

Civil Engineering and Construction

Plan and Design with Confidence

TRANSFORMING THE WAY THE WORLD WORKS



Efficient workflow

Reliable and cost-effective planning and design is absolutely crucial to achieve successful infrastructure projects. Trimble's unique planning, scheduling and BIM (Building Information Modeling) solutions improve efficiency and productivity, whilst minimizing errors, waste and cost at every stage of the project.

The design solution is ready for BIM Level 3 – the most advanced state to date – allowing the model data to be used, extended and evolved by all stakeholders throughout the complete project lifecycle. The single, shared BIM model is continuously enriched to bring workflow efficiency and quality gains all the way – providing optimal results for the project owner.



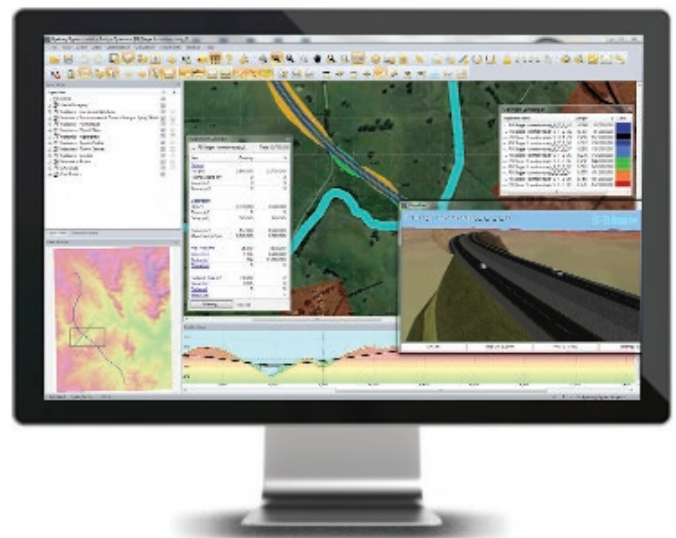
PLAN WITH CONFIDENCE

“Identify the full range of corridor alternatives”

Quantm

Trimble Quantm provides reliable alignment planning, based on alignment standards, so you can plan a new highway or rail corridor more efficiently, both for 2 Km and up to 4,000 Km projects! The integrated alignment optimization tool, calculates automatically through thousands of alternatives, analyzing terrain shape, area restrictions, area costs, areas to avoid etc. , to find the best corridors. The system will help you find a number of alternatives much faster than doing this manually.

The system is of most value when used from the initial project scoping stage, when greater flexibility can be allowed.





DESIGN WITH CONFIDENCE

“A unique model collaboration with integrated discipline design tools, interoperability with open standards and continuously updated virtual views”

Novapoint



Trimble Novapoint is the design toolset in Trimble's extensive civil BIM solution – allowing civil engineers to effectively design all aspects of modern roads, railways, tunnels, bridges, water and sewer, etc.

Together with Trimble Quadri, the solution's cloud-based BIM server and collaboration platform, they comprise the industry's most comprehensive BIM solution for civil infrastructure.

Novapoint will handle complex, multi domain infrastructure projects, with 3D terrain surfaces, 3D sub-surface layers, and 3D structures of roads, railway, road signs, pipes, manholes, cables and more.

Novapoint Infrastructure Design Suite



Trimble Novapoint Infrastructure Design Suite is a bundled multidiscipline civil BIM package that combines an extensive selection of integrated discipline design tools, providing a very cost-effective and productive design solution. The package includes a host of Novapoint discipline design applications (country specific; see below) – with seamless connectivity to Trimble's unique Quadri model collaboration server.

The combined solution provides unique model collaboration and superior integrated visualization – ensuring efficiency, excellent quality assurance and life-cycle model sustainability.

Novapoint Infrastructure Design Suite requires no investment, just a low predictable rental fee based on named users.

More information about the individual domain specific Novapoint applications:

Trimble Novapoint Infrastructure Design Suite

	Nor	Swe	Den	Fin	Bel	Fra	Esp	UK
Trimble Novapoint Base	■	■	■	■	■	■	■	■
Trimble Novapoint Terrain	■	■	■	■	■	■		
Trimble Novapoint Road*	■	■	■	■	■	■	■	■
Trimble Novapoint Road Marking	■	■	■	■	■	■		■
Trimble Novapoint Road Sign (Standard)	■	■	■	■	■	■		
Trimble Novapoint Tunnel (only 3D modelling)	■	■						
Trimble Novapoint Bridge	■	■	■	■	■	■		■
Trimble Novapoint Water and Sewer	■	■	■	■	■	■		
Trimble Novapoint Landscape	■	■	■	■		■		

*Novapoint Road incl. Noise analysis, only available in Nor, Swe, Den, Fin.

*NOTE: All Novapoint discipline design applications require connection to AutoCAD.



Novapoint applications

PLANNING AND DESIGN

Novapoint Base



Trimble Novapoint Base is the BIM solution's core modelling application in which you have the functionality to build models of the existing situation, import from product libraries and to administer your design tasks and processes. The model built up is an open Quadri™ 3D model based on the ISO 19100 ("GML") industry standard. All design results are stored as a Quadri model and viewed in Novapoint Base together with the existing situation. Novapoint Base visualizes the model in a very powerful 3D window, as well as in an integrated plan view and long- and cross sectional views. It's easier than ever to navigate in 3D and to understand the model being built.

"Novapoint Base provides excellent data exchange and interoperability with other systems"

Novapoint Base is purpose-built to connect seamlessly with Trimble's cloud-based (or local) Quadri model server – giving unmatched multiuser and multidiscipline project collaboration. This makes it easy to scale the project by adding more team members to work with the model simultaneously.

The application also allows for generating stakeout data as well as supporting a number of export and import formats (such as IFC, GML, LandXML, DWG, SHP etc.).

Novapoint Terrain



Trimble Novapoint Terrain will help you define and calculate earthworks – both in 2D and 3D. Using unique and dynamic elevation tools you are able to create new terrains directly in 3D.

This can be further developed by powerful terrain tools, which enables you to calculate volumes, shape terrain surfaces and design building pits.

Novapoint Road



Trimble Novapoint Road is the ultimate design tool for effective detailed engineering of all types of roads, highways, streets and intersections – including complete functions for design, drawing, report production and stakeout data.

"Novapoint Road handles advanced alignment design, road model design, intersection design, elevation control and drawing production. All roads are visual in the same 3D View."

The application provides design templates based on local standards and includes also an analysis tools for volumes, sight distance, vehicle tracking, etc.

Novapoint Road Marking



Trimble Novapoint Road Marking is a flexible tool for generating markings plans for road projects. The application includes a library and productive functions needed for generating lines/symbols/text (give way lines, cycle tracks, zebra crossings, etc.) in a plan drawing. Novapoint Road Marking has also functionality for generating longitudinal markings as well as bill of quantities. Customized for the following country-specific traffic standards; Norway, Sweden, Denmark, Finland, Belgium, Ireland, France.

Novapoint Road Signs



Trimble Novapoint Road Signs is an efficient tool for producing traffic sign plans for new or existing roads – providing increased traffic safety, more accurate design and reduced design time. The application includes all standard national road signs (as well as customizable ones) together with routines for

"Novapoint Road Sign provides automatic 2D/3D drawings with sign tables, and has three different display modes"



constructing directional signs. There is also a library of symbols for drawing sign poles and signals. Customized for the following country-specific traffic standards; Norway, Sweden, Denmark, Finland, Belgium, France, Iceland.

Novapoint Tunnel



Trimble Novapoint Tunnel is a design tool for detailed modeling of tunnels, emergency lay-bays, exit ramps etc. providing powerful volume calculations and seamless data flow to different guidance systems for drilling jumbos.

“The tunnel connects to your road project and is therefore automatically updated whenever the road model is revised ”

The application provides automatic drawing production. Novapoint Tunnel also supports import of scanner data and 3D model visualization of the designed tunnel together with the scanned tunnel surface.

Novapoint Bridge



Trimble Novapoint Bridge is a tool for designing bridge structures following a road alignment, and the shape of the road top surface. The application includes geometric functions

for modeling the structure, functions for producing work drawings and functions for generating a 3D model. Additionally Novapoint Bridge includes several handy tools for structural calculations and drawing annotations. The dynamic update towards the changes done in the road model, makes it easy to design the main part of the bridge, according to the shape of the road.

Novapoint Water & Sewer



Trimble Novapoint WS helps you design WS projects in 3D as well as plan and longitudinal profiles, cross sections and manhole sketches. You easily produce drawings, reports, survey

data and powerful 3D visualisation. The application has templates based on local standards and local working methods, plus an extensive 3D product library (country specific), and is therefore very easy and efficient to use.

“Novapoint WS connects directly with Novapoint road and rail model alignments, and change dynamically accordingly”

The application supports several water and sewer specific formats.

Novapoint Cable is an additional configuration to the Water and Sewer module. You can define the trench, type of pipes, number and distance between pipes etc. Novapoint Cable connects directly with Novapoint road and rail model alignments, so it changes dynamically when these alignments change.

Novapoint Landscape



Trimble Novapoint Landscape efficiently helps you in the process of designing new landscapes. You easily design new accurate terrain shapes with an easy user interface and workflow. See the terrain shapes in 3D as you design, and create plant layout and edit it – including 3D elements, area/material, adding equipment and calculating quantities. Enjoy powerful and dynamic leveling tools.

Other domain specific Novapoint applications:

Novapoint Railway



Trimble Novapoint Railway gives you all the functionality you need for complete planning and design of railways, including track, ground planning and catenary design. The application is based on Novapoint Road – so if you work in both disciplines you will feel right at home, plus avoid the hassle of changing software environment. Novapoint Railway gives you numerous possibilities to present as well as exchange data. Just as with the road

“Advanced planning and design of railways, tracks, cabling and catenary design.”

application your design results are stored in Novapoint Base and can be viewed as a 3D model there, providing a realistic representation of the project.

Novapoint GeoSuite



Trimble Novapoint GeoSuite Toolbox provides a host of efficient, user-friendly geotechnical tools for your geotechnical projects. Save time and money with an easy-to-use and effective

“Novapoint GeoSuite Toolbox includes a number of useful tools for calculating stability, settlement, sheet piles and pile groups.”

tool for administration and handling of projects – as well as a presentation module for reporting boreholes and laboratory results.

The calculated results could be shared in the Quadri model.

Novapoint Land Use Planning



Trimble Novapoint Land Use Planning helps you construct and create digital area plans according to local rules and regulations.

The application has built-in features such as predefined user and feature type names with provisions, border and line library, as well as a symbol library and hatching/color fill line types for different types of areas in the plan, and also for illustration. You can also generate a 3D visualisation of the plan in Novapoint Base.

“From the plan you can automatically create plan definitions or export data to share them with others”

The 3D model provides a good overview of the project as well as the possibility to move around in the area.

Novapoint District Heating



Trimble Novapoint District Heating is a powerful toolset for designing complete district heating networks, including ground and infrastructure design.

The application has complete functionality for configuration, construction, drawing production and reports, including quantity calculations and stakeout data. Easy to use drawing tools and advanced geometrical calculations to minimize the number of elements make it efficient to design the networks.

Novapoint Reinforcement



Trimble Novapoint Reinforcement is a tool for reinforcement design in AutoCAD. The system is a valuable tool for efficient and secure design of reinforcement in plan and cross-sectional views. The position for annotation and measure lines can easily be controlled by the user. This tool is a real time saver.

Novapoint GO



Trimble Novapoint GO is a unique mobile app for construction workers and site engineers. The app functions as a digital diary, ideal for site navigation and documentation of work done.

“Novapoint GO is easy to use, efficient and requires no preparation before going into the field”

All pictures and comments added with the app, will be date, time and location stamped.

The app is perfect for smartphone and tablet usage, providing automatic data storage and sharing of data between users, without time consuming transfer to/from computer. Your plan data can be used as a map in the background.



COLLABORATE WITH CONFIDENCE

The essence of BIM is about sharing data – between multi users, multi disciplines and multi project phases, without losing information. All the way from the early planning stage to the finished project and operation of the infrastructure – in the whole lifecycle of a project. Tight collaboration between all stakeholders is key to achieve this.

“A continuously updated virtual version of your project”

Trimble Quadri and Trimble Connect comprise a cloud-based collaboration solution that lets all stakeholders share a central seamless project model – facilitating tight teamwork and productivity.

Quadri



Trimble Quadri is a unique BIM server and collaboration platform tailor-made for civil infrastructure projects, providing a cloud-based, standardized, multi-discipline and concurrent work environment, taking full control of the complete result.

Using Novapoint discipline applications the civil design teams can work within the same process environment in Quadri, sharing each other's work continuously, substantially increasing productivity and quality.

The shared model is based on the ISO 19100 set of standards (incl. GML), providing an open model easily adaptable to contractual terms and national industry requirements. Quadri is developed to handle large and complex geographical models, handling GIS and terrain data, together with intelligent objects with advanced 3D geometries and properties.

Quadri Easy Access

Trimble Quadri Easy Access, will let you make make comments on viewpoints in the 3D Model view, to communicate with all stakeholders in a project. It is also an easy way to access Quadri BIM models stored in the cloud. The solution is a web portal where you, with just a few clicks on your PC, Mac, tablet or smart-phone, can access your models – anywhere and anytime – models that may reside on many servers. No installation of software. No training.

“Log in and run in your browser”

Novapoint Viewer

This unique viewer, let you connect to the Quadri BIM model in the Cloud, if you have a Quadri user. Trimble Novapoint Viewer is free to download and free to view local data models. This is a tool for people who need easy model insight into Trimble Novapoint BIM projects. Novapoint Viewer allows project managers, project owners, construction managers etc. easy viewing into Quadri models – hence also providing better project control and quality assurance. If you use it towards Quadri cloud, there is also a possibility to do model commenting directly in the shared model, adding new viewpoints.

“An excellent tool for understanding and managing the project better”

Connect



Trimble Connect helps you manage and share data files from external sources, files can easily be added to the Quadri data model. Whether you're in the office working on a design or in the field working on a machine, the information will be available through the internet.

“Everyone and everything connected”

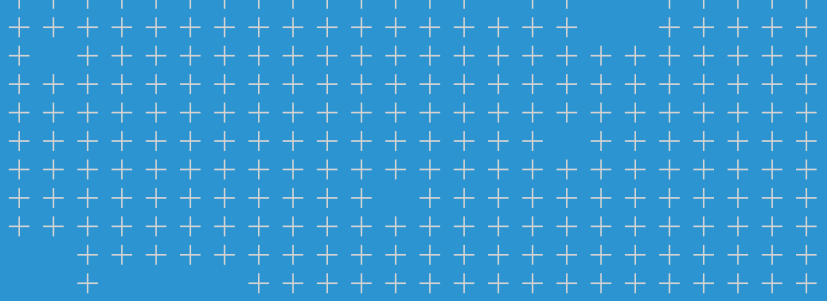
SCHEDULE WITH CONFIDENCE

TILOS

Linear projects present unique challenges, because the work is not done on a single location. Trimble TILOS lets you plan and manage the work operations of your linear projects more effectively. TILOS combine graphical time and distance view, that changes dynamically as conditions change – a combination general CPM schedules and network diagrams fail to provide.

By incorporating design details, construction challenges and the project schedule into one graphical view, contractors, owners and civil engineers can plan and manage linear projects considerably more effective. TILOS' time-distance diagram supports road, highway, rail, tunnel, pipeline as well as bridge projects.

“Linear scheduling combined in one graphical view showing time and distance”



Trimble: Transforming the way the World Works

Trimble provides the tools and support to let you integrate planning, design, site positioning, machine control and asset management information throughout the construction life cycle for more efficient operations and higher profits.

Contact Trimble or your local dealer today to learn how easy it is to utilize technology that makes significant improvements in project workflow, dramatically increases your production, improves your accuracy and lowers your operating costs.

Trimble Civil Engineering and Construction

10368 Westmoor Drive
Westminster, Colorado 80021 USA
800-361-1249 (Toll Free)
+1-937-245-5154 Phone
construction_news@trimble.com

Trimble Solutions Sandvika AS

Leif Tronstads plass 4
1337 Sandvika
Norway
+47 67 81 70 00 Phone
www.novapoint.no

Trimble Solutions Gothenburg AB

Kungsgatan 56
411 08 Göteborg
Sverige
+4631-700 18 30 Phone
www.novapoint.se

Trimble Solutions Aarhus AS

Hedeager 3, 1. sal
8200 Aarhus N
Danmark
+45 89 30 47 50 Phone
www.novapoint.dk

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