

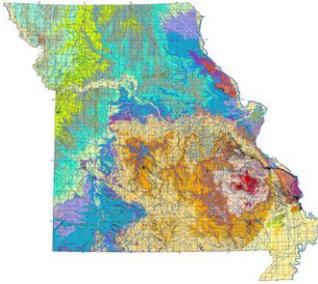
# Geologic Maps are the Foundation of America's Infrastructure

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## What is a geologic map?

- Geologic maps produced by the Missouri Department of Natural Resources' Missouri Geological Survey depict rock type, distribution, properties and relative age relationships.
  - Geologic maps allow users including engineers, planners, developers, and regulatory agencies to make informed decisions utilizing the best available scientific data, thereby reducing uncertainty.
  - Geologic maps provide information about the Earth's structure and composition related to energy resources, mineral resources, natural hazards such as faults, landslides and sinkholes, and water resources.
  - Geologic maps indicate the nature of the surface water and groundwater interaction and vulnerability to contaminants.



## Why are geologic maps important?

- All mineral, energy, water, industrial construction, public works and urban development projects can benefit from a geologic map.
- Geologic maps aid engineers and planners in identifying rock materials that will provide suitable foundations for the construction of critical infrastructure such as highway bridges, dams, tunnels and pipelines.
- Geologic mapping provides a strong scientific basis for making informed regulatory decisions that ensure protection of public and environmental health, such as siting landfills or cleaning up groundwater contamination.
- Geologic map-based information is essential to the evaluation of the vulnerability of watersheds (surface water and groundwater) to contamination.
- Geologic maps benefit landowners, farmers and government agencies by building a regional picture of the distribution of geologic materials that store groundwater or provide recharge to valuable groundwater aquifers.
- Geologic maps provide the basis for defining the occurrence of energy and mineral resources, such as sand and gravel, ore deposits, coal, oil and gas, and help determine strategies for resource development and environmental protection.

*Geologic maps and their derivative products have an enormous economic, societal and scientific value. Cost-benefit studies show that the value of a geologic map is 25 to 39 times the cost to produce the map. (Bhagwat, S.B., and Ipe, V.C., 2000, Economic benefits of detailed geologic mapping to Kentucky: Illinois State Geological Survey, Special Report 3) Developers and engineers can save about \$50 thousand per project when modern geologic maps are available. Since 1993 the division has expended an estimated \$5 million in state and federal grants to produce state-of-the-art geologic map products. These efforts have the potential to produce nearly \$200 million in economic value for the state of Missouri.*

Nothing in this document may be used to implement any enforcement action or levy any penalty unless promulgated or authorized by statute.

## For more information

Learn more about geologic maps [[dnr.mo.gov/geology/statemap/missouri-maps.htm](http://dnr.mo.gov/geology/statemap/missouri-maps.htm)], mine maps [[dnr.mo.gov/geology/geosrv/geores/minemaps.htm](http://dnr.mo.gov/geology/geosrv/geores/minemaps.htm)] and more at [dnr.mo.gov/geology](http://dnr.mo.gov/geology).