1/10/2022  
**Risk Assessment Data for Community Engagement, Verification, and Identifiable Mitigation Actions incorporated into Local Hazard Plan**

1. **Incorporate 1% Annual Chance Floodplain Building Inventory into Mitigation and NFIP/CRS Management Activities.**  Answers the question **“What is at HIGH RISK to riverine flooding?”**
   1. Pre-Disaster Planning: Preload building inventory into FEMA’s SDE software. This activity qualifies communities for CRS credit.
   2. Future Map Conditions Communications (buildings mapped in or out of SFHA; BFE increase/decrease). Outreach communications of changing flood risk at community and building levels (e.g., Greenbrier County where new Preliminary Flood Maps have just been released)
   3. Incorporate into floodplain reduction and NFIP/CRS management activities
   4. *Mitigation Plan Cross Walk Requirements:*
      1. ***Include Community-Level Flood Risk Assessment Profile of Built Environment into Hazard Mitigation Plan:*** *Incorporate into hazard mitigation plan community-level floodplain building counts, SFHA future map building conditions, building dollar exposure, building type (Residential/Non-Residential Occupancy Type, Building Year Pre/Post-FIRM), and building damage estimates (Minus Rated Structures, 1% Damage Loss Flood Models)*
      2. ***Preload Flood Risk Structures into FEMA’s Substantial Damage Estimator Tool:*** *Upload building inventory data into SDE. The entire statewide flood risk inventory of 98,000 1% floodplain structures can be preloaded into FEMA’s SDE Tool.*
         1. *SDE Assessments: Install FEMA’s Substantial Damage Estimator Tool version 3.0. Preload 1% floodplain countywide residential/non-residential structures into FEMA’s damage estimator software. Communities are eligible for CRS credit for preloaded structures in SDE. https://www.fema.gov/emergency-managers/risk-management/building-science/substantial-damage-estimator-tool*
         2. *As part of pre-disaster planning and emergency readiness, each county should perform a residential and non-residential substantial damage assessment for potential high damage loss structures. Submit damage estimates and feedback for mitigation plan and maintenance.*
         3. *Flood Map Restudy (if applicable). Prepare community outreach communications for flood restudies (mapped into SFHA, mapped out of SFHA). Restudied areas require updating floodplain management ordinance and an opportunity to review state model ordinance and incorporate higher standards.*
      3. *MISSING STRUCTURES: Submit map links of missing noteworthy structures in the high-risk floodplain, especially those of significant importance to the community. Submit structures that should be deleted as well. Table 3 (Building-Level Risk Assessment) lists all structures inventoried.*
      4. *HIGH-VALUE STRUCTURES: Confirm high-value residential and non-residential buildings for correctness. Table 4.*
   5. CL Tables: CL\_Detailed\_Flood\_Zone
   6. BL Tables: Building-Level Risk Assessment (BLRA), Statewide SDE Import Table
   7. Risk Map: Primary Structure/SFHA Future Map Conditions
2. **Identify Mitigation Actions of Essential Facilities and Community Assets.** Answers the question **“What essential facilities and community assets are at HIGH RISK to riverine flooding?”** 
   1. Essential Facilities: **Essential facilities** provide critical services to the community and include police and fire stations, E-911 emergency operations centers, schools (often used as shelters), hospitals, and nursing homes. FEMA identifies these critical facilities as *essential* in its Hazus-MH risk assessment tool. If a [critical facility](https://www.fema.gov/glossary/critical-facility) must be in a floodplain then it should be provided a higher level of protection so that it can continue to function and provide services after the flood. Communities should develop emergency plans to continue to provide these services during the flood. Confirm **essential facilities** in high and moderate risk floodplains that should be built to a higher level of flood protection. Under Executive Order 11988, Floodplain Management, Federal agencies funding and/or permitting critical facilities are required to avoid the 0.2 percent (500-year) floodplain or protect the facilities to the 0.2 percent chance flood level.
   2. Community Assets: **Community assets** are historical structures listed on the National Register of Historic Places, government facilities (federal, state, local), emergency medical services (EMS), religious organizations, utilities, postsecondary educational facilities, or other buildings of significance that contribute to the *built environment* of community.
   3. Validate inventory of facilities and assets. Review degree of flood risk from with flood depth data.
      1. Community Assets – 1% base flood water depth
      2. Essential Facilities – both 1% and 0.2% water depths (where 0.2% flood profiles or depth grids exist). For all current and future FEMA restudies, 0.2% water depth grids are published for Approximate A Zones.
   4. Review existing emergency action plans.
   5. Identify mitigation actions to harden facilities.
   6. Identify socio-economic factors if facilities/assets are impacted by flood hazard.
   7. *Mitigation Plan Cross Walk Requirements:*
      1. ***Confirm essential facilities inventoried in high and moderate risk floodplains.***
      2. ***Incorporate essential facility and community assessment risk assessment tables in hazard mitigation plan.***
      3. ***For mitigation plan, incorporate a minimum of two (2) identifiable mitigation actions for essential facilities and community assets for each county.***
         1. *Compare existing essential facilities inventoried to previous plan update and denote any mitigation progress.*
         2. *Review top statewide building listing of high-value dollar essential facilities/community assets exposure and substantial damage.*
         3. *Identify socio-economic effects if key facilities are not restored to original function within days after flood event.*
         4. *Review existing emergency action plans.*
         5. *Identify mitigation actions to harden facilities.*
   8. CL Tables: CL\_Essential\_Facilities, CL\_Community\_Assets
   9. BL Tables: BL\_Essential\_Facilities, BL\_Community\_Assets, FL\_CommunityAssets\_NRAreas, BLRA
   10. Risk Map: Essential Facilities, Community Assets
3. **Validate Mitigated Structures and Post-FIRM Development**. Coordinate verification through public outreach opportunities with community leaders, risk planners, floodplain managers, etc. Answers the question “**Are post-FIRM structures mitigated and compliant with NFIP regulations and Ordinance?**”
   1. Submit mitigated structures that have not been inventoried.
      1. Structures with Elevation Certificates (Building Diagrams 5-8) and above BFE.
      2. Building pictures of floodproofed structures
   2. Review minus-rated structures. Refer to Building List.
      1. Prioritize review of mitigated structures of flood prone communities by:
         1. New Development (Post FIRM) regulated to floodplain development ordinance.
         2. Minus-Rated Structures. First Floor Height more than 1 foot below Base Flood Elevation. *Quantifies the Degree of Risk.*
            1. Water Depth-in-Structure (Flood Depth and First Floor Height).
            2. Building Damage Loss Estimates (Percent Damage and Building Dollar Loss) for 1% flood.
         3. Key Evaluation Factors:
            1. Flood Source

Flood Depth

Flood Zone (Regulatory/Advisory; Regulatory Floodway)

Initial FIRM Community Date. Note: May have to review historical flood studies to determine if certain Post-FIRM structures were constructed when no SFHA existed or the BFE increased/decreased after restudies.

* + - * 1. Building Characteristics

Building Year (required to determine Pre/Post-FIRM status)

Building Dollar Exposure Value: Appraisal Value / Construction Grade

Occupancy Class/Building Type (Residential/Non-Residential)

Foundation Type; First Floor Height (if value not correct damage flood loss model estimates will be under- or over-estimated.

* 1. Considerations:
     1. Post-FIRM structures shouldn’t be minus rated if built to code at the time to floodplain management ordinance
     2. Minus-rated insurance policies don’t receive CRS community discounts
     3. Substantial Damage/Substantial Improvement: Existing buildings that are not compliant with current standards and are deemed substantially damaged or improved must be elevated to the BFE plus freeboard.
     4. Residential buildings must elevate to finished first floors and wet floodproof enclosed areas
     5. Commercial buildings have the option to wet floodproof, dry floodproof, or do a combination
     6. Verify:
        1. Foundation types and first floor heights for mitigated Post-FIRM construction should be verified.
        2. Post-FIRM construction regulated to Pre-FIRM: If the site of a post-FIRM structure was not mapped as a Special Flood Hazard Area at the time of construction, then repairs or alterations are regulated as though it is a pre-FIRM structure.

* 1. ***Mitigation Plan Cross Walk Requirements:*** *For mitigation plan, verify Post-FIRM mitigated structures provided in minus-rated properties data extract.*
     1. ***Determine if Post-FIRM minus-rated structures are mitigated.*** *Focus initially on structures with the highest minus ratings (or highest water-in-depth values) and high dollar loss estimates. For each structure of interest identify if a permit and elevation certificate are on file. Annotate permit and elevation certificate information on minus-rated table. Submit building pictures if no elevation certificates exist.*
     2. ***In the mitigation plan, include a table that describes the number and types of mitigated structures for each flood prone community****.*
     3. *Identify mitigation actions for specific structures, to include outreach/education to community/ homeowners about mitigation best practices, mitigation funding opportunities, NFIP office involvement for non-compliant structures).*
  2. CL Tables: CL\_Detailed\_Flood\_Zone, CL\_FIRM, CL\_Substantial\_Damage, CL\_TEIF\_DamageLoss\_Debris
  3. BL Tables: Building-Level Risk Assessment (BLRA), Minus Rated Data Extract, Mitigated Structures, Elevation Certificates
  4. Risk Map: All Risk Map Layers

1. **Evaluate Areas of Mitigation Interest / Repetitive Loss Areas.** Answers the question are “**Areas of Mitigation Interest / Repetitive Loss identified and targeted for flood reduction efforts?”**
   1. Factors in delineating AoMIs
      1. Repetitive Loss Structures (site address or street address matched)
      2. Flood Depths
         1. Model-backed depth girds
         2. Water depth-in-structure
         3. High Water Marks
         4. Similar topography
      3. Substantial Damage Estimates
         1. Hazus Flood Loss Models
         2. Substantial Damage / Substantial Improvement building changes in appraisal values. Refer to FEMA template letters for SD / SI increases of more than 50%.
      4. Mitigated Properties
         1. Buyout Properties
         2. Mitigated Structures
   2. ***Mitigation Plan Cross Walk Requirements:*** *For mitigation plan, verify Post-FIRM mitigated structures provided in minus-rated properties data extract.*
      1. ***Determine the mitigation status of Post-FIRM structures in Areas of Mitigation Interest.*** *Review structures in AoMI and identify if permits and elevation certificates that exist for Post-FIRM structures (same process as minus-rated structures). Submit building pictures if no elevation certificates exist.* 
         1. *POST-FIRM MINUS-RATED STRUCTURES: Verify Post-FIRM mitigated structures provided in data tables of minus-rated properties (lowest floor 1 ft. or more below Base Flood Elevation).*
         2. *HIGH-RISK STRUCTURES: Review structures at greatest flood risk: high damage dollar costs (> $10,000), substantial damaged estimates (> 50%)*
         3. *MITIGATED PROPERTIES: Provide Elevation Certificates (Building Diagrams 5-8) and Building Pictures of residential (elevated > 5 ft.) and non-residential structures, especially those buildings identified at high risk.*
         4. *REPETITIVE LOSS PROPERTIES: A primary mitigation goal of FEMA’s Floodplain Mitigation Assistance (FMA) Division is to reduce the number of claims from repetitive loss structures.*
      2. ***In the mitigation plan, include a table that lists and describes the areas of mitigation interest for each community.*** 
         1. *Use the various risk assessment data sets to prioritize the areas of mitigation interest from highest to lowest.*
         2. *Perform field evaluations of AoMI boundaries and adjust boundaries where necessary. If CRS community, compare repetitive loss structures between state and community files. Provide pictures of repetitive loss areas.*
         3. *Communicate to owners in repetitive loss areas/AoMI using CRS templates.*
            1. *Repetitive Loss Areas / Areas of Mitigation Outreach: Building, level community-generated letters about repetitive loss.*
            2. *CRS resource:* [*https://crsresources.org/files/500/figure\_500-3\_repetitive\_loss\_outreach\_letter.docx*](https://crsresources.org/files/500/figure_500-3_repetitive_loss_outreach_letter.docx)
   3. Tables: AoMI, SD/SI, High Water Marks, BLRA
   4. Risk MAP: Areas of Mitigation Interest, Mitigated Structures, Buyout Properties
2. **Confirm Mitigated Buyout Properties.** Identifies **open space preserved** from mitigation of flood and landslide buyout parcels. CRS community credit eligibility. Answers the question are **mitigated buyout properties being preserved for open space?**
   1. ***Mitigation Plan Cross Walk Requirements:*** *For mitigation plan, validate verified and unverified properties.* 
      1. ***Confirm buyout properties are allowable for open space purposes only.*** *Every three years communities are required to inspect and certify that buyout properties are uses only for allowable open space purposes. Source:* [*https://www.fema.gov/sites/default/files/2020-07/fy15\_hma\_addendum.pdf*](https://www.fema.gov/sites/default/files/2020-07/fy15_hma_addendum.pdf)
         1. *Verify all deed-restricted buyout properties are shown on the WV Flood Tool.*
         2. *Unverified properties (possible buyout properties) are compiled from the statewide property tax database where the parcel intersects the high-risk 1% floodplain, maximum building value is $1000, and part of the owner name contains “commission” or “council” or “city” or “town.”*
      2. ***In the mitigation plan, include a table that lists the number of verified and unverified mitigated buyout properties.***
      3. *Identify Areas of Mitigation Interest (AoMI) considered for buyout mitigation. Discuss potential properties in mitigation plan.*
   2. Tables: CL\_Buyout\_Properties, FL\_Buyout\_Properties\_Mapped, FL\_Unverfied\_Properties
   3. Risk MAP: Buyout Properties
3. **Other Mitigation Reduction Activities for Hazard Planning**
   1. Hazard Identification:
      1. Provide shared map links of any flood map errors or unmapped landslides.
   2. Transportation Infrastructure:
      1. Road/Railroad/Bridge 1% Flood Risk Assessments
   3. Proximity Flood Analysis: Building locations in feet to flood source
   4. Floodplain Management
      1. SD / SI change reports from changing appraisal building values reported for past years. Source: state property tax database
   5. **Support for CRS credits**
      * 1. Program Variables: Buildings in SFHA (bSF); SFHA acreage (bSFHA)
        2. bSF aSFHA, open preservation calculations, etc.)
        3. State-based CRS credits including Open Space Preservation
   6. Other Hazards
      1. Dam Failures
      2. Landslides
4. *Communications and Outreach Methodology:*
   1. *Community*
      1. *Public outreach meetings*
      2. *In-Person Community Visits*
      3. *Social Media*
      4. *Radio*
      5. *Newspaper*
   2. *Individual Homeowners* 
      1. *Mailings (postage or insert in community utility bills)*
      2. *Flyers in mailbox*
      3. *Online Surveys*