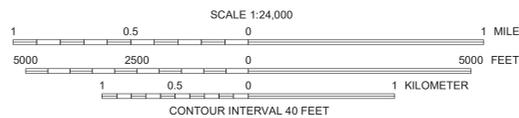




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1	2	3
4	5	6
7	8	

Base from USGS Moab 7.5' quadrangle (1985), slopeshade derived from the USGS 10-meter National Elevation Dataset (NED) (2009), and aerial photography from the National Agriculture Imagery Program (NAIP) (2011).
Projection: UTM Zone 12
Datum: NAD 1983

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FLOOD HAZARD MAP OF THE MOAB QUADRANGLE, GRAND COUNTY, UTAH

by
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EXPLANATION

- Not Mapped** – Area not mapped due to significant and ongoing human disturbance. A portion of the area has been mapped by the Federal Emergency Management Agency (FEMA); see Flood Insurance Rate Maps (FIRM) for more information.
- National Hydrography Dataset (NHD)** – The NHD delineates streams in drainages using GIS modeling based on 30-meter NED data (USGS, 2016b). These data indicate a high flood potential in drainages. Determining the actual extent of flooding is beyond the scope of this map and should be conducted as part of site-specific geologic hazard investigations.
- Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Zones**
Special flood hazard areas (SFHAs) subject to inundation by the 1% annual chance flood – The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The SFHA is the area subject to flooding by the 1% annual chance flood. Areas of special hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The base flood elevation is the water-surface elevation of the 1% annual chance flood. (FEMA; map number 49019C1775D, 49019C1754D, 49019C1758D, 49019C1759D, 49019C1766D, and 49019C1767D, all effective April 2009).
Not all SFHAs may exist in the quadrangle. The SFHAs mapped by FEMA in the quadrangle are defined below.
Mandatory flood insurance purchase requirements and floodplain management standards apply.
- Zone A** – No base flood elevations determined.
- Zone AE** – Base flood elevations are determined.
- Zone AO** – Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- Other Flood Areas**
- Zone X 0.2%** – Areas having a 0.2% annual chance of flooding (500-year flood), or 1% annual chance of flooding (100-year flood) with average depths of less than 1 foot (0.3 m) or having a drainage area less than 1 square mile (2.6 square km), and areas protected by levees from 100-year flood.
- Other Areas**
- Zone X** – Areas determined to be outside the 0.2% annual chance floodplain (not labeled).

USING THIS MAP

This map shows drainages covered by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) and other potential flood-hazard areas identified using geologic data. Because intense cloudburst storms can create a potential for flash floods, debris flows, and sheetfloods anywhere in the quadrangle, even locations outside of identified potential flood-hazard areas could be subject to periodic flooding. The entire Moab quadrangle has an increased potential for flash flooding. During intense rain events, water accumulates and channelizes on mesas and in slot canyons. The flash flood can be fast moving, high volume, and contain a large amount of debris. Individuals and vehicles can be easily caught in the flood, resulting in unrecoverable damage and/or death.

GIS data derived from the National Hydrography Dataset (NHD) delineates streams in drainages using GIS modeling based on a 30-meter National Elevation Dataset (USGS, 2016b). These data were added to the map to indicate the flood hazard in these drainages and slope flooding. These data indicate where water is likely to channelize, and the flood hazard may be higher than mapped. Small, individual drainages were not mapped due to topographic complexities and scale limitations of the map. This map is designed for use in general planning to indicate the need for site-specific investigations and identify areas where the FIRM maps can be consulted to determine areas where flood insurance may be required. This map also shows where existing developments are within potential flood-hazard areas and therefore may require remedial flood-hazard reduction measures. This map is based on limited available geological, geotechnical, and hydrological data. The quality of the map depends on the quality of these data, which vary throughout the quadrangle. The mapped boundaries of the flood-hazard categories are approximate and subject to change with additional information. The flood hazard at any particular site may be different than shown because of geological and hydrological variations within a map unit, gradational and approximate map-unit boundaries, and the generalized map scale.

This map is intended for use at a scale of 1:24,000, and is designed for use in general planning and design to indicate the need for site-specific flood-hazard investigations. For additional information about the flood hazard in the Moab quadrangle, refer to the accompanying report.

FLOOD-HAZARD CATEGORIES BASED ON GEOLOGIC DEPOSITS MAPPED BY THE UTAH GEOLOGICAL SURVEY

Hazard Category	Geologic Units ¹	Description	Hazard Type	Comments
Very High (VH)	Qa ₁ , Qa ₂	Active floodplains, active alluvial fans, and low terraces along perennial streams (large drainage basins) and rivers subject to periodic riverine and flash flooding, and debris flows.	Riverine flood, flash flood, debris flow	Wetlands, young alluvium along the Colorado river and in smaller drainages, young alluvial fans.
High (H)	Qa ₂ , Qa ₃ , bedrock in large drainages	Stream channels, floodplains, and low terraces along normally dry ephemeral streams (smaller drainage basins) and active alluvial fans that are periodically inundated by flash floods and debris flows during cloudburst storms.	Flash flood, debris flow	Normally dry streams and alluvial fans with comparatively small drainage basins subject to flooding during cloudburst storms.
Moderate (M)	Qa ₃ , Qc, bedrock	Active pediments and sloping depositional surfaces flanking ridges and other upland areas that are chiefly inundated by sheetfloods, but possibly by flash floods and debris flows during cloudburst storms.	Sheetflood, possible flash flood and debris flow	Active depositional surfaces on the flanks and at the base of upland areas subject to flooding during cloudburst storms.
Low (L)	Qes, Qe ₂ , Qes, Qe ₃ , Qa ₃ , Qa ₄	Valley bottoms and minor ephemeral drains subject to possible sheetfloods and minor flashfloods from adjacent upland areas during cloudburst storms.	Sheetflood, minor flash flood	Valley bottoms subject to infrequent flooding from adjacent upland areas during cloudburst storms.
Undetermined	Qa ₃ , Qa ₄ , Qms, bedrock	Bedrock that may be subject to flood hazards during cloudburst storms, but could not be classified due to a lack of alluvial deposits. Elevated alluvial terraces.	Possible sheet-flood, flash flood, and debris flow	Areas of active erosion in which flood hazards are undetermined due to a lack of mappable alluvial deposits.

¹ Refer to the Geologic Map of the Moab 7.5' Quadrangle, Grand County, Utah (Doelling and others, 2002) for descriptions of map units.