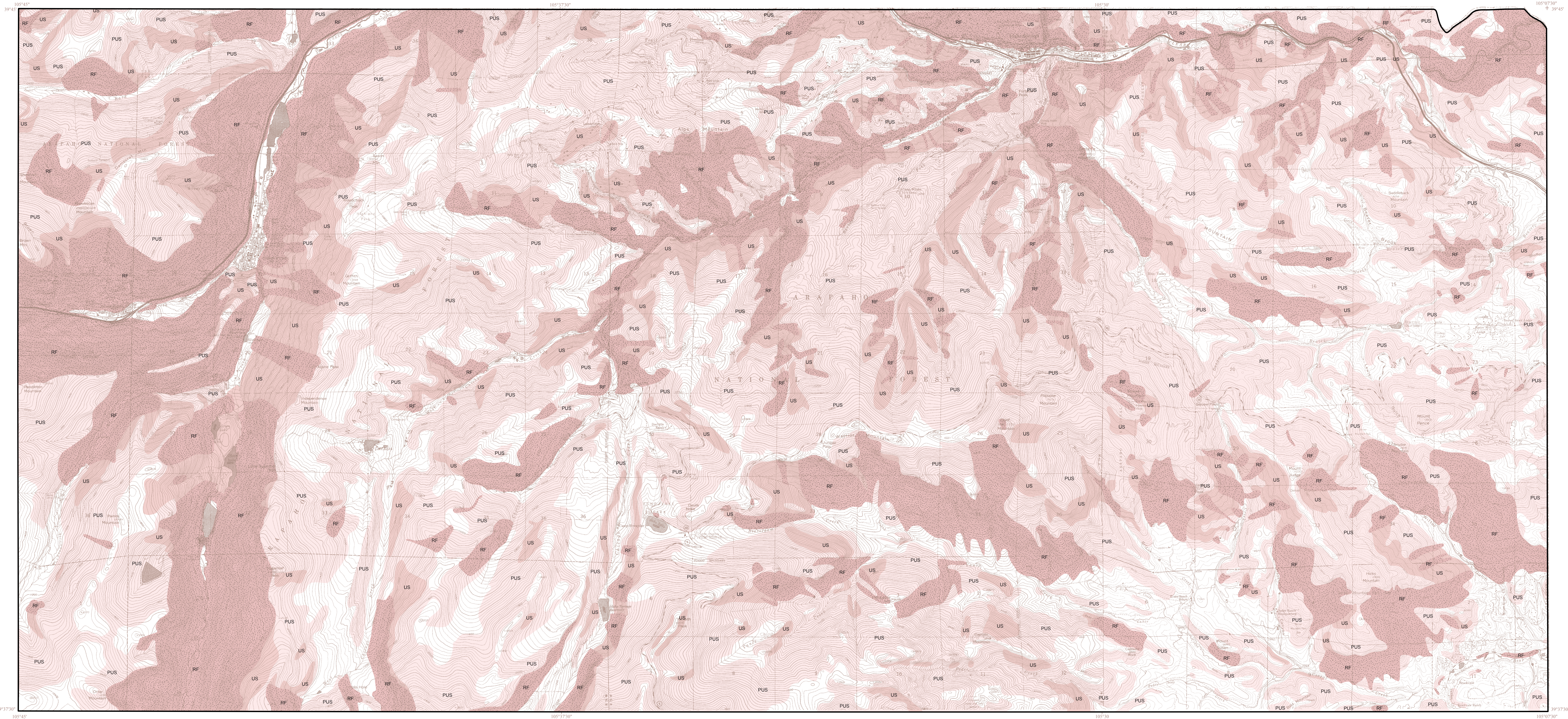


Selected Geologic Hazards of the Georgetown, Idaho Springs, and Squaw Pass Quadrangles,  
Clear Creek County, Colorado

By  
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SELECTED GEOLOGIC HAZARDS  
CLEAR CREEK COUNTY, COLORADO  
PLATE 1 OF 2  
Booklet and digital shapefiles on CD-ROM accompany map



Base map from U.S. Geological Survey, 1974

Digital cartography by Beth L. Widmann

HAZARD POTENTIAL FOR SOME COMMON LAND USES

	High density residential development (also includes schools, public and private campgrounds, summer youth camps, etc.)	Low density residential development	Roads	Utilities (also includes regional and local distribution facilities and on-site utilities)	Open-space recreational areas (not to include distribution facilities and on-site utilities)	Commercial and industrial development (includes larger residential buildings, ski areas, and lift towers etc.)	Low-value light-weight agricultural buildings	Agricultural uses
Rockfall areas	5* A B C D E F H Rarely compatible without elaborate and expensive mitigation.	3 A B C D F H Careful siting typically necessary to minimize hazard.	3 A B C D E F H Remedial engineering can minimize hazard.	3 A B C D E F H Careful planning can minimize hazard.	1* A B F Careful siting can minimize hazard.	3 A B C D E F H Remedial engineering probably necessary; maintenance costs probably high.	2 A B C D F H Careful siting can minimize hazard.	1 B E Usually few or minor problems.
Unstable slopes	5* A B C D E F H Rarely compatible without elaborate and expensive mitigation.	3 A B C D F H Careful siting and remedial engineering typically necessary.	3 A B C D E F H Remedial engineering can minimize hazard.	3 A B C H Careful planning and mitigation can minimize hazard.	1* A B F Careful siting can minimize hazard.	3 A B C D E F H Remedial engineering probably necessary; maintenance costs probably high.	2 A B C D F H Careful siting can minimize hazard.	1 B E Usually few or minor problems except for unfilled irrigation ditches.
Potentially unstable slopes	3 A B C D E F H Remedial engineering may be necessary.	2 B C D E F Remedial engineering may be necessary.	2* A B C D E F H May experience difficulties without careful planning and engineering.	1 B D E F Careful planning can minimize hazard.	1 B F Typically no difficulties.	2 A B C D F H Remedial engineering necessary in many cases.	2 A B C F H Remedial engineering necessary.	1 B E Usually minor problems except for cultivated hillslopes & irrigation ditches.

Chart modified after Soule (1976).

This chart is intended to serve only as a guide to addressing some of the more common problems associated with development and geologic hazards. However, these suggestions are not meant to be used as criteria for minimum building standards. They should only be used as a basis from which to begin site investigation.

- Number Symbols
- VERY LOW, IF ANY HAZARD
  - LOW HAZARD
  - MODERATE HAZARD
  - HIGH HAZARD

Letter Symbols

- ESPECIALLY SEVERE ON SLOPES GREATER THAN 30 PERCENT
- ACTIVITY IS INTERMITTENT DEPENDENT ON VARIATION IN WEATHER OR OTHER FACTORS
- OVERSTEPPING OR CUTTING OF SLOPES CAN INCREASE HAZARD GREATLY
- ARTIFICIAL OR NATURAL INCREASE IN GROUND MOISTURE CAN INCREASE HAZARD GREATLY
- HAZARD MAY DECREASE CONSIDERABLY AS SLOPE DECREASES
- REMOVAL OF NATURAL VEGETATION CAN INCREASE HAZARD GREATLY
- VARIES SEASONALLY
- HAZARD MAY DECREASE CONSIDERABLY AS SLOPE DECREASES
- DETAILED ENGINEERING GEOLOGY STUDIES NECESSARY DURING PRE-PLANNING STAGES OF DEVELOPMENT
- RELATED FRACTURING OF ROCK MAY CONTRIBUTE TO UNSTABLE SLOPE CONDITIONS. IN EARTHQUAKE EVENT FACILITIES MAY BE SUBJECT TO INTENSE SHAKING AND GROUND RUTURE
- ESPECIALLY SEVERE IF VEGETATION COVER IS SERIOUSLY DISRUPTED
- HAZARD INCREASES NEAR STREAMS AND WATER RECHARGE AREAS
- ESPECIALLY SEVERE IF MINE OPENING IS STEEP OR IN INCOMPETENT ROCK
- PROFESSIONAL ENGINEERING FLOOD PLAN STUDY NEEDED

RF

US

Rockfall Areas - Areas subject to deposition of relatively large fragments of rock and debris. Inherent risks in rockfall areas include injury or loss of life and severe damage to structures, roads, vehicles, and utilities. The lower limit of many rockfall areas is often gradual and difficult to delineate. Therefore, development in and below these areas should be avoided unless site-specific analyses (such as detailed field studies and computerized rockfall simulation profiles) indicate that careful siting or engineering solutions will effectively mitigate the hazard.

PUS

Potentially Unstable Slopes - Slopes that are in a state of quasi-equilibrium and do not appear to be currently active but have the potential to generate life- and property-threatening hazards when disturbed by human activities or natural processes. Potentially unstable slopes are primarily susceptible to rockfall, landslide, and debris-flow hazards and may be subject to all the same risks to life and property previously described for each of those hazards. When these slopes are underlain by unconsolidated surficial deposits, they may be subject to sediment deposition, severe erosion, and downslope movement of material by gravity, surface water, creep, or freeze-thaw action.

EXPLANATION

INTENDED MAP USE

Plate 1 depicts debris chutes and debris-flow deposition areas, landslide areas, snow-avalanche paths, selected mine openings and mine waste sites, shallow groundwater and potential flood areas, and fault zones on the Georgetown, Idaho Springs, and Squaw Pass quadrangles in Clear Creek County. Plate 2 shows rockfall areas, unstable slopes, and potentially unstable slopes. These maps were prepared to assist Clear Creek County in future planning and land-use management practices. These maps are intended to serve only as a guide to addressing some of the more common problems associated with development and geologic hazards. They are not a substitute for professionally prepared site-specific hazard studies and designs. Rather they are meant to be an alert or warning that professional studies are needed in advance of development plans or building permits. The maps were prepared on the basis of 1:24,000-scale mapping and are recommended for initial land-use planning only. They are not intended for use in project- or site-specific planning. A text booklet and digital shapefiles (including geologic hazards by type, geology, slope inclination, stream channels, topography, and shaded relief maps) accompany this map and should be consulted for more in-depth information regarding geologic hazards and building constraints in Clear Creek County.

COLORADO COUNTIES INDEX MAP

