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Testimony on Geologic Mapping, Volcano Monitoring and Landslide Preparedness.

U.S. House Subcommittee on Energy and Mineral Resources
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Chairman Gosar, Ranking Member Lowenthal, and Members of the Subcommittee:

My name is Steven Masterman. I am testifying today as President of the Association of American State Geologists, and State Geologist for Alaska. The Association's members are the chief executives of the state geologic surveys. Almost every one of your states has a geologic survey that focuses on geologic mapping, assessment of mineral, energy and water resources, and the reduction of risk from hazards such as earthquakes, volcanoes, and landslides.

I am here today to talk about reauthorizing existing, as well as passing new, legislation to address the need for geologic mapping, volcano monitoring and landslide preparedness.

The National Cooperative Geologic Mapping Program (NCGMP) has been a model program within the USGS since its initial passage in 1992. The program has contributed $129 million to geologic mapping through grants to state geologic surveys, and the states have matched this through the required one-to-one state match. Additional funds have supported geologic mapping by graduate students, training the next generation of mappers. The program has generated over 7,000 new geologic maps, the bulk of which have been produced by state geologic surveys. These maps reflect the mapping needs of each state. Mapping within

states is prioritized by mapping advisory boards who represent diverse user groups, ensuring mapping produces societally relevant information meeting state and local needs.

While the states match mapping funds equally with the federal government, many state dollars are left on the table each year. At a minimum, the states could double the amount spent on mapping, if the federal government could increase its mapping funding.

There is significant need for this additional spending. According to the USGS, in 2016 there were twenty strategic and critical minerals on which the U.S. was 100% import-reliant, and another twenty on which we were more than 70% import reliant. Many of these minerals are essential for high-tech civilian and military applications. Extending mapping across our nation will generate the information required to characterize domestic mineral resources, ensure mineral independence, and thereby aid national security.

Whether it is geochemical, geophysical, geological or topographic mapping, maps are the primary source of information about the location and quantity of mineral and energy resources, construction materials, groundwater and geologic hazards. Knowing what is under our feet, what it may be used for, and how to build with, or on it, is provided by mapping.

Geologic maps are such a basic layer of information that most people are surprised that mapping the nation was not completed decades ago. Unfortunately, this is not the case. While the program has been very productive, only 17% of the nation is

mapped at 1:24,000; the detailed scale needed for land use planning and resource development. Clearly, much work remains to be done, and with the current rate of progress, some parts of the country will not be adequately mapped for centuries, an unacceptable timeframe given the commercial, life-health-safety, and national mineral and energy security benefits realized from geologic mapping.

The National Volcano Early Warning and Monitoring System Act proposes a national plan to monitor the nation's most hazardous volcanoes at levels commensurate with their threat. There are 54 active volcanoes in Alaska, another 16 in the Pacific Northwest, as well as active volcanoes in the Pacific and Caribbean Islands. These volcanoes threaten large population, commercial and agricultural centers, and domestic and international air traffic. In the past decade, the Alaska Volcano Observatory has responded to 26 eruptions at 9 Alaska volcanoes. In just the last year there were over 60 explosive events during Bogoslof Volcano's eruption; the majority of which sent ash to 20-40,000 feet, posing a significant threat to air-traffic over the North Pacific. Every day, 50,000 people, and 90% of air cargo to Asia travel in air routes over Alaska's volcanoes. Passage of the proposed legislation will support cooperative research to advance volcano monitoring, and to move beyond reaction toward eruption forecasting and warning.

The National Landslide Preparedness Act aims to reduce U.S. losses from landslides. Landslides pose a threat to people and commerce, annually causing deaths, injuries and damage to communities, roads, infrastructure and businesses. In 2015 three Alaskans were tragically killed by a landslide in Sitka, while 43 people were killed by the 2014 Oso landslide in Washington State. No part of the country is immune to landslides, or ground failure of some form. Passage of the Landslides Preparedness

Act would be a major step toward reducing the impact of these dangerous and costly hazards.

In summary, my state and the Association of American State Geologists support all three pieces of legislation, and encourage their passage into law.

Thank you for the opportunity to testify.