Colorado Floodplain Management Workshops
February 12th and 14th, 2020
MAPPING

• Zone D
  ▪ Flood risk unknown

• Zone X
  ▪ Low to moderate risk or depths less than 1 foot/drainage area less than 1 square mile

• Approximate Study (Zone A)
  ▪ Uses Best Available Data (BAD) to show outline of floodplain
  ▪ Does not show Base Flood Elevations, but may be backed by modelling

• Detailed Study (Zone AE)
  ▪ Base Flood Elevation
  ▪ Floodway (sometimes)
  ▪ $$$... $5,000-$10,000 per stream mile, not always cost effective in rural areas
ZONE X

Low to moderate risk of flooding

- If flood potential is suspected, studies can be conducted to identify flood risk areas
- CWCB must first approve floodplain designations before local governments can regulate to them
- New studies must conform to State Floodplain Rules and FEMA technical guidelines and standards
ZONE D

Areas where there are possible but undetermined flood hazards - no analysis of flood hazards has been conducted

- Flood insurance can be quite expensive, but not federally required
- Not considered Special Flood Hazard Area
- Best Available Data may be used to guide development
ZONE A

44 CFR 60.3 states.....

(b)(3) Require that all new subdivision proposals and other proposed developments (including proposals for manufactured home parks and subdivisions) greater than 50 lots or 5 acres, whichever is the lesser, include within such proposals base flood elevation data;

(b)(4) Obtain, review and reasonably utilize any base flood elevation and floodway data available from a Federal, State, or other source, including data developed pursuant to paragraph (b)(3) of this section, as criteria for requiring that new construction, substantial improvements, or other development in Zone A on the community's FHBM or FIRM meet the standards in paragraphs (c)(2), (c)(3), (c)(5), (c)(6), (c)(12), (c)(14), (d)(2) and (d)(3) of this section;
FEDERAL, STATE, LOCAL SOURCES

• FEMA
  • Best Available Data (BAD), base level engineering

• USACE
  • Floodplain Information Reports, Technical Manuals, Computer Programs

• Geological Survey
  • Topographic Maps, Water Resource Investigations, Technical Bulletins

• Department of Transportation
  • Floodplain Studies, Design Manuals, Computer Programs

• Department of Public Works
  • Bridges, Culverts, Roads, Historical Records, Other?
OTHER SOURCES MUST….

• Reasonably reflect flooding conditions during the base flood

• Not be known to be technically incorrect

• Represent Best Available Data

• Must make use of any available flood data to achieve a reasonable measure of flood protection!
OTHER METHODS

Detailed Methods - Floodplain geometry (topography), flood discharge (hydrology), flood height (hydraulics)

Simplified Methods - Contour Interpolation; Superimpose floodplain onto topographic map to estimate BFE.

Data Extrapolation - Site must be within 500’ upstream of a stream reach for which a flood profile has be computed by detailed methods and similar channel slope

FEMA 265 Zone A Manual
• In the absence of available BFE data from other sources the community can require the structure to elevate 2’ above highest adjacent grade.
  • Equals cheaper insurance.
  • 4’ is better and substantial insurance savings.
  • May not be enough to be removed through LOMA process.
ADVANTAGES OF DEVELOPING A BFE

• Minimize and reduces future flood losses, resulting in long-term savings to the individual, community, and NFIF.

• BFE developed in Approximate Zone A could equal lower insurance ratings.

• Less burden on the permit official. Without must use judgment.

• Removal.
REVIEW

• 50 lots or 5 acres?

• Other Sources- Federal, State, Local

• Detailed Methods

• Simplified Methods

• 2’ Highest Adjacent Grade

• FEMA Publication 265- Managing Floodplain Development in Approximate Zone A Areas
  • A Guide for Obtaining and Developing Base (100-year) Flood Elevations
ZONE AE WITHOUT FLOODWAY

44 CFR 60.3 (c)(10)
Require until a regulatory floodway is designated, that no new construction, substantial improvements, or other development (including fill) shall be permitted within Zones A1-30 and AE on the community's FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.

* Colorado State Floodplain Rules and Regulations change the allowable rise to one-half foot
ZONE AE WITHOUT FLOODWAY

Options for managing development

• Map a floodway – engineering firm, grant, Silver Jackets project
• Maintain an updated HEC-RAS model for the stream
  • Request data from FEMA Engineering Library if older
  • Request technical data during restudy from FEMA or CWCB
• Require developers to provide hydraulic analysis
• Adopt no adverse impact development standards
Floodway: The channel of a river and the adjacent land areas that must be reserved in order to carry the base flood without increasing flood levels by more than a designated height, usually 1 foot (0.5ft in CO)
COMPARISON OF WITH AND WITHOUT FLOODWAY

Floodway surcharge
NO ADVERSE IMPACT

No adverse impact (NAI) floodplain management is an approach that ensures the action of any community or property owner, public or private, does not adversely impact the property and rights of others.

One way to incorporate NAI is to treat the entire floodplain as a floodway. Floodway standards are in effect across the entire floodplain and no development is allowed that would result in any increase in the base flood.

QUESTIONS?