



Floodplain Management Ordinance Revisions



Denver Public Works

Floodplain Ordinance Revisions

- ▶ **General purposes**
 - ▶ Reduce the hazard of floods to life and property.
 - ▶ Protect the public from extraordinary financial expenditures for flood control and relief.
 - ▶ Protect and preserve the hydraulic characteristics of water courses used for conveyance of flood waters.

Floodplain Ordinance Revisions

- ▶ City's Floodplain Management Ordinance
 - ▶ Preserve and promote the general health, safety, welfare, and economic being of the region
 - ▶ Minimize public and private losses
 - ▶ Required for participation in the National Flood Insurance Program (NFIP)
 - ▶ First adopted in 1986
 - ▶ Minor revisions in 1994, 1998 and 2007

Floodplain Ordinance Revisions

- ▶ **Revisions needed**
 - ▶ To comply with new State rules and regulations
 - ▶ Modernize the ordinance

- ▶ **Deadline for compliance**
 - ▶ Ordinance changes complete by January 14, 2014
 - ▶ Updated FIRMs become effective November 20, 2013

- ▶ **Failure to comply comes with ramifications**
 - ▶ Reduction or loss in CRS insurance discount (currently 10%)
 - ▶ Suspension in NFIP:
 - ▶ \$50 surcharge on all flood existing flood insurance policies
 - ▶ Flood insurance no longer available, existing policies can't be renewed
 - ▶ Ineligible for federal funding for floods (project grants, disaster assistance, etc...)

Floodplain Ordinance Revisions

▶ Acronyms

- ▶ NFIP – National Flood Insurance Program
- ▶ CRS – Community Rating System
- ▶ BFE – Base Flood Elevation
- ▶ FIRM – Flood Insurance Rate Map
- ▶ LOMR – Letter of Map Revision
- ▶ LOMR-F – Letter of Map Revision based on Fill

Floodplain Ordinance Revisions

▶ Definitions

▶ Base flood, aka 1% chance flood, aka 100-year flood:

- ▶ A flood having a one-percent chance of being equaled or exceeded in any given year. 26% chance of happening in 30 years, the timeframe of a standard mortgage. Does not mean flood will happen once every one hundred years.

▶ Base Flood Elevation (BFE):

- ▶ Elevation of anticipated water surface resulting from the base flood.

▶ Freeboard:

- ▶ Height above BFE intended to provide a margin of safety to compensate for unknown factors such as debris blockage and increased runoff due to urbanization.

▶ Floodway:

- ▶ Area of a floodplain that must be reserved in order to discharge the base flood without increasing the BFE more than one a designated height. Especially hazardous area due to high velocities, debris impact, and erosion potential.

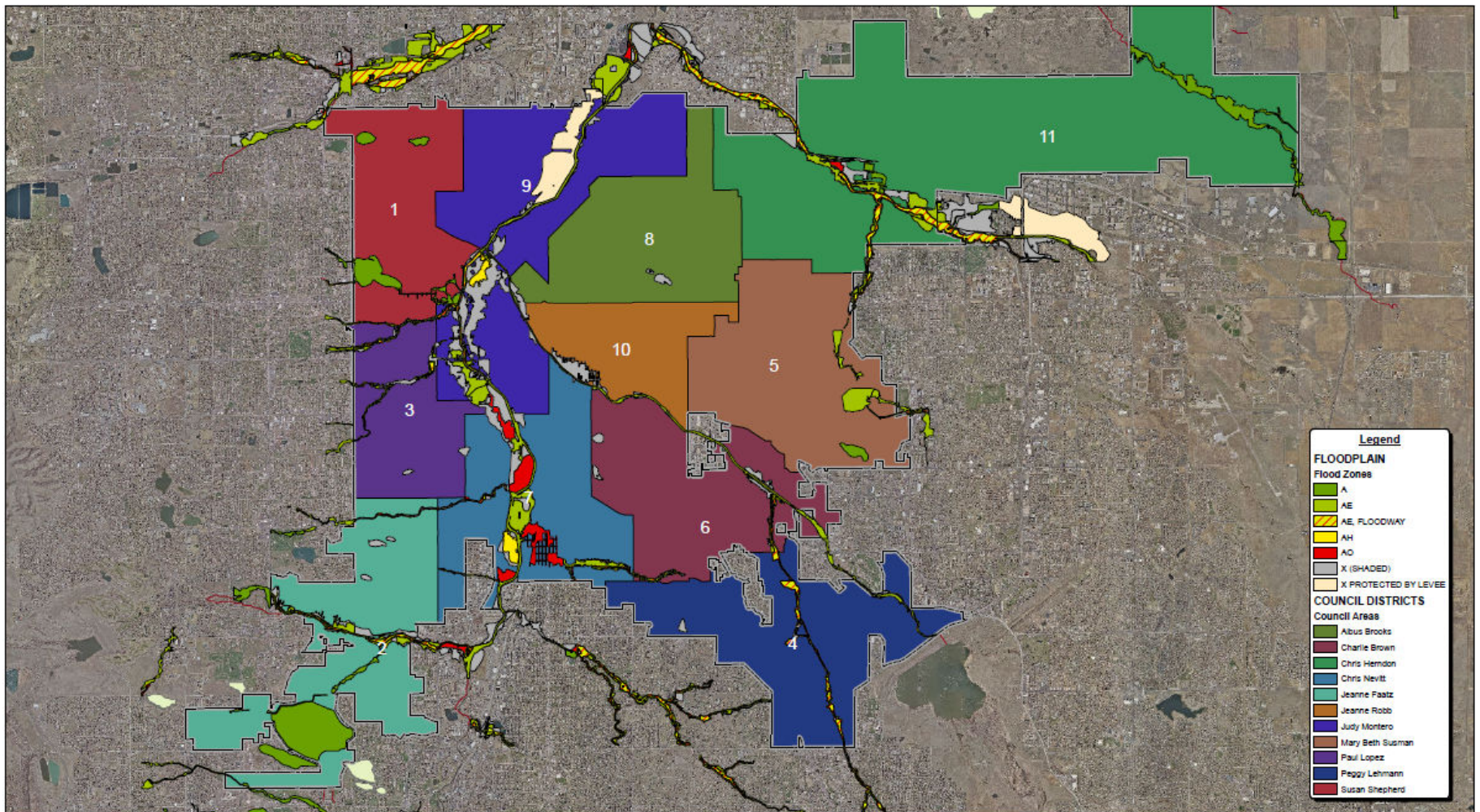
Floodplain Ordinance Revisions

▶ Summary of major changes

1. 1.5' freeboard in AO Zones (higher standard)
2. 2.0' freeboard for Critical Facilities (State reg.)
3. LOMR-F areas regulated like any other floodplain area (State reg.)
4. 0.5' floodway surcharge criteria (State reg.)
5. LOMR required for BFE change in excess of 0.3'

Floodplain Ordinance Revisions

- ▶ 1.5' of freeboard in AO zones



Floodplain Ordinance Revisions

- ▶ **1.5' of freeboard in AO zones (cont.)**
 - ▶ Currently City has no freeboard in AO Zones, but we have 1.5' of freeboard in all other regulated flood zones
 - ▶ State minimum is now 1.0' of freeboard
 - ▶ Proposed 1.5' of freeboard in AO Zones
 - ▶ Consistent & equal requirement (1.5') across all flood zones
 - ▶ Additional factor of safety in areas with less confidence in flood heights. AO Zones indicate “average depths”
 - ▶ Higher standards give additional CRS credits
 - ▶ Projects under review will be grandfathered and allowed to use regulations in place at time of submittal.

Floodplain Ordinance Revisions

- ▶ 1.5' of freeboard in AO zones (cont.)
 - ▶ Damage reduction
 - ▶ Examples with 6" of flood depth:
 - 1,200 sq-ft residence - estimated damages of \$20,000
 - 4,700 sq-ft apartment building - estimated damages of \$70,000
 - 14,000 sq-ft commercial - estimated damages of \$46,000
 - 90,000 sq-ft industrial - estimated damages of \$260,000
 - ▶ Disclaimer: Many factors and assumptions in damage estimates, these are examples for planning purposes only.
 - ▶ Source: FEMA Multi-Hazards Risk Assessment for Denver
<http://bit.ly/Yq3dVo>

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- ▶ 2.0' of freeboard for Critical Facilities
 - ▶ Essential Services
 - ▶ Police, fire and emergency operations centers
 - ▶ Hospitals
 - ▶ Communication hubs and utility plants
 - ▶ Airports
 - ▶ Hazardous Materials
 - ▶ At-risk Populations
 - ▶ Nursing homes and assisted living facilities
 - ▶ Schools (K-12), preschools and day care
 - ▶ Vital to Restoring Normal Services
 - ▶ Essential government buildings (courts, jails, public records, etc...)
 - ▶ Colleges and universities

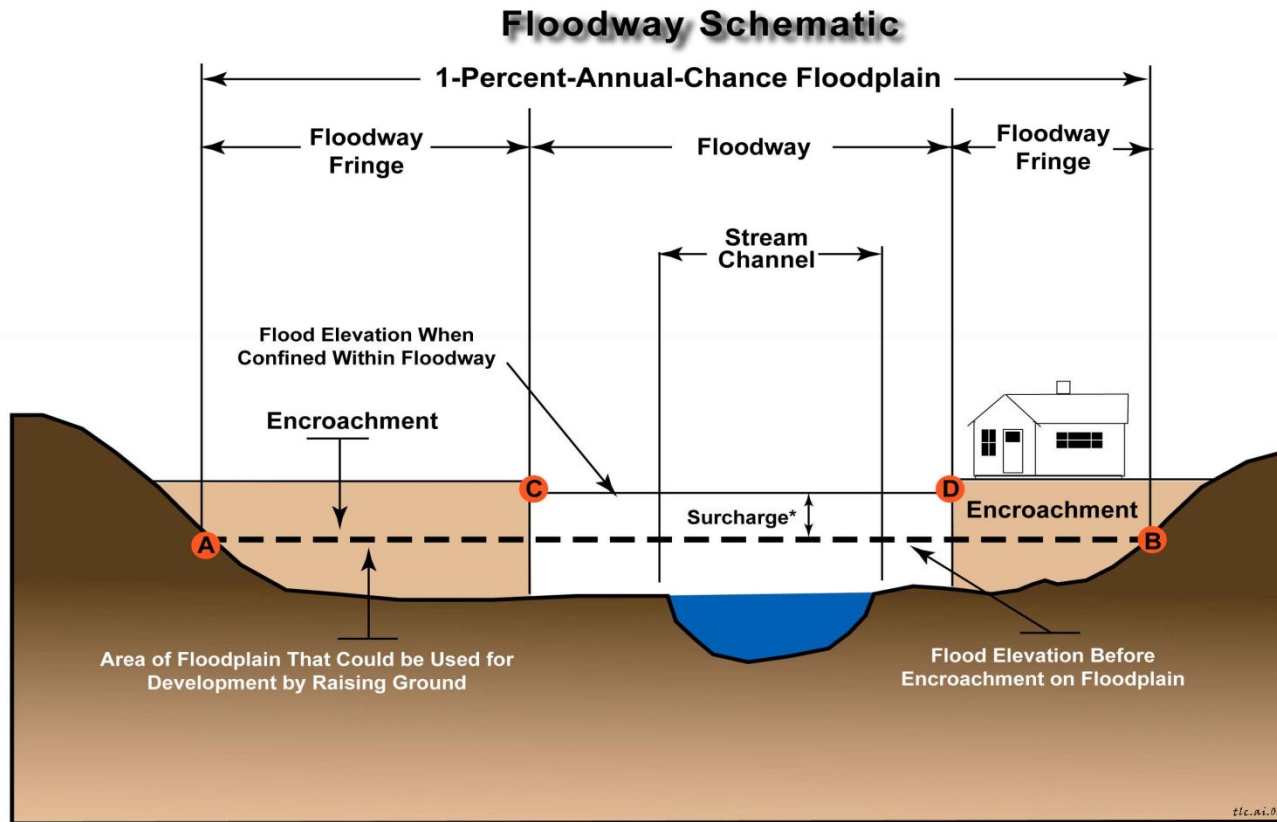
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- ▶ LOMR-F areas regulated like any other floodplain area
 - ▶ State closing a loophole in NFIP regulations
 - ▶ Property owner fills in the floodplain and obtains a LOMR-F which removes them from the floodplain, in order to build a basement.
 - ▶ Creates an island effect, but foundation walls of a basement still subject to damage or failure due to additional hydrostatic pressure from floodwaters.
 - ▶ New buildings on LOMR-F areas must be protected to elevation required prior to fill activity.
 - ▶ LOMR-F still removes property from floodplain for flood insurance purposes:
 - ▶ Removes federally mandated flood insurance purchase requirement.
 - ▶ Flood insurance can still be obtained at a much lower rate

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▶ 0.5' Floodway Surcharge Criteria

- ▶ Less encroachment allowed



Line AB is the flood elevation before Encroachment.

Line CD is the flood elevation after Encroachment.

*Surcharge is not to exceed 1.0 foot (FIA Requirement) or lesser amount if specified by State.

Source: Nebraska Dept. of Natural Resources

Floodplain Ordinance Revisions

- ▶ LOMR required for BFE change in excess of 0.3'
 - ▶ Map changes have always been required for BFE increases creating adverse impact.
 - ▶ Per State regs, map changes are now required even when decreasing the BFE more than 0.3'.
 - ▶ Historically LOMRs not completed for BFE decreases, resulting in outdated flood maps.
 - ▶ Regulation keeps maps current and allows property owners to realize flood risk reduction and flood insurance benefits due to revised mapping.

Floodplain Ordinance Revisions

▶ Notification/Review of Proposed Changes

- ▶ FEMA Region 8 mitigation and insurance specialists
- ▶ State of Colorado (CWCB)
- ▶ Urban Drainage and Flood Control District (UDFCD)
- ▶ American Society of Civil Engineers Colorado Chapter (ASCE-CO)
- ▶ Colorado Stormwater Council (CSWC)
- ▶ American Council of Engineering Companies (ACEC)
- ▶ American Institute of Architects Colorado (AIA)
- ▶ Associated General Contractors of Colorado (AGC)
- ▶ Other City Departments/Stakeholders (OEM, PW, WMD, Parks, DIA, DS)
- ▶ Council members most impacted by changes (Lopez, Nevitt, Herndon, Robb & Ortega)
- ▶ 8 RNO's (including INC) most impacted by changes

Floodplain Ordinance Revisions

Questions?

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Find Denver's floodplain maps at:

www.denvergov.org/maps/map/floodplain