



# Community Planning & Permitting

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## BOULDER COUNTY PLANNING COMMISSION

Wednesday, May 20, 2020, at 1:30 p.m.  
Via Microsoft Teams

### PUBLIC HEARING

#### **Docket BCCP-20-0001: BOULDER COUNTY COMPREHENSIVE PLAN UPDATE: GEOLOGIC HAZARD AND CONSTRAINT MAPPING RELATED AMENDMENTS TO THE GEOLOGY ELEMENT**

*Staff:* Chad Endicott, Long Range Planner I, Community Planning & Permitting

*Please note that this public hearing will be held remotely due to COVID-19.*

### AGENDA

1. Staff presentation
2. Questions for staff
3. Public Comment
4. Opportunity for response
5. Planning Commission discussion
6. Planning Commission decision

### INTRODUCTION

The purpose of this item is to request Planning Commission approval for updating the Geology Element of the Boulder County Comprehensive Plan (BCCP). This update incorporates improved geologic hazard and constraint mapping that represents the best available data of geologic hazard features in the county. The updated mapping provides Community Planning & Permitting with the ability to evaluate geologic hazards and constraints in the county to ensure that properties are developed in a manner that addresses potential risks.

Minor revisions to the Geology Element of the BCCP also include updates to the definitions and policy sections of the element and a new land use guidelines table for providing further guidance when reviewing development on properties with potential geologic hazards. During a public hearing held on February 19, 2020, the proposed changes to the Geology Element were presented to and approved by the Boulder County Planning Commission (PC), with recommendations to include suggested edits from referral comments provided by the Colorado Geological Survey (CGS) in a letter dated February 12, 2020. The suggested edits from CGS, among other relevant referral comments, are included in the revisions to the Geology Element included in this staff report. On March 31, 2020, these edits to the Geology Element were presented to the Board of County

Commissioners (BOCC) during a public hearing to solicit their comments for PC consideration. The final draft of the Geology Element incorporates the feedback received from the BOCC.

## **BACKGROUND**

The existing Geology Element and Geologic Hazard Mapping of the BCCP were last updated in 1984 and 1978, respectively. In 2017, the county updated its geologic hazard and constraint mapping with grant funds<sup>1</sup> following the 2013 flood event. The extreme flood event altered the landscape, making some areas more susceptible to geologic hazards, and it increased awareness of the importance of understanding the geologic hazards and constraints present in the county. In March 2018, staff presented the Planning Commission (PC) with a detailed update on the mapping progress undertaken by the county's consultants (Cesare, Inc. and TerraCognito GIS Services, Inc.). Planning Commission and the Board of County Commissioners requested quality control and peer review feedback from the Colorado Geologic Survey (CGS), with plans to ultimately seek BCCP adoption of revised mapping to replace the current geologic hazard and constraint areas map. Cesare, Inc. has executed minor map revisions based on CGS feedback.

The county is updating the Geology Element of the BCCP to ensure the county's policies and guidelines reflect the new geologic hazard and constraint mapping completed by Cesare, Inc. Revisions to the Geology Element expand upon the definitions, policies, and land use guidelines concerning geological hazards and constraints.

## **SUMMARY OF PROPOSED CHANGES**

Changes to the county's geologic hazard and constraint mapping include increasing the level of granularity with high resolution digitized mapping, improved information related to landslide and rockfall susceptibility, and delineating the "steeply dipping heaving bedrock zone" within the county. The detailed geologic hazard and constraint maps provide the county and the public with guidance for making informed land use decisions.

Proposed language changes to the Geology Element of the BCCP incorporate the updated geologic hazards and constraint mapping results to provide further guidance for reviewing and approving development on properties with geologic hazards and constraints. An expanded "Definition" section of the Geology Element reflects the terminology in the new geologic hazard and constraint maps. Additionally, the updated Geology Element includes a new section named "Geologic Hazard and Constraints – Guidelines Table and Map" with recommended guidance by Cesar Inc. for which types of studies should be required when various mapped hazards exist on a property. Lastly, minor revisions to the "Policies" section are included to provide further guidance to staff and the public for developing in areas with geologic hazards and constraints.

## **PC/BOCC FEEDBACK AND PROPOSED CHANGES OVERVIEW**

Staff presented the draft Geology Element amendments to the Planning Commission during a public hearing on February 19, 2020. During the public hearing, the Planning Commission provided the following recommendations for staff:

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<sup>1</sup> Grant funding was provided by the U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant-Disaster Recovery (CDBG-DR) program, administered by the Colorado Department of Local Affairs (DOLA).

- Expand the Undermined Areas definition to include all types of mining, not just coal undermined areas shown on the hazard mapping where the hazards are most prevalent.
- Based on referral comments from the Colorado Geological Survey, Planning Commission wanted to see language throughout the updated sections to not limit geologic hazards and constraints to those presented in the Geologic Hazard and Constraints maps and within the Land Use Guidelines Table for development review.
- Clarify that the studies within the Land Use Guidelines and Table are recommendations and not requirements.
- Planning Commission suggested publishing individual map layers for public viewing since the composite map is complex and can be hard to determine what is going on with a particular property. This is something staff will continue to look into the publishing of this element and accompanying mapping to increase usability by the public.

Proposed changes that incorporate the recommendations provided by the Planning Commission are shown in **blue** within the draft Geology Element as shown in Appendix A.

Staff presented the draft Geology Element amendments (including the changes in **blue**) to the Board of County Commissioners during a public hearing on March 31, 2020. During the public hearing, the Board of County Commissioners provided the following recommendations for staff:

- Suggestion to update Policy GE 1.01: Development in Geologic Hazard and Constraint Areas, to make the language more preventive to ensure the development was not occurring in hazardous areas unless there was an extraordinary circumstance with adequate mitigation.
- Re-consider the inclusion of the Fluvial Hazards definition that was removed in the last round of edits presented to the Planning Commission on February 19, 2020.

Proposed changes that incorporate the recommendations provided by the Board of County Commissioners are shown in **blue** and highlighted in yellow within the draft Geology Element as shown in Appendix A.

## **REFERRAL RESPONSES**

Staff circulated a referral memo on January 29, 2020, and again on February 5, 2020, with the updated draft Geology Element amendments to solicit feedback from groups on the Department of Community Planning & Permitting’s [Referral Agencies list](#). The referral memo was also posted on the Geology Element update <https://boco.org/bccp-20-0001>. Most responses received had ‘no conflicts,’ and all referral comments with suggested changes and those with no recommendations are included within the staff report for the Planning Commission Public Hearing held on February 19, 2020, and within Appendix B of this staff report. An additional public comment for Planning Commission consideration was received on May 11, 2020 and is included within Appendix B as well. Minor revisions have been made to reflect substantive feedback that led to a change in the proposed “Definitions,” “Policies,” or the “Geologic Hazard and Constraints – Guidelines Table and Map” sections. Additional comments received that are not incorporated into this latest round of revisions will be considered for changes in implementing the policies of the Geology Element under Land Use code provisions and/or development review processes.

## **AMENDMENT PROCESS**

The amendments proposed here have been presented to Planning Commission (February 19, 2020) and presented to the Board of County Commissioners (March 31, 2020). During both public hearings,

members of the public were invited to participate. We are now at the step where staff is presenting a final draft to Planning Commission for adoption.

After a comprehensive plan amendment is adopted, Planning Commission will adopt and sign a resolution certifying the changes to the Board of County Commissioners. The Board of County Commissioners will then note receipt of the resolution at a business meeting.

## **ACTION REQUESTED**

Staff requests that the Planning Commission approve the proposed amendments to the Boulder County Comprehensive Plan and adopt docket BCCP-20-0001.

## **LIST OF RESOURCES**

- Cesare Inc.'s full March 2017 report: <https://assets.bouldercounty.org/wp-content/uploads/2017/06/cesare-geologic-hazard-study-boulder-county-20170331.pdf>
- The October 2017 addendum to the report: <https://assets.bouldercounty.org/wp-content/uploads/2018/03/cesare-geologic-hazard-study-boulder-county-addendum-1-20171010.pdf>
- Geologic Hazard Study Staff Report to Planning Commission, March 21, 2018: <https://assets.bouldercounty.org/wp-content/uploads/2018/03/geologic-hazard-study-staff-report-to-planning-commission-20180321.pdf>
- BCCP Geology Element Amendments Staff Report to Planning Commission, February 19, 2020: <https://boco.org/bccp-20-0001>
- BCCP Geology Element Amendment Staff Report to Board of County Commissioners, March 31, 2020: <https://boco.org/bccp-20-0001>
- Updated Geologic Hazard Mapping website: <https://www.bouldercounty.org/property-and-land/land-use/planning/geologic-hazard-mapping/>

# APPENDIX A: DRAFT GEOLOGY ELEMENT AND GEOLOGIC HAZARDS & CONSTRAINT AREAS MAP

## I. GEOLOGY ELEMENT

### A. INTRODUCTION

*In view of the geologic diversity of Boulder County as described in the Geology Element and the multiplicity of existing and foreseeable land uses, it is intended that the land use policies presented here shall provide clear direction in the formulation and implementation of the county Land Use decisions so far as geological factors are concerned. To these ends, it is necessary that reference be made to certain geographic areas. Accordingly, reference will be made, as appropriate, within the text of the definitions and policies to areas on the Mineral Resource Areas Map and the Geologic Hazards and Constraint Areas Map. Furthermore, it is the intent of the policies to 1) move toward the attainment of the adopted goals for the Boulder County Comprehensive Plan as directed in Goal Statements B.1 and B.2, and 2) fulfill the county's obligation to implement a Master Plan for Extraction of Commercial Mineral Deposits pursuant to 30-28-106(c), CRS.*

Amendment Status

### DEFINITIONS

~~In the interest of clarity in interpreting the land use policies, it is necessary to define certain terms. For these purposes, the terms, titles, and phrases, shall be defined as follows:~~

#### ~~Land Uses~~

~~**Intensive uses:** Those land uses which include any structures used for supporting or sheltering any human use or occupancy; and/or facilities or improvements which tend to attract congregations of people.~~

#### ~~Geologic Hazards & Constraints~~

~~**Geologic hazard:** A geologic condition or geologic process which poses a significant threat to health, life, limb, or property.~~

~~**Geologic constraint:** A geologic condition which does not pose a significant threat to life or limb, but which can cause intolerable damage to structures.~~

~~**Colorado Professional Geologist:** A person engaged in the practice of geology and who meets the requirements outlined in Colorado Revised Statute 23-41-208.~~

~~**Debris Flow:** A flowing mass of loose mud, sand, sediment, rock, debris, water, and air that travels by gravity down a slope, entraining debris in their paths.~~

- ~~• **Debris Flow Susceptibility:** areas modeled to have debris flow susceptibility based on geologic, topographic, geomorphic, and other characteristics associated with a debris flow.~~

~~**Expansive Soil and Bedrock:** Soil or bedrock containing clay with the tendency to volumetrically change based on moisture content (shrink when dry and expand when wet). Expansive soils that shrink and swell can damage roads, structural foundations, and other built structures.~~

**Fluvial Hazards:** Areas susceptible to fluvial hazards based on the area a stream has occupied in recent history, could potentially occupy, or could physically influence as it stores and transports sediment and debris during flood events.

**Geologic Constraint:** A geologic condition which can cause intolerable damage to structures, but does not present a significant threat to health, life, or limb. ~~A geologic condition which does not pose a significant threat to life or limb, but which can cause intolerable damage to structures.~~

**Geologic Hazard:** A geologic condition or geologic process which presents a threat to health, life, limb, or property. Geologic Hazard Areas include but are not limited to those shown on the Geologic Hazards Map as areas where geologic conditions have been either documented, approximated, or determined susceptible through modeling. Depending on the geologic hazard(s) present, these areas are associated with nominal to extensive geotechnical issues with the potential to cause intolerable damage to structures and a variable level of risk related to construction or land use purposes.

**Intensive uses:** Those land uses which include any structures used for supporting or sheltering any human use or occupancy; and/or facilities or improvements which tend to attract congregations of people.

**Landslide:** An outward or downward movement of a mass of soil and rock, containing a distinct rupture surface or zone of weakness which separates and distinguishes the slide materials from more stable underlying material.

- **Landslide Inventory:** documented landslides, published landslides and landslides identified using high resolution LiDAR terrain surface.
- **Landslide Susceptibility:** areas modeled to have landslide susceptibility based on geologic, topographic, geomorphic, and other characteristics associated with slope instability.

**Rockfall:** Rapid free-fall of large masses of rock or individual rocks of variable sizes and composition which bounce, slide, or roll downslope. Rockfalls can occur where a rockfall source (exposed bedrock cliffs, unconsolidated material containing boulders) overlies a steep slope.

- **Rockfall Susceptibility:** areas modeled to have rockfall susceptibility based on rock outcrops and source zones, topographic, and other characteristics associated with rockfall.

**Steeply Dipping Heaving Bedrock:** A geologic hazard condition where the presence of steeply dipping bedrock layers with high swell potential can result in severe differential heaving of bedrock and damaging levels of movement of foundations, roads, subsurface utilities, concrete flatwork, and other built structures.

**Subsidence:** Collapse of the ground surface over subsurface voids or settlement over native, low density soils. Subsidence can occur suddenly or slowly over a long period of time.

**Undermined Area:** An area underlain by ~~coal mine workings~~any previous mining activity, with the potential for subsidence of the ground surface due to collapse of underground mine voids. Holes,

cracks, troughs, sags, and other subsidence features can develop suddenly or gradually over many years as subsurface material shifts and falls downward into the abandoned mine area.

~~**Major Hazard Area:** That area, or those areas, as shown on the Geologic Hazards and Constraint Areas Map where geologic conditions are such that extensive geotechnical problems exist and there is high risk related to intensive land uses.~~

~~**Moderate Hazard Area:** That area, or those areas, as shown on the Geologic Hazards and Constraint Areas Map where geologic conditions are such that significant geotechnical problems exist and there is provisional risk related to intensive land uses.~~

~~**Moderate Constraint Area:** That area, or those areas, as shown on the Geologic Hazards and Constraint Areas Map, where geologic conditions are such that moderate geotechnical problems exist and there is provisional risk related to intensive land uses.~~

~~**Minor Constraint Area:** That area, or those areas, as shown on the Geologic Hazards and Constraint Areas Map where geologic conditions are such that few geotechnical problems exist and there is no risk or nominal risk related to intensive land uses.~~

Sidebar: The Mineral Resources Areas Map & the Geologic Hazards & Constraint Areas Map are both associated with the Geology Element. The Geologic Hazards Map is also associated with the Natural Hazards element.

### **Aggregate Resource Area**

That area, or those areas, as shown on the Mineral Resource Areas Map, which are considered to be underlain by “commercial mineral deposits” as defined by 34-1-102(1) CRS and which are intended under the provisions of Colorado House Bill 1529 of 1973, to serve as resource preservation areas as part of *Boulder County’s Master Plan for Extraction*. Aggregate Resource Areas are further defined by way of statements which are part of Policies GE 1.06 -GE 1.08 below.

### **Lode Mineral Area**

That area, or those areas, as shown on the Mineral Resource Areas Map where mineral ores occur in veins or zones of enrichment in the basement complex rocks.

Sidebar: Swelling soils, floodways, & steep slopes are examples of geologic hazards and constraints.

### **GEOLOGIC HAZARD AND CONSTRAINTS - GUIDELINES TABLE AND MAP**

The BCCP Geologic Hazards and Constraints Map and policies within the BCCP Geology and Natural Hazards elements make reference to the geologic hazards and constraints listed in the following table. The table provides guidance regarding the treatment of prevalent hazards or constraints for purposes of reviewing and approving development on properties with such characteristics. This table, however, should be used as a starting point in the identification of the hazards and constraints referenced, but not limited to them as additional hazards and constraints may be identified during a site-specific investigation. A property can be deemed to possess the listed geologic hazards or constraints based on the Geologic Hazards Map data or based on a site assessment that indicates the mapped features to be inaccurate.



**A potentially hazardous feature is deemed either a “hazard” or a “constraint” based on the outcomes of an appropriate study, per the guidelines outlined in Table 1.**

*Table 1. Review and Approval Guidelines for Properties with Geologic Hazards and/or Constraints*

<b><u>Geologic Hazard or Constraint</u></b>	<b><u>Land Use Guidelines</u></b>	<b><u>Recommended Site-Specific Study</u></b>		
		<b><u>Geotechnical</u></b>	<b><u>Geologic Hazard</u></b>	<b><u>Subsidence</u></b>
<b><u>Landslide</u></b>	<u>Developable subject to results of recommended site-specific study completed by a qualified professional geologist. Development should be guided away from areas with landslide susceptibility. The impact of landslides on foundations, slope stability, grading plans, retaining walls, septic drain fields, and other proposed structures should be carefully studied by a qualified professional.</u>	<u>X</u>	<u>X</u>	
<b><u>Debris Flow</u></b>	<u>Developable subject to results of recommended site-specific study completed by a qualified professional geologist. Development should be guided away from areas with debris flow susceptibility. Where avoidance is not possible, mitigation options must be presented which adequately manage and reduce the hazard and which do not adversely impact or increase the hazard on neighboring properties.</u>	<u>X</u>	<u>X</u>	
<b><u>Rockfall</u></b>	<u>Developable subject to results of recommended site-specific study completed by a qualified professional geologist. Development should be guided away from areas with rockfall susceptibility. In the cases where proposed development cannot avoid the hazard, rockfall mitigation options must be presented which will adequately reduce the hazard and which do not adversely impact or increase the rockfall hazard on neighboring properties.</u>	<u>X</u>	<u>X</u>	
<b><u>Expansive Soil and Bedrock</u></b>	<u>Developable subject to results of recommended site-specific study completed by a qualified professional geologist. Design of foundations must be appropriate to address the swell potential of the subsurface materials.</u>	<u>X</u>		
<b><u>Steeply Dipping Heaving Bedrock</u></b>	<u>Developable subject to results of recommended site-specific study completed by a qualified professional geologist. It must be demonstrated that steeply dipping heaving bedrock hazard does not exist at the site, or if it does exist, present adequate mitigation methodologies.</u>	<u>X</u>	<u>X</u>	
<b><u>Undermined Area</u></b>	<u>Areas identified to be undermined by abandoned coal-mines should be considered for non-structural land use, unless it can be demonstrated that the subsidence hazard does not exist for the proposed development. In the event a proposed structure is sited within or near an undermined area, the site should be considered developable subject to the results of the site-specific subsidence study.</u>	<u>X</u>	<u>X</u>	<u>X</u>

## **B. POLICIES**



[NOTE for reviewer: All policy titles are new proposed content. Parentheses will be removed when the proposed content is finalized.]

## Geologic Hazards & Constraints

**GE 1.01 (Development in Geologic Hazard and Constraint Areas).** ~~The county shall strongly discourage intensive uses in Major Hazard Areas.~~ The county strongly discourages development in Geologic Hazard and Constraint areas. The county may develop programs to mitigate existing development and will only allow development in Geologic Hazard and Constraint areas when a project poses low risks (trails, etc.), or it is an infrastructure project without viable alternative locations. In any case, new development in a hazard or constraint area will need adequate mitigation approved by county staff, and only allows development in these areas when adequate mitigation can be demonstrated. The county refers to the guidelines and recommendations for studies presented in Table 1 (“Review and Approval Guidelines for Properties with Geologic Hazards and/or Constraints”) when reviewing proposals for development on properties possessing the geologic hazards and constraints listed and described in the table. Additional geologic hazards and constraints may be identified through a site-specific study in addition to those listed in Table 1 and the Geologic Hazards and Constraints Map. A geologic hazard study should be required and performed by a qualified Colorado Professional Geologist and a qualified professional (geotechnical) engineer for sites with the conditions geologic conditions listed herebelow, and development approval should be subject to the applicant completing the recommendations provided in the completed study. A geologic hazard study must be signed by the professional who prepared or certified the given study. Moreover, site-specific geologic hazard studies should be reviewed by an independent party either by the Colorado Geological Survey or an independent qualified professional geologist and/or an independent qualified geotechnical engineer.

- Documented landslide, debris flow or rockfall deposit or event.
- Landslide hazard susceptibility.
- Debris flow hazard susceptibility.
- Rockfall susceptibility.
- Steeply Dipping Heaving Bedrock mapped extents within property boundaries.
- Undermined Area mapped extents within or near property boundaries.

**GE 1.02 (Transfer of Development Rights and Development Credits for Properties with Limited Development Potential).** ~~The county will consider a property’s geologic hazards, and the limitations those hazards place on a property’s development potential, when assessing a property’s eligibility as a transferable development rights (TDR) sending site, or for creating bonus development credits. shall discourage intensive uses in Moderate Hazard Areas.~~

~~**GE 1.03 (Intensive Uses in Geologic Constraint Areas).** Where in the public interest it may be desirable to permit intensive uses, the county shall direct such uses toward Geologic Constraint Areas rather than toward Geologic Hazard Areas.~~

**GE 1.04 (County Cooperation with Municipalities).** The county shall cooperate fully with the municipalities of the county with respect to the evaluation and mitigation of geologic hazards and constraints located within the unincorporated areas of the mutually adopted city and county comprehensive plans.

**GE 1.05 (Evaluation of Geologic Hazards and Constraints in Unincorporated Areas).** The county shall require the evaluation of all county-wide geologic hazards and constraints as appropriate to

~~reflect conditions that may change following natural disasters where such hazards or constraints may exist in unincorporated areas of the county as related to new intensive uses.~~ Such evaluations shall be conducted by a qualified Colorado Professional Geologist with knowledge and experience with the geology and geologic hazard conditions of Boulder County ~~professional practitioner having expertise in the subject matter~~. Such evaluations should incorporate analytical methods representing current, generally accepted, professional principles and practice. Additionally, evaluations will be reviewed by the Colorado Geological Survey or an independent qualified professional geologist and/or an independent qualified geotechnical engineer.

## Mineral Resources

**GE 2.01 (Commercial Mineral Deposits)** The county shall consider the following deposits, as mapped by Schwochow et. al., (Special Publication 5B, *Colorado Geological Survey*, 1974) to be “commercial mineral deposits” as defined by 34-1-102(1) CRS.

- a) “...fine-grained igneous rock...” in  
Township 2 North, Range 71 West; and,  
Township 3 North, Range 71 West.
  - a. “Site-specific information which became available subsequent to the adoption of the *Boulder County Comprehensive Plan* and the Master Plan for Mineral Extraction indicates that the Geer Canyon area (Sections 12, 13, 14, Township 2 North, Range 71 West) is extremely sensitive in terms of potential blasting effects and impacts upon surrounding residential areas and environmental quality.” (Approved by Planning Commission 12/3/ 80, not approved by Board of County Commissioners)
- b) “F1” deposits in Ranges 69 and 70 West.

**GE 2.02 (Delineation of Aggregate Resource Areas).** Aggregate Resource Areas shall be delineated utilizing certain portions of areas which are underlain by “commercial mineral deposits” as those deposits are defined in Policy GE 2.01.

**GE 2.03 (Lands Excluded from Aggregate Resource Areas).** Pursuant to Policy GE 2.02 and the provisions of 34-1-304(1)(a-g) CRS, the county shall not include in its Aggregate Resource Areas, the following lands:

- a) those areas defined and mapped in the Environmental Resources and Agricultural Elements as:
  - 1. “Critical Wildlife Habitat”
  - 2. “Agricultural Lands of National and State-wide Importance”.
  - 3. “Designated Natural Landmarks and Natural Areas”.
- b) those areas defined and mapped in the Geology Element where:
  - 1. existing development effectively precludes extraction; or,
  - 2. extraction has been completed.

- c) those unincorporated areas in the county lying within adopted community service areas where existing or previous capital improvement commitments effectively preclude mineral resource designation.
- d) those areas remaining after the exclusions contained in Items a-c, above, where the contiguous surface area underlain by a commercial mineral deposit is 20 acres or less.
- e) those parcels remaining after the exclusions contained in Items a-d, above, where the surface area underlain by a commercial mineral deposit is 20 acres or less.
- f) any specific site the mineral extraction from which would not be appropriate in light of the countervailing factors listed in 34-1-304(1), CRS.

Sidebar: [In Boulder County, open mining requires Special Use Review.](#)

**GE 2.04 (Intensive Uses in Aggregate Resources Areas).** The county shall strongly discourage intensive uses in Aggregate Resource Areas.

**GE 2.05 (Regulation of Open Mining and Accessory Activities).** Whether within or without a designated aggregate or other resource area, the county shall prohibit or regulate, including by Special Use Review and the like, the open mining of any mineral or earthen material including, but not limited to, limestone, coal, peat, quarry aggregate, sand and gravel, sandstone, building stone, topsoil, common borrow, clay, shale, gold, lead, silver, zinc, copper, uranium, tungsten, and fluorspar as well as all accessory activities related thereto.

It is emphasized that the extraction plan is fundamentally and primarily a preservation plan and that these portions of the county's commercial aggregate deposits shall be protected from the encroachment of land uses which tend to inhibit or preclude extraction so that the options of future decision-makers will remain open in considering the demand for aggregate. Conversely, it is not intended that an applicant for the extractive land use in an Aggregate Resource Area shall automatically be assured of success in lieu of addressing all environmental concerns. Nor is it intended that extractive land uses shall be denied outside the Aggregate Resource Areas. Rather, it is reemphasized that the extraction master plan shall insure the availability of and adequate supply of quality aggregate over the next 30 years so far as can be reasonably estimated. (Approved by Planning Commission 12/3/80, not approved by Board of County Commissioners.)

Sidebar: [The requirement for reclamation of mined land is usually a cooperative effort between the county & the Mined Land Reclamation Board.](#)

**GE 2.06 (Geothermal Resources).** The county shall regulate the exploration for, development of, and production of geothermal resources as well as all accessory activities related thereto, to the extent permitted by state statutes.

**GE 2.07 (Subsurface Coal).** The county shall regulate the subsurface mining, gasification, liquification, and methane desorption of coal as well as all accessory activities related thereto.

**GE 2.08 (In Situ Leaching).** The county shall regulate the mining of any mineral by means of in situ leaching as well as all accessory activities related thereto.

**GE 2.09 (Subsurface Mining in Montane and Alpine Subprovinces).** Whereas subsurface mining in the Lode Mineral Areas in the recent past has been, and in the foreseeable future will probably remain, of limited scope and impact, it shall presently be county policy to consider subsurface mining in the Montane and Alpine Subprovinces (as defined in the Geology Element background

information) and its accessory activities, to be a permitted land use subject to the procurement of an appropriate administrative permit in compliance with attendant criteria.

However, whereas the lode mineral deposits of Boulder County are of such magnitude and diversity that it is conceivable that subsurface mining of major scope and impact may be initiated, the county shall continuously monitor and evaluate the scope of subsurface mining in said Subprovinces and, on recommendation from the county Planning Staff or by petition from the citizens of the county, the county Planning Commission may recommend to the Board of County Commissioners that such subsurface mining be regulated and that the county land use regulations be so amended.

**GE 2.10 (Land Reclamation).** In cooperation with the Colorado Mined Land Reclamation Board and its staff, the county shall require that all “affected land” as defined by Colorado Statute, be reclaimed whether the subject mining activity shall have been open mining or subsurface mining.

## **Groundwater**

**GE 3.01 (Groundwater Quality and Supply).** The county shall render land use decisions consistent with the preservation or improvement of groundwater quality as well as the conservation of groundwater supplies.

**GE 3.02 (Adequacy of Water Supply for Intensive Land Uses).** Whereas (1) geological conditions in some areas of the county, as described in the Geology Element, are such that dependable or potable groundwater supplies may not be available for intensive land uses; and (2) applicants for intensive land uses may specify that groundwater shall be partially or solely utilized as a water source, the county’s land use regulations shall require that said applicants furnish hydrogeological or other acceptable evidence to establish that definite provision has been made for a water supply that is sufficient in terms of quantity, dependability, and quality for the intensive use proposed.

*Sidebar: Geologic conditions in some areas of the county are such that dependable or potable groundwater supplies may not be available for intensive land uses.*

## **Oil & Gas Exploration & Development**

Boulder County recognizes the existence of oil and gas mineral rights within its unincorporated areas. It is the county’s objective to exercise its fundamental duty to protect public health, safety and welfare and the environment from adverse effects of oil and gas exploration and development, and to minimize potential land use conflicts between those activities and current or planned land uses.

All policies, procedures and regulations dealing with oil and gas exploration and development shall be based on the implementation of the “precautionary principle” so as to ensure the safety, public health and protection of Boulder County’s residents, environment, infrastructure, and resources with respect to local and cumulative, short and long-term considerations.

**GE 4.01 (Protection from Impacts of Oil and Gas Exploration and Development).** Boulder County is dedicated to promoting, requiring and implementing programs, policies and practices that provide benefit to the well-being of current and future residents as well as protecting the integrity of the air, water and ecosystems on which all life depends. Consequently, it is county policy to pursue the following actions regarding the exploration and development of oil and gas resources:

- a) Where oil and gas exploration and development is regulated by the federal and/or state government alone, both currently and in the future, advocate for requiring use of the most effective performance technologies and practices;
- b) For oil and gas exploration and development activities in areas of shared regulatory authority, provide direction, leadership and support for incorporating the most effective performance technologies and practices into the applicable jurisdiction's rules and regulations; and
- c) For those oil and gas exploration and development activities subject primarily or solely to county jurisdiction, establish and maintain a comprehensive planning basis for amending, revising and updating the Land Use Code as well as the full array of regulatory tools and procedures available to the county as they are identified and found to be consistent with the Objective of these policies.

**GE 4.02 (Priorities for Most Effective Performance Technologies and Practices).** Areas where the county has an interest in assuring that the most effective performance technologies and practices are applied include, but may not be limited to:

- a) Transportation impacts on roads and their users
- b) Development impacts on county open space lands and conservation easements
- c) Impacts on and consumption of environmental resources, including
  - 1. Wildlife and wildlife/plant habitat
  - 2. Wetlands
  - 3. Riparian areas
  - 4. Surface and subsurface water – sources, volumes, and consumptive vs. non-consumptive use
  - 5. Aquifers – casing that isolates and protects aquifers, due diligence in finding abandoned wells, and protective setbacks from areas of outcropping aquifers
  - 6. Air quality – greenhouse gas emissions, ozone precursors, and toxic air pollutants affecting local residents, visitors and users of nearby public facilities
  - 7. Water quality
  - 8. Soil quality and productive integrity
- d) Geologic hazards
- e) Wildfire mitigation
- f) Storm water, drainage and erosion controls
- g) Solid and liquid wastes management
- h) Noise, lighting and odor controls
- i) Land restoration and reclamation
- j) Agricultural land preservation
- k) Irrigation ditches, drain tiles, laterals, ponds and other water resource systems associated with agricultural operations

- l) Fencing, both temporary and replacement
- m) Noxious weed control
- n) Floodplain and floodways
- o) Visual impacts and preservation of scenic views
- p) Access roads/facilities removal upon well closures/abandonment
- q) Historic/archeological/cultural protection
- r) Emergency response planning and capabilities
- s) Adjacent landowner concerns
- t) Other areas of public health, safety and welfare as they may be identified

**GE 4.03 (Assessing Adherence to Most Effective Performance Technologies and Practices).**

Measures the county will look for in assessing whether an application for oil and gas exploration and development is adhering to most effective performance technologies and practices will include, but not be limited to, the following:

- a) use of closed loop systems for the containment and/or recycling of drilling and completion fluids;
- b) use of emissions controls, prevention capture/co-benefits producing systems, and other green completion or reduced emissions systems to minimize or eliminate the release of volatile organic compounds, hazardous air pollutants, and greenhouse gases;
- c) use of electric motors or muffled internal combustion engines in pumping and production operations;
- d) extensions of setbacks from adjacent land uses, water bodies, water courses, riparian areas and other important environmental resources as determined on a case-by-case and site-by-site basis;
- e) air quality baseline testing and monitoring at wellheads, condensate tanks, pipelines, compressor stations and other potential gaseous emissions sources;
- f) soil structure and condition baseline testing and documentation within and adjacent to the drill pad area prior to commencing pad preparation and construction;
- g) surface, groundwater, and well water quality and level baseline testing and monitoring within and adjacent to the drill pad area prior to commencing pad preparation and construction;
- h) extensions of setbacks to achieve public health, safety and welfare objectives as determined on a case-by-case and site-by-site basis;
- i) submittal of comprehensive drilling and phasing plans for oil and gas holdings within and adjacent to Boulder County;
- j) preparation of plugged and abandoned hydrocarbon well integrity surveys within an adequate distance along the full length of the bore hole and production casing for proposed new wells and existing wells to be reopened for production, to identify potential integrity problems and remedies for improperly plugged wells or where plugs and well casings have failed over time;

- k) use of temporary, removable, low-impact “laydown” roads or similar methods for access to sites from local, county, state and/or federal roads;
- l) dark sky lighting measures;
- m) odor, dust and noise reduction/suppression measures;
- n) complete reclamation and restoration of all disturbed areas, including roads, to their pre-exploration and development conditions;
- o) sharing of transportation, drilling, production, transmission and access facilities among operators to minimize duplication of activities and potential impacts;
- p) use of existing easements and infrastructure where appropriate and allowed by easement holders for the surface and subsurface infrastructure necessary for drilling, extraction, production and transmission operations;
- q) “fair share” compensation for impacts on county roads, county open space lands and other county infrastructure or properties

**GE 4.04 (Greenhouse Gas Emissions).** In addition to the county’s expressed interest in eliminating methane and other greenhouse gas emissions from oil and gas development into the atmosphere, the county strongly supports all efforts at all levels to further study and ultimately eliminate such emissions resulting from oil and gas operations whether through legislative, regulatory, voluntary or other means.

**GE 4.05 (Minimize New Land Use and Cumulative Impacts).** The county shall consider requiring operators to use and share existing infrastructure, to minimize installation of new facilities, and to avoid additional disturbance to lands to the greatest extent possible in order to forego introducing significant new land use and cumulative impacts to the environment, landowners and natural resources.

**GE 4.06 (As-Built Facilities Maps for Emergency Response and Management).** Applicants for oil and gas exploration and development shall provide the Boulder Office of Emergency Management and affected emergency response agencies with as-built facilities maps in a format suitable for input into the county’s GIS system depicting the locations, sizes, and depths below grade of all oil and gas gathering and transmissions lines and associated equipment, surface facilities and their functions, as well as transportation routes to and from exploration and development sites, for emergency response and management purposes in case of an incident or accident involving transmission or transportation presenting an immediate or potential hazard to the public and environment.

**GE 4.06.01** Operators shall cooperate with local emergency response agencies in planning and conducting on-site emergency preparedness exercises that simulate industrial incidents and accidents that may, in the opinion of the emergency response agencies, take place on site.

**GE 4.06.02** Operators shall disclose all hazardous chemicals used in their operation to the Boulder Office of Emergency Management and all affected emergency response agencies.

**GE 4.06.03** All unintended releases of hazardous chemicals shall be immediately reported to the Boulder Office of Emergency Management and all affected emergency response providers.



**GE 4.07 (Assistance to Landowners).** The county will encourage and provide appropriate assistance to landowners seeking expert advice for negotiating surface use agreements or leasing arrangements for oil and gas exploration and development.

**GE 4.08 (Collaboration with Stakeholders, Regulators and Interested Parties).** Achieving the county's Objective regarding oil and gas activities requires not only a thorough review of local regulations but also communication and cooperation between the county, other levels of government and organizations involved in the oil and gas industry and in the study of oil and gas development and exploration. To this end, the county has appointed a Local Governmental Designee pursuant to Rule 214 of the Colorado Oil and Gas Conservation Commission. In addition, the county is committed to working with stakeholders, regulators and interested parties to:

- a) Identify and address deficiencies in regulating detrimental land use and surface impacts as well as environmental and health impacts;
- b) Continue review of studies, data and other information to ensure regulations and implementation measures are presently addressing or need revising to incorporate the most contemporary research on impacts and technological advances;
- c) Monitor state and federal legislation and policies, to be followed when deemed necessary by lobbying, letters of support and advocacy, and dissemination of information to enhance local protection for land use, surface impacts, public health and the environment;
- d) Investigate the feasibility and utility of entering into memoranda of understanding (MOUs), intergovernmental agreements (IGAs) or other accords with industry, the state, and other public or private sector interests where the outcome will help facilitate the implementation of these policies; and
- e) Consider addressing impacts of oil and gas development by acquiring and retiring mineral estates interests on a willing seller-willing buyer basis where appropriate.

**GE 4.09 (Public Engagement by Oil and Gas Applicants).** The county will require that applicants for oil and gas exploration and development directly engage with local communities, residents and other stakeholders at each phase of a development plan, starting prior to exploration, in order to provide sufficient opportunity for comment on plans, operations and performance, listen to concerns, and respond appropriately and promptly.

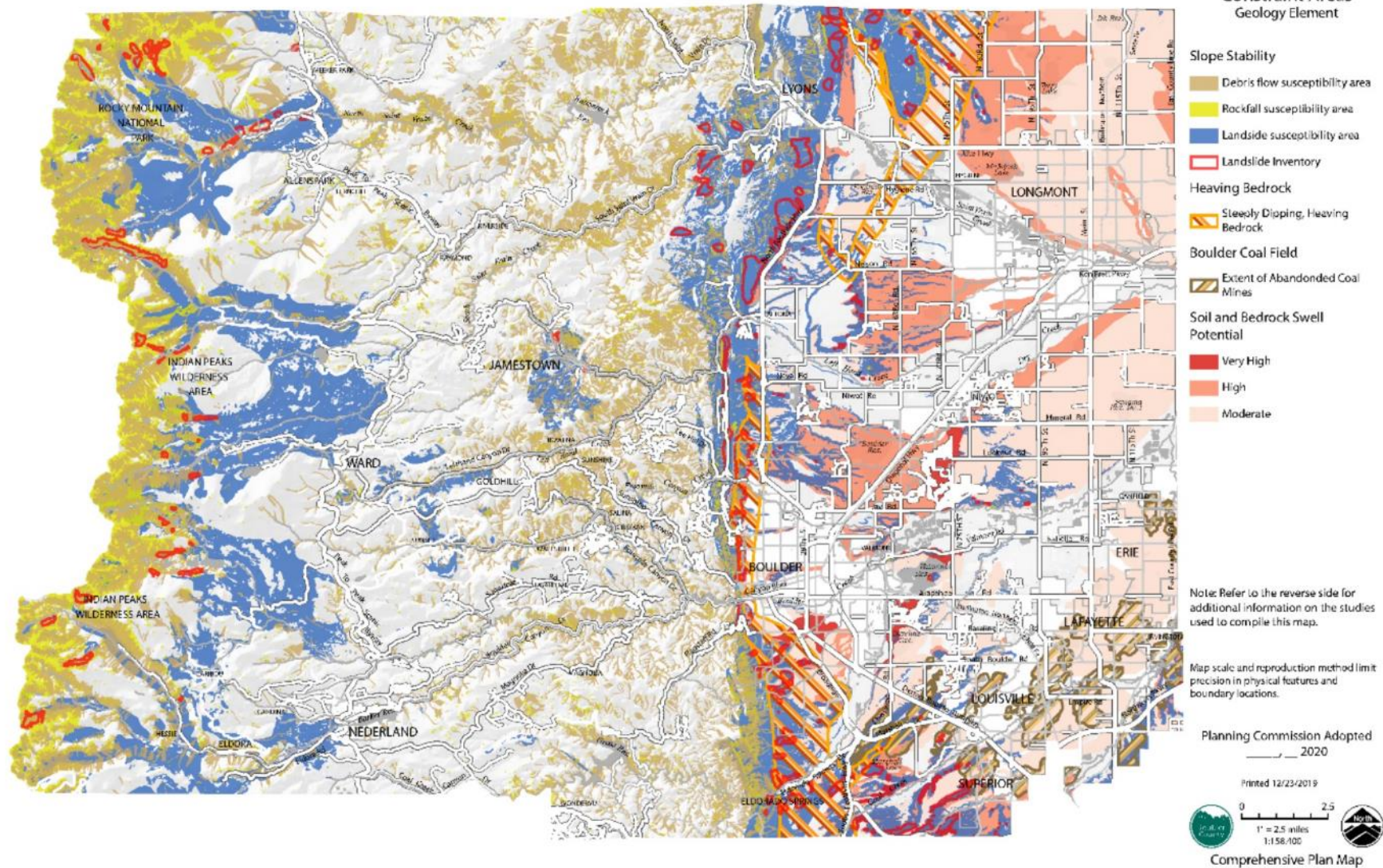
**GE 4.10 (Water Rights).** Boulder County shall not lease or sell any of its current or future water rights for oil and gas exploration and development.

**GE 4.11 (Agricultural Land Restoration and Reclamation).** Agricultural land preservation and conservation is a core goal and value of the BCCP. Oil and gas operations will be required to restore and reclaim all on and off-site agricultural lands impacted by any activity related to exploration, development, infrastructure installation, closure, and transportation to the soil tilth, productivity, and/or drainage patterns that were in place prior to the initiation of oil and gas operations.

**GE 4.12 (Applicants' Acceptance of Responsibility and Liability).** Boulder County will require explicit commitments by applicants to accept responsibility and liability for compensation and/or mitigation of directly and indirectly related costs, nuisances, damages

and adverse impacts as a condition for issuance of permits dealing with oil and gas resource exploration and production.

# GEOLOGIC HAZARD & CONSTRAINT AREAS MAP



## APPENDIX B: REFERRAL RESPONSES

### *Boulder County Community Planning & Permitting – Floodplain Management*



## Community Planning & Permitting

Courthouse Annex • 2045 13th Street • Boulder, Colorado 80302 • Tel: 303.441.3930  
Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 • [www.bouldercounty.org](http://www.bouldercounty.org)

February 12, 2020

To: Molly Marcucilli, Long Range Planner  
From: Virginia Gazzetti, Floodplain Program Planner  
Subject: Docket BCCP-20-001: Geologic Hazard Mapping-Related Amendments

The Community Planning & Permitting Department – Floodplain Management Program has reviewed the above referenced docket and has the following comments:

1. The proposed text amendment to the Geology Element includes a definition for Fluvial Hazards:  
*“Fluvial Hazards: Areas susceptible to fluvial hazards based on the area a stream has occupied in recent history, could potentially occupy, or could physically influence as it stores and transports sediment and debris during flood events.”(p.2)*  
It appears that this definition was adapted from the definition for “Fluvial Hazard Zone”, used in the Colorado Water Conservation Board’s Fluvial Hazard Zone Mapping Project. However, the adapted definition lacks clarity due to the use of the term “fluvial hazards” in the definition.
2. The proposed Geologic Hazard & Constraint Areas map does not identify fluvial hazards in Boulder County, and neither the adopted Comprehensive Plan nor the proposed text amendments discuss fluvial hazards in Boulder County. We recommend removing the term “fluvial hazards” from the Comprehensive Plan until fluvial hazards guidance, policies, and resources are developed.

Please contact Virginia Gazzetti (Floodplain Program Planner, Community Planning & Permitting Department) at [vgazzetti@bouldercounty.org](mailto:vgazzetti@bouldercounty.org) or 720-564-2865 to discuss these comments.

Deb Gardner County Commissioner    Elise Jones County Commissioner    Matt Jones County Commissioner



## Colorado Department of Transportation

**From:** [Milner, Anna](#)  
**To:** [Marcucilli, Molly](#)  
**Subject:** FW: Referral packet for Dockets BCCP-20-0001 & BCCP-20-0002: Boulder County Comprehensive Plan Amendments to Adopt Updated Geologic Hazard Mapping and Convert to a New Document Template  
**Date:** Thursday, January 30, 2020 9:05:38 AM  
**Attachments:** [image003.png](#)  
[image001.png](#)

---

**Anna Milner | Admin. Lead Tech.**

**Boulder County Community Planning & Permitting** (formerly *Land Use and Transportation*) – [We've become a new department!](#)

Pronouns: she/her/hers

Physical address: 2045 13th St., Boulder CO 80302

Mailing address: PO Box 471, Boulder, CO 80306

(720) 564-2638 (Direct) | (303) 441-4856 (Fax)

[amilner@bouldercounty.org](mailto:amilner@bouldercounty.org)

[www.bouldercounty.org](http://www.bouldercounty.org)



**From:** Bilobran - CDOT, Timothy <[timothy.bilobran@state.co.us](mailto:timothy.bilobran@state.co.us)>

**Sent:** Thursday, January 30, 2020 8:00 AM

**To:** Milner, Anna <[amilner@bouldercounty.org](mailto:amilner@bouldercounty.org)>

**Cc:** Allyson Mattson - CDOT <[allyson.mattson@state.co.us](mailto:allyson.mattson@state.co.us)>

**Subject:** Re: Referral packet for Dockets BCCP-20-0001 & BCCP-20-0002: Boulder County Comprehensive Plan Amendments to Adopt Updated Geologic Hazard Mapping and Convert to a New Document Template

No issues from us Anna.

Tim

On Wed, Jan 29, 2020 at 4:51 PM Solomon - CDOT, Richard <[richard.solomon@state.co.us](mailto:richard.solomon@state.co.us)> wrote:

CDOT Region 1 has no issues with this proposal relative to the highway corridors in our region which lie in Boulder County.

I am forwarding this referral to my colleagues at Region 4 (Greeley) to concur

***Rick Solomon***  
CDOT Region One Permit Unit Supervisor



P 303.757.9356 | C 720 670-7068 | F 303.757.9886  
2829 W. Howard Place #255f Denver, CO 80204  
[richard.solomon@state.co.us](mailto:richard.solomon@state.co.us)

On Wed, Jan 29, 2020 at 2:39 PM Milner, Anna <[amilner@bouldercounty.org](mailto:amilner@bouldercounty.org)> wrote:

Please find attached the electronic Referral packet for *Dockets BCCP-20-0001 & BCCP-20-0002: Boulder County Comprehensive Plan Amendments to Adopt Updated Geologic Hazard Mapping and Convert to a New Document Template.*

Please return responses and direct any questions to [Molly Marcucilli](mailto:Molly.Marcucilli) by *February 12, 2020*. (Boulder County internal departments and agencies: Please attach the referral comments in Accela.)

Best Regards,  
Anna

**Anna Milner | Admin. Lead Tech.**  
**Boulder County Community Planning & Permitting** (formerly *Land Use and Transportation*) –  
[We've become a new department!](#)

Pronouns: she/her/hers  
Physical address: 2045 13th St., Boulder CO 80302  
Mailing address: PO Box 471, Boulder, CO 80306  
(720) 564-2638 (Direct) | (303) 441-4856 (Fax)  
[amilner@bouldercounty.org](mailto:amilner@bouldercounty.org)  
[www.bouldercounty.org](http://www.bouldercounty.org)



--

**Tim Bilobran**  
Region 4 Permits Manager



O 970.350.2163 | C 970.302.4022 | F 970.350.2198

## Colorado Division of Water Resources

**From:** [Marcucilli, Molly](#)  
**To:** [Brucker - DNR, Sarah](#)  
**Subject:** RE: Referral packet for Dockets BCCP-20-0001 & BCCP-20-0002: Boulder County Comprehensive Plan Amendments to Adopt Updated Geologic Hazard Mapping and Convert to a New Document Template  
**Date:** Thursday, January 30, 2020 12:31:00 PM  
**Attachments:** [image002.png](#)

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Thank you!

**Molly Marcucilli** | Long Range Planner I  
[mmarcucilli@bouldercounty.org](mailto:mmarcucilli@bouldercounty.org)

**From:** Brucker - DNR, Sarah <[sarah.brucker@state.co.us](mailto:sarah.brucker@state.co.us)>  
**Sent:** Thursday, January 30, 2020 11:56 AM  
**To:** Marcucilli, Molly <[mmarcucilli@bouldercounty.org](mailto:mmarcucilli@bouldercounty.org)>  
**Subject:** Re: Referral packet for Dockets BCCP-20-0001 & BCCP-20-0002: Boulder County Comprehensive Plan Amendments to Adopt Updated Geologic Hazard Mapping and Convert to a New Document Template

DWR has no comments or concerns. The signed referral form is attached. Thanks,

**Sarah Brucker**  
Water Resources Engineer

P 303.866.3581 x 8249  
1313 Sherman St., Suite 821 Denver CO 80203  
[sarah.brucker@state.co.us](mailto:sarah.brucker@state.co.us) | [www.colorado.gov/water](http://www.colorado.gov/water)

On Wed, Jan 29, 2020 at 2:39 PM Milner, Anna <[amilner@bouldercounty.org](mailto:amilner@bouldercounty.org)> wrote:

Please find attached the electronic Referral packet for **Dockets BCCP-20-0001 & BCCP-20-0002: Boulder County Comprehensive Plan Amendments to Adopt Updated Geologic Hazard Mapping and Convert to a New Document Template.**

Please return responses and direct any questions to [Molly Marcucilli](#) by **February 12, 2020**. (Boulder County internal departments and agencies: Please attach the referral comments in Accela.)

Best Regards,  
Anna

**Anna Milner** | Admin. Lead Tech.  
**Boulder County Community Planning & Permitting** (formerly Land Use and Transportation) –  
[We've become a new department!](#)

Pronouns: she/her/hers  
Physical address: 2045 13th St., Boulder CO 80302  
Mailing address: PO Box 471, Boulder, CO 80306  
(720) 564-2638 (Direct) | (303) 441-4856 (Fax)



COLORADO GEOLOGICAL SURVEY

1801 19<sup>th</sup> Street  
Golden, Colorado 80401  
303.384.2655



February 12, 2020  
Molly Marcucilli  
Staff Lead- Boulder County Community Planning & Permitting  
2045 13<sup>th</sup> Street  
Boulder, CO 80306

Karen Berry  
State Geologist

**Location:**  
Boulder County

**Subject: Comprehensive Plan Amendments to Adopt Updated Geologic Hazard Mapping, Boulder County, CO:  
Dockets BCCP-20-0001 & BCCP-20-0002; CGS Unique No. BO-20-0008**

Dear Ms. Marcucilli,

As requested, Colorado Geological Survey (CGS) has reviewed the referral. We received: County request for review, (1.29.20), Dockets BCCP-20-0001 and BCCP-20-0002 (Boulder County Comprehensive Plan Amendments to Adopt Updated Geologic Hazard Mapping and Convert to a New Document Template). This included the Draft Geology Element and the Geologic Hazard and Constraint areas map. We offer the following observations and recommendations.

**Geologic Hazards and Constraints:** It appears that the site-specific response from the professional preparing a report is to evaluate for a specific set of geologic hazards and constraints. We recommend that this list be used as a starting point and that the types of geologic hazards to be identified include the provided list *but not be limited to it*. For example, there are additional geologic hazards and constraints in Boulder County that may be identified during a site-specific investigation. These could include erosion, shallow groundwater, shallow bedrock, faults, elevated radioactivity, radon, etc.

**Undermined Area:** While coal mine workings can pose a significant potential for subsidence, gold, silver, tungsten and other metal mines are abundant in the Montane Subprovince and can also pose hazards in land development from underground mine voids. We recommend that the definition given for Subsidence be expanded to include hazards from metal mines as well as from coal mines.

**Qualifications for preparers of Geologic Hazard Studies:** We recommend that *B. Policies GE 1.101* be expanded to state a *qualified* professional geologist. Not all professional geologist are qualified by education and experience to identify and propose mitigation for geologic hazards and constraints. We also recommend that this section be expanded to include a qualified professional (geotechnical) engineer licensed by the Colorado State Board of Registration subject to Board Policy Statement 50.2 "Engineering in Natural Hazard Areas." Additionally, we recommend that it be required that the geologic hazard studies be signed by the professional who prepared or certified the study.

**Independent review:** We recommend that a stipulation be added for an independent review of submitted reports. Such a review would not be required but would be at the discretion of the county staff and could be done either by the Colorado Geological Survey or an independent qualified professional geologist and/or an independent qualified geotechnical consultant.

Thank you for the opportunity to review and comment on this project. If you have questions or require further review, please call at 303-384-2654, or e-mail [jlovekin@mincs.edu](mailto:jlovekin@mincs.edu).

Sincerely,

Jonathan R. Lovekin, P.G.  
Senior Engineering Geologist

A handwritten signature in blue ink that reads "Jonathan R. Lovekin".

Colorado Parks & Wildlife - Eldorado Canyon Park



Community Planning & Permitting

Courthouse Annex • 2045 13th Street • Boulder, Colorado 80302 • Tel: 303.441.3930 • Fax: 303.441.4856
Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 • www.bouldercounty.org

Dockets BCCP-20-0001 & BCCP-20-0002:
Boulder County Comprehensive Plan Amendments to Adopt Updated Geologic Hazard Mapping and Convert to a New Document Template

Staff Leads: Molly Marcucilli

January 29, 2020

Dear Stakeholder/Interested Party,

The purpose of this referral is to solicit comments on draft amendments to the Boulder County Comprehensive Plan (BCCP) related to:

- 1. Adoption of updated geologic hazard and constraint area mapping and related Geology element content (BCCP-20-0001)
2. Conversion of the BCCP to a new document template, and related content amendments (BCCP-20-0002).

The proposed amendments were prepared as part of the county's ongoing efforts to update the BCCP. More information can be found on the docket webpages: https://boco.org/bccp-20-0001 and https://boco.org/bccp-20-0002

Geologic Hazard Mapping-Related Amendments. The Community Planning & Permitting Department is updating the BCCP to incorporate improved geologic hazard and constraint mapping that represents the best available data on a range of hazard features present in the county. The mapping was prepared with grant funds following the 2013 extreme rain event. That event changed the landscape making some areas more susceptible to geologic hazards, and it increased awareness of the importance of understanding the geologic hazards and constrains present in the county. The proposed geologic hazard and constraint mapping will help ensure that properties are developed in a manner that addresses those risks.

BCCP Document Template Conversion-Related Amendments. The Community Planning & Permitting Department has converted the BCCP document to a new graphic template to update the look and feel of the document and provide design consistency. Along with the graphics refresh, amendments to the document Introduction and overall organization are proposed.

The Community Planning & Permitting staff, County Commissioners, and Planning Commissioners value comments from individuals and referral agencies. Please check the appropriate response below or send a letter or email with your comments. All comments will be made part of the public record.

If you have any questions regarding these updates, please contact Molly Marcucilli at mmarcucilli@bouldercounty.org or 303-441-4597.

Please return responses to the relevant above email address by February 12, 2020. Late responses will be reviewed as the process permits.

X We have reviewed the proposal and have no conflicts.
Letter is enclosed.

Signed [Handwritten Signature] ELDERADO CANYON STATE PARK

Deb Gardner County Commissioner

Elise Jones County Commissioner

Matt Jones County Commissioner



### Community Planning & Permitting

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Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 • [www.bouldercounty.org](http://www.bouldercounty.org)

**Dockets BCCP-20-0001 & BCCP-20-0002:**  
**Boulder County Comprehensive Plan Amendments to Adopt Updated Geologic Hazard Mapping and Convert to a New Document Template**

Staff Leads: Molly Marcucilli

February 5, 2020

Dear Stakeholder/Interested Party,

On January 29, 2020 you were sent via email or mail a referral packet for Dockets BCCP-20-0001: Geologic Hazard Mapping-Related Amendments and BCCP-20-0002: BCCP Document Template Conversion-Related Amendments. It has come to our attention that the packet for the Geologic Hazard Mapping-Related Amendments did not include the updated Geologic Hazard and Constraint Map. Please note that the website for this docket has now been updated to include this map. You can view the updated map by clicking the link, "Draft Geologic Hazard and Constraint Areas map, December 23, 2019" under Documents at <https://boco.org/bccp-20-0001>.

**Geologic Hazard Mapping-Related Amendments.** The Community Planning & Permitting Department is updating the BCCP to incorporate improved geologic hazard and constraint mapping that represents the best available data on a range of hazard features present in the county. The mapping was prepared with grant funds following the 2013 extreme rain event. That event changed the landscape making some areas more susceptible to geologic hazards, and it increased awareness of the importance of understanding the geologic hazards and constraints present in the county. The proposed geologic hazard and constraint mapping will help ensure that properties are developed in a manner that addresses those risks.

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If you have any questions regarding these updates, please contact Molly Marcucilli at [mmarcucilli@bouldercounty.org](mailto:mmarcucilli@bouldercounty.org) or 303-441-4597.

Please return responses to the relevant above email address by **February 12, 2020**. Late responses will be reviewed as the process permits.

We have reviewed the proposal and have no conflicts.  
 Letter is enclosed.

Signed *Douglas W. Parrey*  
Printed Name DOUGLAS W. PARREY, SECRETARY/TREASURER  
Agency or Address GOOSE HAVEN HOMEOWNERS' ASSN.

Deb Gardner County Commissioner

Elise Jones County Commissioner

Matt Jones County Commissioner



## Community Planning & Permitting

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Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 • [www.bouldercounty.org](http://www.bouldercounty.org)

**Dockets BCCP-20-0001 & BCCP-20-0002:**  
**Boulder County Comprehensive Plan Amendments to Adopt Updated Geologic Hazard Mapping and Convert to a New Document Template**

Staff Leads: Molly Marcucilli

February 5, 2020

Dear Stakeholder/Interested Party,

On January 29, 2020 you were sent via email or mail a referral packet for Dockets BCCP-20-0001: Geologic Hazard Mapping-Related Amendments and BCCP-20-0002: BCCP Document Template Conversion-Related Amendments. It has come to our attention that the packet for the Geologic Hazard Mapping-Related Amendments did not include the updated Geologic Hazard and Constraint Map. Please note that the website for this docket has now been updated to include this map. You can view the updated map by clicking the link, "Draft Geologic Hazard and Constraint Areas map, December 23, 2019" under Documents at <https://boco.org/bccp-20-0001>.

**Geologic Hazard Mapping-Related Amendments.** The Community Planning & Permitting Department is updating the BCCP to incorporate improved geologic hazard and constraint mapping that represents the best available data on a range of hazard features present in the county. The mapping was prepared with grant funds following the 2013 extreme rain event. That event changed the landscape making some areas more susceptible to geologic hazards, and it increased awareness of the importance of understanding the geologic hazards and constrains present in the county. The proposed geologic hazard and constraint mapping will help ensure that properties are developed in a manner that addresses those risks.

The Community Planning & Permitting staff, County Commissioners, and Planning Commissioners value comments from individuals and referral agencies. Please check the appropriate response below or send a letter or email with your comments. All comments will be made part of the public record.

If you have any questions regarding these updates, please contact Molly Marcucilli at [mmarcucilli@bouldercounty.org](mailto:mmarcucilli@bouldercounty.org) or 303-441-4597.

Please return responses to the relevant above email address by **February 12, 2020**. Late responses will be reviewed as the process permits.

- We have reviewed the proposal and have no conflicts.  
 Letter is enclosed.

Signed *Gina Hyatt*  
Printed Name Gina Hyatt  
Agency or Address Gunbarrel Green Homeowner's Association

Deb Gardner County Commissioner

Elise Jones County Commissioner

Matt Jones County Commissioner

## *Larimer County Planning Department*

**From:** [eastleka@co.larimer.co.us](mailto:eastleka@co.larimer.co.us) on behalf of [Planner On Call](#)  
**To:** [Marcucilli, Molly](#)  
**Subject:** Boulder County Comprehensive Plan Amendments  
**Date:** Wednesday, February 5, 2020 3:49:04 PM

---

Good afternoon Molly,  
Larimer County Planning has reviewed the requested referral documentation and have no comments.

Kathy Eastley, AICP  
Planner on Call  
Larimer County Planning Department  
200 W. Oak Street, Suite 3100  
PO Box 1190  
Fort Collins, CO 80522-1190

Planner on Call phone (970) 498-7679  
Planning Dept. main phone (970) 498-7683  
[planningoncall@larimer.org](mailto:planningoncall@larimer.org)



### Community Planning & Permitting

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Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 • [www.bouldercounty.org](http://www.bouldercounty.org)

**Dockets BCCP-20-0001 & BCCP-20-0002:**  
**Boulder County Comprehensive Plan Amendments to Adopt Updated Geologic Hazard Mapping and Convert to a New Document Template**

Staff Leads: Molly Marcucilli

February 5, 2020

Dear Stakeholder/Interested Party,

On January 29, 2020 you were sent via email or mail a referral packet for Dockets BCCP-20-0001: Geologic Hazard Mapping-Related Amendments and BCCP-20-0002: BCCP Document Template Conversion-Related Amendments. It has come to our attention that the packet for the Geologic Hazard Mapping-Related Amendments did not include the updated Geologic Hazard and Constraint Map. Please note that the website for this docket has now been updated to include this map. You can view the updated map by clicking the link "Draft Geologic Hazard and Constraint Areas map, December 23, 2019" under Documents at <https://boco.org/hccp-20-0001>.

**Geologic Hazard Mapping-Related Amendments.** The Community Planning & Permitting Department is updating the BCCP to incorporate improved geologic hazard and constraint mapping that represents the best available data on a range of hazard features present in the county. The mapping was prepared with grant funds following the 2013 extreme rain event. That event changed the landscape making some areas more susceptible to geologic hazards, and it increased awareness of the importance of understanding the geologic hazards and constraints present in the county. The proposed geologic hazard and constraint mapping will help ensure that properties are developed in a manner that addresses those risks.

The Community Planning & Permitting staff, County Commissioners, and Planning Commissioners value comments from individuals and referral agencies. Please check the appropriate response below or send a letter or email with your comments. All comments will be made part of the public record.

If you have any questions regarding these updates, please contact Molly Marcucilli at [mmarcucilli@bouldercounty.org](mailto:mmarcucilli@bouldercounty.org) or 303-441-4597.

Please return responses to the relevant above email address by **February 12, 2020**. Late responses will be reviewed as the process permits.

We have reviewed the proposal and have no conflicts.  
Letter is enclosed.

Signed *Russell P. Mellon*  
Printed Name Russell P. Mellon  
Agency or Address Director, Lazy 7 Estates HOA

Deb Gardner County Commissioner

Elise Jones County Commissioner

Matt Jones County Commissioner





## Community Planning & Permitting

Courthouse Annex • 2045 13th Street • Boulder, Colorado 80302 • Tel: 303.441.3930 • Fax: 303.441.4856  
Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 • [www.bouldercounty.org](http://www.bouldercounty.org)

**Dockets BCCP-20-0001 & BCCP-20-0002:**

**Boulder County Comprehensive Plan Amendments to Adopt Updated Geologic Hazard Mapping and Convert to a New Document Template**

Staff Leads: Molly Marcucilli

January 29, 2020

Dear Stakeholder/Interested Party,

The purpose of this referral is to solicit comments on draft amendments to the Boulder County Comprehensive Plan (BCCP) related to:

1. Adoption of updated geologic hazard and constraint area mapping and related Geology element content (BCCP-20-0001)
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Please return responses to the relevant above email address by **February 12, 2020**. Late responses will be reviewed as the process permits.

Letter is enclosed

Signed *Steven J. Buckbee*  
Printed Name Steven J. Buckbee  
Agency or Address Left Hand Water District

Deb Gardner County Commissioner

Elise Jones County Commissioner

Matt Jones County Commissioner





February 11, 2020

Boulder County Community Planning & Permitting  
PO Box 471  
Boulder, CO 80306

Re: Dockets BCCP-20-0001 & BCCP-20-0002: Boulder County Comprehensive Plan Amendments to Adopt Updated Geologic Hazard Mapping and Convert to a New Document Template

Ms. Marcucilli:

Thank you for the opportunity to comment as I have a couple of questions. First, how do I verify that someone is Colorado Professional Geologist? I cannot find their licensure at Colorado DORA like I can for Nurses, Architects, Engineers and others. The definition under CRS 23-41-208 is:

(b) "Professional geologist" is a person engaged in the practice of geology who is a graduate of an institution of higher education which is accredited by a regional or national accrediting agency, with a minimum of thirty semester (forty-five quarter) hours of undergraduate or graduate work in a field of geology and whose postbaccalaureate training has been in the field of geology with a specific record of an additional five years of geological experience to include no more than two years of graduate work.

Do I need a copy of their resume and college degree to prove someone is a Professional Geologist? Do I then submit copies of these items to support any study submitted to Boulder County? Will a professional engineer stamp on a geological report be sufficient as it is on a geotechnical report?

Second, how will maintenance, additions and reconstruction on existing structures in geologic hazard areas be handled? For example, if I needed a permit to install an antenna on existing tank would I now need to enlist a Professional Geologist? Where is the line and what, if anything, is considered development for existing facilities? Will an evaluation be made for each specific case and site?

Sincerely,

Steve Buckbee, P.E.

[sbuckbee@lefthandwater.org](mailto:sbuckbee@lefthandwater.org)



## Community Planning & Permitting

Courthouse Annex • 2045 13th Street • Boulder, Colorado 80302 • Tel: 303.441.3930 • Fax: 303.441.4856  
Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 • [www.bouldercounty.org](http://www.bouldercounty.org)

### Dockets BCCP-20-0001 & BCCP-20-0002:

### Boulder County Comprehensive Plan Amendments to Adopt Updated Geologic Hazard Mapping and Convert to a New Document Template

Staff Leads: Molly Marcucilli

January 29, 2020

Dear Stakeholder/Interested Party,

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Please return responses to the relevant above email address by **February 12, 2020**. Late responses will be reviewed as the process permits.

- We have reviewed the proposal and have no conflicts.
- Letter is enclosed. *attached*

*letter has comments for consideration*

Signed *Capt M. Schum*

Deb Gardner County Commissioner

Elise Jones County Commissioner

Matt Jones County Commissioner

## LONGMONT DEPARTMENT OF PUBLIC SAFETY

Safety & Justice Center, 225 Kimbark Street, Longmont, Colorado 80501



### *Longmont Police, Fire, Communications & Emergency Management*

Police Information 303-651-8555 ■ Fire Information 303-651-8437

9-1-1 Emergency Communications Center 303-651-8501

Office of Emergency Management 303-651-8438

To: Molly Marccucilli,  
Boulder County Community Planning and Permitting

From: Capt Michele Goldman, Fire Marshal

Re: The electronic Referral packet for *Dockets BCCP-20-0001 & BCCP-20-0002: Boulder County Comprehensive Plan Amendments to Adopt Updated Geologic Hazard Mapping and Convert to a New Document Template.*

Date: Jan 31, 2020

After reviewing the draft amendments to the Boulder County Comprehensive Plan related to:

1. Adoption of updated geologic hazard and constraint area mapping and related Geology element content (BCCP-20-0001)
2. Conversion of the BCCP to a new document template, and related content amendments (BCCP-20-0002).

I would offer the following comments as related to section B Policies:

- GE 2.03 Sidebar "Open mining requires Special Use Review **by who/whom?**
- GE 2.05 Sidebar "...a cooperative effort between the county and the Mined Land Reclamation Board. **Who is the ultimate decision maker?**
- GE 4.06 **Must be approved by operational permit from responding emergency agencies**
- GE 4.06.02 **Operators shall maintain a current HMIS (Hazardous Material Inventory) on site that includes inspection records for all equipment and stored chemicals.**

Sincerely,

Captain Michele Goldman, Fire Marshal  
303.651.8426  
Michele.goldman@longmontcolorado.gov



[www.ci.longmont.co.us](http://www.ci.longmont.co.us)



## Community Planning & Permitting

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Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 • [www.bouldercounty.org](http://www.bouldercounty.org)

### Dockets BCCP-20-0001 & BCCP-20-0002:

### Boulder County Comprehensive Plan Amendments to Adopt Updated Geologic Hazard Mapping and Convert to a New Document Template

Staff Leads: Molly Marcucilli

February 5, 2020

Dear Stakeholder/Interested Party,

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Please return responses to the relevant above email address by **February 12, 2020**. Late responses will be reviewed as the process permits.

We have reviewed the proposal and have no conflicts.  
 Letter is enclosed.

Signed Capt M Goldman, Fire Marshal  
Printed Name Michele Goldman  
Agency or Address Lougmont Fire

Deb Gardner County Commissioner

Elise Jones County Commissioner

Matt Jones County Commissioner



### Community Planning & Permitting

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Mailing Address: P.O. Box 471 • Boulder, Colorado 80308 • [www.bouldercounty.org](http://www.bouldercounty.org)

**Dockets BCCP-20-0001 & BCCP-20-0002:**

**Boulder County Comprehensive Plan Amendments to Adopt Updated Geologic Hazard Mapping and Convert to a New Document Template**

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Please return responses to the relevant above email address by **February 12, 2020**. Late responses will be reviewed as the process permits.

We have reviewed the proposal and have no conflicts.

Letter is enclosed.

Signed Jade Krueger 2/10/2020  
Printed Name Jade Krueger  
Agency or Address City of Longmont

Deb Gardner County Commissioner

Elise Jones County Commissioner

Matt Jones County Commissioner



**CITY OF LONGMONT | Planning Division**

February 10, 2020

Molly Marcucilli, Planner I  
Boulder County Land Use  
P.O. Box 471  
Boulder, CO 80306

RE: Docket BCCP-20-0001 & BCCP-20-0002: Boulder County Comprehensive Plan Amendments to Adopt Updated Geologic Hazard Mapping and Convert to a New Document Template

Dear Molly,

Thank you for sending the referral for the Boulder County Comprehensive Plan updates on geologic hazard mapping. City staff have reviewed and had the following questions and suggestions:

GE 1.01 – Should “Expansive Soil and Bedrock” be included in the conditions list that would require a geologic hazard study for a development?

GE 1.04 – The title reads “(City Cooperation with Municipalities).” Should this read “(County Cooperation with Municipalities)”?

GE 2.01 – References a geological survey from 1974. Does this survey need to be updated?

GE 4.09 – What type of oversight will this require and how will it be enforced?

Again, thank you for the opportunity to review this information. We look forward to continuing to collaborate for uses at this site. In the meantime, please let me know if you have questions with any of the above comments.

Sincerely,

*E. Jade Krueger*

Jade Krueger  
Associate Planner

CC: Erin Fosdick, Principal Planner  
Dale Rademacher, Deputy City Manager  
Jim Angstadt, Director of Engineering Services





## Community Planning & Permitting

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**Dockets BCCP-20-0001 & BCCP-20-0002:**  
**Boulder County Comprehensive Plan Amendments to Adopt Updated Geologic Hazard Mapping and Convert to a New Document Template**

Staff Leads: Molly Marcucilli

January 29, 2020

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We have reviewed the proposal and have no conflicts.  
 Letter is enclosed.

Signed \_\_\_\_\_

Deb Gardner County Commissioner

Elise Jones County Commissioner

Matt Jones County Commissioner



## Mile High Flood District

**From:** [Dan Hill](#)  
**To:** [Marcucilli, Molly](#)  
**Cc:** [Jim Watt](#)  
**Subject:** RE: Update to Referral packet for Dockets BCCP-20-0001 & BCCP-20-0002: Boulder County Comprehensive Plan Amendments to Adopt Updated Geologic Hazard Mapping and Convert to a New Document Template  
**Date:** Friday, February 7, 2020 9:44:03 AM  
**Attachments:** [image001.png](#)  
[MHFD-MainLogo-RGB-Color\\_dc850310-e98b-4e51-9ccb-9e6ba9e6d393.png](#)  
[SocialLink Facebook\\_32x32\\_dddf4d22-a17b-4b5e-a60e-a0d1c141aee6.png](#)  
[SocialLink Instagram\\_32x32\\_a5cf709f-423e-42d0-9b21-63116bf8f89c.png](#)  
[SocialLink LinkedIn\\_32x32\\_b7a2051d-355d-4a7b-b923-eba2177ea89b.png](#)  
[SocialLink Twitter\\_32x32\\_a6576c8a-bc49-4df2-8e65-1ec629178a82.png](#)

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Hi Molly,

This is in response to the request for our comments concerning the referenced project. We appreciate the opportunity to review this proposal and have no comment, as this project does not include any major drainage features. We do not need to receive any future submittals on this project.

Please feel free to contact me or Jim (copied) with any questions or concerns.

Thanks,

**Dan Hill, P.E., CFM**  
Staff Engineer  
MILE HIGH FLOOD DISTRICT  
2480 W. 26th Ave Suite 156-B | Denver, Colorado 80211  
Office: 303-455-6277 | Direct: 303-749-5427 | [www.mhfd.org](http://www.mhfd.org)

*Protecting People, Property, and our Environment*



MILE HIGH FLOOD DISTRICT



---

**From:** Milner, Anna <[amilner@bouldercounty.org](mailto:amilner@bouldercounty.org)>  
**Sent:** Wednesday, February 5, 2020 14:53  
**To:** Milner, Anna <[amilner@bouldercounty.org](mailto:amilner@bouldercounty.org)>  
**Cc:** Marcucilli, Molly <[mmarcucilli@bouldercounty.org](mailto:mmarcucilli@bouldercounty.org)>; Case, Dale <[dcase@bouldercounty.org](mailto:dcase@bouldercounty.org)>; Sanchez, Kimberly <[ksanchez@bouldercounty.org](mailto:ksanchez@bouldercounty.org)>; De Los Rios, Alberto <[adelosrios@bouldercounty.org](mailto:adelosrios@bouldercounty.org)>; Hackett, Richard <[rhackett@bouldercounty.org](mailto:rhackett@bouldercounty.org)>; Heyne, Tyler <[theyne@bouldercounty.org](mailto:theyne@bouldercounty.org)>; Endicott, Chad <[ccendicott@bouldercounty.org](mailto:ccendicott@bouldercounty.org)>; Shannon, Abigail <[ashannon@bouldercounty.org](mailto:ashannon@bouldercounty.org)>  
**Subject:** Update to Referral packet for Dockets BCCP-20-0001 & BCCP-20-0002: Boulder County Comprehensive Plan Amendments to Adopt Updated Geologic Hazard Mapping and Convert to a New Document Template

Hello all,

**Mountain View Fire Protection District**



**Community Planning & Permitting**

Courthouse Annex • 2045 13th Street • Boulder, Colorado 80302 • Tel: 303.441.3930 • Fax: 303.441.4856  
Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 • [www.bouldercounty.org](http://www.bouldercounty.org)

**Dockets BCCP-20-0001 & BCCP-20-0002:**  
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Staff Leads: Molly Marcucilli

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We have reviewed the proposal and have no conflicts.  
 Letter is enclosed.

Signed LuAnn Penfold, LuAnn Penfold, MVFPD 1/31/2020

Deb Gardner County Commissioner

Elise Jones County Commissioner

Matt Jones County Commissioner



## Community Planning & Permitting

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Letter is enclosed.

Signed \_\_\_\_\_

*Deb Gardner* 4/12/2020

Deb Gardner County Commissioner

Elise Jones County Commissioner

Matt Jones County Commissioner

February 11, 2020

Community Planning and Permitting Staff  
Boulder County Commissioners  
Boulder County Planning Commissioners

Sent via email to: [mmarcucilli@bouldercounty.org](mailto:mmarcucilli@bouldercounty.org)

RE: Dockets BCCP-20-0001 and BCCP-20-0002


Dear County Commissioners,

I have received your packet labeled Dockets BCCP-20-001 & BCCP-20-002. I would request that you DO NOT APPLY these new standards to any new construction in process, approved project projects or past completed property/projects.

It would be unfair to the property owner as well as someone who has gone through and completed the process already to suddenly have new rules thrown at them. They have not been able to budget for such in time or money.

I also believe that anyone who has provided a conservation easement for the County should be exempted. They have already donated property for non-development open space and other uses and should not be further impacted.

Sincerely,

  
David Chaknova  
8687 Morton Road  
Niwot, CO 80503  
dc@novainvest.com

Printed Name David Chalnova  
Agency or Address 3687 Morton Road  
Niwot, CO 80503





## Community Planning & Permitting

Courthouse Annex • 2045 13th Street • Boulder, Colorado 80302 • Tel: 303.441.3930 • Fax: 303.441.4856  
Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 • [www.bouldercounty.org](http://www.bouldercounty.org)

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Staff Leads: Molly Marcucilli

February 5, 2020

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Please return responses to the relevant above email address by **February 12, 2020**. Late responses will be reviewed as the process permits.

We have reviewed the proposal and have no conflicts.  
 Letter is enclosed.

Signed Deborah Boehelder  
Printed Name Deborah Boehelder  
Agency or Address Town of Erie

Deb Gardner County Commissioner

Elise Jones County Commissioner

Matt Jones County Commissioner



## Community Planning & Permitting

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Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 • [www.bouldercounty.org](http://www.bouldercounty.org)

### Dockets BCCP-20-0001 & BCCP-20-0002:

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2. Conversion of the BCCP to a new document template, and related content amendments (BCCP-20-0002).

The proposed amendments were prepared as part of the county's ongoing efforts to update the BCCP. More information can be found on the docket webpages:

<https://boco.org/bccp-20-0001> and <https://boco.org/bccp-20-0002>

**Geologic Hazard Mapping-Related Amendments.** The Community Planning & Permitting Department is updating the BCCP to incorporate improved geologic hazard and constraint mapping that represents the best available data on a range of hazard features present in the county. The mapping was prepared with grant funds following the 2013 extreme rain event. That event changed the landscape making some areas more susceptible to geologic hazards, and it increased awareness of the importance of understanding the geologic hazards and constraints present in the county. The proposed geologic hazard and constraint mapping will help ensure that properties are developed in a manner that addresses those risks.

**BCCP Document Template Conversion-Related Amendments.** The Community Planning & Permitting Department has converted the BCCP document to a new graphic template to update the look and feel of the document and provide design consistency. Along with the graphics refresh, amendments to the document Introduction and overall organization are proposed.

The Community Planning & Permitting staff, County Commissioners, and Planning Commissioners value comments from individuals and referral agencies. Please check the appropriate response below or send a letter or email with your comments. All comments will be made part of the public record.

If you have any questions regarding these updates, please contact Molly Marcucilli at [mmarcucilli@bouldercounty.org](mailto:mmarcucilli@bouldercounty.org) or 303-441-4597.

Please return responses to the relevant above email address by **February 12, 2020**. Late responses will be reviewed as the process permits.

We have reviewed the proposal and have no conflicts.  
 Letter is enclosed.

Signed \_\_\_\_\_

Deb Gardner County Commissioner

Elise Jones County Commissioner

Matt Jones County Commissioner



Printed Name Samantha Riblitt  
Agency or Address United Power, Inc.



*Xcel Energy*



Right of Way & Permits

1123 West 3<sup>rd</sup> Avenue  
Denver, Colorado 80223  
Telephone: 303.571.3306  
Facsimile: 303. 571. 3284  
[donna.l.george@xcelenergy.com](mailto:donna.l.george@xcelenergy.com)

February 11, 2020

Boulder County Land Use  
PO Box 471  
Boulder, CO 80306

Attn: Molly Marcucilli

**Re: Boulder County Comprehensive Plan Amendments to Adopt Updated  
Geologic Hazard Mapping and Convert to a New Document Template  
Case #s BCCP-20-0001 and BCCP-20-0002**

Public Service Company of Colorado's (PSCo) Right of Way & Permits Referral Desk has determined **there is a potential conflict** with the above captioned project. Public Service Company has existing electric transmission lines and associated land rights in areas within Boulder County, and is requesting that, prior to any final approval of the comprehensive plan amendments, it is the responsibility of the property owner/ developer/contractor to go to the website at [www.xcelenergy.com/rightofway](http://www.xcelenergy.com/rightofway) or email [coloradorightofway@xcelenergy.com](mailto:coloradorightofway@xcelenergy.com) to have this project assigned to a Land Rights Agent for review of the subject proposals.

PSCo also has existing high pressure natural gas transmission, natural gas distribution, and electric distribution throughout the County to take into consideration when digging. The Utility Notification Center will need to be contacted for utility locates prior to any construction.

Donna George  
Right of Way and Permits  
Public Service Company of Colorado / Xcel Energy  
Office: 303-571-3306 – Email: [donna.l.george@xcelenergy.com](mailto:donna.l.george@xcelenergy.com)

## ***Public Comment Received May 11, 2020***

**From:** [Bill Ellis](#)  
**To:** [Endicott, Chad](#)  
**Subject:** Docket BCCP-20-0001  
**Date:** Monday, May 11, 2020 4:48:11 PM  
**Attachments:** [bccp-20-0001-staff-report-20200331 with wle comments.pdf](#)

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Hello Chad,

Below are comments I have regarding the Geologic Hazard Mapping-Related Amendments that will be considered by the Planning Commission on May 20. In addition, for your information I have made comments and suggested wording changes on the Geologic Hazards section of the staff report. These are highlighted in yellow on the staff report pdf, which I have attached. I could not extract just the amended geologic hazards section from the pdf, so have attached the entire docket packet. Would you please see that these comments are relayed to the Planning Commission prior to the public hearing in the 20th.

Thank you,

Bill Ellis  
3202 Riverside Dr.  
Lyons (Raymond), CO.

After reviewing this update to the Geologic Hazards Element of the BCCP I have several concerns and would encourage that it not be adopted in its current form.

My primary concern is that the document makes no distinction between public facilities and private property. While County government has statutory authority to regulate for the protection public health and safety, it is not clear that authority extends to situations where the potential impacts from geologic hazards would affect only the property owner. Requiring a professional geologic hazard assessment and report prior to approving or denying development on private property represents an additional and significant financial burden to the property owner. In my view it would be preferable that the County provide advisory and educational information to property owners, possibly including a recommendation that a geologic hazards evaluation be obtained, but to not make it mandatory as part of the application process.

Another concern is that the Geologic Hazard and Constraint Areas Map is relatively broad-brush and should not be used solely as the basis for requiring a geologic hazards evaluation for a development application. There are many areas in the color-coded areas that do not contain geologic hazards on a typical property-level scale. There are also likely many areas not identified on the map that may contain a geologic hazard. The County consultant for the update (Casare, Inc.) notes in one of their reports to the county that “**After further consideration, it has been determined that depicting the landslide susceptibility in terms of slope units (Plate 7 of original report) is overly generalized in representing mass movement potential across Boulder County.**” and “**On the other hand, modeling process areas for landslides requires site-specific geological and geotechnical information, and is beyond the scope of this project. Furthermore, process areas for landslides typically have aerial extents too small to be reasonably represented on a regional scale map.**” To require



property owners to obtain an expensive professional evaluation solely on the basis of such a map depiction is not warranted.

It is also a slippery slope (pun intended) when regulating based on generalized mapping. If a property owner experiences loss due to a geologic hazard in an area not depicted to be a geologic hazard area, is the County liable and subject to a lawsuit as well as compensation to the property owner? Something to consider when adopting the element of the BCPP.

Other less significant concerns I have:

“Intolerable damage” is used as a criteria for identifying geologic constraints, but is not defined. Who determine what damage is intolerable for a private property owner?

Section GE 1.01: If development is not allowed in a geologic hazard area, does this amount to a taking by the County?

Section GE 1.02: Poorly written. Not clear how a geologic hazard/constraint determination will impact TDR potential.

Section GE 1.05: Who pays for the cost of a required evaluation of geologic hazards/constraints following a natural disaster? Who pays for the professional review of the evaluation? Why is this necessary?

***Continuation of Public Comment Received May 11, 2020, in BOCC Staff Report from March 31, 2020, Included on the Following Page***



# Community Planning & Permitting

Courthouse Annex • 2045 13th Street • Boulder, Colorado 80302 • Tel: 303.441.3930 • Fax: 303.441.4856  
Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 • [www.bouldercounty.org](http://www.bouldercounty.org)

## BOULDER COUNTY COMMISSIONERS

Tuesday, March 31, 2020, at 3:30 p.m.

### PUBLIC HEARING

#### **Docket BCCP-20-0001: BOULDER COUNTY COMPREHENSIVE PLAN UPDATE: GEOLOGY ELEMENT UPDATE**

Geologic Hazard and Constraint Mapping and Related Geology Element Updates

*Staff:* Chad Endicott, Long Range Planner I, Community Planning & Permitting

*Please note that since this public hearing will be held remotely due to COVID-19, only written public comments were accepted for the public hearing portion of this docket.*

### AGENDA

1. Staff presentation
2. Questions for staff
3. Board of County Commissioners discussion and comment

### INTRODUCTION

The purpose of this item is to request approval for updating the Geology Element of the Boulder County Comprehensive Plan (BCCP) to incorporate improved geologic hazard and constraint mapping that represents the best available data of geologic hazard features in the county. The updated mapping provides Community Planning & Permitting with the ability to evaluate geologic hazards and constraints in the county to ensure that properties are developed in a manner that addresses potential risks.

Minor revisions to the Geology Element of the BCCP also include updates to the definitions and policy sections of the element and a new guidelines table and map for providing further guidance when reviewing development on properties with potential geologic hazards. During a public hearing held on February 19, 2020, the proposed changes to the Geology Element were presented to and approved by the Boulder County Planning Commission, with recommendations to include suggested edits from referral comments provided by the Colorado Geological Survey (CGS) in a letter dated February 12, 2020. The suggested edits from CGS, among other relevant referral comments, are included in the revisions to the Geology Element included in this staff packet.

### ACTION REQUESTED



Staff recommends that the Board of County Commissioners provide comment on the new geologic hazard and constraint mapping and accompanying revisions to the Boulder County Comprehensive Plan Geology Element.

## **I. BACKGROUND**

The existing Geology Element and Geologic Hazard Mapping of the BCCP was last updated in 1984 and 1978, respectively. In 2017, the county updated its geologic hazard and constraint mapping with grant funds<sup>1</sup> following the 2013 flood event. The extreme flood event altered the landscape, making some areas more susceptible to geologic hazards, and it increased awareness of the importance of understanding the geologic hazards and constraints present in the county. In March 2018, staff presented the Planning Commission (PC) with a detailed update on the mapping progress undertaken by the county's consultants (Cesare, Inc. and TerraCognito GIS Services, Inc.). Planning Commission and the Board of County Commissioners requested quality control and peer review feedback from the Colorado Geologic Survey (CGS), with plans to ultimately seek BCCP adoption of revised mapping to replace the current geologic hazard and constraint areas map. Cesare, Inc. has executed minor map revisions based on CGS feedback.

The county is updating the Geology Element of the BCCP to ensure the county's policies and guidelines reflect the new geologic hazard and constraint mapping completed by Cesare, Inc. Revisions to the Geology Element expand upon the definitions, policies, and land use guidelines concerning geological hazards and constraints.

## **II. SUMMARY OF PROPOSED CHANGES**

Changes to the county's geologic hazard and constraint mapping include increasing the level of granularity with high resolution digitized mapping, improved information related to landslide and rockfall susceptibility, and delineating the "steeply dipping heaving bedrock zone" within the county. The detailed geologic hazard and constraint maps provide the county and the public with guidance for making informed land use decisions.

Proposed language changes to the Geology Element of the BCCP incorporate the updated geologic hazards and constraint mapping results to provide further guidance for reviewing and approving development on properties with geologic hazards and constraints. An expanded "Definition" section of the Geology Element reflects the terminology in the new geologic hazard and constraint maps. Additionally, the updated Geology Element includes a new section named "Geologic Hazard and Constraints – Guidelines Table and Map" with recommended guidance by Cesar Inc. for which types of studies should be required when various mapped hazards exist on a property. Lastly, minor revisions to the "Policies" section are included to provide further guidance to staff and the public for developing in areas with geologic hazards and constraints.

## **III. REFERRAL RESPONSES**

Staff circulated a referral memo on January 29, 2020 and again on February 5, 2020 with the updated Geologic Hazard and Constraint mapping to solicit feedback from interested parties regarding the draft Geology Element changes. The referral memo was also posted on the Geology Element update

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<sup>1</sup> Grant funding was provided by the U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant-Disaster Recovery (CDBG-DR) program, administered by the Colorado Department of Local Affairs (DOLA).

[webpage](#). Most responses received had ‘no conflicts,’ and all referral comments with suggested changes and those with no recommendations are in Appendix B of this staff report. Minor revisions have been made to reflect substantive feedback that led to a change in the proposed “Definitions,” “Policies,” or the “Geologic Hazard and Constraints – Guidelines Table and Map” sections. Additional comments received that are not incorporated into this latest round of revisions will be considered for changes in implementing the policies of the Geology Element under Land Use code provisions and/or development review processes.

#### IV. CONCLUSION

Staff requests comments from the Commissioners. Following BOCC comment, staff will seek adoption by the Planning Commission for the updated geological hazard and constraint mapping and revisions to the Boulder County Comprehensive Plan Geology Element.

#### V. LIST OF RESOURCES

- Cesare Inc.’s full March 2017 report: <https://assets.bouldercounty.org/wp-content/uploads/2017/06/cesare-geologic-hazard-study-boulder-county-20170331.pdf>
- The October 2017 addendum to the report: <https://assets.bouldercounty.org/wp-content/uploads/2018/03/cesare-geologic-hazard-study-boulder-county-addendum-1-20171010.pdf>
- Geologic Hazard Study Staff Report to Planning Commission, March 21, 2018: <https://assets.bouldercounty.org/wp-content/uploads/2018/03/geologic-hazard-study-staff-report-to-planning-commission-20180321.pdf>
- Updated Geologic Hazard Mapping website: <https://www.bouldercounty.org/property-and-land/land-use/planning/geologic-hazard-mapping/>

# APPENDIX A: DRAFT GEOLOGY ELEMENT AND GEOLOGIC HAZARDS & CONSTRAINT AREAS MAP

## I. GEOLOGY ELEMENT

### A. INTRODUCTION

*In view of the geologic diversity of Boulder County as described in the Geology Element and the multiplicity of existing and foreseeable land uses, it is intended that the land use policies presented here shall provide clear direction in the formulation and implementation of the county Land Use decisions so far as geological factors are concerned. To these ends, it is necessary that reference be made to certain geographic areas. Accordingly, reference will be made, as appropriate, within the text of the definitions and policies to areas on the Mineral Resource Areas Map and the Geologic Hazards and Constraint Areas Map. Furthermore, it is the intent of the policies to 1) move toward the attainment of the adopted goals for the Boulder County Comprehensive Plan as directed in Goal Statements B.1 and B.2, and 2) fulfill the county's obligation to implement a Master Plan for Extraction of Commercial Mineral Deposits pursuant to 30-28-106(c), CRS.*

Amendment Status

### DEFINITIONS

~~In the interest of clarity in interpreting the land use policies, it is necessary to define certain terms. For these purposes, the terms, titles, and phrases, shall be defined as follows:~~

#### ~~Land Uses~~

~~**Intensive uses:** Those land uses which include any structures used for supporting or sheltering any human use or occupancy; and/or facilities or improvements which tend to attract congregations of people.~~

#### ~~Geologic Hazards & Constraints~~

~~**Geologic hazard:** A geologic condition or geologic process which poses a significant threat to health, life, limb, or property.~~

~~**Geologic constraint:** A geologic condition which does not pose a significant threat to life or limb, but which can cause intolerable damage to structures.~~

~~**Colorado Professional Geologist:** A person engaged in the practice of geology and who meets the requirements outlined in Colorado Revised Statute 23-41-208.~~

~~**Debris Flow:** A flowing mass of loose mud, sand, sediment, rock, debris, water, and air that travels by gravity down a slope, entraining debris in their paths.~~

- ~~• **Debris Flow Susceptibility:** areas modeled to have debris flow susceptibility based on geologic, topographic, geomorphic, and other characteristics associated with a debris flow.~~

~~**Expansive Soil and Bedrock:** Soil or bedrock containing clay with the tendency to volumetrically change based on moisture content (shrink when dry and expand when wet).~~

Expansive soils that shrink and swell can damage roads, structural foundations, and other built structures.

**Fluvial Hazards:** Areas susceptible to fluvial hazards based on the area a stream has occupied in recent history, could potentially occupy, or could physically influence as it stores and transports sediment and debris during flood events.

**Geologic Constraint:** A geologic condition which can cause intolerable damage to structures, but does not present a significant threat to health, life, or limb. ~~A geologic condition which does not pose a significant threat to life or limb, but which can cause intolerable damage to structures.~~

**Geologic Hazard:** A geologic condition or geologic process which presents a threat to health, life, limb, or property. Geologic Hazard Areas include but are not limited to those shown on the Geologic Hazards Map as areas where geologic conditions have been either documented, approximated or determined susceptible through modeling. Depending on the geologic hazard(s) present, these areas are associated with nominal to extensive geotechnical issues with the potential to cause intolerable damage to structures and a variable level of risk related to construction or land use purposes.

**Intensive uses:** Those land uses which include any structures used for supporting or sheltering any human use or occupancy; and/or facilities or improvements which tend to attract congregations of people.

**Landslide:** An outward or downward movement of a mass of soil and rock, containing a distinct rupture surface or zone of weakness which separates and distinguishes the slide materials from more stable underlying material.

- **Landslide Inventory:** documented landslides, published landslides and landslides identified using high resolution LiDAR terrain surface.
- **Landslide Susceptibility:** areas modeled to have landslide susceptibility based on geologic, topographic, geomorphic, and other characteristics associated with slope instability.

**Rockfall:** Rapid free-fall of large masses of rock or individual rocks of variable sizes and composition which bounce, slide, or roll downslope. Rockfalls can occur where a rockfall source (exposed bedrock cliffs, unconsolidated material containing boulders) overlies a steep slope.

- **Rockfall Susceptibility:** areas modeled to have rockfall susceptibility based on rock outcrops and source zones, topographic, and other characteristics associated with rockfall.

**Steeply Dipping Heaving Bedrock:** A geologic hazard condition where the presence of steeply dipping bedrock layers with high swell potential can result in severe differential heaving of bedrock and damaging levels of movement of foundations, roads, subsurface utilities, concrete flatwork, and other built structures.

**Subsidence:** Collapse of the ground surface over subsurface voids or settlement over native, low density soils. Subsidence can occur suddenly or slowly over a long period of time.

**Undermined Area:** An area underlain by ~~coal mine workings~~any **previous mining activity**, with the potential for subsidence of the ground surface due to collapse of underground ~~mine~~ voids. Holes, cracks, troughs, sags, and other subsidence features can develop suddenly or gradually over many years as subsurface material shifts and falls downward into the ~~abandoned mine~~ **area**.

~~**Major Hazard Area:** That area, or those areas, as shown on the Geologic Hazards and Constraint Areas Map where geologic conditions are such that extensive geotechnical problems exist and there is high risk related to intensive land uses.~~

~~**Moderate Hazard Area:** That area, or those areas, as shown on the Geologic Hazards and Constraint Areas Map where geologic conditions are such that significant geotechnical problems exist and there is provisional risk related to intensive land uses.~~

~~**Moderate Constraint Area:** That area, or those areas, as shown on the Geologic Hazards and Constraint Areas Map, where geologic conditions are such that moderate geotechnical problems exist and there is provisional risk related to intensive land uses.~~

~~**Minor Constraint Area:** That area, or those areas, as shown on the Geologic Hazards and Constraint Areas Map where geologic conditions are such that few geotechnical problems exist and there is no risk or nominal risk related to intensive land uses.~~

Sidebar: The Mineral Resources Areas Map & the Geologic Hazards & Constraint Areas Map are both associated with the Geology Element. The Geologic Hazards Map is also associated with the Natural Hazards element.

### **Aggregate Resource Area**

That area, or those areas, as shown on the Mineral Resource Areas Map, which are considered to be underlain by “commercial mineral deposits” as defined by 34-1-102(1) CRS and which are intended under the provisions of Colorado House Bill 1529 of 1973, to serve as resource preservation areas as part of *Boulder County’s Master Plan for Extraction*. Aggregate Resource Areas are further defined by way of statements which are part of Policies GE 1.06 -GE 1.08 below.

### **Lode Mineral Area**

That area, or those areas, as shown on the Mineral Resource Areas Map where mineral ores occur in veins or zones of enrichment in the basement complex rocks.

Sidebar: Swelling soils, floodways, & steep slopes are examples of **geologic hazards and constraints**.

## GEOLOGIC HAZARD AND CONSTRAINTS - GUIDELINES TABLE AND MAP

The BCCP Geologic Hazards and Constraints Map, and policies within the BCCP Geology and Natural Hazards elements make reference to the geologic hazards and constraints listed in the following table. The table provides guidance regarding the treatment of prevalent hazards or constraints for purposes of reviewing and approving development on properties with such characteristics. This table however should be used as a starting point in the identification of the hazards and constraints referenced, but not limited to them as additional hazards and constraints may be identified during a site-specific investigation. A property can be deemed to possess the listed geologic hazards or constraints based on the Geologic Hazards Map data or based on a site assessment that indicates the mapped features to be inaccurate.

**A potentially hazardous feature is deemed either a “hazard” or a “constraint” based on the outcomes of an appropriate study, per the guidelines outlined in Table 1.**

*Table 1. Review and Approval Guidelines for Properties with Geologic Hazards and/or Constraints*

<u>Geologic Hazard or Constraint</u>	<u>Land Use Guidelines</u>	<u>Recommended Site-Specific Study</u>		
		<u>Geotechnical</u>	<u>Geologic Hazard</u>	<u>Subsidence</u>
<u>Landslide</u>	<u>Developable subject to results of recommended site-specific study completed by a qualified professional geologist. Development should be guided away from areas with landslide susceptibility. The impact of landslides on foundations, slope stability, grading plans, retaining walls, septic drain fields, and other proposed structures should be carefully studied by a qualified professional.</u>	<u>X</u>	<u>X</u>	
<u>Debris Flow</u>	<u>Developable subject to results of recommended site-specific study completed by a qualified professional geologist. Development should be guided away from areas with debris flow susceptibility. Where avoidance is not possible, mitigation options must be presented which adequately manage and reduce the hazard and which do not adversely impact or increase the hazard on neighboring properties.</u>	<u>X</u>	<u>X</u>	
<u>Rockfall</u>	<u>Developable subject to results of recommended site-specific study completed by a qualified professional geologist. Development should be guided away from areas with rockfall susceptibility. In the cases where proposed development cannot avoid the hazard, rockfall mitigation options must be presented which will adequately reduce the hazard and which do not adversely impact or increase the rockfall hazard on neighboring properties.</u>	<u>X</u>	<u>X</u>	



<u>Expansive Soil and Bedrock</u>	<u>Developable subject to results of recommended site-specific study completed by a qualified professional geologist. Design of foundations must be appropriate to address the swell potential of the subsurface materials.</u>	X		
<u>Steeply Dipping Heaving Bedrock</u>	<u>Developable subject to results of recommended site-specific study completed by a qualified professional geologist. It must be demonstrated that steeply dipping heaving bedrock hazard does not exist at the site, or if it does exist, present adequate mitigation methodologies.</u>	X	X	
<u>Undermined Area</u>	<u>Areas identified to be undermined by abandoned coal mines should be considered for non-structural land use, unless it can be demonstrated that the subsidence hazard does not exist for the proposed development. In the event a proposed structure is sited within or near an undermined area, the site should be considered developable subject to the results of the site-specific subsidence study.</u>	X	X	X

## B. POLICIES

[NOTE for reviewer: All policy titles are new proposed content. Parentheses will be removed when the proposed content is finalized.]

### Geologic Hazards & Constraints

**GE 1.01 (Development in Geologic Hazard and Constraint Areas).** ~~The county shall strongly discourage intensive uses in Major Hazard Areas.~~ The county strongly discourages development in Geologic Hazard areas and only allows development in these areas when adequate mitigation can be demonstrated. The county refers to the guidelines and recommendations for studies presented in Table 1 (“Review and Approval Guidelines for Properties with Geologic Hazards and/or Constraints”) when reviewing proposals for development on properties possessing the geologic hazards and constraints listed and described in the table. Additional geologic hazards and constraints may be identified through a site-specific study in addition to those listed in Table 1 and the Geologic Hazards and Constraints Map. A geologic hazard study should be required and performed by a qualified Colorado Professional Geologist and a qualified professional (geotechnical) engineer for sites with the conditions geologic conditions listed herebelow, and development approval should be subject to the applicant completing the recommendations provided in the completed study. A geologic hazard study must be signed by the professional who prepared or certified the given study. Moreover, site-specific geologic hazard studies should be reviewed by an independent party either by the Colorado Geological Survey or an independent qualified professional geologist and/or an independent qualified geotechnical engineer.

- Documented landslide, debris flow or rockfall deposit or event.
- Landslide hazard susceptibility.
- Debris flow hazard susceptibility.

- Rockfall susceptibility.
- Steeply Dipping Heaving Bedrock mapped extents within property boundaries.
- Undermined Area mapped extents within or near property boundaries.

**GE 1.02 (Transfer of Development Rights and Development Credits for Properties with Limited Development Potential).** The county will consider a property’s geologic hazards, and the limitations those hazards place on a property’s development potential, when assessing a property’s eligibility as a transferable development rights (TDR) sending site, or for creating bonus development credits. ~~shall discourage intensive uses in Moderate Hazard Areas.~~

~~**GE 1.03 (Intensive Uses in Geologic Constraint Areas).** Where in the public interest it may be desirable to permit intensive uses, the county shall direct such uses toward Geologic Constraint Areas rather than toward Geologic Hazard Areas.~~

**GE 1.04 (County Cooperation with Municipalities).** The county shall cooperate fully with the municipalities of the county with respect to the evaluation and mitigation of geologic hazards and constraints located within the unincorporated areas of the mutually adopted city and county comprehensive plans.

**GE 1.05 (Evaluation of Geologic Hazards and Constraints in Unincorporated Areas).** The county shall require the evaluation of all county-wide ~~(geologic hazards and constraints as appropriate to reflect conditions that may change following natural disasters where such hazards or constraints may exist in unincorporated areas of the county as related to new intensive uses.~~ Such evaluations shall be conducted by a qualified Colorado Professional Geologist with knowledge and experience with the geology and geologic hazard conditions of Boulder County ~~professional practitioner having expertise in the subject matter.~~ Such evaluations should incorporate analytical methods representing current, generally accepted, professional principles and practice. Additionally, evaluations will be reviewed by the Colorado Geologic Survey or an independent qualified professional geologist and/or an independent qualified geotechnical engineer

## Mineral Resources

**GE 2.01 (Commercial Mineral Deposits)** The county shall consider the following deposits, as mapped by Schwochow et. al., (Special Publication 5B, *Colorado Geological Survey*, 1974) to be “commercial mineral deposits” as defined by 34-1-102(1) CRS.

- a) “...fine-grained igneous rock...” in
  1. Township 2 North, Range 71 West; and,
  2. Township 3 North, Range 71 West.
    - a. “Site-specific information which became available subsequent to the adoption of the *Boulder County Comprehensive Plan* and the Master Plan for Mineral Extraction indicates that the Geer Canyon area (Sections 12,

13, 14, Township 2 North, Range 71 West) is extremely sensitive in terms of potential blasting effects and impacts upon surrounding residential areas and environmental quality.” (Approved by Planning Commission 12/3/ 80, not approved by Board of County Commissioners)

b) “F1” deposits in Ranges 69 and 70 West.

**GE 2.02 (Delineation of Aggregate Resource Areas).** Aggregate Resource Areas shall be delineated utilizing certain portions of areas which are underlain by “commercial mineral deposits” as those deposits are defined in Policy GE 2.01.

**GE 2.03 (Lands Excluded from Aggregate Resource Areas).** Pursuant to Policy GE 2.02 and the provisions of 34-1-304(1)(a-g) CRS, the county shall not include in its Aggregate Resource Areas, the following lands:

- c) those areas defined and mapped in the Environmental Resources and Agricultural Elements as:
  - 1. “Critical Wildlife Habitat”
  - 2. “Agricultural Lands of National and State-wide Importance”.
  - 3. “Designated Natural Landmarks and Natural Areas”.
- d) those areas defined and mapped in the Geology Element where:
  - 4. existing development effectively precludes extraction; or,
  - 5. extraction has been completed.
- e) those unincorporated areas in the county lying within adopted community service areas where existing or previous capital improvement commitments effectively preclude mineral resource designation.
- f) those areas remaining after the exclusions contained in Items a-c, above, where the contiguous surface area underlain by a commercial mineral deposit is 20 acres or less.
- g) those parcels remaining after the exclusions contained in Items a-d, above, where the surface area underlain by a commercial mineral deposit is 20 acres or less.
- h) any specific site the mineral extraction from which would not be appropriate in light of the countervailing factors listed in 34-1-304(1), CRS.

[Sidebar: In Boulder County, open mining requires Special Use Review.](#)

**GE 2.04 (Intensive Uses in Aggregate Resources Areas).** The county shall strongly discourage intensive uses in Aggregate Resource Areas.

**GE 2.05 (Regulation of Open Mining and Accessory Activities).** Whether within or without a designated aggregate or other resource area, the county shall prohibit or regulate, including by Special Use Review and the like, the open mining of any mineral or earthen material including, but not limited to, limestone, coal, peat, quarry aggregate, sand and

gravel, sandstone, building stone, topsoil, common borrow, clay, shale, gold, lead, silver, zinc, copper, uranium, tungsten, and fluorspar as well as all accessory activities related thereto.

It is emphasized that the extraction plan is fundamentally and primarily a preservation plan and that these portions of the county's commercial aggregate deposits shall be protected from the encroachment of land uses which tend to inhibit or preclude extraction so that the options of future decision-makers will remain open in considering the demand for aggregate. Conversely, it is not intended that an applicant for the extractive land use in an Aggregate Resource Area shall automatically be assured of success in lieu of addressing all environmental concerns. Nor is it intended that extractive land uses shall be denied outside the Aggregate Resource Areas. Rather, it is reemphasized that the extraction master plan shall insure the availability of and adequate supply of quality aggregate over the next 30 years so far as can be reasonably estimated. (Approved by Planning Commission 12/3/80, not approved by Board of County Commissioners.)

[Sidebar: The requirement for reclamation of mined land is usually a cooperative effort between the county & the Mined Land Reclamation Board.](#)

**GE 2.06 (Geothermal Resources).** The county shall regulate the exploration for, development of, and production of geothermal resources as well as all accessory activities related thereto, to the extent permitted by state statutes.

**GE 2.07 (Subsurface Coal).** The county shall regulate the subsurface mining, gasification, liquification, and methane desorption of coal as well as all accessory activities related thereto.

**GE 2.08 (In Situ Leaching).** The county shall regulate the mining of any mineral by means of in situ leaching as well as all accessory activities related thereto.

**GE 2.09 (Subsurface Mining in Montane and Alpine Subprovinces).** Whereas subsurface mining in the Lode Mineral Areas in the recent past has been, and in the foreseeable future will probably remain, of limited scope and impact, it shall presently be county policy to consider subsurface mining in the Montane and Alpine Subprovinces (as defined in the Geology Element background information) and its accessory activities, to be a permitted land use subject to the procurement of an appropriate administrative permit in compliance with attendant criteria.

However, whereas the lode mineral deposits of Boulder County are of such magnitude and diversity that it is conceivable that subsurface mining of major scope and impact may be initiated, the county shall continuously monitor and evaluate the scope of subsurface mining in said Subprovinces and, on recommendation from the county Planning Staff or by petition from the citizens of the county, the county Planning Commission may recommend to the Board of County Commissioners that such subsurface mining be regulated and that the county land use regulations be so amended.

**GE 2.10 (Land Reclamation).** In cooperation with the Colorado Mined Land Reclamation Board and its staff, the county shall require that all “affected land” as defined by Colorado Statute, be reclaimed whether the subject mining activity shall have been open mining or subsurface mining.

### **Groundwater**

**GE 3.01 (Groundwater Quality and Supply).** The county shall render land use decisions consistent with the preservation or improvement of groundwater quality as well as the conservation of groundwater supplies.

**GE 3.02 (Adequacy of Water Supply for Intensive Land Uses).** Whereas (1) geological conditions in some areas of the county, as described in the Geology Element, are such that dependable or potable groundwater supplies may not be available for intensive land uses; and (2) applicants for intensive land uses may specify that groundwater shall be partially or solely utilized as a water source, the county’s land use regulations shall require that said applicants furnish hydrogeological or other acceptable evidence to establish that definite provision has been made for a water supply that is sufficient in terms of quantity, dependability, and quality for the intensive use proposed.

*Sidebar: Geologic conditions in some areas of the county are such that dependable or potable groundwater supplies may not be available for intensive land uses.*

### **Oil & Gas Exploration & Development**

Boulder County recognizes the existence of oil and gas mineral rights within its unincorporated areas. It is the county’s objective to exercise its fundamental duty to protect public health, safety and welfare and the environment from adverse effects of oil and gas exploration and development, and to minimize potential land use conflicts between those activities and current or planned land uses.

All policies, procedures and regulations dealing with oil and gas exploration and development shall be based on the implementation of the “precautionary principle” so as to ensure the safety, public health and protection of Boulder County’s residents, environment, infrastructure, and resources with respect to local and cumulative, short and long-term considerations.

**GE 4.01 (Protection from Impacts of Oil and Gas Exploration and Development).**

Boulder County is dedicated to promoting, requiring and implementing programs, policies and practices that provide benefit to the well-being of current and future residents as well as protecting the integrity of the air, water and ecosystems on which all life depends. Consequently, it is county policy to pursue the following actions regarding the exploration and development of oil and gas resources:

- i) Where oil and gas exploration and development is regulated by the federal and/or state government alone, both currently and in the future, advocate for requiring use of the most effective performance technologies and practices;

- j) For oil and gas exploration and development activities in areas of shared regulatory authority, provide direction, leadership and support for incorporating the most effective performance technologies and practices into the applicable jurisdiction's rules and regulations; and
- k) For those oil and gas exploration and development activities subject primarily or solely to county jurisdiction, establish and maintain a comprehensive planning basis for amending, revising and updating the Land Use Code as well as the full array of regulatory tools and procedures available to the county as they are identified and found to be consistent with the Objective of these policies.

**GE 4.02 (Priorities for Most Effective Performance Technologies and Practices).** Areas where the county has an interest in assuring that the most effective performance technologies and practices are applied include, but may not be limited to:

- l) Transportation impacts on roads and their users
- m) Development impacts on county open space lands and conservation easements
- n) Impacts on and consumption of environmental resources, including
  - 6. Wildlife and wildlife/plant habitat
  - 7. Wetlands
  - 8. Riparian areas
  - 9. Surface and subsurface water – sources, volumes, and consumptive vs. non-consumptive use
  - 10. Aquifers – casing that isolates and protects aquifers, due diligence in finding abandoned wells, and protective setbacks from areas of outcropping aquifers
  - 11. Air quality – greenhouse gas emissions, ozone precursors, and toxic air pollutants affecting local residents, visitors and users of nearby public facilities
  - 12. Water quality
  - 13. Soil quality and productive integrity
- o) Geologic hazards
- p) Wildfire mitigation
- q) Storm water, drainage and erosion controls
- r) Solid and liquid wastes management
- s) Noise, lighting and odor controls
- t) Land restoration and reclamation
- u) Agricultural land preservation



- v) Irrigation ditches, drain tiles, laterals, ponds and other water resource systems associated with agricultural operations
- w) Fencing, both temporary and replacement
- x) Noxious weed control
- y) Floodplain and floodways
- z) Visual impacts and preservation of scenic views
- aa) Access roads/facilities removal upon well closures/abandonment
- bb) Historic/archeological/cultural protection
- cc) Emergency response planning and capabilities
- dd) Adjacent landowner concerns
- ee) Other areas of public health, safety and welfare as they may be identified

**GE 4.03 (Assessing Adherence to Most Effective Performance Technologies and Practices).** Measures the county will look for in assessing whether an application for oil and gas exploration and development is adhering to most effective performance technologies and practices will include, but not be limited to, the following:

- ff) use of closed loop systems for the containment and/or recycling of drilling and completion fluids;
- gg) use of emissions controls, prevention capture/co-benefits producing systems, and other green completion or reduced emissions systems to minimize or eliminate the release of volatile organic compounds, hazardous air pollutants, and greenhouse gases;
- hh) use of electric motors or muffled internal combustion engines in pumping and production operations;
- ii) extensions of setbacks from adjacent land uses, water bodies, water courses, riparian areas and other important environmental resources as determined on a case-by-case and site-by-site basis;
- jj) air quality baseline testing and monitoring at wellheads, condensate tanks, pipelines, compressor stations and other potential gaseous emissions sources;
- kk) soil structure and condition baseline testing and documentation within and adjacent to the drill pad area prior to commencing pad preparation and construction;
- ll) surface, groundwater, and well water quality and level baseline testing and monitoring within and adjacent to the drill pad area prior to commencing pad preparation and construction;
- mm) extensions of setbacks to achieve public health, safety and welfare objectives as determined on a case-by-case and site-by-site basis;
- nn) submittal of comprehensive drilling and phasing plans for oil and gas holdings within and adjacent to Boulder County;

- oo) preparation of plugged and abandoned hydrocarbon well integrity surveys within an adequate distance along the full length of the bore hole and production casing for proposed new wells and existing wells to be reopened for production, to identify potential integrity problems and remedies for improperly plugged wells or where plugs and well casings have failed over time;
- pp) use of temporary, removable, low-impact “laydown” roads or similar methods for access to sites from local, county, state and/or federal roads;
- qq) dark sky lighting measures;
- rr) odor, dust and noise reduction/suppression measures;
- ss) complete reclamation and restoration of all disturbed areas, including roads, to their pre-exploration and development conditions;
- tt) sharing of transportation, drilling, production, transmission and access facilities among operators to minimize duplication of activities and potential impacts;
- uu) use of existing easements and infrastructure where appropriate and allowed by easement holders for the surface and subsurface infrastructure necessary for drilling, extraction, production and transmission operations;
- vv) “fair share” compensation for impacts on county roads, county open space lands and other county infrastructure or properties

**GE 4.04 (Greenhouse Gas Emissions).** In addition to the county’s expressed interest in eliminating methane and other greenhouse gas emissions from oil and gas development into the atmosphere, the county strongly supports all efforts at all levels to further study and ultimately eliminate such emissions resulting from oil and gas operations whether through legislative, regulatory, voluntary or other means.

**GE 4.05 (Minimize New Land Use and Cumulative Impacts).** The county shall consider requiring operators to use and share existing infrastructure, to minimize installation of new facilities, and to avoid additional disturbance to lands to the greatest extent possible in order to forego introducing significant new land use and cumulative impacts to the environment, landowners and natural resources.

**GE 4.06 (As-Built Facilities Maps for Emergency Response and Management).** Applicants for oil and gas exploration and development shall provide the Boulder Office of Emergency Management and affected emergency response agencies with as-built facilities maps in a format suitable for input into the county’s GIS system depicting the locations, sizes, and depths below grade of all oil and gas gathering and transmissions lines and associated equipment, surface facilities and their functions, as well as transportation routes to and from exploration and development sites, for emergency response and management purposes in case of an incident or accident involving transmission or transportation presenting an immediate or potential hazard to the public and environment.

**GE 4.06.01** Operators shall cooperate with local emergency response agencies in planning and conducting on-site emergency preparedness exercises that simulate industrial incidents and accidents that may, in the opinion of the emergency response agencies, take place on site.

**GE 4.06.02** Operators shall disclose all hazardous chemicals used in their operation to the Boulder Office of Emergency Management and all affected emergency response agencies.

**GE 4.06.03** All unintended releases of hazardous chemicals shall be immediately reported to the Boulder Office of Emergency Management and all affected emergency response providers.

**GE 4.07 (Assistance to Landowners).** The county will encourage and provide appropriate assistance to landowners seeking expert advice for negotiating surface use agreements or leasing arrangements for oil and gas exploration and development.

**GE 4.08 (Collaboration with Stakeholders, Regulators and Interested Parties).**

Achieving the county’s Objective regarding oil and gas activities requires not only a thorough review of local regulations but also communication and cooperation between the county, other levels of government and organizations involved in the oil and gas industry and in the study of oil and gas development and exploration. To this end, the county has appointed a Local Governmental Designee pursuant to Rule 214 of the Colorado Oil and Gas Conservation Commission. In addition, the county is committed to working with stakeholders, regulators and interested parties to:

- ww) Identify and address deficiencies in regulating detrimental land use and surface impacts as well as environmental and health impacts;
- xx) Continue review of studies, data and other information to ensure regulations and implementation measures are presently addressing or need revising to incorporate the most contemporary research on impacts and technological advances;
- yy) Monitor state and federal legislation and policies, to be followed when deemed necessary by lobbying, letters of support and advocacy, and dissemination of information to enhance local protection for land use, surface impacts, public health and the environment;
- zz) Investigate the feasibility and utility of entering into memoranda of understanding (MOUs), intergovernmental agreements (IGAs) or other accords with industry, the state, and other public or private sector interests where the outcome will help facilitate the implementation of these policies; and
- aaa) Consider addressing impacts of oil and gas development by acquiring and retiring mineral estates interests on a willing seller-willing buyer basis where appropriate.

**GE 4.09 (Public Engagement by Oil and Gas Applicants).** The county will require that applicants for oil and gas exploration and development directly engage with local communities, residents and other stakeholders at each phase of a development plan, starting prior to exploration, in order to provide sufficient opportunity for comment on plans, operations and performance, listen to concerns, and respond appropriately and promptly.

**GE 4.10 (Water Rights).** Boulder County shall not lease or sell any of its current or future water rights for oil and gas exploration and development.

**GE 4.11 (Agricultural Land Restoration and Reclamation).** Agricultural land preservation and conservation is a core goal and value of the BCCP. Oil and gas operations will be required to restore and reclaim all on and off-site agricultural lands impacted by any activity related to exploration, development, infrastructure installation, closure, and transportation to the soil tilth, productivity, and/or drainage patterns that were in place prior to the initiation of oil and gas operations.

**GE 4.12 (Applicants' Acceptance of Responsibility and Liability).** Boulder County will require explicit commitments by applicants to accept responsibility and liability for compensation and/or mitigation of directly and indirectly related costs, nuisances, damages and adverse impacts as a condition for issuance of permits dealing with oil and gas resource exploration and production.