

# LANDSLIDE SUSCEPTIBILITY MAP OF BOULDER COUNTY, COLORADO

KASSANDRA LINDSEY  
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## ABOUT THIS MAP

This map is intended for use by planners and regulators to support review of site-specific geologic hazard reports submitted for development purposes as required by law, and by professional geologists planning detailed site-specific geologic hazard studies. Colors on the map represent either mapped landslide deposits or the degree of landslide susceptibility of a given geologic unit; dark red are mapped landslides using lidar from this study, purple are compiled landslides from previous studies, orange are moderate susceptibility, and yellow are low susceptibility areas. New and existing structures, roadways, bridges, and other infrastructure located within mapped landslide deposits or susceptibility areas may be at risk of structural damage and/or sediment inundation. For new or proposed development within these areas, site-specific geologic hazard reports addressing landslide hazards with consideration given to proper landslide mitigation techniques should be required prior to approval of land subdivision or the issuance of building permits. These reports should discuss the degree, limits, and potential impacts of the hazard to the proposed development or land use changes, and feasibility of any recommended mitigation options. A separate Author's Notes document is included with the distribution of this map plate.

## MAPPING METHODOLOGY

The landslide inventory was compiled by digitizing landslide deposits visible on 1-m resolution Lidar datasets and aerial photography, and joining it with previously cataloged landslide inventories from various published data sets and mapping projects. The landslide susceptibility criteria were developed by subdividing the mapped geology into three relative rock strength groups and comparing the overlap with seven slope class groups. For example, where weak rock overlaps with moderate- to high-slope angles, the landslide susceptibility is given a higher rating. Crystalline rock zones were not analyzed for landslide susceptibility because methodology applied elsewhere in the study area overestimated the susceptibility and highlighted areas more susceptible to rockfall in the crystalline zone, which were not included as a part of this study.

## MAP LIMITATIONS

This map depicts generalized areas that may be susceptible landslides based on available data and limited field visits to accessible areas. The map was generated at a scale of approximately 1:24,000 (1 inch = approx. 0.4 mi) and is not valid if enlarged to scales greater than 1:24,000. Because of limitations associated with the map scale and the scope of this project, the map does not highlight all areas that may be susceptible to landslides. Inclusion of existing structures and infrastructure within a mapped susceptibility area does not necessarily indicate that landslide impacts will occur, only that these features may be more exposed relative to those located in other areas. The degree of susceptibility to a particular geologic hazard, in any given area, is related to ever-changing natural and human-induced conditions and any alteration in the natural landscape may increase or decrease susceptibility to a particular hazard. Due to the nature of the geologic maps used and the limitations of the model, areas that are more susceptible to rockfall or debris flow may be included in the coverage of the susceptibility map. The polygons shown on this map are not intended to assign risk, or indicate the degree, severity, recurrence interval, or exact boundary of individual landslide-prone areas. This map should not be used in place of a detailed site-specific geologic hazard study.

## Explanation:

|  |  |
|--|--|
|  | Low susceptibility                                       |
|  | Medium susceptibility                                    |
|  | High susceptibility                                      |
|  | Landslide deposit inventory from lidar                   |
|  | Landslide deposit inventory from published geologic maps |
|  | Crystalline rock   |
|  | Park and open space areas                                |
|  | Urban density areas                                      |

## PLSS Section key:

|    |    |    |    |    |    |
|----|----|----|----|----|----|
| 6  | 5  | 4  | 3  | 2  | 1  |
| 7  | 8  | 9  | 10 | 11 | 12 |
| 18 | 17 | 16 | 15 | 14 | 13 |
| 19 | 20 | 21 | 22 | 23 | 24 |
| 30 | 29 | 28 | 27 | 26 | 25 |
| 31 | 32 | 33 | 34 | 35 | 36 |



Cartography by Larry Scott, CGS; reviewed by Ralph Shroba

