Trimble Corridor Analyst Routing Software

KEY BENEFITS

- Implements the standardized EPRI siting methodology used on many projects
- Provides a consistent, objective environment for GIS-based power line siting
- Adjust process flows and parameters to fit any line siting project
- Provides detailed analysis showing regulators why preferred routes were chosen
- Flexible enough for short lines and powerful enough for multistate lines
- Enables siting teams to work with public stakeholders and regulators effectively to achieve final project acceptance faster
- Part of a full line of Trimble solutions for utilities Asset Lifecycle Management

TRIMBLE CORRIDOR ANALYST ROUTING SOFTWARE

Selection of preferred routes for linear projects is a growing source of public controversy and regulatory scrutiny throughout the world. It requires resolution of complex interactions of engineering, environmental and social concerns. Trimble® Corridor Analyst routing software brings the resources, technology, and equipment to empower our clients to meet these challenges.

Our decision support analysis algorithms give our clients a more acceptable and supportable route selection process. Trimble Corridor Analyst was designed to support and enhance public involvement.

The methodology has three main benefits:

- It produces siting decisions that are more quantifiable, consistent and acceptable
- It improves productivity and analytical capabilities
- It reduces risks by addressing regulatory scrutiny and stakeholder issues

A 4-step process

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STEP 1: IDENTIFY MACRO CORRIDORS

First the planning staff identifies beginning and end points where a new power line or pipeline is needed. Satellite imagery and data on roads, terrain and existing transmission lines are merged to form one 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,

HOW IT WORKS

Worldwide there is a shortage of high voltage transmission lines and demand is expected to grow at least 20 percent in the next decade. The selection of transmission line routes is a growing source of public controversy and regulatory scrutiny throughout the world. Trimble Corridor Analyst breaks down the complex route selection into a four-step process. This siting methodology allows external groups to participate in the process and makes decisions by utility professionals more transparent and credible.

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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 or pipelines
- Locating with existing road rights of way
- 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 2: IDENTIFY ALTERNATIVE CORRIDORS**

More detailed data (including aerial photography, detailed land use/land cover, buildings, etc.) 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 environment—protecting human and cultural resource areas
- Natural environment—protecting plants, animals and aquatic resources
- Engineering requirements—maximizing co-location and minimizing cost and schedule challenges
- Simple Average—composite of the other 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 and industry and from civic, homeowner, environmental, and other interest groups are invited to participate in ranking these factors. External stakeholder calibration can be done on a regional, statewide, and local basis.

**STEP 3: IDENTIFY ALTERNATIVE ROUTES**

Within the alternative corridors, property lines are identified, and buildings, which were 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 4: SELECTING A PREFERRED ROUTE**

GIS based tools automatically calculate 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 tool 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 concerns, 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. It enables 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.

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