Trimble Offers Utilities an Innovative Software Tool for Power Transmission Line Route Planning

SUNNYVALE, Calif., Feb. 1, 2011 /PRNewswire/ -- Trimble (Nasdaq: TRMB) introduced today the Trimble® Corridor Analyst routing software for power transmission lines. The innovative software simultaneously considers construction costs, environmental restrictions, social concerns and legislative obligations, allowing utility planners to thoroughly examine alternatives and select the most appropriate corridors for high-voltage power transmission lines, which can provide significant reductions in project planning time and cost for projects.

The software's decision support analysis algorithms give clients a supportable corridor route selection process. The siting methodology was developed by Photo Science in cooperation with Georgia Transmission Corporation (GTC). It was also designed to support and enhance public involvement in the decision making process.

"Worldwide there is a shortage of high-voltage transmission lines and demand is expected to grow significantly in the next decade. The selection of transmission routes are a growing source of public and regulatory concern. Trimble Corridor Analyst breaks down the complex route selection into a four-step process to address these challenges," said Doug Merrill, general manager for Trimble's Utilities Initiative. "In addition, the software complements Trimble's TL-Pro Design Studio software suite that helps our customers develop an optimized transmission line design inside a known route. Now utility planners can have a set of tools to determine the optimal overall solution—both the route and the detailed design within the route."

Trimble Corridor Analyst is Geographic Information System (GIS) based software that maps geographic features in a study area, assigns numerical suitability values to features, assigns engineering constraints, generates corridor alternatives using statistical algorithms, automatically generates alternative corridor reports, and automatically creates reports summarizing criteria used and values assigned. The four-step process for power transmission line route planning includes:

Step One: Identifying Macro Corridors

First the planning staff identifies beginning and end points where a new power line is needed. Satellite imagery and data on roads, terrain and existing transmission lines are merged to form a digital map of the study area. This map is comprised of a grid of 100-square foot cells. Each cell on the map is ranked. Features such as residential land use, agriculture and wetlands are ranked from 1 (most suitable) to 9 (least suitable). Using the cell values, an algorithm calculates optimal paths for three types of suitability surfaces: locating with existing transmission lines; locating with existing road rights of way; and crossing less developed areas. The optimal paths are identified as macro corridors. Combined, the outer boundaries of the macro corridors define the study area.

Step Two: Identifying Alternative Corridors

More detailed data, including aerial photography, detailed land use and land cover, buildings, and other types of data, are collected to identify alternative corridors within the macro corridors. Using suitability maps comprised of 15 square-foot cells, four types of alternative corridors are defined: built environments that protect human and cultural resource areas; natural environments that protect plants, animals and aquatic resources; engineering requirements that maximize co-location and minimize cost and schedule challenges; and simple average that are a composite of the three collaborative rankings.

The utility team and external stakeholders set evaluation criteria and rank factors such as housing density, wetlands and land cover. Stakeholders from government, industry and civic constituencies such as homeowners, environmental, and other interest groups are invited to participate in ranking these factors. The external stakeholder calibration can be done on a regional, statewide, and local basis.

Step Three: Identifying Alternative Routes

Within the alternative corridors, property lines are identified, and buildings, which are digitized earlier in the process, are classified by type, such as occupied house, commercial building, or industrial building. Collecting detailed data after alternative corridors are identified significantly reduces data acquisition costs. In this phase, utility professionals use their expert judgment to identify alternative routes within the corridors defined by stakeholders.

Step Four: Selecting a Preferred Route

The GIS-based software automatically calculates a standardized list of metrics for the alternative routes. Examples of data evaluated include cost, number of houses close to the route, acres of forest in right of way, etc. The alternative route evaluation uses data to filter out the top few routes to forward to the expert judgment tool.

Using the expert judgment tool, the utility siting team assigns relative weights to community and visual concerns, special permit issues, scheduling risks and construction, and maintenance accessibility. Then the top route alternatives are ranked using expert analysis to identify a preferred route. Throughout the process, GIS is a productivity tool to aid experts in the decision-making process enabling siting team members from engineering, land acquisition, environmental and other areas to use map overlays, spreadsheets, reports, and graphic illustrations to make more informed, objective, and accepted decisions.

The Trimble Corridor Analyst software was acquired from Photo Science of Lexington, Ky. The software will be available through Trimble's Energy Solutions Group. For more information, visit: www.trimble.com/energysolutions.

About Trimble

Trimble applies technology to make field and mobile workers in businesses and government significantly more productive. Solutions are focused on applications requiring position or location—including surveying, construction, agriculture, fleet and asset management, public safety and mapping. In addition to utilizing positioning technologies, such as GPS, lasers and optics, Trimble solutions may include software content specific to the needs of the user. Wireless technologies are utilized to deliver the solution to the user and to ensure a tight coupling of the field and the back office. Founded in 1978, Trimble is headquartered in Sunnyvale, Calif.

For more information, visit: www.trimble.com.

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