

Pipeline and Transmission Line Surveys

Utility corridors have become major land features across the United States as energy providers seek new ways to increase availability and improve reliability for consumers of natural gas and electric power. GAI Consultants supports new distribution network construction and system upgrades with experienced surveyors that are dedicated to surveying and mapping new pipeline and transmission line corridors, as well as existing lines.

Extensive pipeline survey and mapping experience means accurate and reliable support for energy initiatives.

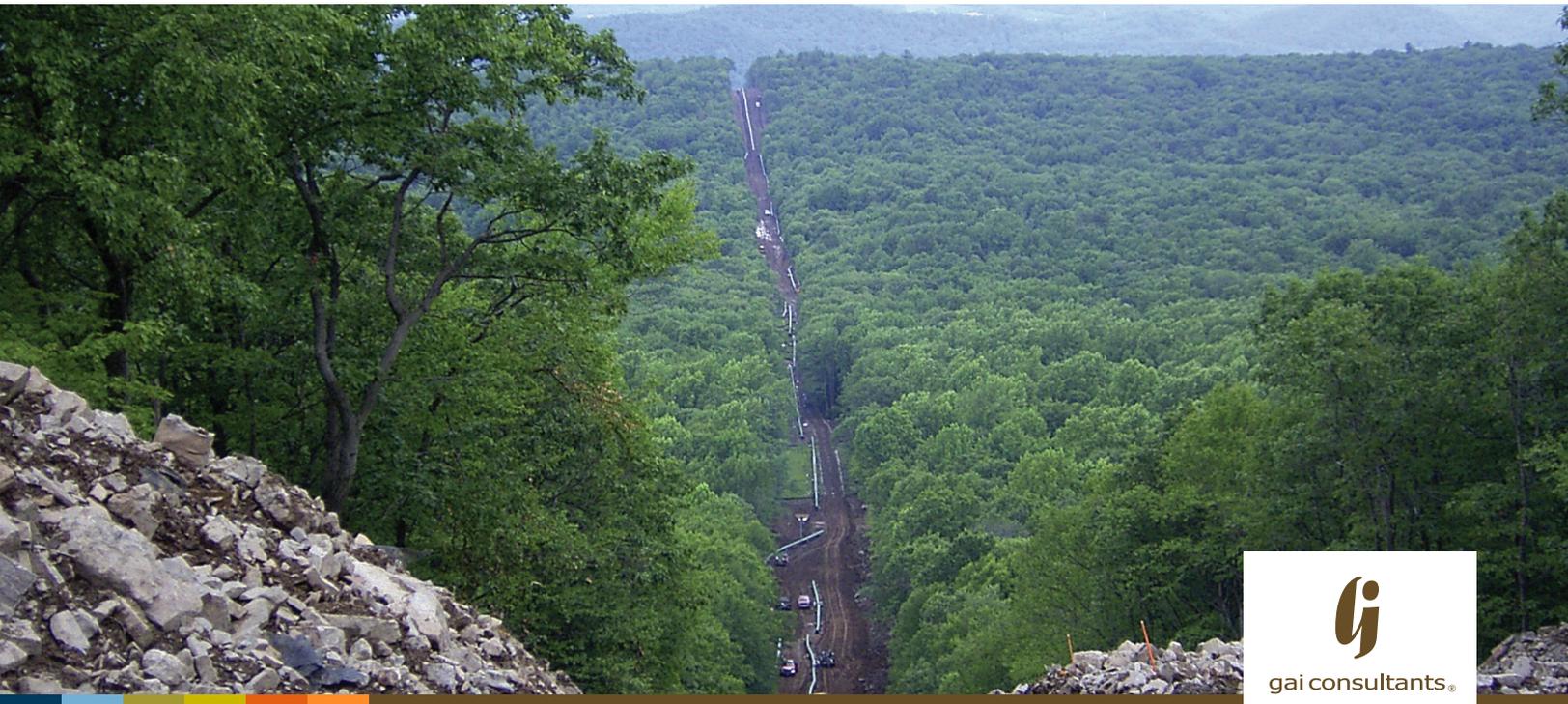
GAI's surveying and mapping services for gas pipeline routing include developing pipeline centerline locations from beginning to end. We give consideration to the shortest routes, population centers, environmental and cultural resources, constructability issues, and the client's financial goals for construction and maintenance of

a safe and reliable facility.

Corridor routing begins with preliminary surveys that identify proposed pipeline centerline locations, affected properties, physical features, and profiles to assist in right-of-way acquisition and pipeline design. GAI combines data from these surveys with information from landowners along the route to help determine the best route with the least impacts. We also conduct transmission line surveys along proposed electric transmission line corridors to identify centerlines, existing structures, and physical features. The data is used in designing the electric lines as well as for easement acquisition

GAI conducts construction stakeouts for gas pipeline construction projects to document pipeline centerline, construction easement limits, and facility footprints according to the design and permit drawings. We also document construction with videos, construction stakeout, and as-built surveys.

GAI's as-built surveys capture as-built data for gas pipelines and electric transmission and



gai consultants®

Service Profile



distribution lines. Pipeline data includes welds (x-ray numbers), bends, joint and heat numbers, and coating information. Electric transmission line as-built surveys document pole installation locations and conductors, overhead ground wire (OHGW) attachment points, and distribution underbuilt facilities.

GAI supports clients with a full range of professional survey services that include: bathymetric surveys to depict waterbody bottom topography, topographic surveys to capture physical features and land topography, and boundary surveys with courthouse research to establish property boundaries. GAI also establishes controls for aerial mapping and manages aerial mapping subcontractors on pipeline projects.

GAI's reputation for clearing corridors for pipeline and transmission line expansion is supported by the dedicated efforts of licensed surveyors and experienced survey technicians. Our survey and mapping services help clients find better alternatives and optimize their resources.

Pipeline and Transmission Line Survey Services

- Electrical Transmission Line Surveys
- Pipeline Corridor Surveys
- Pipeline Construction Alignment Drawings
- Pipeline Engineering Drawings and Details
- Boundary and Right of Way Legal Descriptions
- Right of Way Plats
- Bathymetric surveys
- Video logs and photographic documentation
- Topographic, boundary, hydrographic surveys
- ALTA/ACSM Land Title surveys
- Existing conditions surveys (as-built)
- Aerial mapping and geodetic control surveys

GAI Services Summary

- Airport Planning and Design
- Bridge and Structure Inspection and Design
- Coal Combustion Residuals Management
- Construction Inspection and Management
- Cultural Resources Management
- Economic Analyses and Strategies
- Electric Transmission Design and Siting
- Environmental Engineering
- Environmental Studies, Species Studies, Permitting
- Gas Pipeline Surveying and Mapping
- Geographic Information Systems (GIS)
- Geotechnical Engineering and Geology
- Impoundment and Landfill Permitting and Design
- Land Development Engineering
- Landscape Architecture and Design
- Master Planning and Urban Design
- Mechanical, Electrical, Structural Engineering
- Natural Gas FERC Certification and Permitting
- Nuclear Energy Engineering Support
- Right of Way and Appraisal Support
- Land Surveying and Mapping
- Transportation Planning and Design
- Utility Management Consulting
- Water, Stormwater, Wastewater Management

The scope of professional services that are provided by or offered out of each GAI office including, but not limited to, engineering and surveying services, is governed by the professional and business licensing requirements of each individual State or jurisdiction in which the GAI office is located and whether GAI has the requisite professional and business licenses for that State or jurisdiction. Nothing on GAI's Web Site or marketing materials is intended to be interpreted or construed as offering to perform professional licensed services where prohibited unless the licensing requirements have been met. Engineering services are not offered out of GAI's Northern Kentucky (Florence) office location. Surveying services are not offered out of GAI's Illinois location or by our New York subsidiary.

