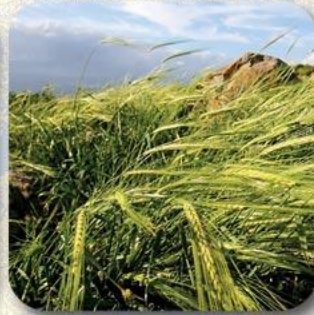


# Boulder County

## Land Use Department





**“Floods are acts of Nature; but flood losses are largely acts of man.”**

-- Dr. Gilbert White



The principal waterway in Boulder is Boulder Creek and its principal function, from which there is no escaping, is to carry off the storm-water which runs into it from the territory which it drains. If, lulled by the security of a few seasons of small storms, the community permits the channel to be encroached upon, it will inevitably pay the price in destructive floods. Again and again, this little piece of history has repeated itself on stream after stream, in town after town.

Frederick Law Olmstead  
Harvard Regional Planner in  
The Improvement of Boulder,  
Colorado, 1910

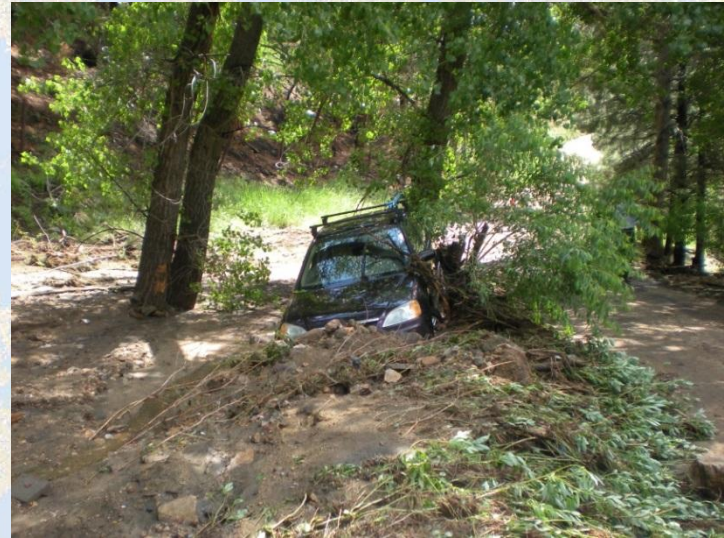
AICP Code of Ethics – Principal to which we Aspire

“We shall have special concern for the long-range consequences of present actions.”





# Context





C



DRCOG - Metro Vision Idea Exchange  
Planning for Hazards and Resiliency





# Tools and Integration

- Plans - Comprehensive Plan, Hazard Mitigation Plan, Watershed Master Plans, CIP, etc.....
- Regulations
  - Zoning
  - Subdivision
  - Floodplain
  - Building Code
- Programmatic
  - Wildfire Partners
  - BOCO Strong
  - Acquisition Program
  - Housing

Information and Education





# Comprehensive Plan

## Natural Hazards Element – Goals

- Inappropriate development in natural hazard areas should be reduced as much as possible or eliminated in order to minimize potential harm to life, health, and property.
- Efforts to mitigate existing areas as risk to the impacts of natural hazards and disasters should be made to minimize the potential for harm to life, health, and property.



Boulder County Comprehensive Plan

### NATURAL HAZARDS

Goals, Policies, & Maps Element

*Natural hazards are those natural events which may result in a threat to human life, or which endanger the works of man. Although termed "natural" hazards, it is important to note that such occurrences are often induced by people, and by definition, would not exist if not for the presence of past actions of people.*

Policies and implementation measures established in this element of the comprehensive plan are directed at 1) avoiding the placement of people and structures where these natural events occur and 2) mitigating existing areas at risk; thereby minimizing the future loss of life, property and resource damage in the county resulting from natural disasters and hazards. Through the enacting of measures contained in the natural hazards element, all planning and development decisions will come to be made upon conscious determination of the level of risk entailed. This will necessitate that accurate information on all known hazards be available to decision makers, and that the location, density or intensity of development will be limited by the degree of natural hazard present, or conditioned upon mitigation of the hazard.

Minimizing risk is an essential focus of public safety planning. Every land use or public facility action taken by local government should be based on a recognition that some risk exists. The level of risk involved then becomes critical in determining when government involvement becomes necessary or desirable. When the level of risk is unacceptable, government action may be necessary to protect citizens and property. If it is not necessary to take a risk because individual or public goals can be achieved at the same time, or with less total cost by other means, without taking the risk, then the risk involved is avoidable.

The **purpose** of the Natural Hazards Element is to avoid or reduce risk to an acceptable level which balances the cost of incorporating safety measures in planning and development actions with the benefit of protecting life and property. "Acceptable risk" is the level of hazard below which no specific action by local government is deemed necessary, other than making the risk known. It is the standard around which this element is designed. Land use and public facility actions taken by the county are presumed

The purpose of the Natural Hazards Element is to avoid or reduce risk to an acceptable level.

#### AMENDMENT STATUS

Goals & Policies	Associated Maps	Background Element
Created 10/18/95	N/A	Created 10/18/95





# BCCP Goals – indirect but just as important to outcome.

- Unique or critical environmental resources identified pursuant to Goals B.1, B.3, B.4 and B.5 shall be conserved and preserved in a manner which assures their protection from adverse impacts, with the private sector, non-county agencies and other governmental jurisdictions being encouraged to participate.
- Environmental Conservation Areas (ECAs) should be conserved and preserved in order to perpetuate those species, biological communities, and ecological processes that function over large geographic areas and require a high degree of naturalness.
- Riparian ecosystems, which are important plant communities, wildlife habitat and movement corridors, shall be protected.
- Future urban development should be located within or adjacent to existing urban areas in order to eliminate sprawl and strip development, to assure the provision of adequate urban services, to preserve agriculture, forestry and open space land uses, and to maximize the utility of funds invested in public facilities and services.





# Plan Implementation – Regulations (AKA Hammer)

- Flood Plain Regulations
- Site Plan Review
- Building Code
- Transfer of Development Credits
- “Article 19” - Post Disaster Regulations





# Code Criteria – Special Review

**“The use will not result in unreasonable risk of harm to people or property – both onsite and in the surrounding area – from natural hazards. Development or activity associated with the use must avoid natural hazards, including those on the subject property and those originating off-site with a reasonable likelihood of affecting the subject property. Natural hazards include, without limitation..... all as identified in the Comprehensive Plan Geologic Hazard and Constraint Areas Map or through the Special Review or Limited Impact Special Review process using the best available information. Best available information includes, without limitation, updated topographic or geologic data, Colorado Geologic Survey landslide or earth/debris flow data, interim floodplain mapping data, and creek planning studies.”**





# Code Criteria – Special Review

If the proposed use is approved or conditionally approved, the Board may impose such conditions and safeguards to insure compliance with the requirements, standards, and conditions of this Section 4-600. **Where development or activity associated with the proposed use cannot completely avoid one or more natural hazard, whether because no other site on the subject property can be reasonably designated or developed for the use or because the proposed site is the best location due to the need to avoid or minimize significant adverse impacts under other applicable review criteria, the use may be conditionally approved only if one or more measures will satisfactorily mitigate all significant natural hazard risk posed by the proposed use to the subject property and to the surrounding area.**





# Additional Site Plan Review Criteria

- “The site plan shall satisfactorily mitigate the risk of wildfire both to the subject property and those posed to neighboring properties in the surrounding area ...”
- “The proposed development shall not alter historic drainage patterns and/or flow rates or shall include acceptable mitigation measures to compensate for anticipated drainage impacts. The best available information should be used to evaluate these impacts, including but not limited to hydrologic evaluations to determine peak flows, floodplain mapping studies, updated topographic data, Colorado Geologic Survey landslide, earth/debris flow data, and creek planning studies.”





# Transfer of Development Credits Program

Additional “Bonus” Development Credits may be awarded for eligible building lots under Subsections 4-1303.B. and C. above, subject to the provisions of this subsection.

- Floodway mitigation – Development within the mapped floodway will be removed from the lot(s).





# Article 19



■ ■ ■ Procedures Following Disasters

## Article 19 • Procedures Following Disasters

### Purpose:

Boulder County is vulnerable to natural and human caused disasters that can damage property and cause injury or death, including wildfires, flood, hail storms, rock slides, blizzards, high winds, and tornadoes. Boulder County's Land Use Code contains provisions for rebuilding structures damaged or destroyed by means outside the control of the property owner; however, specific disaster events may warrant modified permitting and approval procedures to allow property owners to rebuild in a timely, safe, and responsible manner while also encouraging reasonable improvements in redevelopment consistent with current regulations and the Comprehensive Plan.

In addition, to respond appropriately in a disaster emergency, extraordinary actions must be taken quickly and efficiently. Some actions must occur faster than previously established permit processing timelines allow. Some actions require uses not normally allowed in certain zones, or not allowed without discretionary review, or not allowed without certain public process.

This Article addresses disaster emergency response in two ways. First, Section 19-100 grants temporary authority to certain county staff, upon the declaration of a local, state, or federal disaster emergency affecting Boulder County. Second, sections 19-200 and 19-300 include regulations tied to specific disasters, namely the Fourmile Canyon Fire of September 2010 and the Front Range Extreme Flood and Rain Event of September 2013.

- Initially drafted specific regulations for rebuilding after Fourmile Fire.
- Amended after 2013 floods with specifics for rebuilding after flood.
- Amended again with general provisions that kick in after any declared disaster.





# Article 19 - Recovery

Flood-affected residents can visit the Flood Recovery Center at 1301 Spruce Street in Boulder which houses the FRPIC and other flood recovery staff.



## FLOOD RECOVERY RESOURCE GUIDE



Spring 2015

### Successes in Flood Recovery Efforts

#### Community Development Block Grant - Disaster Recovery (CDBG-DR) Successes

A resident in Lyons was evacuated from her home on Sept. 11, 2013 and when she returned, half of her home was destroyed. The home was unlivable until volunteers helped to turn the space above the garage into a livable apartment while permanent repairs to the home were being completed. This homeowner was recently awarded up to \$81,000 in CDBG-DR funds to further repair and flood-proof her home. This funding will guarantee that her house will comply with FEMA policies and local codes, which will help her to be more resilient in the event of future floods. Interior work is about to begin, and she should be able to move back into her home before the summer.



This home in Lyons is on a path to be more resilient in the face of future disasters. CDBG-DR funds have helped to make repairs and complete flood-proofing improvements.

A mobile home resident in Boulder experienced flooding and subsequent mold contamination following the 2013 Flood. The mold growing in the walls was so severe that her asthma and overall health decreased, increasing medical bills on top of flood damage costs. After completing the CDBG-DR application, the homeowner was determined to be in the "high vulnerability" category, and her home was found to have irreparable damage. The mobile home, which was built and purchased in the 1960s, would need to be replaced. The CDBG-DR award was for up to \$75,000 for purchasing a new mobile home. The resident is currently in the process of picking out the amenities for her new home, and will soon have a safe, healthy home assembled to fit her needs.

One of the first to submit a CDBG-DR application was a family from just outside Lyons in unincorporated Boulder County. They lost their septic system and vehicle bridge in the flood and needed to replace both. Initially, the family was living in a rental property (paying both mortgage and rent), but last spring they built a foot bridge, started hauling water and moved home for the summer. They were awarded a grant of \$11,900 for the new septic system which was installed in Dec. 2014. The family was recently awarded up to \$150,000 to replace the bridge leading to their home.



#### Inside:

➤ Home Access

➤ Debris Clean-Up

➤ Consumer Protection

➤ Financial Assistance

➤ Creek Recovery & Restoration

➤ Parks & Open Space Status

➤ All-Hazards Preparedness

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# Methods for Integration

Utilize both regulatory approach and other methods to gain understanding and commitment

- Regulations are necessary but planning is key
- Build support and opportunity for productive discussion
- Time and resource hogs without the necessary “instant gratification”







## BoCo Strong formed in March 2014

Collaborative effort involving reps from Longmont, Lyons, Jamestown, city of Boulder, Boulder County, Office of Emergency Management, Watershed Coalition, Foothills United Way, Red Cross, Boulder Flood Relief and Intermountain Alliance. Meet every two weeks to guide the initiative.

### **Mission:**

BoCo Strong increases the web of connections among individuals, organizations, and governments across Boulder County to foster inclusivity, increase disaster resilience and build vibrant and prosperous communities.







Convened 22 Resilience Conversations throughout the county to learn from flood impacted residents what worked, didn't work and recommendations. What we heard was that neighbors who were connected to neighbors, resources (nonprofits, service groups, local business) and local government fared better during and after the flood.

### Successes:

- Obtained a HUD CDBG-DR Community Resiliency Planning Grant (\$300,000)
- Hired three contract staff to implement projects
- Created two websites
- Held annual Resilience Summit and Resilience Awards Ceremony in Sept. 2015 (over 150 attended)
- Convened three Resilience Networking Workshops (40-50 attended each one)
- Launched Resilience Leadership program (over 30 residents from flood impacted communities)







<http://www.wildfirepartners.org/>

Wildfire Partners provide a comprehensive, on-site assessment of your home ignition zone; a customized report detailing actions you should take; and a follow-up visit to ensure that you are fully prepared for future wildfires. By becoming a Wildfire Partner, you will improve the safety of you and your family, serve as a positive example for your neighbors, and make your community more resilient.

Program funded through Colorado Dept. of Natural Resources

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Planning for Hazards and Resiliency





# County Creek Planning



## Creek Recovery & Restoration Program

In the spring of 2014, Boulder County, in conjunction with partners and stakeholders throughout the county, created the Comprehensive Creek Planning Initiative (CCP) to develop post-flood watershed-level master plans for creek corridors most impacted by the September 2013 flood.

Post-flood master plans have now been completed for six Boulder County watersheds:

- Boulder Creek
- Fourmile Creek
- Left Hand Creek
- Little Thompson River
- St. Vrain Creek
- Upper Coal Creek

The watershed master plans identify recommended projects to restore and stabilize the watershed. Recommended projects are on private and public property and include measures such as bank stabilization, channel realignment, debris removal, re-vegetation, and restoration of the low-flow channel. The master plan documents can be found on the Watershed Pages below. For more information on the Comprehensive Creek Planning Initiative, see the [History & Background](#) page.





# Integration of Hazard Mitigation Plan

**Opportunity!**  
Integrate Comprehensive  
Plans and HMPs.



## Hazard Mitigation Plan

Boulder County

2014 - 2019





# Keys to integration/lessons learned

- Plan for it!/Make time for it! (What do you need to do? Who are partners? What are state and federal requirements?)
- Education – community and staff
- Involve all your partner permitting and approval agencies
- Work with community in ongoing efforts and gain understanding of community needs and design recovery (resiliency) around the community.
- Understand any event/disruption is unique – be dynamic (or when it hits the fan be prepared to adjust to flying debris.) Try and keep perspective on long term mitigation and avoidance. See Plan for it above.





“...a great disparity temporal disparity between the pace at which the mountains behave and the way people think. Debris flows do not occur every possible season... Exceptional flows are frequent, in other words, but not frequent enough to deter people from building pantile mansions in the war zone, dingbats in the line of fire.”

p. 203 The Control of Nature by John McPhee, 1989

It's a fantastic place to be in a storm...You hear a sound like castanets— boulders clicking together. They're not pebbles. And there is a scent which is absolutely heavenly, of the crushed chaparral plants. It's so fragrant and beautiful it's eerie to have it associated with something so terrifying. And, God knows it is terrifying.”  
-- so why do you live here? “Freedom”

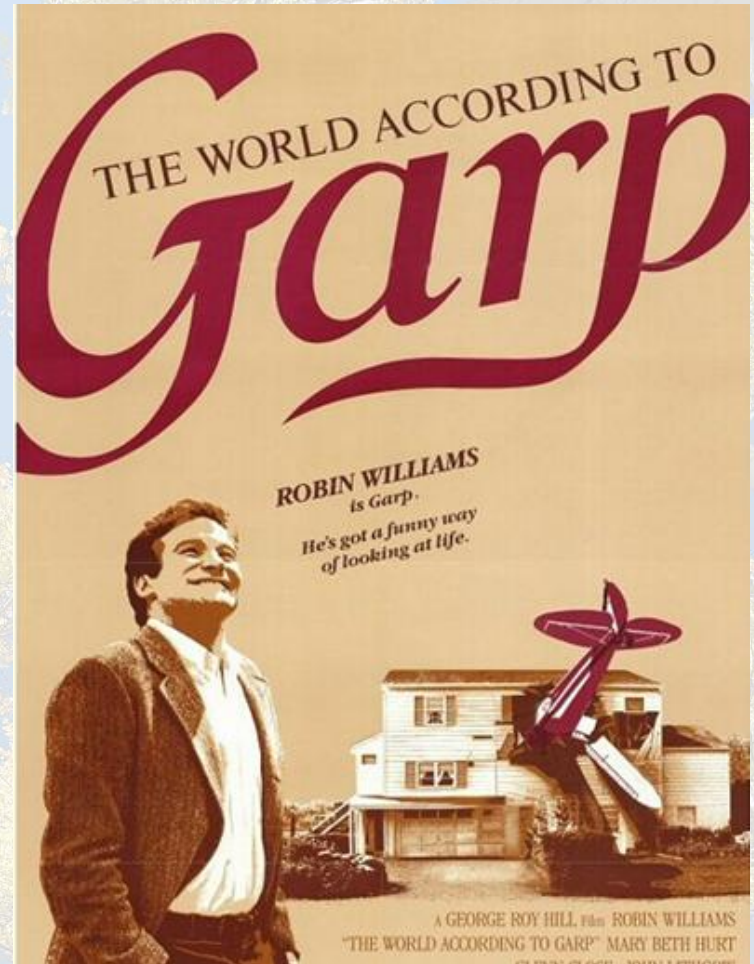
p. 237 The Control of Nature by John McPhee, 1989





## Garp Mentality

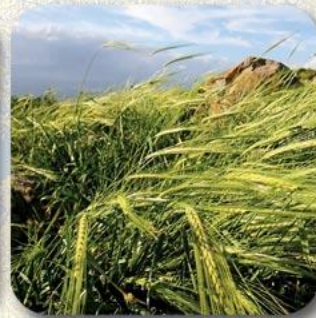
“will take it.... The odds of this happening again are astronomical. She’s been pre-disastered, we will be safe here.”





# Boulder County

## Land Use Department



Dale Case  
[dcase@bouldercounty.org](mailto:dcase@bouldercounty.org)