## Questionnaire about the uses and value of geologic maps and information derived from geologic maps

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- 3. Please answer as many questions as possible to the best of your ability.

#### Please provide your contact information: \*

First Name	Last Name
Email Address	

In which states do you operate? (Enter the full names of the states, separated by commas.)



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#### 1. Which best describes your organization?

- Private sector (including not-for-profit)
- Public sector (federal, state, local, or regional)

#### (A) Check all that apply as the Private sector (including not-for-profit)

- Mineral-resource industry—large company (large volume and/or product value; production ± exploration, e.g., metals, industrial minerals)
- Mineral-resource industry— medium to small company (medium to small volume and/or product value; production ± exploration, e.g., metals, industrial minerals)
- Energy-resource industry—large company (geothermal, oil and natural gas, coal)
- Energy-resource industry—medium to small company (geothermal, oil and natural gas, coal)
- Water-resource industry (supply, transportation, drilling)
- Construction industry (commercial structures, private structures)
- Transportation industry (rail, canal, roads, coastal, air)
- □ Tourism industry
- Real estate (sales and development of properties)
- Geo-technical firm (multiple employees)
- □ Independent geological or geotechnical engineering consultant
- Public utilities company (electrical power, including generation and transmission, natural gas storage and transmission, water supply)
- □ Not-for-profit organization
- Other (specify)

#### (B) Check all that apply as Public sector (federal, state, local, or regional)

- U.S. Geological Survey
- $\Box$  State Geological Survey, including those within educational institutions
- Federal government agency
- $\Box$  State government agency.
- County government agency
- □ City or town government agency
- Educational institution (public or private, vocational, college or university)
- □ Not-for-profit organization
- General public
- ☐ Other (specify)

**WALIDATION** Must be numeric Whole numbers only Positive numbers only

#### (C) How many employees in your organization?



#### 2. Which activities in your organization require geologic maps?

## (A) Resource exploration, assessment, delineation, development, and production (Check all that apply.)

- Metals (e.g., gold, silver, copper, molybdenum, etc.)
- Industrial minerals (e.g., aggregate, limestone, barite, etc.)
- □ Specialty or critical minerals (e.g., lithium, vanadium, rare earth elements)
- Geothermal energy
- Oil and natural gas
- □ Groundwater and surface water
- 🗆 Coal
- Other (specify)

#### (B) Environmental consulting, including economic consulting (Check all that apply)

- Pollution or contamination prevention
- Remediation or cleanup
- Environmental impact assessment (e.g., California Environmental Quality Act, National Environmental Protection Act, other state or local laws)
- Environmental management and conservation
- □ Other (specify)

#### (C) Hazard assessment, mitigation, or prevention (Check all that apply)

- Earthquakes (including fault creep movements)
- Floods (natural and dam failures, floodplains, debris flows, tsunami inundation)
- Landslides
- Rockslides
- Subsidence (groundwater extraction, hydrocarbon extraction)
- $\Box$  Sinkholes and karst
- □ Soils (including liquefaction and swelling clays)
- Volcanoes (including geothermal and magma chamber activities)
- Erosion
- Other (specify)

#### (D) Engineering applications (Check all that apply)

- Buildings and foundation issues
- Roads, highways, bridges
- Railroads
- Pipelines
- Electric utilities
- Dams, retaining ponds, dikes
- □ Irrigation canals
- Ports and coastal facilities and infrastructure (piers, groins, seawalls)
- Waste disposal sites
- Other (specify)

#### (E) City planning (Check all that apply)

- □ Zoning decisions
- Landscape design and planning
- □ Building codes
- ☐ Other (specify)

#### (F) Regional planning (Check all that apply)

- □ State and Federal Land-use planning, including Parks and Wilderness
- $\Box$  Waste disposal sites
- Industrial sites
- $\Box$  Transportation types and rights-of-way, etc.
- □ Utilities (distribution routes, yards)
- □ Military bases and installations
- Other (specify)

#### (G) Property valuation (Check all that apply)

- □ Tax estimation
- Banking
- □ Land acquisitions
- Hazard identification
- □ Insurance
- Conservation easements
- $\Box$  Mining claims and patents
- $\Box~$  Oil and gas leases
- □ Geothermal leases
- ☐ Other (specify)

#### (H) Research and education (Check all that apply)

- Basic research
- □ Applied research
- Education (K-12)
- Education (college or university)

#### (I) General public (Check all that apply)

- □ Rockhounding and mineral collecting
- □ Weekend prospecting
- □ Geocaching
- Maps for outdoor recreation (hiking, hunting, fishing, orienteering, etc.)
- Field trips (e.g., general geology, Earth Science Week, etc.)
- Parks and recreation facilities
- Other (specify)

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**WALIDATION** Must be percentage Whole numbers only Positive numbers only

## 3. In your estimate, how much time and money did you save in the last five years because geological maps were available?

(Please enter the percentage value, %)


Savings in % of total project costs

By time saved (%)

#### 4. In what form do you use geologic maps? (Check all that apply.)

- Digital format) Actual geologic maps
- (Paper copies) Actual geologic maps as paper copies
- □ (Digital copies) Accompanying reports to geologic maps
- (Paper copies) Accompanying reports to geologic maps
- General databases associated with geologic maps
- □ GIS databases of geologic maps
- Aerial photographs and satellite images (digital photographs) incorporated into geologic maps
- □ Cuttings, drill core, and/or hand samples shown on geologic maps
- Drill logs associated with geologic maps
- Geochemical data associated with geologic maps
- Geochronological data associated with geologic maps
- Geophysical maps or data associated with geologic maps
- LIDAR or other digital elevation data incorporated into geologic maps
- □ Field notes associated with geologic maps

#### 5. What types of derivative maps do you use? (Check all that apply.)

- □ Metals (e.g., gold, silver, copper, molybdenum, etc.)
- □ Industrial Minerals (e.g., aggregate, limestone, barite, etc.)
- Specialty or Critical Minerals (e.g., lithium, vanadium, rare earth elements)
- Geothermal
- Oil and Natural Gas
- Groundwater and Surface water
- □ Aquifer delineation
- Aquifer sensitivity
- □ Soil drainage
- Aquifer recharge
- 🗆 Coal
- Mined out areas
- Earthquakes
- □ Floods
- Landslides and Rockfalls
- □ Surface topography
- Drift thickness
- $\Box$  Karst and sinkholes
- □ Slope stability
- Engineering Soil properties
- Construction conditions
- □ Tsunami potential
- Basic research
- Land cover
- Other (specify)

#### 6. How do geologic maps and information benefit your organization or industry?

(Please provide specific examples)

(Limit your response to 300 words)

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Note: Questions 7 through 11 refer to a project for which you choose to report. Given that projects may differ in nature and complexity, you may wish to provide information about additional projects. You may provide this information in a separate email.

**VALIDATION** Max word count = 300

7. If you use geologic maps and the accompanying reports or data, please provide the following information in enough detail to fully explain the project.

(A) Describe a specific project for which geologic maps and the accompanying reports or data were used, including the total project cost.

(Limit your response to 300 words.)

**WALIDATION** Min = 0 Must be percentage Whole numbers only Positive numbers only

(B) If the geologic maps and reports were not available from publicly funded institutions (e.g., federal, state, or academic) for the above project and you had to develop or acquire the geologic data yourself, approximately how much more (in %) would your project cost?

(Please enter percentage value, %)

**WALIDATION** Min = 0 Must be numeric Whole numbers only Positive numbers only

(C) For the above project, how many geologic maps did you use? (Enter the number)



8. Many public and some private agencies provide geologic maps and data at no cost or a nominal cost. If these maps had not been available from these sources, how much (in \$) would you willingly have paid to construct ONE project-specific geologic map?

#### (Select a range of costs.)

- **○** < 1,000
- C 1,000 5,000
- C 5,000 10,000
- 10,000 25,000
- C 25,000 50,000
- S0,000 100,000
- 100,000 200,000
- C 200,000 300,000
- C 300,000 400,000
- 400,000 500,000
- >500,000
- Other (specify dollar amount)

#### 9. How certain do you feel about your choice in question #8 on a scale of 1 to 10?

(Rate on the below scale - Choose 10 for highest certainty, 1 for not at all certain)

	0	1	2	3	4	5	6	7	8	9	10	
Not at all sure	0	O	C	O	O	0	0	0	0	0	C	Very sure

**WALIDATION** Min = 0 Must be currency Whole numbers only Positive numbers only

10. Considering that your Willingness To Pay (WTP) for geologic maps for a project may be different from their value over a longer period of time, in your judgment, what would be this long-term value of those geologic maps used for the above-described project?

(Enter \$ amount - Whole numbers only)

#### 11. How certain do you feel about your choice in question #10 on a scale of 1 to 10?

(Rate on the below scale - Choose 10 for highest certainty, 1 for not at all certain)

	0	1	2	3	4	5	6	7	8	9	10	
Not at all sure	0	0	0	0	0	0	O	0	0	0	0	Very sure

Note: Questions #7 through #11 refer to a project you chose to report about. Realizing that projects may differ in nature and complexity, you may want to provide the same information about multiple projects. If you choose to do so, please do so in a separate email.

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#### 12. What mapping scale best serves your needs? (Check all that apply.)

- □ 1:5,000
- □ 1:10,000
- □ 1:24,000
- □ 1:50,000
- □ 1:100,000
- 1:250,000
- □ Other (specify)

## 13. How often do you visit the offices, facilities, or websites of agencies and organizations that provide geologic information to obtain geologic maps? (Select one)

- O Weekly
- C Monthly
- Several times a year
- Once a year
- C Less frequently

#### 14. How useful or productive are your visits? (Select one)

- O Very useful
- C Moderately useful
- Somewhat useful
- O Not useful

#### 15. Rate the importance of having digital online access to the following products.

(Click on "Please Select" below to see choices in the drop-down menu.)



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### 16. How do you obtain geologic maps if these are not available from public or private institutions?

(Check all that apply)

Contract with those institutions or organizations to develop the needed information

 $\square$  Hire a private consultant to develop the needed information

Perform our own fieldwork and/or research

□ Other (specify)

 $\square$  None of the above

**WALIDATION** Min = 0 Must be currency Whole numbers only Positive numbers only

#### 17. How much would you typically spend for a map in the above case?

(Please estimate as best you can in the **dollar amount**, \$)

Maximum
Minimum
Best estimate

## 18. In your view, how would you rate the value of geologic maps and accompanying reports **FROM** the following institutions?

(Use 10 for the highest value, 1 for the lowest value)







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## 19. How do geologic maps and the accompanying reports obtained from public institutions improve the quality and accuracy of your decisions?

(Select one)

- O Not at all
- C Slightly
- O Notably
- C Extremely

VALIDATION Max word count = 300

#### Explain your choice briefly in #19 question:

(Limit your response to 300 words)

20. How does reference to the federal, state, or academic institution as the source of geologic maps and reports substantiate the credibility of your work, in the view of your audience?

- O Not at all
- Slightly
- O Notably
- C Extremely

**VALIDATION** Max word count = 300

#### Explain your choice briefly in #19 question:

(Limit your response to 300 words)

VALIDATION Max word count = 300

21. Give an example of how the quality of your project is affected when geologic mapping is not available.

(Limit your response to 300 words)



22. In your view, how would you rate the value of geologic maps and the accompanying reports **FOR** the following institutions?

(Use 5 for the highest value, 1 for the lowest value)





4-Valuable

2-Negligible value 1-Not valuable at all	Oil and gas industry
5-Highly valuable 4-Valuable 3-Somewhat valuable 2-Negligible value 1-Not valuable at all	Coal industry
5-Highly valuable 4-Valuable 3-Somewhat valuable 2-Negligible value 1-Not valuable at all	Geothermal industry
5-Highly valuable 4-Valuable 3-Somewhat valuable 2-Negligible value 1-Not valuable at all	Geotechnical industry
5-Highly valuable 4-Valuable 3-Somewhat valuable 2-Negligible value 1-Not valuable at all	Agriculture industry
5-Highly valuable 4-Valuable 3-Somewhat valuable 2-Negligible value 1-Not valuable at all	Forestry industry
5-Highly valuable 4-Valuable 3-Somewhat valuable 2-Negligible value 1-Not valuable at all	Public utilities
5-Highly valuable 4-Valuable 3-Somewhat valuable 2-Negligible value 1-Not valuable at all	Groundwater industry
5-Highly valuable	



#### **VALIDATION** Max word count = 300

Other Specify: (Limit your response to 300 words)

**VALIDATION** Max word count = 300

23. Help us prioritize geographical areas for future geologic mapping work. List states, counties, urban areas, growth corridors, regions, or specific areas of the United States. List specific derivative maps, if applicable.

(Limit your response to 300 words)



**VALIDATION** Max word count = 300

24. To meet the needs of society (and your own interests), how should geologic mapping progress or evolve in the future?

(Limit your response to 300 words)

VALIDATION Max word count = 300

#### 25. Any additional comments?

(Limit your response to 300 words)

# Thank you for taking our survey. Your response is very important to us.

Note, If you want to report additional projects please do it in a separate mail.