

Geologic Mapping for Resource Development and Hazard Assessment (STATEMAP) **FY2024 Request: \$1,600,000**
Reference No: 60937

AP/AL: Appropriation **Project Type:** Life / Health / Safety
Category: Natural Resources
Location: Statewide **House District:** Statewide (HD 1-40)
Impact House District: Statewide (HD 1-40) **Contact:** Theresa Cross
Estimated Project Dates: 07/01/2023 - 06/30/2028 **Contact Phone:** (907)269-6398

Brief Summary and Statement of Need:

This project leverages federal funds from a United States Geological Survey (USGS) STATEMAP grant to produce a geologic map of economically important deposits and rock formations, and an improved understanding of geologic hazards in an understudied region of Alaska. This grant requires a 50 percent state match.

Funding:	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	Total
1002 Fed Rcpts	\$800,000	\$800,000	\$800,000	\$800,000	\$800,000		\$4,000,000
1004 Gen Fund	\$800,000	\$800,000	\$800,000	\$800,000	\$800,000		\$4,000,000
Total:	\$1,600,000	\$1,600,000	\$1,600,000	\$1,600,000	\$1,600,000	\$0	\$8,000,000

<input checked="" type="checkbox"/> State Match Required	<input type="checkbox"/> One-Time Project	<input type="checkbox"/> Phased - new	<input type="checkbox"/> Phased - underway	<input checked="" type="checkbox"/> Ongoing
50% = Minimum State Match % Required		<input type="checkbox"/> Amendment	<input type="checkbox"/> Mental Health Bill	

Operating & Maintenance Costs:

	<u>Amount</u>	<u>Staff</u>
Project Development:	0	0
Ongoing Operating:	0	0
One-Time Startup:	0	
Totals:	0	0

Prior Funding History / Additional Information:

Sec11 Ch1 SLA2022 P91 L8 HB281 \$1,200,000
 Sec8 Ch1 SLA2021 P74 L29 HB69 \$900,000
 Sec1 Ch1 SLA2019 P5 L14 SB2002 \$300,000
 Sec1 Ch3 SLA2019 P5 L30 SB19 \$300,000
 Sec1 Ch19 SLA2018 P8 L24 SB142 \$600,000
 Sec1 Ch1 SLA2017 P6 L12 SB23 \$2,100,000
 Sec1 Ch2 SLA2016 P5 L27 SB138 \$200,000
 Sec1 Ch38 SLA2015 P5 L21 SB26 \$800,000

Project Description/Justification:

Funding from the USGS under STATEMAP is available annually to the Division of Geological and Geophysical Surveys (DGGS). The funding allows DGGS to map portions of the state with geologic hazards or significant energy or mineral resource potential and use the information to support community planning and stimulate natural resource development. Each year geologic maps are produced and provided to the USGS as a condition of the STATEMAP grant. There is a mandatory 1:1 state match requirement to receive the federal funds. The DGGS has received STATEMAP funds every year since 1993, receiving a total of more than \$6 million in federal funds to map approximately

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18,000 square miles of Alaska geology and convert the data to easily accessible digital files, resulting in the production of more than 170 geologic maps and reports. New STATEMAP-funded processes have facilitated the public release of almost 40 new or legacy maps as standardized digital datasets. The requested state funding covers salaries, helicopters, analyses, and other expenses.

This project is composed of two parts—conducting field-based geologic mapping and compiling new and existing geologic data into digital datasets available online.

Part 1. New Geologic Mapping (\$400,000 UGF and \$400,000 FED)

There are numerous targets for geologic/hazard mapping throughout the state, DGGs is working closely with the Alaska Geologic Mapping Advisory Board (GMAB) to determine the greatest need. The Board has narrowed the decision to three possible options for FY2024:

1. Geologic Mapping for Seismic Hazards—Susitna Basin,
2. Geologic Mapping for Seismic Hazards—Northern Foothills, or
3. Geologic Mapping for Construction Materials and Geohazard Assessment—North Slope.

The Susitna Basin in Southcentral Alaska and the Northern Foothills Fold and Thrust Belt of Interior Alaska are home to many poorly understood active faults but detailed information on geologic slip rates, earthquake recurrence, time since last event, slip per event, and maximum expected earthquake magnitudes remain largely unknown. Preliminary assessments of Interferometric Synthetic Aperture Radar (IFSAR) elevation data and high-resolution satellite/aerial imagery suggest that both areas also contain previously unrecognized, unmapped faults. Previously unrecognized active crustal faults are now visible at the surface which guarantees that they can generate earthquakes larger than magnitude six.

The North Slope is a nexus of the state's chief economic drivers and a burgeoning need for community infrastructure support and development. Ongoing efforts to map the North Slope at a regional scale using largely desktop methods have allowed the department to target areas in need of detailed, field-based geologic mapping to fully delineate potential resources and geohazards. This detailed mapping is essential to informed decision making, planning, and development.

The selected mapping project will include systematic evaluation of existing elevation and imagery data, targeted high-resolution lidar surveys, surficial-geologic mapping of young sediments, and, for a seismic hazards project, include cataloging of fault-offset landforms and age estimates using modern Quaternary dating techniques. Data generated will enhance the department's understanding of hazards in the region, aid in informed decision-making for construction projects, and help identify construction/engineering resources. Project deliverables will include maps and a written report; if one of the seismic hazards projects is selected, deliverables will include significant enhancements to the Quaternary Fault and Fold Database at DGGs (<https://maps.dggs.alaska.gov/qff/>).

The GMAB will make its final decision prior to issuance of the FFY2023 STATEMAP Request for Proposals; proposals are anticipated to be due November 2022.

Part 2. Geologic Data Compilation (\$400,000 UGF and \$400,000 FED)

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Alaska is roughly 20 percent mapped for geology at a scale of 1 inch = 1 mile. Most of this data is only available as older, paper maps. The USGS received additional funding beginning in FFY2020 for states to compile existing mapping into digital data, which can then be compiled into state, and then national digital geology datasets and maps. The department will compile all of Alaska’s existing and new mapping data into digital formats over a period of years, beginning with areas of highest mineral and petroleum potential and geologic hazards. The current FFY2022 project focuses on the Yukon-Tanana Uplands and Kuskokwim areas of interest for mineral development and potential landslide-prone areas in southeast Alaska. As part of the proposed effort, we will also continue to stitch digital maps together for eventual statewide coverage at a scale optimized for industry’s use.

State matching funds are required for this work.

Line Item Detail

Line Item	Amount
1000 Personal Services	\$1,165,000.00
2000 Travel	\$25,000.00
3000 Services	\$405,000.00
4000 Commodities	\$5,000.00
5000 Capital Outlay	
7000 Grants	
Total	\$1,600,000.00