance or development occurring within the existing footprint of a pre-existing structure.
- Normal street, sidewalk, and road maintenance that does not alter contours, use, or alter culverts and do not include expansion of paved areas.
- Routine maintenance of landscaping that does not involve grading, excavation, or filling.
- Routine agricultural practices that do not alter ditch configuration.
- Routine silviculture practices that does not meet the definition of development.

Section 6 – Activities Exempt from No Net Loss

Exceptions (cont'd):

- Removal of noxious weed and hazard trees; replacement of non-native vegetation with native vegetation;
- Pre-emptive removal of documented susceptible trees to manage the spread of invasive species.
- Normal maintenance of above ground utilities and facilities provided there is no net change in footprint.
- Normal maintenance of a levee or other flood control facility prescribed in the operations and maintenance plan of the levee or flood control facility.
- Habitat restoration activities.

Section 6 – Riparian Buffer Zone (RBZ)

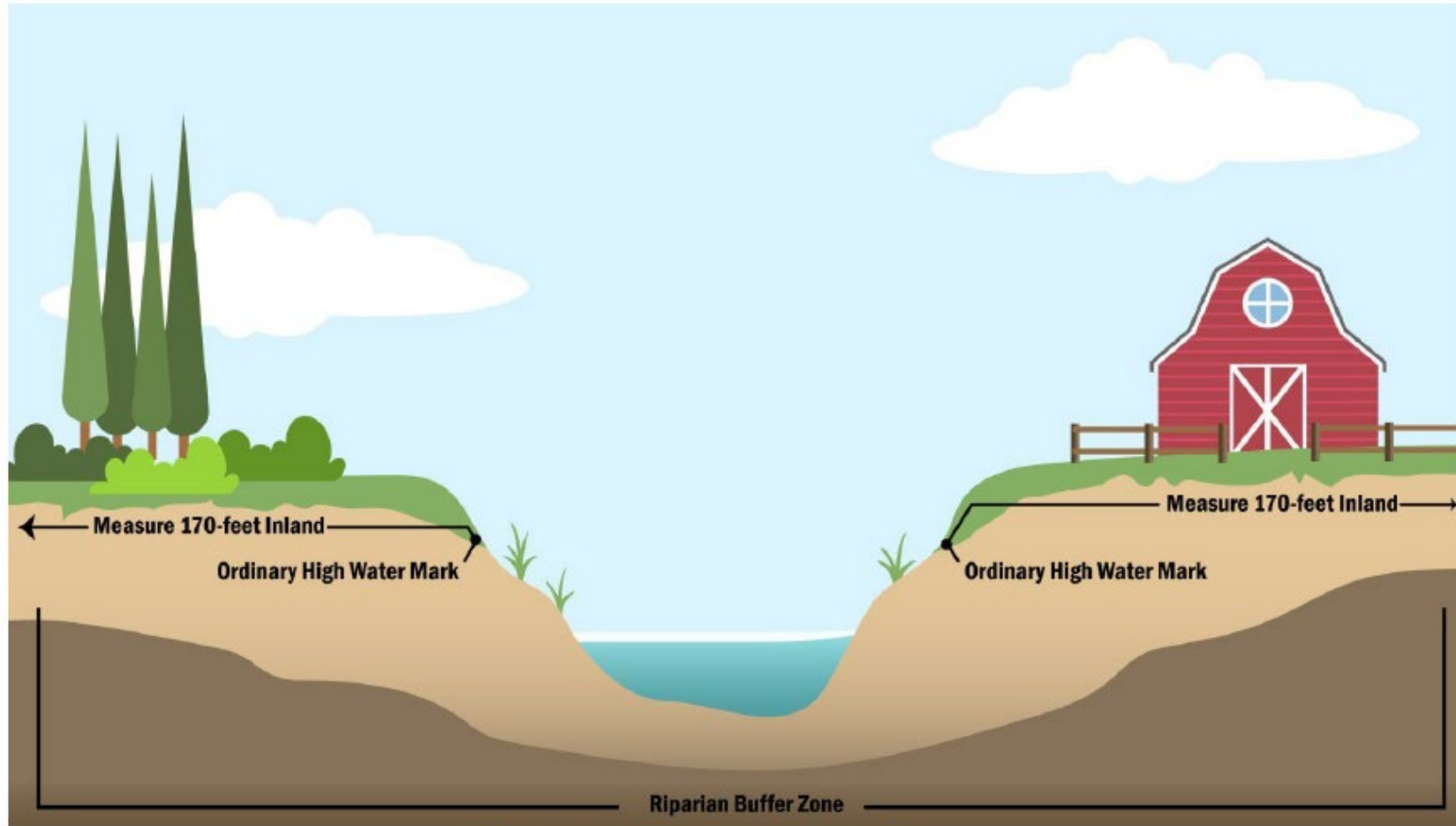
- An area of land bordering fresh and salt-water bodies that provide an outsized role in supporting floodplain functions.
- Riparian Buffer Zones benefits:
 - Provide ESA-listed species refuge from high velocity flows in flooding events.
 - Vegetation in the RBZ attracts insects and other food sources.
 - Filters sediments and pollutants from runoff.
 - Moderates water temperature through shade.
 - Helps stabilize eroding banks.

Section 6 – Riparian Buffer Zone (RBZ)

FEMA's RBZ for PICM is set at 170 feet.

- This is measured from an OHWM or MHHW.
 - The RBZ does not extend beyond the SFHA.
 - Buffer cannot be shortened during PICM.
-
- [USGS Guide for identifying OHWM](#)

Section 6 – Riparian Buffer Zone (RBZ)



Measuring the Riparian Buffer Zone



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Section 6 – Riparian Buffer Zone (RBZ)

- **FEMA is not banning development in the RBZ**
 - Mitigation ratios are higher
 - Beneficial gain standard is required
- **Beneficial gain**
 - A standard that applies only in the RBZ
 - Applies in addition to no net loss
 - Standard is meant to provide additional benefits to this environmentally important area that include no negative components to ESA-listed species and essential fish habitats.
 - “An area within the same reach of the project and equivalent to 5% of the total project area within the RBZ shall be planted with native herbaceous, shrub, and tree vegetation.”

Section 6 – Riparian Buffer Zone (RBZ)

Exceptions to the Beneficial Gain Standard

- Activities considered exempt from no net loss.
- Functionally Dependent Uses, which includes:
 - Docking and port facilities that are necessary for the loading and unloading of cargo or passengers; and,
 - Ship building and ship repair facilities.
 - Functionally dependent uses do not include:
 - Long-term storage
 - Related manufacturing facilities
 - Ancillary features such as restrooms or lounge areas

Section 6: Model Ordinance Review Criteria

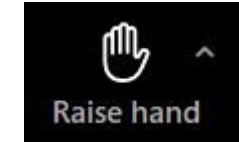
What FEMA is looking for in PICM ordinance adoptions

- SECTION 6: Standards for Protection of SFHA Floodplain Functions
- 1.2 (A) no net loss tie-in
- 1.3 (C) no net loss tie-in
- 1.4 (F) no net loss tie-in
- 4.2.1 (G) no net loss tie-in
- 4.2.2 (K) no net loss tie-in
- 4.4.1 (F) no net loss tie-in
- 5.1 no net loss standard tie-in
- 5.1.6 (B). iv no net loss standard tie-in
- 5.2 no net loss standards tie-in
- 5.2.3.1 no net loss standard tie-in
- 5.2.4 (A).ii no net loss standard tie-in

Communities are encouraged to adopt definitions for the following terms: Fill, Habitat Restoration Activities, Green Infrastructure, Impervious Surface, Low Impact Development, No Net Loss, Reach, Riparian Buffer Zone, Riparian Buffer Zone Fringe, Undeveloped Space

Questions?

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Introduction to Technical Assistance

Overview

- FEMA is offering technical assistance to communities to assist them in implementing the PICMs.
- Technical assistance includes:
 - One-on-one support to help communities work through the challenges associated with meeting ESA compliance requirements and implementing the PICMs.
 - Sharing clear expectations for what communities may be asked to provide during an NFIP Compliance Visit or Audit.
- If you have general questions about the PICMs, please send those to FEMA-R10-MIT-PICM@fema.dhs.gov.

Technical Assistance Request Form

- FEMA is providing technical assistance to NFIP communities as they implement the PICMs, now through June 2025.
- Communities can submit technical assistance requests through the TA Request Form:
 - <https://forms.gle/biDLWxNdaQc5ruHfA>
- FEMA will begin reviewing and responding to requests beginning the week of November 4 and will respond on a rolling basis.



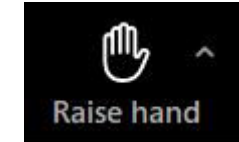
Scan me with your
phone's camera to go
to the TA Request
Form.



Question and Answer Session

Questions?

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Next Steps

Next Steps

- **Now – June 2025:** Submit technical assistance requests:
<https://forms.gle/biDLWxNdaQc5ruHfA>
- **Dec. 1, 2024:** Share your community's PICM selection with FEMA through an email to the PICM inbox (FEMA-R10-MIT-PICM@fema.dhs.gov) and begin implementing a PICM.
- **Jan. 31, 2025:** Begin collecting data.
- **Jan. 31, 2026:** Communities send first report to FEMA.



Scan me with your
phone's camera to go
to the TA Request
Form.

Learn More

- Visit our website
- Contact us with questions at:
FEMA-R10-MIT-PICM@fema.dhs.gov



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