



# Trimble® Quantm™ Desktop

Better Planning for a Better Future



# TRIMBLE® QUANTM™ DESKTOP

The Trimble Quantm Desktop supports road planners and engineers through the complex process of selecting and generating 3D corridors and alignments. Its unique route optimization technology generates millions of alternative alignments and returns a range of 5-20 best options for review by various stakeholders.

The software enables planners and engineers to reduce project planning time, substantially lower alignment construction cost, and deliver improved alignments that meet environmental, heritage, urban constraints, and design standards set by each project. It is designed for local and regional road projects in study areas of up to 20 x 20 km.

## BENEFITS TO ALL STAKEHOLDERS

Communities globally are increasing the influence they have over where new roads are created. The combination of community input and the need to avoid certain urban areas, cultural heritage zones and areas of environmental sensitivity have made the road planning process extremely complex. This is true not only for the initial road location, but also during construction if sensitive areas are identified during construction and alternatives must be quickly identified.

Quantm Desktop can also provide fully-costed options for locating and maintaining haul roads during the active construction process.

Trimble Quantm Desktop offers the following benefits during the planning and design process:

- Improved community relations through documented consideration of all stakeholder interests
- Better environmental outcomes by avoidance of sensitive areas
- Reduced project planning time and delays
- Road construction cost savings

Additionally during the construction phase Trimble Quantm Desktop can be used to improve the management and reduce the costs of temporary haul roads. The new Quantm Desktop software leverages technology researched, developed and refined on over 20,000 km of major infrastructure projects worldwide. The technology continues to be used by the Quantm Service using Trimble Planning Solution's dedicated data processing centers for clients with linear projects of longer than 20 km.



### SCOPING

- Quickly identify and cost preferred corridors for detailed examination using existing terrain and feature data



### PRE-FEASIBILITY

- Use as a tool to aid macro viability decision making
- Generate multiple alignments that cluster into primary corridors
- Produce detailed reports for public consideration

# SCALABLE SOLUTIONS TO MEET PROJECT NEEDS

The software is offered as Trimble Quantum Desktop Premium and Trimble Quantum Desktop to suit the needs of the companies involved in the full planning process, or engineers wanting to refine and balance earthworks on an alignment that has a fixed horizontal corridor respectively. Both versions are upgradable to the Quantum Service for longer highway projects and to process rail projects.

The Premium edition generates outputs to support public presentation through the NEPA or other planning processes. The final approved alignments can be easily exported using a range of industry standard formats for detailed design and refinement in software for detailed design. The models can be transferred to Trimble solutions for corridor flight planning, ground survey, construction staking and earthmoving. Additionally Desktop can import updated environmental data during the planning process from Trimble's range of GIS data collection products.

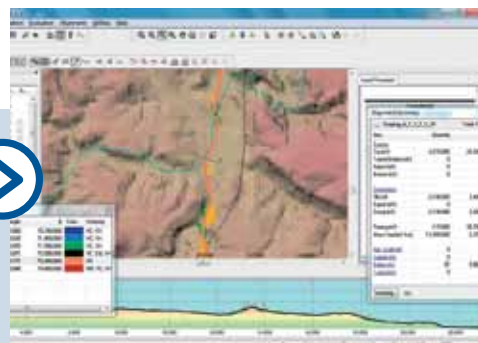
## QUANTM DESKTOP PREMIUM

Desktop Premium can be applied at every step of the planning process from initial scoping through feasibility and value engineering. Desktop Premium performs corridor identification, and full horizontal and vertical alignment optimization. It considers environmental, social, geological, engineering, and construction constraints to provide an optimal alignment for detailed design.

When compared to results using traditional planning methods, the software can provide a reduction in project planning time and a 5-15% reduction in construction cost for road projects.

## QUANTM DESKTOP

Quantm Desktop offers vertical optimization only. It is intended for engineers and contractors to refine the vertical geometry and earthworks of alignments that lie within a defined corridor with final or fixed horizontal geometry. Quantum Desktop optimizes the vertical geometry to minimize costs based on barriers to construction, dump locations and borrow locations.



## PROVEN BENEFITS THROUGHOUT THE PROJECT TIMELINE

Desktop Premium can be applied at every step of the planning process from initial scoping through feasibility and value engineering.

### FEASIBILITY

- Use for testing and selecting feasible alignments
- Optimize and refine the clustered alignments
- Add new constraints based on data collection, social and environmental factors

### VALUE ENGINEERING

- Analyze a design to identify possible improvements
- Add construction criteria such as locations of material sources along the alignment and refine the vertical geometry to reduce earthwork and other costs
- Analyze material flow along the alignment

## TRIMBLE QUANTM SOLUTIONS



FEATURE	DESKTOP	DESKTOP PREMIUM	SERVICE
<b>Length options</b>	10 x 10 km 20 x 20 km	10 x 10 km 20 x 20 km	up to 1500 km
Manual entry of alignments or import from CAD	✓	✓	✓
Automatic generation of horizontal geometry to design standard	✓	✓	✓
Automatic generation of vertical geometry	✓	✓	✓
Automatic placement of structures (bridges, culverts, retaining walls, tunnels)	✓	✓	✓
Editing of alignments with real time updates of cost impacts	✓	✓	✓
<b>User supplied data</b>			
DTM	✓	✓	✓
Geology layers	✓	✓	✓
GIS data including existing roads, railways, towns, and streams	✓	✓	✓
Structure types and unit costs	✓	✓	✓
Social and environmental constraints (import from GIS or define manually)	✓	✓	✓
Engineering design standards	✓	✓	✓
Imagery	✓	✓	✓
<b>Project Outputs</b>			
Images with alignment alternatives for public review	✓	✓	✓
Balanced earthwork quantities with costs by material and structure	✓	✓	✓
Costed alignments in LandX ML, .dxf, and .PRO files ready for detailed design	✓	✓	✓
<b>Types of Optimization</b>			
Vertical	✓	✓	✓
Horizontal		✓	✓
Unseeded - free to roam corridor search		✓	✓
Quickseed - from a manually created alignment		✓	✓
Total refinements - refinement of an existing alignment		✓	✓
Total refinements - refinement of an existing alignment		✓	✓
<b>General Features &amp; Benefits</b>			
Full alternatives explored and summarized for community input		✓	✓
Optimize road alignments	✓	✓	✓
Optimize railway alignments			✓
Local processing on user PC	✓	✓	
Processing using Trimble's data processing centers			✓

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