COMMONLY USED TERMS AND ACRONYMS FOR LEVEE SYSTEMS

When speaking about or referencing a levee system, there are many acronyms used by FEMA and other agencies. Please use this sheet as a reference guide.

- **0.2-Percent-Annual-Chance Flood (500-year flood)**
  - There is a 1-in-500 (0.2-percent) chance of a flood event at that level or greater occurring in any given year.

- **1-Percent-Annual-Chance Flood (100-year flood):** See "BFE: Base Flood Elevation and 'Base Flood'" for a reference.

- **"65.10" also referred to 44CFR§65.10**
  - The National Flood Insurance Program (NFIP) regulatory criteria for the accreditation and mapping of levee-impacted areas. This is presented in Title 44, Chapter 1, Section 65.10 of the Code of Federal Regulations, and is often referred to as "65.10."

- **Accredited Levee System**
  - Guidance Definition: A levee system shown on a Flood Insurance Rate Map (FIRM) that is recognized as reducing the flood hazards posed by a 1-percent-annual-chance flood. This determination is based on the submittal of data and documentation as required by 44 CFR 65.10 of the NFIP regulations. The area landward of an accredited levee system is shown as Zone X (shaded) (refer to Flood Hazard Zones for definition) on the FIRM except for areas of residual flooding, such as ponding areas, which are shown as a Special Flood Hazard Area (SFHA)(refer to Flood Hazard Zones for definition).
  - Messaging: A levee system that meets the criteria of 65.10 and reduces the hazard from the "base flood." The side of the accredited levee system away from the flooding source is generally shown as Zone X (shaded) on the Flood Insurance Rate Map. In Zone X (shaded), if you have a Federally-backed mortgage, you are not required by law to carry flood insurance, although a lender still retains the option to require it, and FEMA encourages carrying coverage.

- **BFE: Base Flood Elevation and "Base Flood"**
  - The height water is expected to reach during a 1-percent-annual-chance flood, also called the "base flood." This is the flood level on which FEMA bases its regulation of flood hazard maps in administering the National Flood Insurance Program (NFIP). The base flood is often referred to as a "100-year flood," which means that there is a 1-in-100 (1-percent) chance of a flood at that level or greater occurring in any given year.
  - Go here for more info: https://www.fema.gov/base-flood

- **Certification:**
  - Guidance Definition: As stated in 44 CFR 65.2(b), certification of analyses is a statement that the analyses have been performed correctly and in accordance with sound engineering practices. Certification of structural works is a statement that works are designed in accordance with sound engineering practices to provide risk reduction from the base flood. Certification of "as built" conditions is a statement that the structure(s)

has been built according to the plans being certified, is in place, and is fully functioning. Certification documentation is the responsibility of the local project sponsor.

- **CRS: Community Rating System**
  - A voluntary FEMA incentive program recognizing communities for their additional efforts beyond the minimum Federal standards to reduce flood damage to insurable property. The program also strengthens and supports the insurance aspects of the National Flood Insurance Program, and encourages a comprehensive approach to floodplain management. Under the Community Rating System (CRS), communities choosing to participate may reduce flood insurance premium rates for property owners.
  - To learn more: https://www.fema.gov/community-rating-system

- **CTP: Cooperating Technical Partner**
  - The Cooperating Technical Partner (CTP) program is an effort to create partnerships between FEMA and participating National Flood Insurance Program communities, Regional agencies, State agencies, Tribes, Territories, and universities that have the interest and capability to become more active participants in the FEMA flood hazard mapping program. CTPs are often important partners in the levee analysis and mapping process.
  - To learn more: https://www.fema.gov/cooperating-technical-partners-program#

- **Effective Date**
  - The date on which the Flood Insurance Rate Map for a community is effective, or complete.

- **FEMA: Federal Emergency Management Agency**
  - FEMA is an agency under the U.S. Department of Homeland Security whose mission is to help people before, during, and after disasters. FEMA supports citizens and first responders to ensure that as a nation we work together to build, sustain, and improve our capability to prepare for, guard against, respond to, recover from, and mitigate all hazards.

- **FIMA: Federal Insurance and Mitigation Administration**
  - The component within FEMA that administers the National Flood Insurance Program. The Federal Insurance and Mitigation Administration (FIMA) works with partners at the Federal, State, local, Tribal, and Territorial levels to facilitate efforts toward achieving resilience from natural hazards. FIMA works to reduce risk to life and property damage through a variety of grant programs.
  - To learn more: https://www.fema.gov/what-mitigation/federal-insurance-mitigation-administration

- **FID: Federal Insurance Directorate**
  - The component of FIMA that helps reduce flood losses by providing affordable flood insurance for property owners and by encouraging communities to adopt and enforce floodplain management regulations that mitigate the effects of flooding on new and improved structures.

- **FIRM: Flood Insurance Rate Map**
  - The official flood map for a community on which FEMA has shown the flood hazard areas that impact that community. The Flood Insurance Rate Map shows the areas at the highest risk in your area as well as other important information.
  - Go here for more info: https://www.fema.gov/flood-insurance-rate-map-firm

- **FIS: Flood Insurance Study**
  - A compilation and presentation of flood risk data for specific flood hazard areas within a community. When a flood study is completed for the National Flood Insurance Program, the information and maps are assembled into an FIS report. The FIS report contains detailed flood data.

- **Flood Risk:**
  - Guidance Definition: The risk of flooding in a leveed area that remains at any point in time after accounting for the flood risk reduction contributed by the levee system. Risk is a measure of the probability and severity of undesirable consequences. Flood risk comprised three parts: (1) the likelihood of occurrence of an event (e.g., flood, earthquake, etc.), (2) the likelihood associated with the performance of the levee system (e.g., levee breach, closure malfunction, overtopping, etc.), and (3) the magnitude of the consequences resulting from inundation of the levee impacted area during that event (e.g., life loss, economic damages, environmental damages, etc.).
  - Messaging: "Levees reduce the risk of flooding. But no levee system can eliminate all flood risk. There is always the chance that a flood will exceed the capacity of a levee, no matter how well it was built. Levees do not always perform as intended. In fact, levees sometimes fail even when a flood is small." — American Society of Civil Engineers

- **Flood Hazard Zones:**
  - Defined in the National Flood Insurance Program regulations. The zones, also referred to as "risk premium rate zones" for flood insurance rating and "flood insurance risk zones," are shown on a Flood Insurance Rate Map and are used to determine flood insurance premium rates for properties. There are multiple flood zones that carry different insurance requirements. Refer to the "Levees and Flood Insurance One-Pager" for additional details.
    - **SFHA**: See "SFHA" below.
    - **Zones A, AE, A1-30, AH, AO, V, VE, V1-30**: High-hazard areas. Homes and businesses in high-risk flood areas with loans, including mortgages, from Federally regulated lenders are required to have flood insurance.
      - To learn more: https://www.floodsmart.gov/why/are-some-people-required-to-have-flood-insurance
    - **Zones B, C, and X (shaded and unshaded)**: Moderate- to low-hazard areas. Homes and businesses in moderate-to low-hazard flood areas with loans, including mortgages, from Federally regulated lenders are not required to have flood insurance, although some lenders may require it. FEMA highly advises that homeowners, businesses, and renters have a flood insurance policy.

        - To learn more: https://www.floodsmart.gov/why/are-some-people-required-to-have-flood-insurance
    - **Zone AR**:
        - Guidance Definition: As defined in 44 CFR 61.12, areas that result from the new non-accredited status of a previously accredited levee system that is determined to be in the process of being restored to provide base flood risk reduction. Mandatory flood insurance purchase requirements and floodplain management standards apply.
        - Messaging: An area where a levee system was determined to no longer provide sufficient flood hazard reduction but is in the process of being restored.
    - **Zone A99**:
        - Guidance Definition: As defined in 44 CFR 61.12, areas subject to inundation by the 1-percent-annual-chance flood event, but which will ultimately be accredited upon completion of an under-construction levee system. These are areas of special flood hazard where enough progress has been made on the construction of a levee system, such as dikes, dams, and levees, to consider it complete for insurance rating purposes. Zone A99 may only be used when the levee system has reached specified statutory progress toward completion. No Base Flood Elevations (BFEs) or depths are shown. Mandatory flood insurance purchase requirements and floodplain management standards apply.
        - Messaging: An area where a levee system is under construction and can demonstrate adequate progress toward completion.
    - **Zone D**:
        - Guidance Definition: An area of possible, but undetermined flood hazard. When analyzing and mapping areas landward of non-accredited levee systems, a Zone D may represent areas landward of a non-accredited levee, within the natural valley footprint, that are not depicted as a Special Flood Hazard Area resulting from freeboard deficient, sound reach, overtopping, and/or structural-based inundation procedures. The Zone D designation is used for non-accredited systems instead of the Zone X (shaded) designation because the flood hazard potential is more uncertain and possibly greater.
        - Messaging: An area of undetermined flood hazard.
        - For more info: https://www.fema.gov/flood-zones

- **Freeboard**
    - Guidance Definition: A factor of safety usually expressed in feet above a flood level for purposes of floodplain management. “Freeboard’’ tends to compensate for the many unknown factors which could contribute to flood heights greater than the height calculated for a selected size flood and floodway conditions, such as wave action, bridge openings, and the hydrological effect of urbanization of the watershed. At times, overbuild to account for long-term settlement and incrementing the height to ensure maintenance access during flood events is referred to as freeboard as well. For levees

and purposes of the NFIP, this is the vertical distance between the top of a levee and the water level that can be expected during the 1-percent-annual-chance flood.
    - Messaging: The vertical distance from the Base Flood Elevation up to the top of the levee crest.

- **Hazard**
    - Guidance Definition: An event or physical condition that has the potential to cause fatalities, injuries, property damage, infrastructure damage, agricultural loss, damage to the environment, interruption of business, and other types of loss or harm.

- **HMA: Hazard Mitigation Assistance Programs**
    - FEMA funds four HMA grant programs. As required by the Robert T. Stafford Disaster Relief and Emergency Assistance Act, two grant programs receive funds after a major Presidential disaster declaration. These programs are the Hazard Mitigation Grant Program (HMGP) and HMPG Post Fire. The remaining two programs, the Flood Mitigation Assistance (FMA) Program, and the Pre-Disaster Mitigation (PDM) Program receive annual Congressional appropriations to help communities act to reduce or eliminate long-term risk to people and property from future disasters. These appropriations vary from each year.
    - To learn more visit: https://www.fema.gov/disaster-recovery-reform-act-2018

- **Interior Drainage**
    - Guidance Definition: Natural or modified removal of runoff within an area landward of a levee.
    - Messaging: Accumulating water on the levee-impacted side of a levee system (i.e. the side with land, not the river side) needs to be accounted for on a FIRM.

- **Levee**
    - Guidance Definition: Per 44 CFR 59.1, a manmade structure, usually an earthen embankment, designed and constructed in accordance with sound engineering practices to contain, control, or divert the flow of water to reduce flood hazards posed by temporary flooding.

- **Levee Analysis and Mapping Procedures**
    - Five different methods used to analyze non-accredited levee systems and/or individual levee reaches (see definition below). Please see the separate fact sheets for a detailed overview of each of the procedures. They include:
        - **Sound Reach:**
            - Guidance Definition: A reach that has been designed, constructed, and maintained to withstand the flood hazards posed by a 1-percent-annual-chance flood, in accordance with the standards in 44 CFR 65.10 of the NFIP regulations, but is part of a system that cannot be accredited.
            - Messaging: A procedure used when part of the levee meets all of FEMA's requirements, but the entire levee system does not.

- **Freeboard Deficient:**
  - Guidance Definition: Non-accredited levee analysis and mapping procedure that is applicable if the freeboard requirement is not met, but the top of levee is above the 1-percent-annual-chance flood. A Freeboard Deficient levee reach must meet the structural requirements of 44 CFR 65.10 and have documented operation, maintenance, and emergency preparedness plans. Freeboard Deficient levee reaches differ from an accredited levee system because they are part of a levee system that as a whole cannot meet accreditation requirements and because they cannot meet the regulatory freeboard standard.
  - Messaging: A procedure applied when a levee reach meets the regulatory requirements of 65.10 except freeboard, meaning that the levee is not tall enough.

- **Overtopping:**
  - Guidance Definition: Non-accredited levee procedure is applicable when the 1-percent-annual-chance flood is above the levee crest for a reach, and the community or levee owner has provided appropriate technical justification that the 1-percent-annual-chance flood event will not cause a levee breach. In addition to the structural standards established in 44 CFR 65.10, it is expected that more detailed structural analysis will be required to justify that the levee system can sustain the 1-percent-annual-chance flood. As with a Sound Reach and Freeboard Deficient Reach, an operations and maintenance plan and documentation of inspection are required.
  - Messaging: A procedure used when the levee is not tall enough to meet the Base Flood Elevation requirements, but the levee itself would not break if it floods – the water would just flow over it. In addition, information must be submitted that demonstrates that the levee would remain in place during the overtopping event

- **Structural-Based Inundation:**
  - Guidance Definition: Non-accredited levee analysis and mapping procedure applicable to some levee systems having reaches with either structural deficiencies that are known or structural integrity that is unknown (a common occurrence for older levee systems). For these levee reaches, FEMA will rely on modeling of breaches along the levee reach. It is not possible to predict the exact location of a levee breach. This procedure, therefore, does not predict the probability of failure at any breach location, nor does it provide a specific determination or evaluation of the overall levee system performance or require a determination of the likely failure mechanism. The procedure instead results in the development of a levee reach-specific SFHA that might occur as a result of potential breaches along a particular levee reach during the 1-percent-annual-chance flood. To determine this SFHA,

possible locations of system breaches, geometry, and failure duration will be considered.

- Messaging: In the simplest terms, this procedure is used for levee reaches where structural issues exist and the levee could be breached, overtopped, or destroyed.

- **Natural Valley:**
  - Guidance Definition: Non-accredited levee procedure that can be applied to all non-accredited levee reaches. The Natural Valley Procedure is used in two ways: first landward of the entire levee system to determine the outer limits of any Zone D areas used; and secondly, as a potential procedure applied to individual levee reaches to determine the SFHA on the landward side of the levee reach. Several factors are considered when determining whether to use the Natural Valley Procedure to determine the SFHA:
    - The levee reach does not significantly obstruct the flow of water;
    - Data necessary for more complex methods is not and will not be available in the near term; or
    - The community (or Tribal entity, when appropriate) provides feedback that it is the acceptable procedure to use. For riverine levee systems, the Natural Valley Procedure reflects the levee geometry in the hydraulic model but allows water to flow on either side of the levee. For coastal levee systems, the Natural Valley Procedure reflects the levee geometry and consideration is given as to how the levee system impacts wave propagation.
  - Messaging In its simplest terms, the Natural Valley procedure treats the levee as if it does not exist.

- **Levee Breach**
  - Guidance Definition: A rupture, break, or gap in a levee system that causes flooding in the area landward of the levee system and may be due to overtopping or levee feature failure.

- **Levee Impacted Area**
  - Guidance Definition: The area landward of a levee system that would be inundated by the corresponding 1-percent-annual-chance flood if the flood hazard reduction effect of the levee system is not considered. Often, this will be identified by applying the Natural Valley Procedure for the levee system.
  - Messaging: The floodplain area on the land side of a levee system (i.e. not the river side) that would be flooded in the case of a levee breach during the base flood.

- **Levee Owner**
  - Guidance Definition: A Federal or State agency, a water management or flood control district, a local community, a levee district, a nonpublic organization, or an individual considered the proprietor of a levee. The levee owner is responsible for administering

the operations, maintenance, and emergency plans for the levee. Often, referred to as levee sponsor.

- **Levee Reach**
  - Guidance Definition: A levee reach is a portion of a levee system (usually a length of a levee) that may be considered for analysis purposes to have approximately uniform representative properties. A levee reach is a unique component having properties different than other reaches of the levee system and may be used to evaluate the performance of a portion of the levee system. No minimum or maximum length is associated with a reach. Any continuous section of a levee to which a single analysis and mapping procedure may be applied is considered as a reach.

- **Levee Segment**
  - Guidance Definition: A discrete portion of a levee system that is operated and maintained by a single entity. A levee segment can be comprised of a single levee reach or multiple reaches. A levee segment may comprise one or more levee features.

- **Levee System**
  - Guidance Definition: A flood hazard-reduction system that consists of one or more levee segments/reaches and other features such as floodwalls and pump stations, which are interconnected and necessary to ensure exclusion of the design flood from the associated hydraulically independent levee impacted area, and which are constructed and operated in accordance with sound engineering practices.

- **Local Levee Partnership Team (LLPT)**
  - Guidance Definition: A workgroup that is facilitated by FEMA when a levee system will be analyzed by levee analysis and mapping procedures for non-accredited levees. The primary function of this group is to share information/data and identify options based on stakeholder roles and knowledge.
  - Messaging: LLPTs consist of the key stakeholders in a levee analysis and mapping project. The LLPT's primary function is to provide feedback, additional data, and other input about the levee system in question during a FEMA Flood Insurance Study.

- **LOMA: Letter of Map Amendment**
  - A Letter of Map Amendment (LOMA) is an official amendment, by letter, to an effective flood hazard map. A LOMA establishes a property's location in relation to the Special Flood Hazard Area (SFHA), or high-risk flood area, and specifically determines whether a particular property or structure is in the SFHA based on its elevation. LOMAs are usually issued because a property has been inadvertently mapped as being in the floodplain but is on natural high ground above the BFE.
  - To learn more: https://www.fema.gov/letter-map-amendment-loma

- **LOMC: Letter of Map Change**
  - Letter of Map Change (LOMC) is the umbrella term that encompasses the Letter of Map Amendment, Letter of Map Revision (LOMR) and Letter of Map Revision based on Fill (LOMR-F). Specifically, LOMCs are documents issued by FEMA that revise or amend the

flood hazard information shown on the FIRM without requiring the FIRM to be physically revised and republished.
  - To learn more: https://www.fema.gov/letter-map-changes

- **LOMR: Letter of Map Revision**
  - A LOMR is FEMA's modification to an effective National Flood Insurance Program map. The LOMR officially revises the map and sometimes the Flood Insurance Study report, and it includes a description of the modifications.
  - To learn more: https://www.fema.gov/letter-map-revision

- **Mitigation Directorate**
  - FEMA's Mitigation Directorate implements a variety of programs authorized by Congress that cover the full range of natural hazards. Mitigation efforts provide value to the American people by (1) creating safer communities by reducing loss of life and property, (2) enabling individuals to recover more rapidly from flood and other disasters, and (3) lessening the financial impact on the Treasury, States, Tribes, and communities.

- **Mitigation**
  - A sustained action taken to reduce or eliminate long-term risk to people and property from flood hazards and their effects. Mitigation refers to actions that have a long-term impact, distinct from those that are more closely associated with preparedness for, immediate response to, and short-term recovery from specific events.
  - To learn more: : https://www.fema.gov/hazard-mitigation-planning

- **Mitigation Planning**
  - A process for State, local, and Tribal governments to identify policies, activities, and tools to implement sustained actions to reduce or eliminate long-term risk to life and property from a hazard event. The mitigation planning process has four steps: (1) organize resources; (2) assess risks; 3) develop a mitigation plan; and (4) implement the plan and monitoring progress.

- **National Levee Database (NLD)**
  - Guidance Definition: The NLD, developed by the U.S. Army Corps of Engineers (USACE) in cooperation with FEMA, is a dynamic, searchable inventory of information for all levee systems in the nation. The database contains information to facilitate and link activities, such as flood risk communication, levee system evaluation for the NFIP, levee system inspections, floodplain management, and risk assessments. The NLD continues to be a dynamic database with ongoing efforts to add levee data from federal agencies, states, and tribes.
  - To learn more: https://levees.sec.usace.army.mil/#/

- **Non-Accredited Levee System**
  - Guidance Definition: A levee system that does not meet the requirements in the NFIP regulations at Title 44, Chapter 1, Section 65.10 of the Code of Federal Regulations (44 CFR 65.10), Mapping of Areas Protected by Levee Systems, and is not shown on a FIRM as reducing the base flood hazards.

- Messaging: A levee system once shown on the Flood Insurance Rate Map (FIRM) as providing hazard reduction from the base flood but is no longer accredited. This can happen if FEMA isn't provided with sufficient data and documentation to determine that the levee system continues to meet 65.10 standards. The levee-impacted areas landward of a de-accredited levee system are shown on a new or revised FIRM as in a Special Flood Hazard Area, labeled Zone A or Zone AE, depending on the type of engineering study performed for the area.

- **NFIP: National Flood Insurance Program**
  - The NFIP is a Federal program administered by FEMA with the mission to provide flood insurance and improve floodplain management by mapping the nation's flood hazards.

- **O&M: Operations and Maintenance**
  - Operations and Maintenance (O&M) plans guide a levee sponsor in how they will operate and maintain their levee system and are a key part of risk mitigation and emergency preparedness.

- **PAL: Provisionally Accredited Levee**
  - Guidance Definition: A designation for a levee system that FEMA has previously accredited with reducing the flood hazards associated with a 1-percent-annual-chance flood on an effective FIRM, and for which FEMA is awaiting data and/or documentation that will demonstrate the levee system's compliance with the NFIP regulatory criteria of 44 CFR 65.10.
  - Messaging: A Provisionally Accredited Levee (PAL) designation is given when a community cannot provide the required certified data to FEMA on time to show a levee system reducing the hazard from at least the base flood. Per the PAL agreement, a community has up to 2 years to send the required data to FEMA to show that the levee system meets the necessary requirements before FEMA remaps the area impacted by the levee system. A community can only get a PAL once per levee.
  - To learn more: https://www.fema.gov/media-library/assets/documents/5341.

- **Preliminary FIRM**
  - The National Flood Insurance Program map that reflects results of a Flood Insurance Study performed by or for FEMA. The preliminary map is a version of the Flood Insurance Rate Map (FIRM) circulated for community and stakeholders review and comment. When preliminary maps are released, one can learn how the updated flood hazard information may affect one's property.
  - To learn more: https://www.fema.gov/view-your-communitys-preliminary-flood-hazard-data

- **Residual Risk (or Flood Risk):**
  - Guidance Definition: The flood risk (probability of capacity exceedance or failure and the associated consequences) that remains after the flood risk management measure is implemented.

- Messaging: Regardless of how many actions one takes to reduce risk, there is always a chance one could be flooded. That is why it is always important to be prepared and have an emergency action plan in place.

- **Resilience**
  - The ability to adapt to changing conditions. For the National Flood Insurance Program, this generally means the ability and speed at which an individual or community can withstand and recover from a flood event. "Resilience" is a term used frequently in discussions about flooding and disaster recovery.
  - Messaging: This is a way of looking at the overall stability and growth of one's community—contributing to its social, economic, and overall well-being, and working to build an even stronger community into the future by considering risks and potential impacts now.

- **Risk MAP: Risk Mapping, Assessment, and Planning Program**
  - The program developed by FEMA to leverage the successes of Map Modernization and to further enhance the usability and value of flood hazard mapping. The Risk Mapping, Assessment, and Planning (MAP) program combines flood hazard mapping, risk assessment tools, and mitigation planning into one seamless program. The intent of this integrated program is to encourage beneficial partnerships and innovative uses of flood hazard and risk assessment data in order to maximize flood loss reduction.
  - FEMA's Risk MAP program provides flood maps and informational tools for communities to better assess their flood risks.
  - To learn more: https://www.fema.gov/risk-mapping-assessment-and-planning-risk-map.

- **Risk Management Directorate (RMD)**
  - The Risk Management Directorate delivers quality risk data, modeling, and programs that increase the public's awareness of risk across the range of natural hazards and lead to actions that reduce risk to life and property.

- **SFHA: Special Flood Hazard Area**
  - Known as the "high-hazard area." The SFHA will be covered by floodwaters during the base flood. Homes and businesses in high-risk flood areas with loans, including mortgages, from Federally regulated lenders are required to have flood insurance.

- **USACE: U.S. Army Corps of Engineers**
  - The U.S. Army Corps of Engineers (USACE) civilians and soldiers deliver vital public and military engineering services both within the United States and worldwide. These services include building and maintaining America's hurricane and storm damage reduction infrastructure, including dams and levee systems. USACE brings its engineering expertise to work in partnership with other Federal agencies, local governments, other stakeholders, and the public to assess and manage flood risks associated with dams and levee systems across the nation.
  - To learn more: https://www.usace.army.mil/Missions/Civil-Works/Levee-Safety-Program/