



FEMA



Modeling and Mapping Non-Accredited Levees: Understanding the Zone D Designation

The Federal Emergency Management Agency (FEMA) defines Zone D as an area of possible, but undetermined, flood hazard. Historically, FEMA has not used Zone D behind levees. However, given uncertainties in the impact a non-accredited levee system may have on flood hazards, it will be used in some situations.

How is the Zone D Identified and Mapped?

All non-accredited levees will initially be analyzed using the **Natural Valley** approach. **Natural Valley** modeling will show the natural extent of the floodplain if unimpeded by the levee.

Following this analysis, FEMA will work with local community officials and levee owners to assess if other procedures are applicable. These decisions will be based on levee conditions and data availability.

Once a levee system and its reaches are analyzed using one or more of the levee analysis and mapping procedures, the resulting Special Flood Hazard Area (SFHA) will be mapped. If the extent of the Natural Valley exceeds the SFHA, the difference between the two will be mapped as Zone D. If no other procedure other than Natural Valley is performed or applicable, the Natural Valley determination in its entirety will be designated SFHA.

Flood Insurance Requirements in Zone D

Zone D is not an SFHA, and therefore does not include the same flood insurance purchase requirements. (In SFHAs, most structures with Federally-backed mortgages are required to carry flood insurance.) Zone D does represent an area of uncertainty in terms of flood risks. Additionally, all levees have residual risks, which include events such as the levee being overtopped or its drainage systems being overwhelmed beyond the capacity of water they can handle. For these reasons, FEMA strongly recommends that property owners purchase flood insurance to cover structures in Zone D.

Updated Levee Analysis and Mapping Methodologies

FEMA has developed procedures for analyzing and mapping hazards associated with non-accredited levees shown on FIRMs. An overview is provided in Fact Sheets titled:

1. **Dividing Levee Systems into Multiple Reaches**
2. **Natural Valley Procedure**
3. **Sound Reach Procedure**
4. **Freeboard Deficient Procedure**
5. **Overtopping Procedure**
6. **Structural-Based Inundation Procedure**
7. **Understanding the Zone D Designation**

For more information, please visit:
<http://www.fema.gov/final-levee-analysis-and-mapping-approach>

The CFR can be accessed at:
<http://ecfr.gpoaccess.gov>

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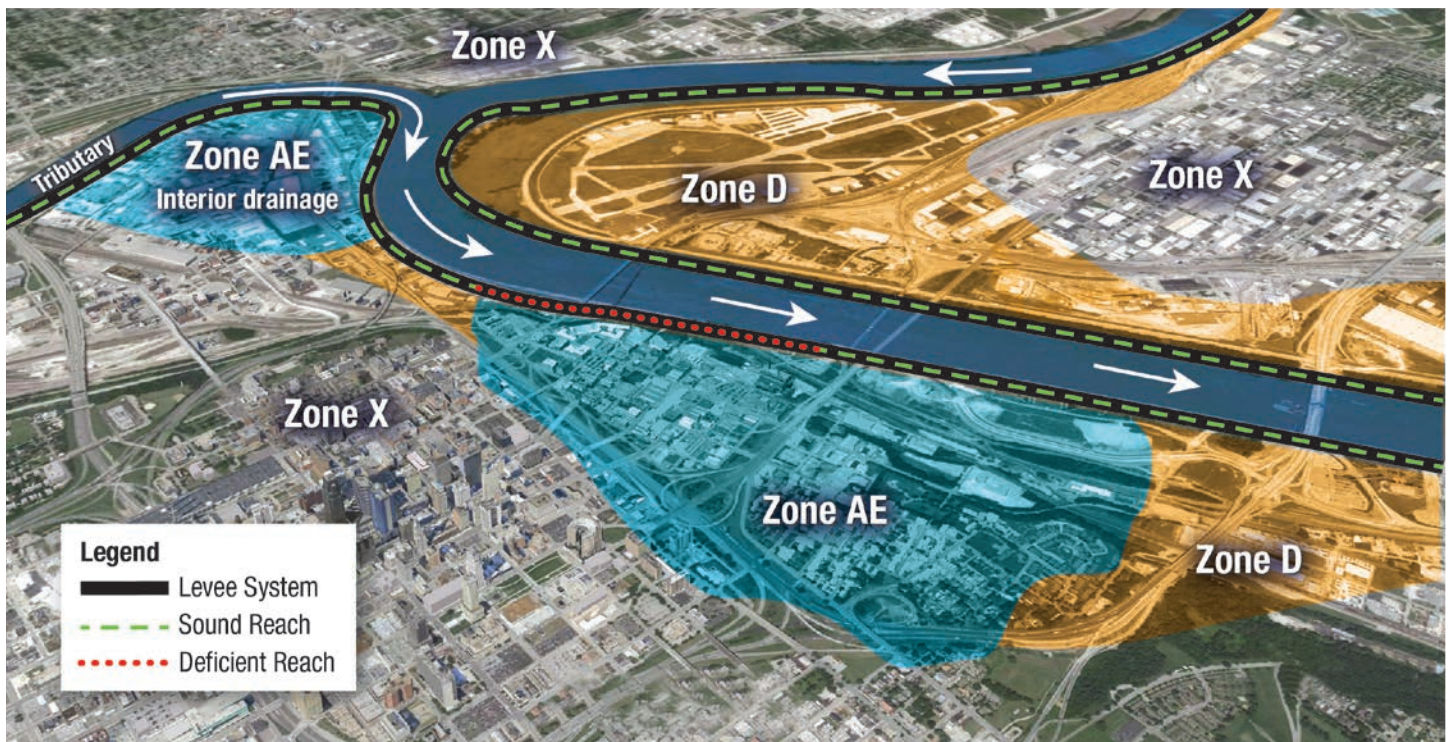


Figure 1: Flood Zone Boundaries on a Levee System

*See the Sound Reach Fact Sheet for more information on sound and deficient reaches

Floodplain Management Considerations

Because Zone D is not an SFHA, local officials have discretion over the floodplain management regulations. To reduce potential flood risk, FEMA encourages floodplain administrators to consider adopting SFHA standards in Zone D to ensure a margin of safety and risk reduction. Additional requirements may include restricting or prohibiting new development, or adopting structural elevation or floodproofing requirements in Zone D areas. To support more robust floodplain management regulations, FEMA is providing much of the same backup information for Zone D that is available for SFHAs. This includes water surface elevations, and in some cases, depth grids. It is important to note that this information is not provided on the regulatory FIRMs, but is in the backup data that is made available to communities.