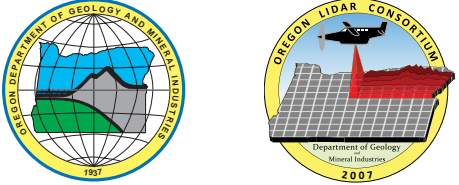


STATE OF OREGON  
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES  
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The content of this publication is derived from the Bureau of the Northwest Information Center  
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**Explanation:** The lidar data used to create this map were collected from a light aircraft carrying a highly accurate laser scanner. The scanner makes over 100,000 measurements each second to build up a three-dimensional "point cloud" model of the surface of the earth and the vegetation and structures on it. A computer sorts the points, separating those that measure the ground from those that measure trees and buildings. Images derived from these sets of points are then merged with other forms of digital data to create this map. The inset maps of Lava Butte show a 3D perspective with derivative lidar products and orthophotos.

The Oregon Department of Geology and Mineral Industries (DOGAMI) has been collecting lidar data in Oregon since 2006. The goal is to cover the entire state as funding for the data collection becomes available. You can learn more about lidar and view lidar images of other parts of Oregon at: [www.OregonGeology.org](http://www.OregonGeology.org)

Data sources: Lidar from DOGAMI and the Oregon Lidar Consortium (2010). National Agriculture Imagery Program (NAIP) orthophotos from the U.S. Department of Agriculture (2010). Street and railroad data from Esri (2006). Bend urban growth boundary from the Department of Land Conservation and Development (2009). Watersheds from the Pacific Northwest Hydrography Framework partnership (2005). Newberry National Volcanic Monument boundary from the U.S. Forest Service. All water, stream, and rail data were spatially corrected by DOGAMI using the lidar data.

# Physiographic Map of Lava Butte

Deschutes County, Oregon  
2011

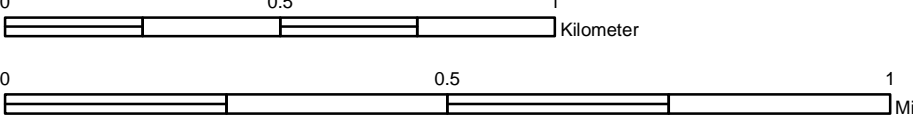
OPEN-FILE REPORT O-11-04



- Legend**
- Point of Interest
  - Bend Urban Growth Boundary
  - Newberry National Volcanic Monument
  - Water
  - Railroad
  - Primary Route
  - Secondary Route

Cartography: Rachel Lyles, Oregon Department of Geology and Mineral Industries  
Map projection: Oregon Lambert, NAD83 SABS Datum, International Foot

**Disclaimer:** This map is not intended to provide authoritative bearings for any of the features depicted. Although it is derived from highly accurate lidar imagery, it should not be used for engineering or survey purposes.



The volume of rock in the Lava Butte Lava Flow is 380,000,000 cubic yards. The flow spilled into the Deschutes River forming lava dams in some places and shoving the river westward out of its channel in others.

Assuming a paved road 24 feet wide and 6 inches thick, there is enough rock in the flow to pave 160,000 miles of road. This is equivalent to a paved road circling the world six and a half times.

The long straight cliffs that run diagonally across the map are fault scarps. Fault scarps form when a fault moves during a strong earthquake, and one side rises a few feet above the other. These scarps are the result of dozens of earthquakes that have occurred over the last 100,000 years or more. One fault runs directly beneath Lava Butte and probably served as a path for the rising magma that fed the Lava Butte eruption.

Two miles of railroad grade across the Lava Butte lava flow were constructed in late 1931 during a two month period. The first train used the new section of railroad on April 7, 1932. Burlington Northern continues to use this railroad today.

Pilot Butte, named in 1851, is a cinder cone butte that rises nearly 500 feet above the surrounding plains. It makes Bend one of three cities in the continental U.S. to have an extinct volcano within its city limits.

The Old Mill District is a vibrant area of shopping, dining, and entertainment located in the heart of the city. It was originally a massive Brooke-Susman sawmill complex that began lumber production in 1916. The mill was open and active until 1994.

The Lava Butte cinder cone erupted 7,000 years ago and covered over nine square miles with lava. The butte offers a panoramic view of central Oregon, including a spectacular view of the Cascade Range and the northwest flank of Newberry.