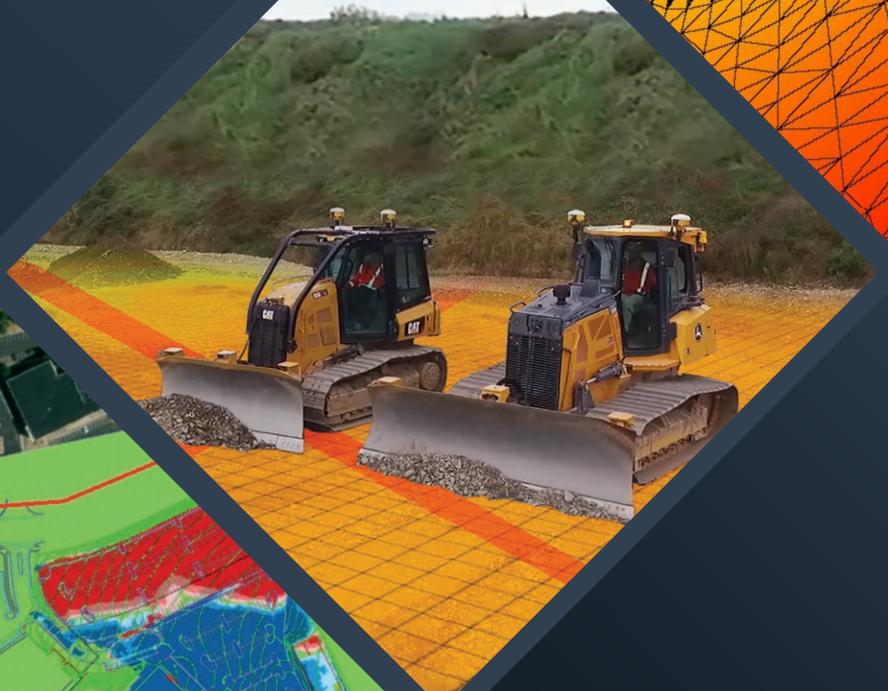


Trimble technology solutions for your

# connected construction site

**FRONTIER**  
**PRECISION**  
CIVIL CONSTRUCTION

**Trimble**  
Authorized Dealer



# Frontier Precision

## Company profile

Our experienced construction professionals will show you how to leverage Trimble® construction technology solutions, including:

- Machine control
- Site positioning systems
- Construction software

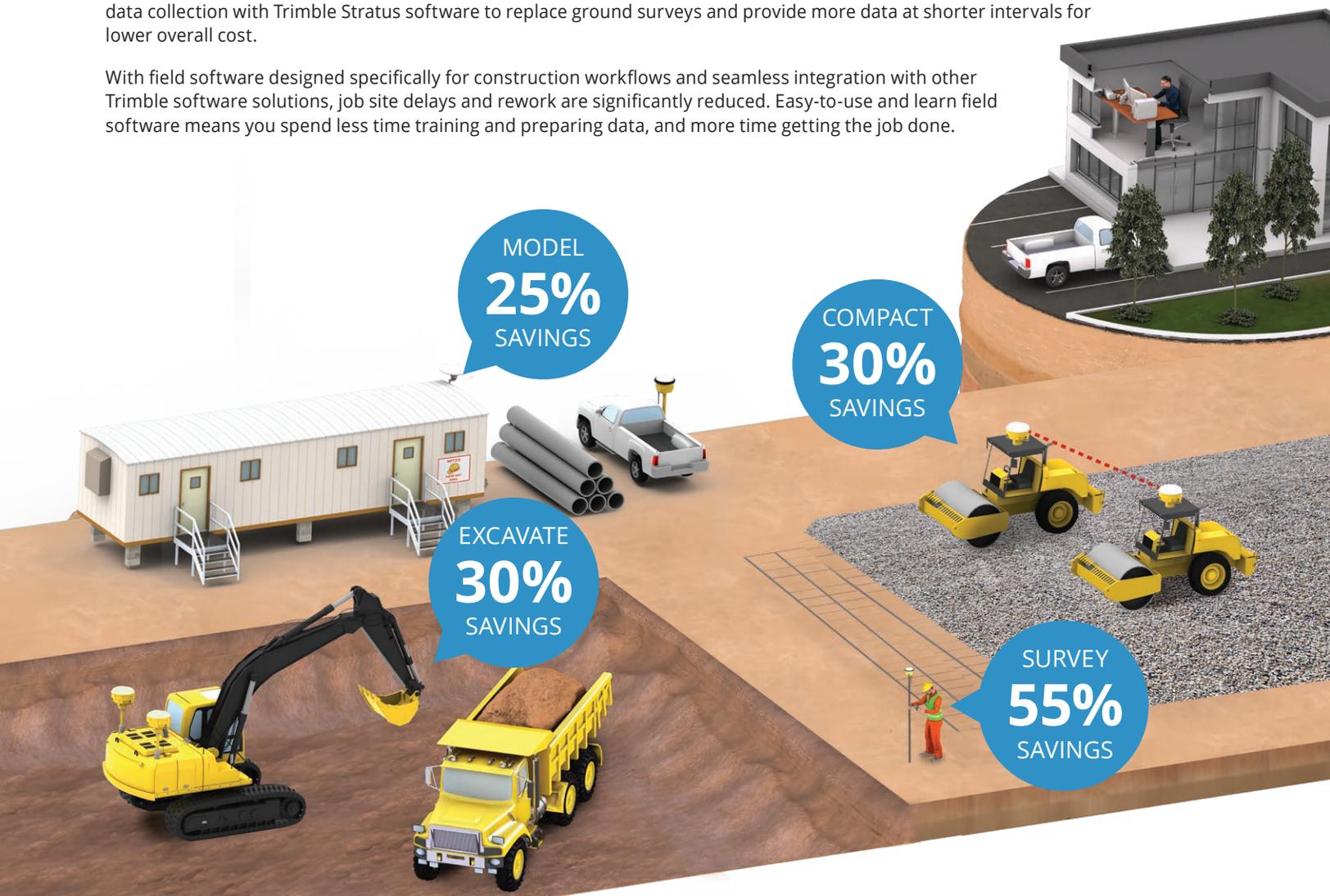
Discover how easy it is to utilize construction technology that makes significant improvements in project workflow, dramatically increases your production, improves your accuracy and lowers your operating costs through reduced survey costs, moving dirt right the first time, improved material yields, increased fuel savings and reduced operating time. With the addition of Trimble solutions to your construction projects, you're in a more powerful competitive position in the marketplace. Whether you choose to start small or go big, the expanded capability will enable you to earn the bid and be more profitable, project after project.

Improve efficiency and productivity while minimizing waste and expense throughout the life of the project with Trimble® Connected Site® solutions for earthworks. Create a 3D constructible model, use it to plan the most cost-effective schedule and then use the same model to track project progress.

### Survey the site

Collect survey data, grade check and as-built data from the field and send it to the office in real-time to build an accurate 3D constructible model for takeoff estimating, data preparation and reporting. Or take advantage of fast and safe aerial data collection with Trimble Stratus software to replace ground surveys and provide more data at shorter intervals for lower overall cost.

With field software designed specifically for construction workflows and seamless integration with other Trimble software solutions, job site delays and rework are significantly reduced. Easy-to-use and learn field software means you spend less time training and preparing data, and more time getting the job done.



### Build a 3D constructible model

Combining current field conditions from multiple sources with design information provides the foundation for the 3D constructible model. Validate and improve the site operations plan with a 3D constructible model, so you know what to build and where to build it before costly construction begins. Adding intelligence to the model, such as how dirt will be moved, and updating the model with up-to-date field information makes the constructible model a powerful tool to plan, manage and construct projects.

### Sync real-time data wirelessly

The 3D constructible model is used to automatically sync design files and work orders between the office and the field in real-time so everyone is working with the latest files.

When up-to-date design information can be sent to the field crews or machine operators without leaving the office, you get 100% less drive time and 100% less rework, 100% of the time.

### Support and train remotely

Get real-time technical support for field crew personnel or earthworks machine operators, without the time and cost of waiting for a technician to drive to the construction site. Both the field crews and the support team see the same picture, eliminating costly delays, downtime and drive time.

### Track and report progress

Intelligently combining as-constructed information from across the project allows for advanced, near real-time reporting for progress payments. As-built progress can be monitored as the machines move dirt, and QA reporting and stakeout results can be generated. By combining both survey and machine data, contractors get the best overall picture of the current state of the project. In addition, soil compaction operations can be monitored to ensure compaction requirements are being met.

### Collaborate effectively

All your important files for the whole team are now located and backed up securely in the cloud. Overlay designs and cut/fill maps onto Google Maps or digital imagery, so everyone can see what's happening. Even site inspections and routine site visits are easily recorded and uploaded – including photos.



PLAN  
**50%**  
FASTER

GRADE  
**30%**  
FASTER

# Machine control

## Benefits



Trimble has worked with many machine manufacturers to reduce the time spent on installation of Trimble machine control. Trimble Ready® machines ship from the factory ready for installation of Trimble components, which can significantly reduce the cost and complexity of the installation for the contractor. By making it faster and less expensive to install Trimble technology, contractors can now realize an even quicker return on investment from their Trimble equipment. Ask your local heavy equipment dealer if the Trimble Ready option is available for your new machine.

PRODUCTION

INCREASED by

100%

INCREASED  
JOB SAFETY



98%

ON GRADE  
ACCURACY



43%

SAVINGS IN  
DIESEL FUEL



K & E has 25 - 30 pieces of equipment set up with Trimble grade control technology. We pull slopes, dig ditches . . . everything. It's a big investment, but we get it back very quickly because you have accuracy, you have productivity, you make more profit, you can get so much more done because you're running the machine at 100% efficiency. I think our return on it is a year or less. I feel Trimble equipment is top notch. We couldn't be happier - it's the only way to go.

**KERRY KUENZI, PRESIDENT - K & E EXCAVATING, INC. • SALEM, OR**

# Proven components

The right fit for every job

## Trimble SNM941 Connected Site Gateway

Connect your machine with rugged hardware from Trimble. Featuring both Wi-Fi® and cellular connectivity, the Trimble® SNM941 Connected Site® Gateway enables wireless data transfer of design files and GNSS corrections, and fleet, asset and site productivity information.



## Trimble CB460 Control Box

Designed for use in harsh construction environments, the Trimble® CB460 Control Box is part of the Trimble® GCS900 Grade Control System and gives the operator a full-color graphical display for easy viewing and guidance to grade.



## Trimble SNR On-Machine Radios

Rugged Trimble® SNR On-Machine Radios offer a modernized platform for communicating with Trimble universal total stations or with a fixed GNSS base station. Available in:

- Single-band 450 MHz, 900 MHz, and 2.4 GHz
- Dual-band 900 MHz + 2.4 GHz and 450 MHz + 2.4 GHz



## Trimble MT900 Machine Target

The Trimble® MT900 Machine Target is designed specifically for fine grading applications with the Trimble Universal Total Stations. It uses a 360° ring of infrared LED's to enable reliable tracking from any horizontal direction and up to 1:1 or 100% slope. The LED's emit one of 16 programmable ID's that allow the instrument to lock-on and track the correct target every time. Rugged design endures vibration and temperature extremes to guarantee long-life usage in even the toughest conditions.



## Trimble LR410 Laser Receiver

The Trimble® LR410 Laser Receiver is mounted to an electric mast on the blade and connected to the machine hydraulics to control lift to an accuracy of 0.01 to 0.02 feet (3-6 millimeters).



## Trimble ST400 Sonic Tracer

The Trimble® ST400 Sonic Tracer is mounted to the blade and uses a physical reference such as curb and gutter, stringline, existing or previous pass as an elevation reference.



## Trimble TD510 and TD540 Displays

The 10-inch (25.4 cm) TD540 and 7-inch (17.78 cm) TD510 Displays ensure the best user experience with the Trimble® Earthworks Grade Control Platform. With a specialised combination of anti-glare, powerful backlighting and advanced optical bonding techniques, these rugged displays combine at-a-glance sunlight readability with an easy-to-use, multi-touch interface. Built on top of a powerful 3D graphics engine and processing platform, the Android™ operating system allows you to install additional applications without upgrading hardware or adding an additional display.



## Trimble MS996 GNSS Smart Antenna

The Trimble® MS996 GNSS Smart Antenna contains an integrated GNSS receiver, antenna, and isolation system all in a single, durable housing. It uses the advanced Trimble RTK engine for faster initialization times when satellite lock is lost and enhances performance near obstructions.



## Trimble MS976 GNSS Smart Antenna

The Trimble® MS976 GNSS Smart Antenna offers a cost-effective alternative for contractors who need a highly accurate GNSS receiver at a lower price point. It is optimized for cab or machine body mount only.



## Trimble MS956 GNSS Modular Receiver

The Trimble® MS956 GNSS Modular Receiver is a positioning receiver intended for use with a Trimble® Zephyr™3 Rugged Antenna. It is specially designed and tuned to operate through the shock and vibration forces experienced on heavy equipment.



## Trimble Zephyr 3 Rugged Antenna

The Trimble Zephyr 3 Rugged Antenna offers full support for current and near-future GNSS signals including GPS, GLONASS, Galileo, BeiDou, OmniSTAR®, Trimble RTX®, and SABS. Combined with rugged durability, it is a long term investment.



## Trimble universal total stations

Trimble SPS Series universal total stations (UTS) can be used for even greater accuracy when performing fine or finished grading, with blade guidance to 0.007 to 0.016 feet (2-5 millimeters).



# Trimble Earthworks

Control the future

The Trimble Earthworks Grade Control Platform offers groundbreaking features. It is designed to help you do more in less time. State-of-the-art software and hardware give operators of all skill levels the ability to work faster and more productively than ever before.

## Integrates with Trimble WorksManager and Trimble WorksOS software

Trimble® WorksManager is a mobile-friendly software that easily manages data and technology assets across project sites. It allows you to transfer data files to or from the office wirelessly, automatically ensuring everyone is operating from the latest design. Trimble® WorksOS software monitors live earthmoving and compaction volume metrics, so you can see exactly how much work has been completed, and how much remains. Stay on schedule and work more efficiently with Trimble software solutions, designed to make construction management easier on and off the job site.

## Trimble Earthworks Assistant App

The Trimble Earthworks Assistant App\* is a stand-alone app that consolidates and simplifies access to training guides and videos inside and outside of the cab. It makes it easy to learn and troubleshoot using an Android cell phone, even from remote sites. The user has access to critical Trimble Earthworks learning material and documentation, allowing for a shorter learning curve and less downtime for operators.

\*Available on the Google Play™ Store



# Machine control redefined

## Intuitive software

The Trimble Earthworks software was created in collaboration with construction equipment operators around the world, so the interface is optimized for ease-of-use and productivity.

- Colorful graphics, natural interactions and gestures, and self-discovery features make Trimble Earthworks intuitive and easy to learn
- Each operator can personalize the interface to match their workflow using a variety of configurable views
- Files can be transferred to or from the office wirelessly and automatically so you've always got the latest design



## Subscribe now

Ask us : all Trimble Earthworks technology is available as a subscription, reducing your upfront investment in earthmoving technology.



## Trimble TD510 and TD540 Displays

- 25.4 cm (10-inch) or 17.78 cm (7-inch) touch color-display
  - Gorilla® Glass
  - Best visibility even in bright sunlight
- Android operating system
- Powerful octa-core processor platform with dedicated graphics processor
- Integrated Bluetooth® and Wi-Fi® for wireless connectivity
- Quick release RAM mounting for daily theft protection removal
- Front facing USB for easy firmware updates and synchronisation of design and productivity data

## Trimble® EC520 Electronic Controller

- The processing unit is separated from the display and is permanently installed on the machine
- Integrated Inertial Measurement Unit (IMU) body sensor with 6 degrees of freedom
- Optional integrated Wi-Fi for on-machine wireless connectivity to displays, laptops, hot spots or mobile devices
- 4 GB internal memory for machine data and designs



## Trimble® GS520 Grade Sensor

- Six degrees of freedom inertial measurement unit, based on the latest inertial sensor technology and particularly responsive
- 100Hz, 3x axle pitch, 3x axle acceleration
- Compact form factor: mount in any orientation
- Excavator bucket, dozer and grader blades
- Precision locating feature for positioning and re-positioning



# Trimble Earthworks for excavators

Introducing undertime

Trimble Earthworks for excavators was the first aftermarket semi-automatic bucket and boom control system and gives your operation many competitive advantages so you can finish on-time and on-budget.

## Augmented reality

With the augmented reality feature available in Trimble Earthworks for excavators, operators can view 3D models in a real-world environment at a true-life scale, in the context of existing surroundings. Augmented reality simplifies complex concepts by allowing users to work faster and safer using a blend of digital content and real-world environments.

## Tiltrotator support

Trimble Earthworks works with tilt automatics on engcon®, Rototilt®, and Steelwrist® attachments. The system controls the boom and bucket of the excavator as well as the tilt angle of the attachment, while the operator controls the stick of the excavator and rotation of the tiltrotator.

## Payload management integration

Trimble Earthworks has the option to display grade control and accurate payload data on one screen. Increase your mass haul productivity and efficiency by preventing underloading, and improving safety by avoiding overloading. Track productivity with the optional Bluetooth printer and web-based reporting.



# Various configurations

According to your needs

**2D configuration for height and slope** - Flexible starter solution for excavation, canal and trench construction, grading and profile work – the start of productivity.

**3D single or dual GNSS or UTS configuration** - Powerful 3D control system to measure the exact position of the bucket for more complex grading and excavation tasks.

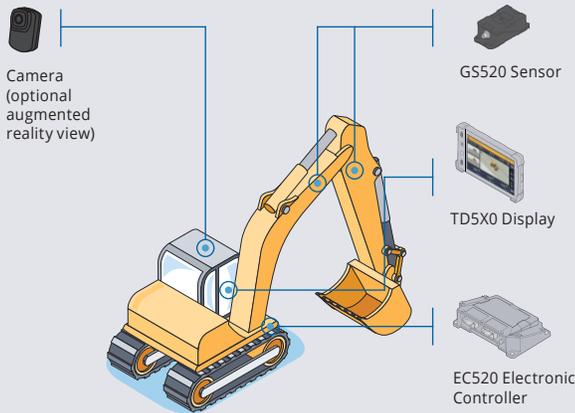
**Automatic guidance** - Available for a broad range of machine brands and models, the automatic system controls the hydraulics of the machine and achieves high precision in flat or inclined surfaces.

The benefits of automatic functionality increase the productivity of your machine up to 40%.

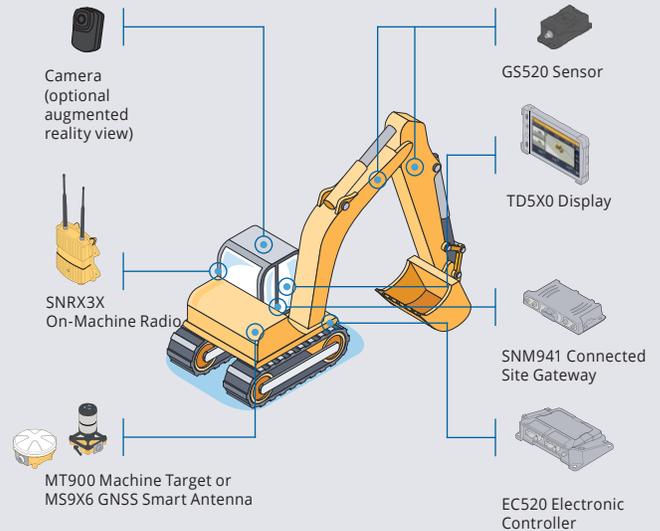
## How it works:

1. The excavator is placed in auto mode
2. The operator controls the stick
3. Trimble Earthworks controls the boom and bucket
4. Stay on grade, reduce overcut and increase production

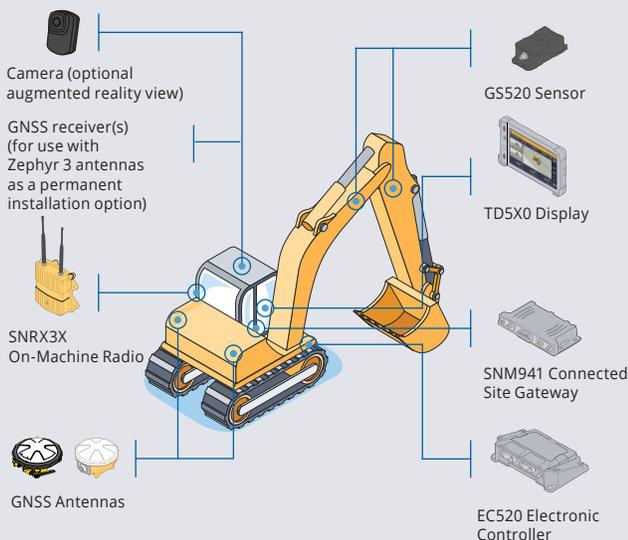
### Core system



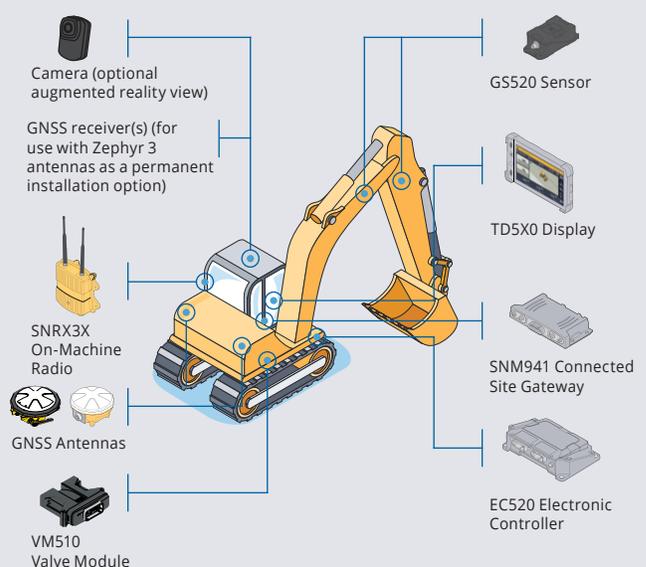
### Single GNSS or 3D total station system



### Dual GNSS system



### Automatics GNSS systems



# Trimble Earthworks for dozers

Control the future

Trimble Earthworks offers dozer operators the flexibility to choose between cab-mounted portability and the blade-mount configurations for the supported models.



# Machine control redefined

## Focus on grade

Horizontal steering control for dozers automatically controls the machine to follow any horizontal alignment such as a back of a curb, breakline, roadway centreline or bottom of slope, without operator assistance. Operators can also manually set up offsets from selected alignments that the machine can follow.

Horizontal steering control allows the operator to focus on the grade, machine productivity and safety rather than worrying about steering, which reduces operator fatigue and errors. It enables the machine to follow the horizontal guidance from the 3D model, providing operators increased awareness of their surroundings, better accuracy and improved productivity—with decreased overlap and fewer passes.

## Blade-mount dual GNSS support

The blade-mount dual GNSS configuration allows for a broader range of supported dozer models. This enables older machine models in the fleet to have Trimble Earthworks guidance and control for the operator. The blade-mount GNSS only supports Dual GNSS.

## Cab-mounted portability

Trimble Earthworks for dozers mounts dual GNSS receivers on top of the cab to eliminate masts and cables traditionally located on the blade. The dual GNSS receivers are ideal for steep slope work and complex designs with tight tolerances.

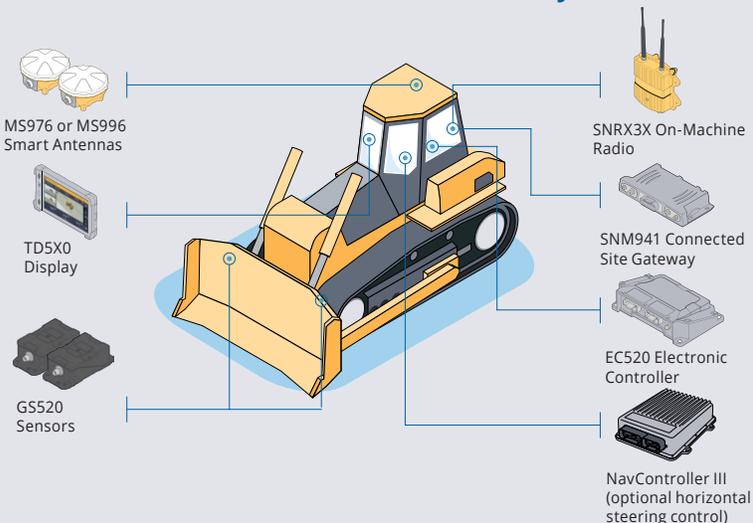
This configuration allows you to easily move the receivers to other machines, to maximise your investment and keep your machines working. Cab-mounting receivers is more convenient and can save you time by reducing the need to reinstall them each day.



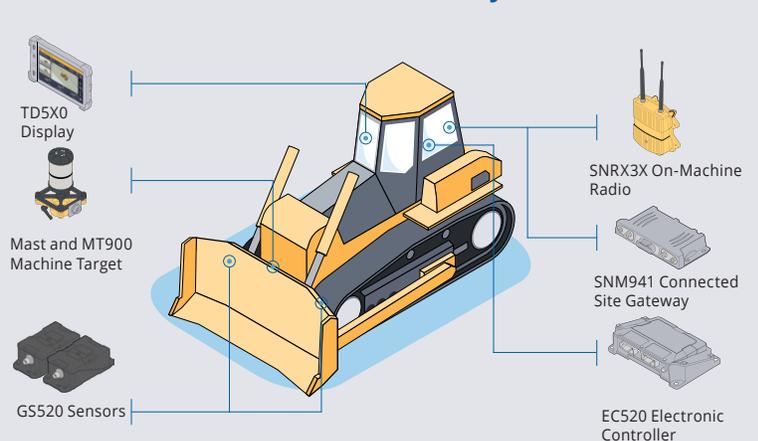
## Universal total station system

For supported cab-mount GNSS models, the high-precision blade-mount options for laser and UTS expand machine control capabilities, both for seamless operation in GNSS obstructed environments and for tasks requiring higher precision than a GNSS-guided solution alone.

### Cab-mounted dual GNSS system



### Universal total station system



# Trimble Earthworks for graders

Running on time

Trimble Earthworks for motor graders helps operators of all levels leave a quality surface. This next generation system with a familiar Android user interface, and user-friendly 25.4 cm (10-inch) touch screen cuts the learning curve, improves operator capabilities, and gives you a first-pass finish that's second to none.



# Leave a finished grade

The first time, every time

## Single / dual GNSS accuracy

Dual GNSS provides real-time position and heading of the machine for guidance of the motor grader blade in 3D, enabling faster reaction times and enhanced performance. The IMU-based system offers even better GNSS performance, for more accuracy and stability. The platform supports multiple correction services, including VRS and Internet Base Station Service (IBSS). And when a correction source is temporarily unavailable, the Trimble® xFill® feature will fill in the gaps to maximise up-time.

## Mastless flexibility

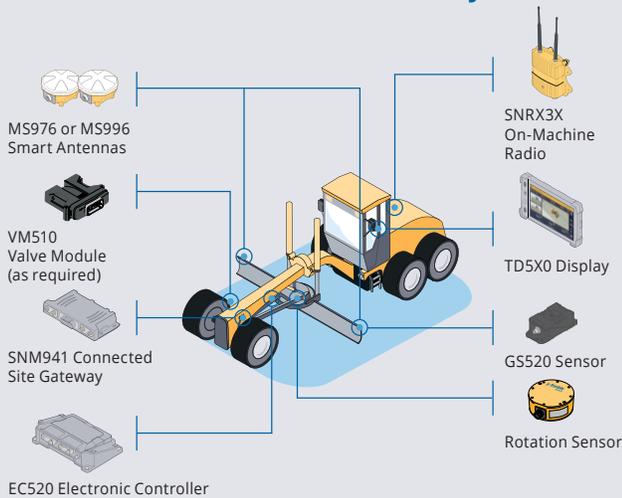
Trimble Earthworks for motor graders enables a mastless GNSS configuration for supported Cat® motor grader models.

This mounts one GNSS receiver on the cab and the second GNSS on the gooseneck of the machine to eliminate masts and cables traditionally located on the blade. The mastless GNSS configuration is ideal for applications to enable the blade's maximum range of motion such as steep slope work and complex designs that need to be built to tight tolerances. It also decreases risk of damage to the machine and reduces the time needed to remove and reinstall GNSS receivers each day.

## Legendary precision with UTS

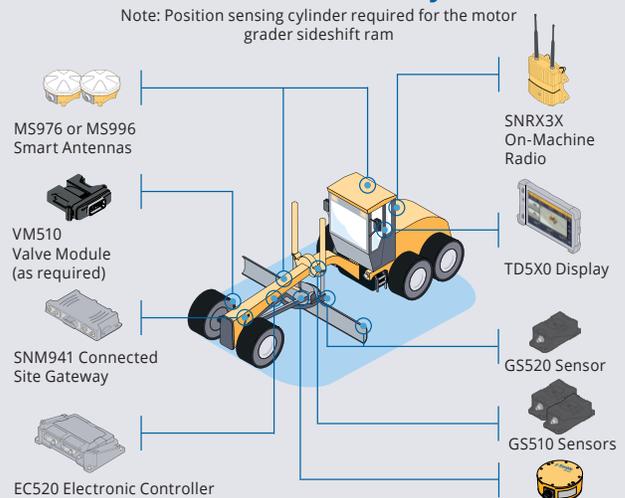
Trimble Earthworks for motor graders with Trimble universal total stations is THE configuration for finish grading with fewer passes. Contractors can place finished grade materials more accurately and in a shorter time period, keeping material costs to a minimum and improving productivity.

### Blade-mounted dual GNSS system

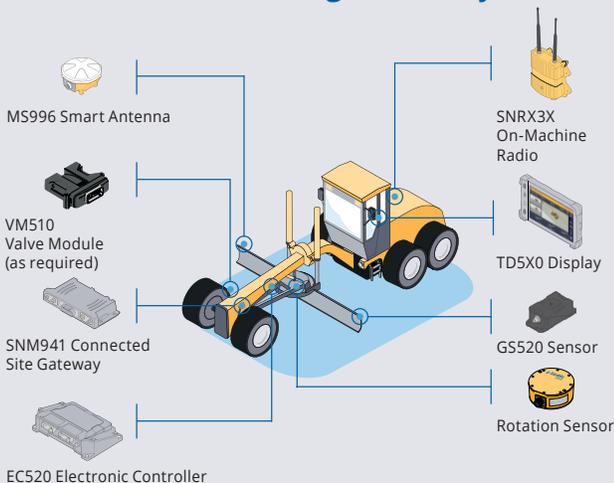


### Mastless dual GNSS system

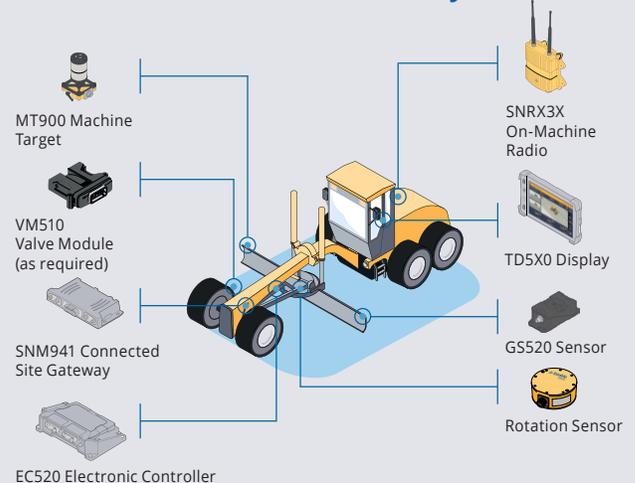
Note: Position sensing cylinder required for the motor grader sideshift ram



### Blade-mounted single GNSS system



### Universal total station system



# Trimble Earthworks

Grade control platform for soil compactors

The horizontal steering control feature is available on an increasing number of machine brands and models. The next generation Android UI system with a large, user-friendly touch screen enables you to easily view compaction progress and pass counts, as well as optionally view and record the compacted soil stiffness.



Trimble Earthworks supports 4-drum landfill compactors. The Landfill Compaction Algorithm (LCA) gives operators the ability to configure multiple compaction parameters. It helps avoid unnecessary passes that waste time and fuel, and alleviates thick layer material placement that leads to insufficient compaction. LCA allows contractors to customise the system to the characteristics of the site, allowing users to define their own best practices for a more efficient landfill operation.



# For a perfect finish

## Intelligent compaction

Trimble Earthworks for soil compactors enables contractors to accurately control the compaction process, while reducing unnecessary passes that result in over compaction. The system achieves the compaction target faster, more accurately and with less rework.

- Compact surface material to the desired compaction stiffness target and monitor site volumes simultaneously, in real-time
- Soil and sub-surface material compaction measurement for single smooth drum and pad foot rollers
- Achieve increased durability, stability and load-bearing capacity

## Horizontal steering control

The horizontal steering control feature automatically controls the machine to follow any horizontal alignment such as a back of a curb, breakline, roadway centreline or bottom of slope, without operator assistance. Operators can also manually set up offsets from selected alignments that the machine can follow.

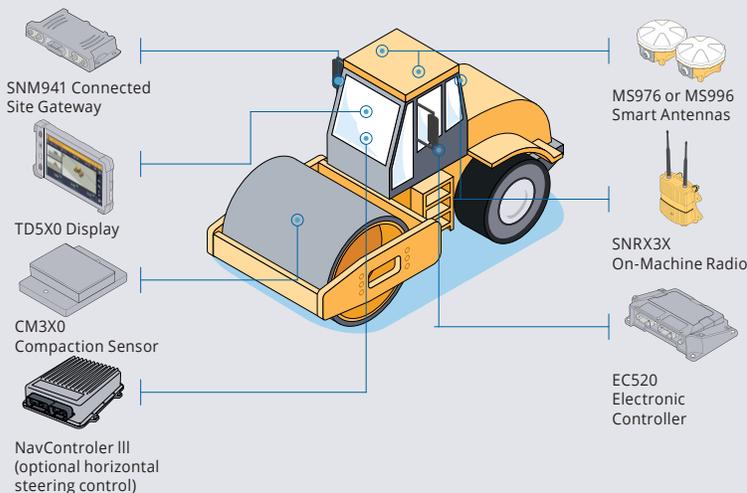
It enables the machine to follow the horizontal guidance from the 3D model, providing operators increased awareness of their surroundings, better accuracy and improved productivity with decreased overlap and fewer passes.

## Actionable data

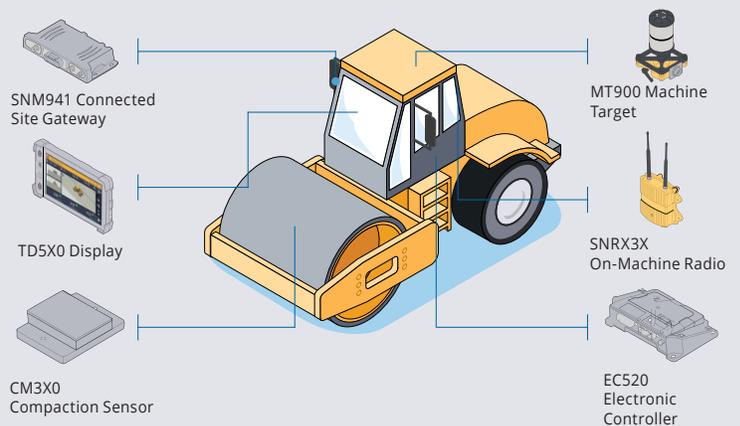
Supervisors and quality control managers can monitor compaction activities in real-time, and operators can immediately identify the areas that require further compaction using Trimble WorksOS software and Trimble Earthworks.

- Collect and document comprehensive, real-time compaction data
- Analyze data in the office to generate detailed reports and documentation to meet project specifications
- Continuously monitor pass counts and compaction measurement values (CMV) over the entire area
- Improve testing success, reduce rework and lower ongoing maintenance costs
- Reduce over-compaction to optimize fuel use and machine time, such as work previously completed versus work completed that day

## Dual/single GNSS systems



## Universal total station system



# Trimble Earthworks for compact machines

Trimble Earthworks is also available for compact grading attachments with single/dual GNSS, single/dual laser, single/dual sonic and total station guidance options. It provides a tailored 3D solution for applications such as site projects where full size grading machines are unable to operate in the confined environment or for the contractor looking to expand opportunities for 3D machine control jobs.

The operator user interface remains consistent with larger machines:

- Compact loader and attachment icons for the brand of grading attachment
- Supports TD5X0 display and your own device
- Office and in-field design support

Dedicated software licence options and alternative hardware configurations allow for easier installation at lower expense.



# Small machines, big potential

## Made for your small machines

Trimble Earthworks for compact machines delivers on the needs of your small machines.

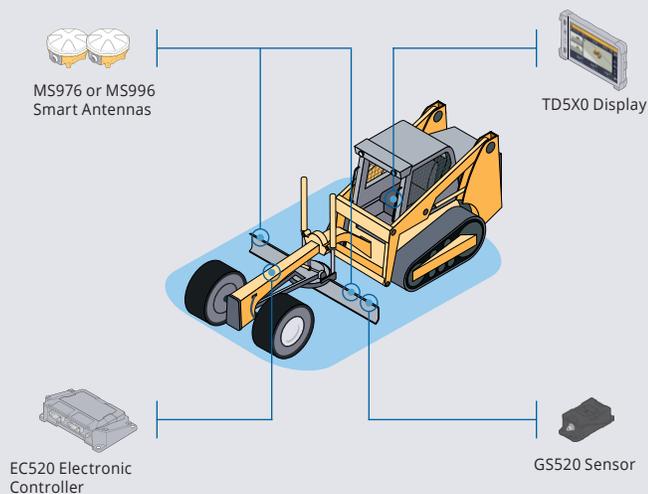
Offering a wireless connection to the machine display for maximum flexibility, as well as compact machine-specific interface elements, Trimble's latest offerings will help you maximise the productivity of your small equipment.

## Options to get the job done right

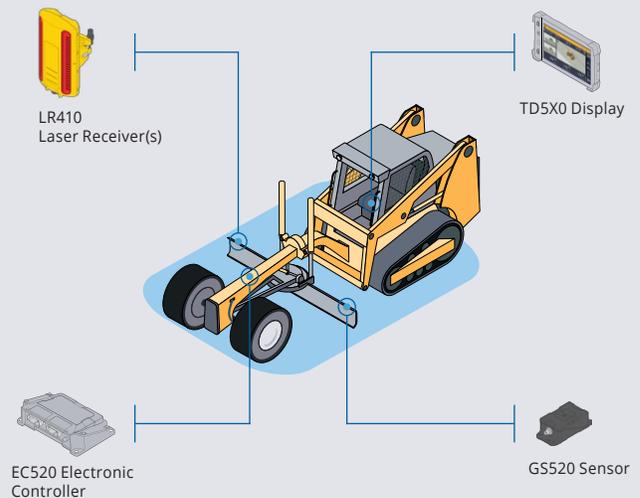
Trimble Earthworks for compact machines gives you a variety of sensor options to meet the needs of your next job.

Offering GNSS based systems, as well as universal total station and laser options, we have what you need whether flexibility or the ultimate level of precision is your goal.

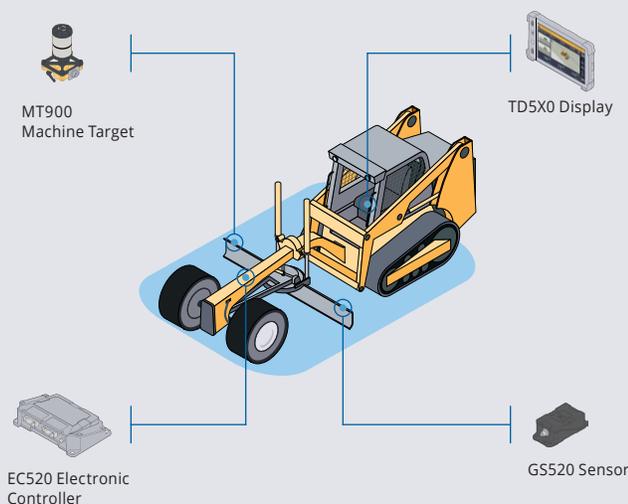
### Blade-mounted dual/single GNSS system



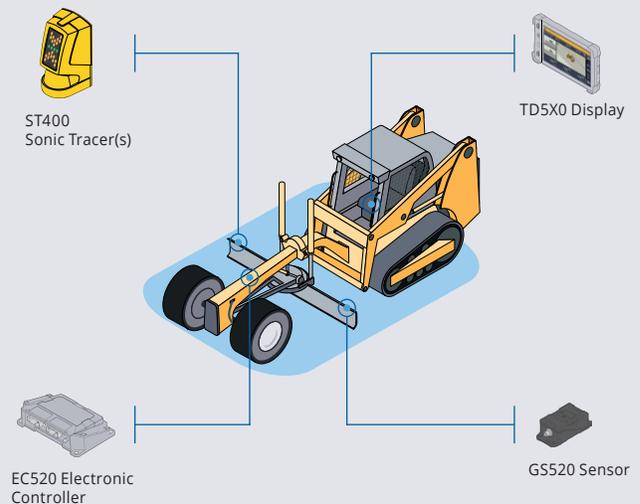
### Dual/single laser system



### Universal total station system



### Dual/single sonic system



# Trimble Earthworks GO! 2.0

2D grade control system for compact grading attachments

Trimble® Earthworks GO! 2.0 is the next generation of compact machine control, designed to enable system expandability and upgrades so your investment remains valuable and updated over time. Trimble Earthworks GO! 2.0 provides high-accuracy grading capability while reducing capital expense. This user installable, low-cost solution is the ideal first step into machine control for small contractors and owner operators. Compact, easy-to-use and highly portable, the system can quickly be moved from attachment-to-attachment for increased utilisation and fast return on investment.

## System features

- iOS and Android™ compatibility allows operators to use their smart device as the primary machine interface
- Trimble technology enables full sensing technology with no mounting hardware required
- Simple harnessing provides a low-profile, easy to maintain solution
- 2D automatic grade control
- Integrated installation and calibration tutorials that make setup easy
- Proven laser-guided technology enables high precision grading in less time
- Slope control with no laser to easily grade without any setup required
- Save machine profiles to enable one-time setup

## Unparalleled portability

Trimble Earthworks GO! proprietary Trimble GO! 2.0 Box technology lets contractors quickly swap the system between machines to take care of the job at hand. Save machine profiles to the GO! 2.0 Box to ensure you only have to set up your machines once, so you can pick up right where you left off.

Ultra-portable and intuitive, Trimble Earthworks GO! provides high accuracy performance in all common grading applications such as pads, parking lots, sports fields, landscaping and more. It also works across the entire fleet of attachments for compact track and skid steer loaders.



# Easy-to-use, portable platform



## Smart device user interface

- Designed for visibility in bright daylight
- Intuitive software design for unmatched ease of use
- Integrated setup tutorials to get up and running faster than ever



Sensor Box

## Trimble GO! 2.0 Boxes

- Fully portable with magnetic mounts
- Ruggedised for construction environments and exposure to the elements
- Trimble Comms Box contains a Bluetooth communications device
- Trimble Sensor Box contains the system IMU



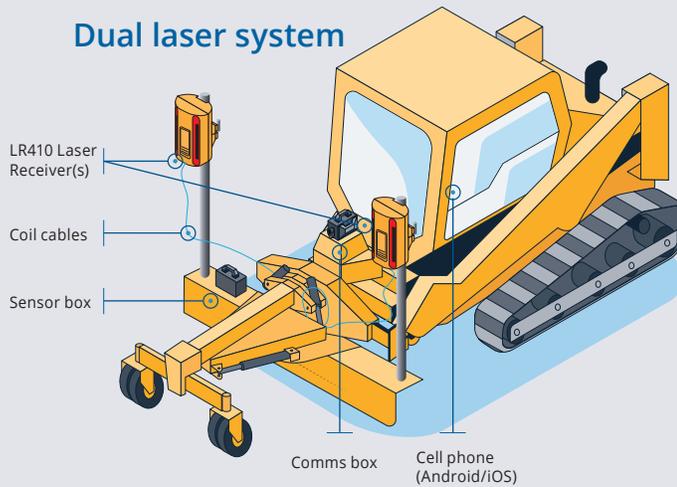
## Trimble LR410 Laser Receivers

- 23 cm (9 inch) detection window for maximum working range
- Can work with OEM masts or Trimble manual masts
- Perfect for high precision grading needs

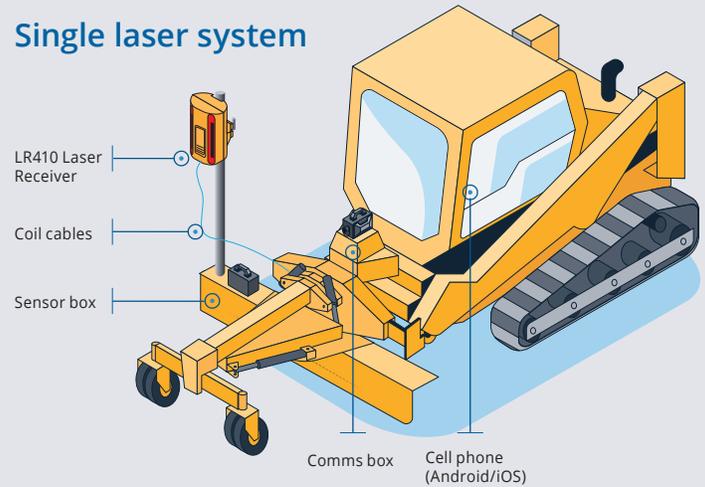


Comms Box

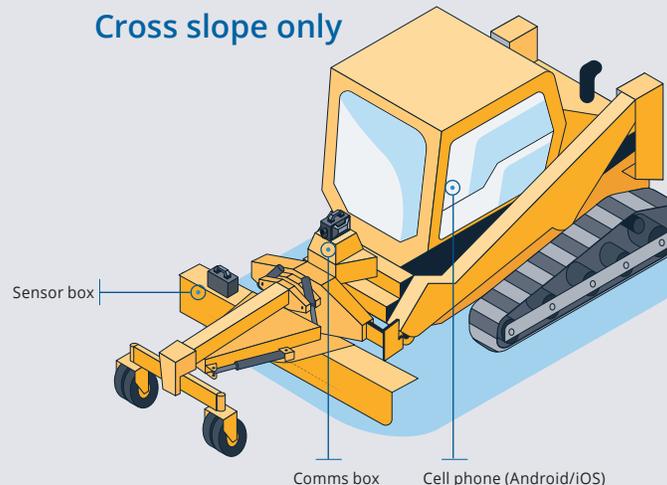
## Dual laser system



## Single laser system



## Cross slope only



# Trimble GCS900

## Grade Control System

Trimble machine control systems are flexible enough to let you equip your entire fleet—excavators, dozers, scrapers, graders, trimmers, milling machines, compactors, pavers and more—with fully upgradeable technology. Start where you need to, and add as needed. Select the best option for the machine and application: sonic, angle sensors, laser, GNSS or total station.

### 2D entry-level machine control systems

Trimble entry-level 2D machine control systems are ideal for smaller projects—from initial site prep through to finished grading and paving, and leveraging a range of fully portable components. All components are easy to move from machine-to-machine, easy-to-use, quick to set up and extremely durable to ensure the highest uptime and longest life possible in job site conditions. Additionally, these systems can be operated in manual or auto mode; in auto mode, the blade is automatically moved to the correct position.

2D machine control systems

Configuration	Target machines	Description	Key components
Cross-slope only	dozers, graders, compact grading attachments	Cross-slope control system to be used on motor graders for fine grading work for road maintenance, ditches and slope work	2 angle sensors, rotation sensor, control box, SNM941
Single elevation plus cross-slope	dozers, graders, compact grading attachments	Single control system uses a laser or sonic receiver to control the lift of the machine blade and the cross-slope for flat, slope work, and finished grading	laser, laser receiver or sonic tracer, rotation sensor, 2 angle sensors, control box, SNM941
Dual elevation	dozers, graders, compact grading attachments	Dual control system that uses two laser or sonic receivers for higher accuracy lift control; blade edge can be controlled independently or linked	laser, 2 laser receivers or 2 sonic tracers, control box SNM941
Depth, slope, and elevation control	excavators	Highly flexible system for excavation, trenching, grading and profile work	angle sensors, laser catcher, control box, SNM941

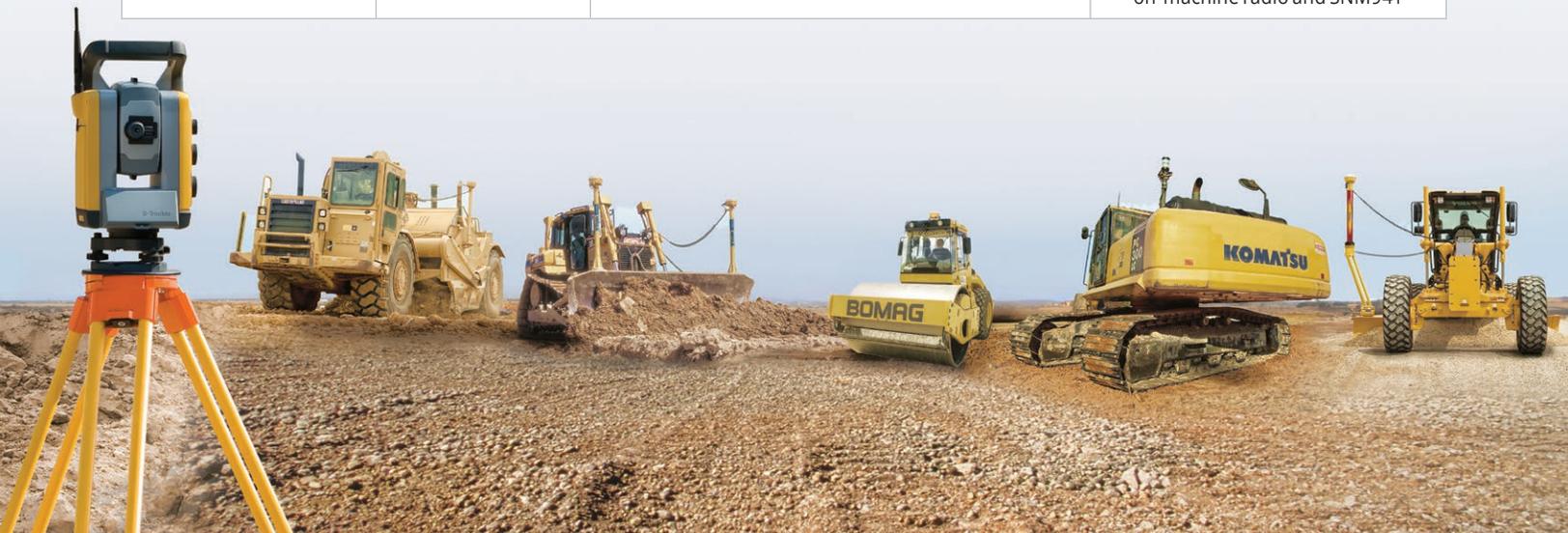


## 3D machine control systems

Trimble machine control systems are the most versatile grading technologies available and can be used on a wide range of machine types, including excavators, dozers, motor graders, compactors, milling machines, trimmers, pavers and more. By putting design surfaces, grades and alignments inside the cab, the system gives operators unprecedented control over grading, excavating, compaction and paving applications, significantly reducing material overages and dramatically improving productivity and profitability. The 3D systems can be operated in manual or auto mode, offering a range of components that are fully portable and can be easily moved from machine to machine.

3D machine control systems

Configuration	Target machines	Description	Key components
Single GNSS	dozers, graders, scrapers, excavators, compact grading attachment	Measures the position and slope of the blade and compares that to design data for grading and mass excavation on complex design surfaces	angle and rotation sensors, single GNSS smart antenna, control box, rugged on-machine radio and SNM941
Dual GNSS	dozers, graders, scrapers, excavators, compact grading attachments	Measures the exact position, cross slope and heading of the blade, bucket, drum for rough grading and mass excavation on steep slopes and complex design surfaces	dual GNSS smart antennas, control box, rugged on-machine radio and SNM941
Cab-mounted single GNSS	dozers, wheel loaders	Measures the position of the blade on the ground, comparing that to the 3D design for rough grading applications	single GNSS smart antenna, control box, rugged on-machine radio and SNM941
Single or dual GNSS with laser augmentation	dozers, graders	Single and dual GNSS systems enhanced with laser augmentation to improve vertical accuracy for high accuracy guidance for complex design surfaces such as super-elevation grading for rough through finished grade work	single or dual GNSS smart antenna(s), laser receiver, control box, rugged on-machine radio and SNM941
Universal total station	dozers, graders, excavators, soil compactors, compact grading attachments	Total station-based system for high accuracy lift and layer control, material placement and monitoring, or for jobs where GNSS is not the ideal solution because of overhead obstructions	single on-machine active target, control box, universal total station, rugged on-machine radio and SNM941
3D + sonic	graders, compact grading attachments	Uses 3D control on one blade tip and a sonic tracer on the other blade tip to match an existing structure, feature or the last machine pass	on-machine active target or GNSS smart antenna(s), sonic tracer, control box, rugged on-machine radio and SNM941



# Trimble Roadworks

For mills and cold planers

With Trimble® Roadworks Paving Control Platform for mills and cold planers, you can mill at variable depth and slope, eliminating undulations and preparing a smoother sub-surface for new asphalt. The 3D design is displayed to the machine operator showing areas that are on, above or below ideal grade. Comparing the actual drum position and slope with the digital design, Roadworks automatically guides the milling drum to cut the ideal depth and slope without string lines or manual adjustments.

Eliminate guesswork and improve safety with the most accurate and reliable milling system on the market. Keep up as projects continue to become more demanding, and get complex designs such as transitions, superelevations and drainages right the first time.



# Mill out the waves

Surpass your milling specifications

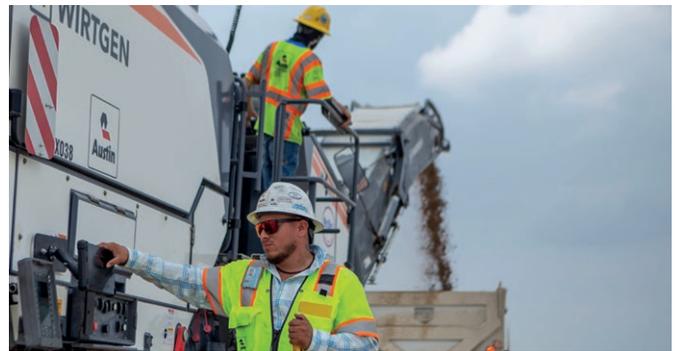
## Finish faster with less material

Beat completion deadlines and deliver the highest quality surface at minimal cost. Mill more efficiently and accurately to reduce lane shutdowns and overall construction time. By only milling to the exact depth required, machines burn less fuel and experience less drum teeth wear, fewer trucks are required to remove waste material and less asphalt is required for the final surface.

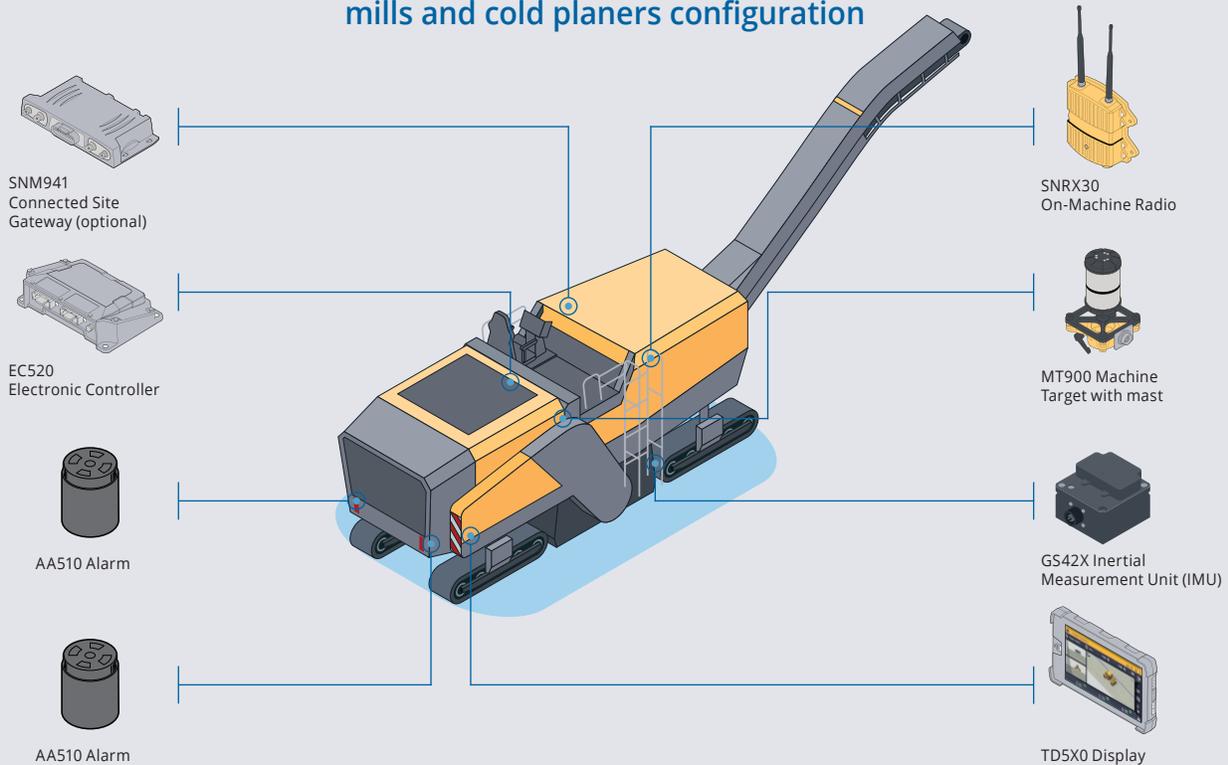
## Office-to-field connectivity

Reduce waste and over-cutting with efficient communication and data transfer with Trimble WorksManager software—a mobile-friendly application that easily manages data and technology equipment across jobsites. With the Trimble SNM941 Connected Site® Gateway, transfer 3D designs from the office to the machine wirelessly and automatically so that the operator is always using the latest design. Productivity data collected from the machine can automatically sync back to the office to track and monitor progress with Trimble WorksOS software.

Create optimized 3D milling plans in Trimble® Business Center, then generate comprehensive quality and production reports. With Trimble technology, both time and accuracy are on your side.



## Trimble Roadworks: mills and cold planers configuration



# Trimble Roadworks

For asphalt pavers

The Trimble Roadworks 3D Paving Control Platform for asphalt pavers is a highly accurate, automatic 3D screed control system that can significantly improve paving productivity and rideability by directly referencing the design rather than a surface or string line to minimise asphalt usage, reduce waste and overruns and finish projects on time and under budget.

When used with a traditional asphalt paving machine with a tractor and hydraulically controlled floating screed with a supported 2D system, Roadworks can be used to place any variety of materials, including hot asphalt, cold recycled asphalt, road base, gravel, concrete treated base, sand or any other paving material.



**The horizontal steering control and automatic screed width controls** on Vögele Navitronic asphalt pavers automatically steer and control the screed width for linear paving and radius paving according to 3D design. This ensures that pavement is placed accurately horizontally and vertically, all without operator intervention.

Horizontal steering and automatic screed width controls allow for a higher quality surface for faster, more accurate paving and with substantially less operator fatigue than with traditional asphalt paving methods.

# For excellent rideability results

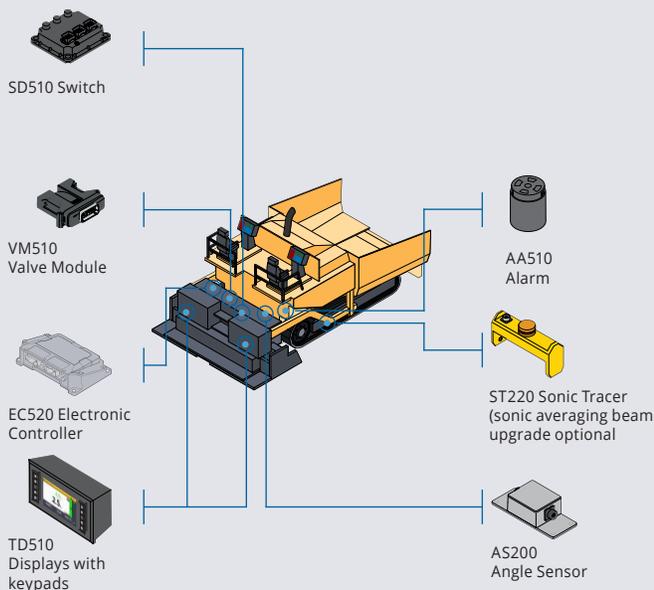
## 3D asphalt paving

### Productive and precise paving

- Achieve smoothness and accuracy up to the finished surface
- Minimise the use of expensive material by paving within a tighter tolerance and getting closer to the minimal asphalt thickness specification early in the process
- Improved sensor mobility to easily swap sensors based on application, such as cross-slope to joint matching configurations
- Monitor the measured and target values of the cross slope and mat thickness simultaneously
- Rugged and durable components for tough construction conditions, rated to protect against dust and water
- Reduce labour costs by controlling the screed with one operator
- Increase efficiency by eliminating the need to pick up the mechanical averaging beam when going over hot asphalt, storm drains or other obstructions
- In 2D applications, contractors can easily change sensor values and operate the system in the field with the combined touchscreen display and tactile keypads
- In 3D applications, eliminate any complications involving stringlines: human error, costly setup, maneuvering hazards, etc.

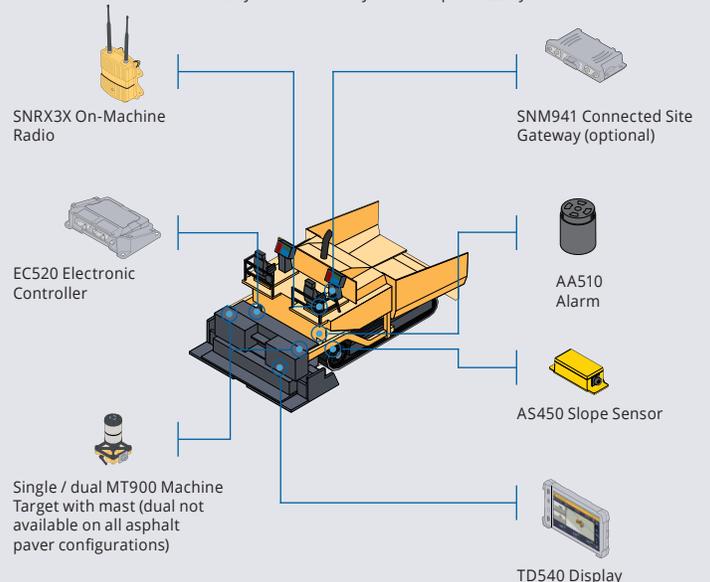


### 2D system



### 3D system

Install the Trimble Roadworks 3D system over many different paver 2D systems.



# Trimble Roadworks

For asphalt compactors

Trimble Roadworks Paving Control Platform for asphalt compactors is the next generation intelligent asphalt compaction (IC) system designed to help operators of all levels improve the speed, accuracy and ease of asphalt compaction.

The intuitive Android interface on a large, user-friendly touch screen enables you to easily view real-time temperature mapping, compaction progress, pass counts and optional display and recording of the compacted asphalt density.

For asphalt and hot mix asphalt compaction applications, Trimble Roadworks is ideal for operations where the specification calls for a target density, pass count and asphalt temperature control such as highway and railway construction, residential pads, commercial site construction, parking lots and sports fields.



## Intelligent compaction

The asphalt compactor is the last machine to pass over your paving project, and mistakes during this phase can be very costly to fix.

Roadworks enables contractors to accurately control the compaction process, while reducing unnecessary passes that result in over compaction. The system achieves compaction target faster, more accurately and with less rework.

- Compact surface material to the desired density and monitor site volumes simultaneously, in real-time
- Ensure optimal compaction within the target temperature range, avoiding under and/or over compaction with real-time temperature map monitoring
- Achieve increased durability, stability and load-bearing capacity
- Easily meet Department of Transportation (DOT) or private job specifications



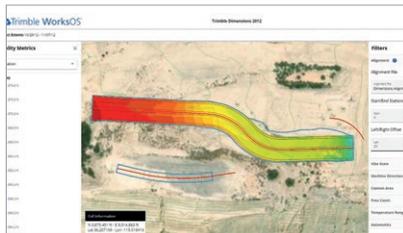
# For a perfect finish

## Actionable data

Supervisors and quality control managers can monitor compaction activities in real-time, and operators can immediately identify the areas that require further compaction.

Office-only licences offer extended functionality.

- Collect and document comprehensive, real-time compaction data to improve layer management
- Analyze data in the office to generate detailed reports and documentation to meet project specifications
- Continuously monitor pass counts and compaction measurement values (CMV) over the entire area to take corrective action as needed
- Improve testing success, reduce rework and operator hours and lower ongoing machine maintenance costs
- Reduce over-compaction to optimize fuel use and machine time
- Better understand work previously completed versus work completed that day
- Field data files can be directly imported into the Veta software platform to increase work opportunities and to gain a competitive advantage at the bidding process

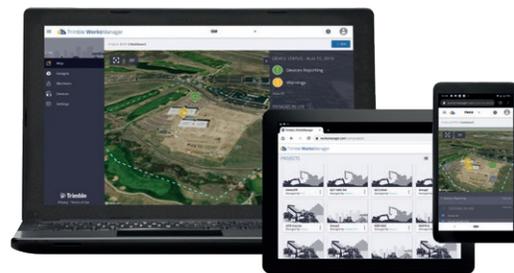


Trimble WorksOS software

## Office-to-field connectivity

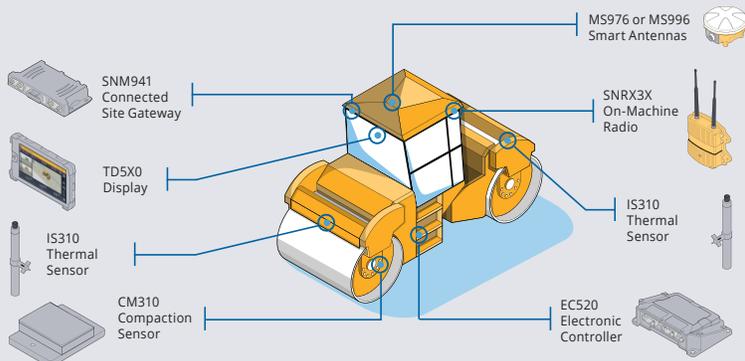
Reduce waste and overruns with efficient communication and data transfer with Trimble WorksManager and Trimble WorksOS—mobile-friendly software that easily manages data and technology assets across job sites.

With the Trimble SNM941, transfer 3D designs from the office to the machine wirelessly and automatically so that the operator is always using the latest design. Productivity data collected from the machine can automatically sync back to the office.

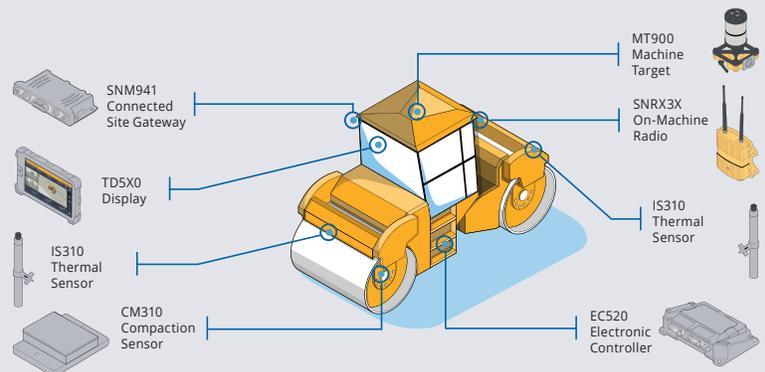


Trimble WorksManager software

## Single GNSS system



## Universal total station system



# Trimble paving solutions

## 3D slipform paving

### No string, no delays

String line delays your pour, it costs too much, and it's just too hard for your haul trucks to drive around. Every time it breaks, you have to stop the machine. Every time it sags, your surface suffers and so does your bonus.

Once you start paving with the Trimble® PCS900 Paving Control System for slipform pavers, you'll wonder how you could ever use string in the first place. You'll start working faster every day. Your haul trucks can pull up and dump without driving around stakes. You'll stop less often, grind fewer problem spots and blow away your target IRI (International roughness index) number.



# Concrete paver guidance

Stringless and precise

## More control, less waste

The system uses automatic steering and 6-way control of the pan to keep the paver exactly on the target alignment, grade and slope. The result is a more consistent concrete surface with better rideability and a bigger bonus – without the time and cost of string.

You'll see efficiency improvements through:

- Improved site logistics and safety
- On time delivery of mix
- Better yield
- Increased smoothness

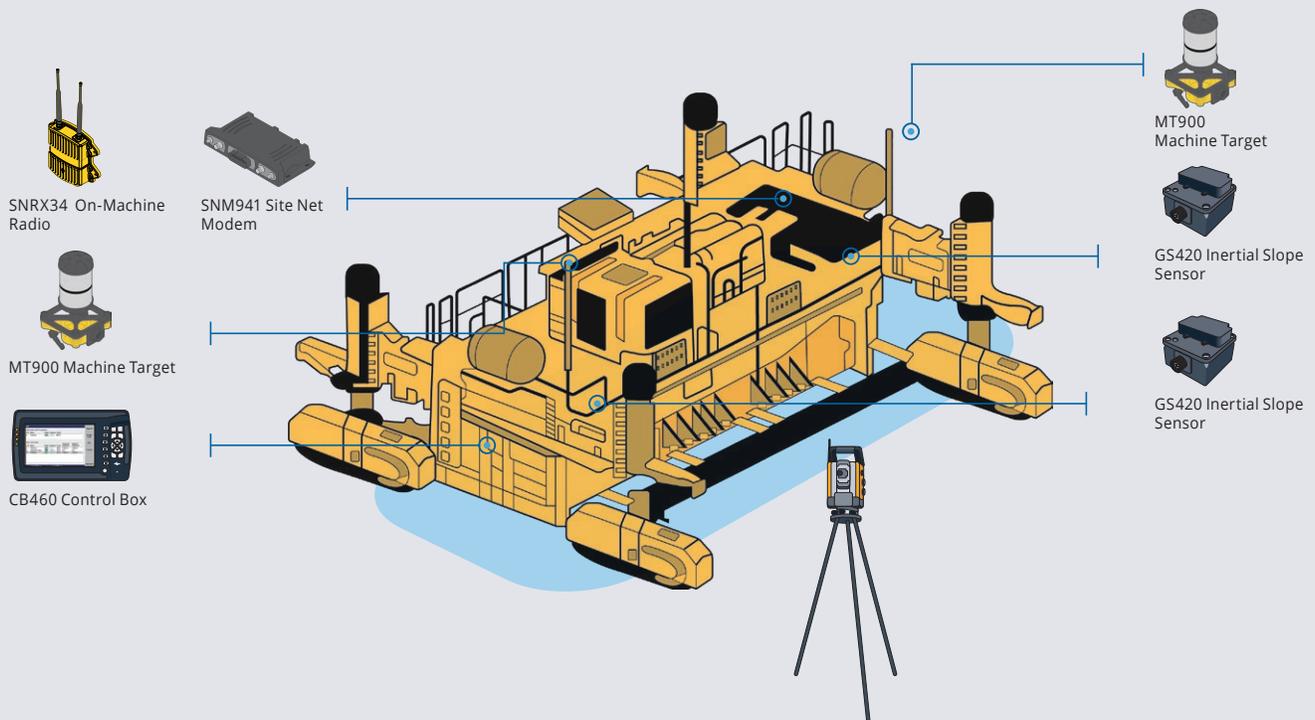
## One integrated workflow

The cost of concrete rework is too high to be working with multiple manufacturers and file formats. Using one integrated workflow from Trimble, you can be confident of the quality of your work, and stake your reputation on the results.

Pave to the 3D design, and your grade checker can work from the screed using a Trimble rover, the same 3D design model and total stations to verify the as-poured surface.

Plus, with training and support from your Trimble Technology Distributor, you're never working alone.

## Universal total station system



# Trimble Groundworks

Machine control system for drilling, piling and compaction

Trimble® Groundworks Machine Control system can enhance on-site safety, accuracy and the efficiency of your drilling and piling operations. All day, every day, in any weather.

Realize maximum production and revenue with the Trimble Groundworks Machine Control system—an aftermarket, land-based, 3D drilling and piling system for the mixed fleet operator.

- Stakeless drilling or piling and minimal lay out reduces workload and cost
- Keep personnel safe by reducing the need to be near machines and warning the operator when entering avoidance zones
- Limit operator fatigue by reducing paperwork

## Benefits:

- Stakeless navigation and minimal layout reduce workload, rework and errors
- Improve site safety by reducing personnel near machines and using avoidance zone alerts
- Auto Stop drills only to the defined elevation
- 2D workflow keeps you working even during GNSS signal loss
- In-field drill plan and quality/production reports
- Very high accuracy and precision using RTK positioning
- Navigate to inclined or vertical holes from any direction
- Log as-built data during operation

## Applications

- Drilling
- Piling
- Solar farm construction
- Blast hole drilling
- Structural piling
- Wick drain installation
- Continuous flight augering (CFA)/ auger cast piling
- Anchor/monopile drilling
- Dynamic compaction



# Optimize production and revenue

## Trimble VERSO 12 Display

### Keep your machines working—not waiting

Your machines can be up and running 24/7 with the rugged and fully connected Trimble® VERSO 12 Display and Trimble Groundworks. The easy-to-read touchscreen makes navigation simple and quick.

- Rugged VERSO 12 display
- Clearly see avoidance zones for safer sites
- Configurable views
- Easy-to-use, intuitive interface
- Modern, colorful graphics

Part of the Trimble Connected Site portfolio, Groundworks is an integrated solution that brings the office and the field together to give you less rework, more productivity, and best of all — more profitability.

- Trimble Business Center creates and manages design data to avoid costly mistakes
- Connected Community allows design data to be shared in the cloud and ensures operators are always working with the most recent information
- Groundworks gathers as-built data so Trimble Business Center can run accurate quality, production, and utilisation reports

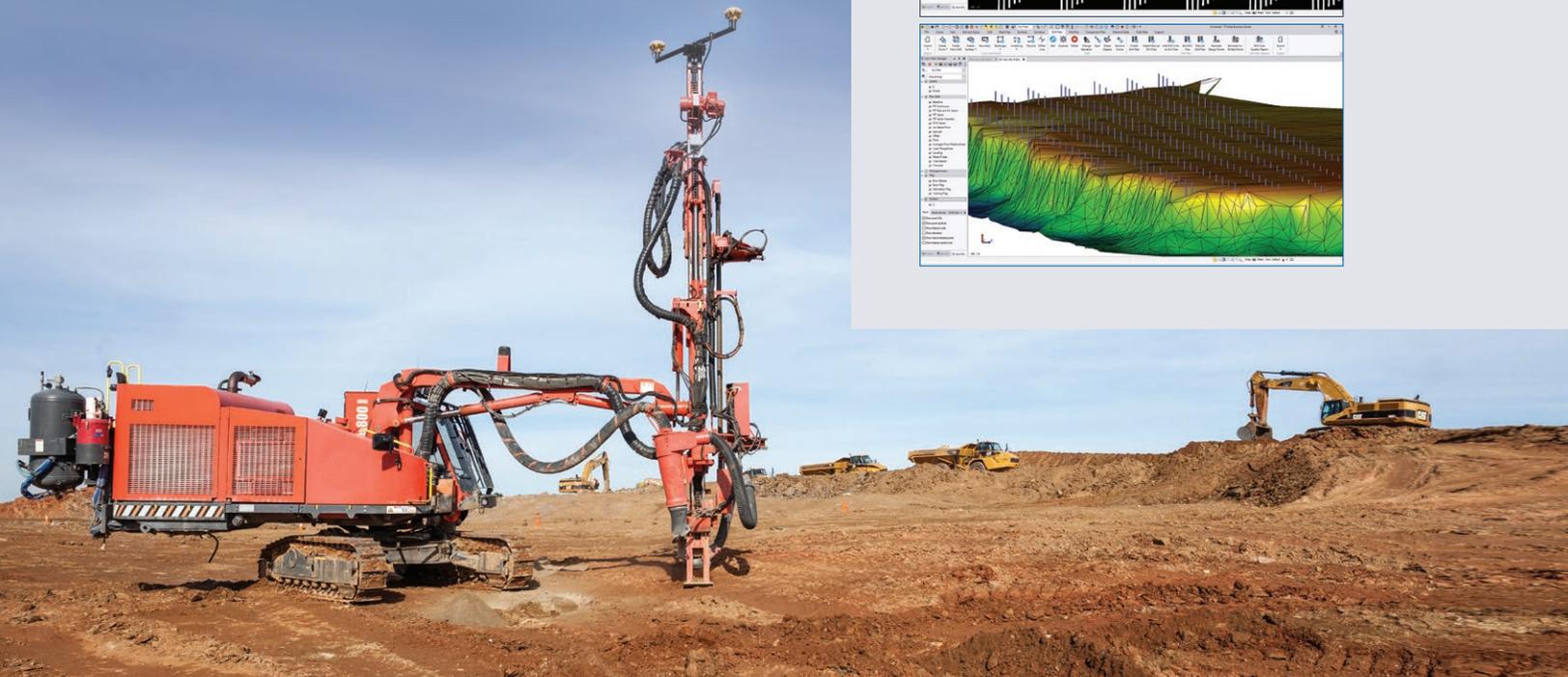
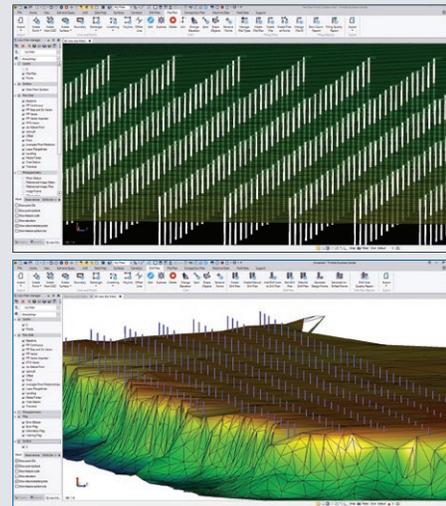
Trimble WorksManager software makes it easy to manage up-to-date connected design data and track all of your fleet assets across multiple project sites.



## Trimble Business Center

### Optimal drill plans, optimal results

Rapidly create optimized 3D drill or pile plans with Trimble Business Center software, then generate comprehensive quality and production reports. With Trimble Business Center and Trimble Groundworks, more profits are at your fingertips.



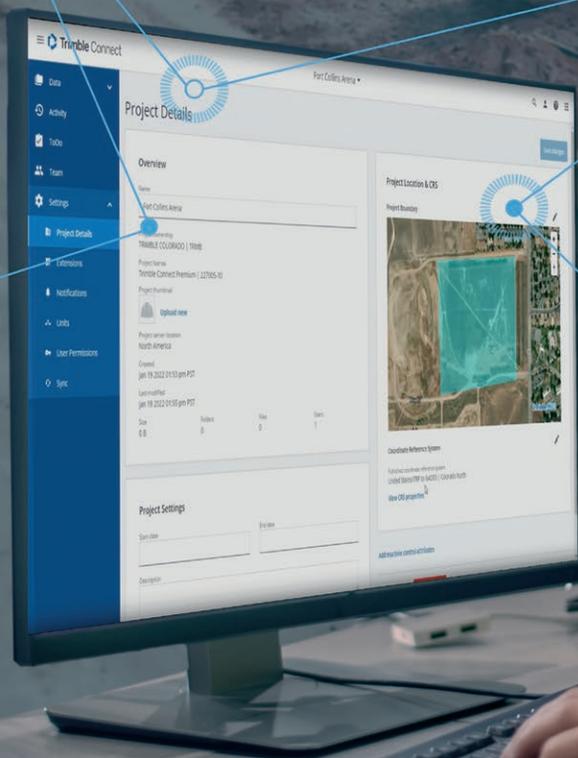
# Connect your jobsite

With the Trimble jobsite connectivity bundle

A single source of truth for constructible data in the field and office helps you avoid time-consuming rework, share data seamlessly across a project and know everyone is on the same page.

With the Trimble Jobsite Connectivity bundle, management and collaboration software tools seamlessly work together to create a more powerful and more cost-effective solution. If you already have Trimble software solutions, an upgrade to get the benefits from the synergy of the connectivity is now possible, delivering more value at a more cost-effective price.

The bundled Trimble software solutions enable full visibility of what is happening on site and confidence that everyone is working to the latest plan. This gives contractors peace of mind in an industry where projects are complex and constantly changing.



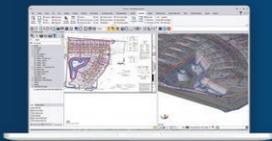
# Projects and data

Connected from office-to-field



## Trimble Connect

Trimble® Connect® is a cloud-based collaboration platform where project stakeholders can share, review, coordinate and comment on construction models, schedules and other project information.



## Trimble Business Center

Takeoff and modeling software that can be used to calculate earthwork and material quantities for bids, build constructible 3D models for construction surveying and machine control, and more.



## Trimble WorksManager software

A cloud-based application that remotely sends construction-ready models to machines and construction surveyors in the field, so operators are always working with the latest designs.



## Trimble WorksOS software

Integrate design data from the office with machine control as-built data to provide real-time jobsite progress and productivity updates.

## Simplified pre-construction

Connecting construction operations can pay off even before the project begins. Accurate information at your fingertips allows for better planning, scheduling and bidding.

- Quickly and easily confirm designs without expert-level skills
- Avoid time-consuming file formatting and opportunities for error

## Compatible with a wide range of solutions

- Connect all stages of the construction project
- Standardised data allows for wider use across the project
- Support for third-party solutions increases business opportunities
- Transfer files between different field systems operating on the same site
- Leverage the Trimble Connect Software Developer Kit (SDK) to integrate third-party tools with Trimble civil construction software
- Supports LandXML-based data exchange

## Avoid rework

Quickly modify plans and coordinate with field operations from anywhere in the world, avoiding costly mistakes from an outdated design or incorrect coordinate system.

- More efficient and faster file transferring to reduce risks of mistakes
- Cleaner handoffs from engineers make sure everyone is working from the same design with less effort
- Provide transparency across the entire organization so you're always looking at the latest information
- Settings flow throughout projects, and projects flow throughout systems



# Trimble WorksOS

Real-time productivity data from your job sites

Trimble WorksOS software is a cloud-based solution delivering 3D productivity and real-time progress for site supervisors and project managers to plan and maximise job site efficiency. WorksOS enables multi-user collaboration and communication, giving stakeholders immediate access to the latest information, workflows and project status to empower better decision making. The software performs real-time calculations efficiently and consistently to make it easier to understand real work progress and pro-actively make adjustments to stay on budget and on schedule.



# Flexible technology solution

To fit your business

## Benefits

- View the progress to plan for each project in a single dashboard
- Real-time cut, fill, volume, and compaction data for increased visibility of machine and job site productivity
- Drive your machine activity from a central site design for real-time progress versus plan updates from the field
- Effortlessly track the progress of multiple working zones and activities for validation of work performed
- Remote access saves time on unnecessary job site visits, frequent check-ins and surveys

## Key features

### Connected construction

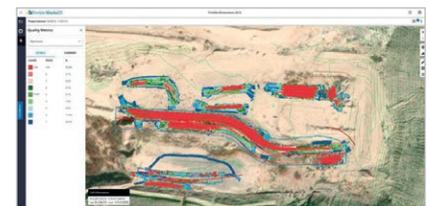
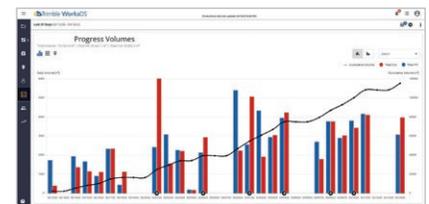
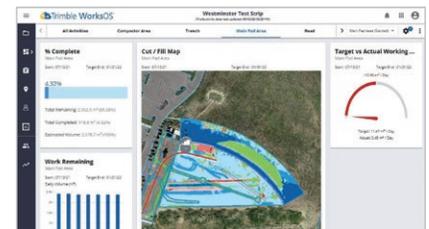
- Upload designs, topographical and drone surveyed surfaces, and machine as-built data
- Integrated designs from Trimble Business Center
- Interoperability with Trimble Connect and Trimble WorksManager software for project, design and asset management
- Utilise machine productivity data from Trimble machine control systems

### 3D productivity monitoring

- Real-time cut, fill, volume and compaction data
- Adjust daily work targets to stay on schedule
- Visibility into which machine is working
- 2D cut/fill maps for material movement
- Pass count maps for compaction
- Filtering capabilities based on machines, geofences and lifts
- Progressive volume charts to show cumulative total over time

### Activity workflow advantage

- Define the start/end, quantity and design targets of an activity
- Track progress and productivity to optimize bidding, scheduling and estimating
- Intuitive interface enables users to easily monitor job site metrics without having to understand and setup complex filter settings
- Key metrics and completion status of activities in a summary report dashboard for convenient monitoring and reporting
- Identify when progress is behind schedule to make resource corrections and get back on track



# Trimble WorksManager

Now you can be everywhere at once

Trimble WorksManager software allows users to wirelessly transfer data such as 3D designs to the construction site, increasing efficiency and saving drive time and money. Supervisors and data managers will be sure that the right machines or data collectors are always using the current design. A practical dashboard shows managers an overview of their sites. Contractors can prevent costly mistakes and rework by seeing their construction technology in the field in real-time.



# Easily manage your data and assets

Without leaving the office

## Seamlessly connect the office and the site to improve a variety of workflows

For example:

- WorksManager enables foremen to supervise and coordinate multiple crews and multiple projects from one location
- Site supervisors can trust that the correct design is being used in the field
- Share device data from various accounts into a single project for more efficient project management and device monitoring
- WorksManager gives data-prep professionals the confidence that their changes are being communicated and applied at the site
- WorksManager can extend the range of existing base station corrections so GPS and survey managers can send crews out over a larger area

## Always connected and up-to-date

- Easy-to-use workflows keep current information at your fingertips
- Mobile friendly, data is available when and where you need it
- Integrates with Trimble Earthworks, Trimble Siteworks Positioning Systems and Trimble Business Center
- Up-to-the-minute, actionable data empowers you to run your business more confidently and profitably
- Limit the risk of miscommunication to and from the field with automatic data transfer

## Seamless transfer

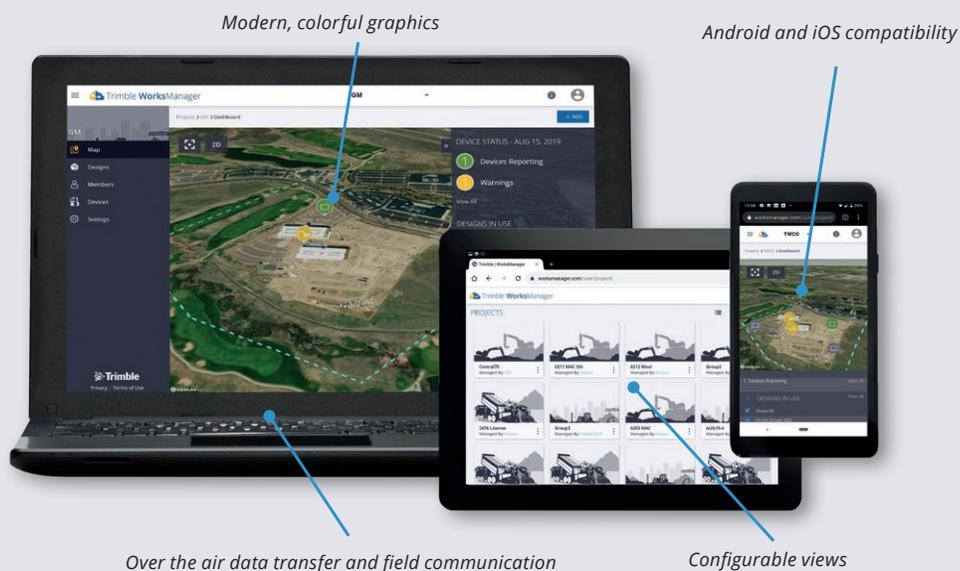
- Easily transfer data to and from devices over the internet
- Stream corrections to your devices

## Job site visibility

- Keep track of the location of your devices and machines with detailed activity information
- Intuitive dashboard shows an at-a-glance view of your digital assets and design information wherever you are
- Monitor operations to keep the job on track and keep costs down

## Remote assistance

- Troubleshoot issues in the field from the office
- Efficiently support the team in the field from wherever you are, react quickly when things go wrong and get everyone back to work faster



# Trimble Business Center

Increase efficiency in the office and on the job site

## Out-bid and out-perform

Trimble Business Center is your complete office software solution to out-bid and out-perform your competition. Manage data and accomplish tasks throughout the project lifecycle for civil construction job sites, highways and marine applications in a single software package. Make better decisions, decrease costly mistakes, and increase efficiency in the office and on the job site.

With Trimble Business Center, you can efficiently calculate earthwork and material quantities for bids, prepare data for construction stakeout, build 3D models to optimize machine operation, track productivity and understand how profitable you are on any given project.

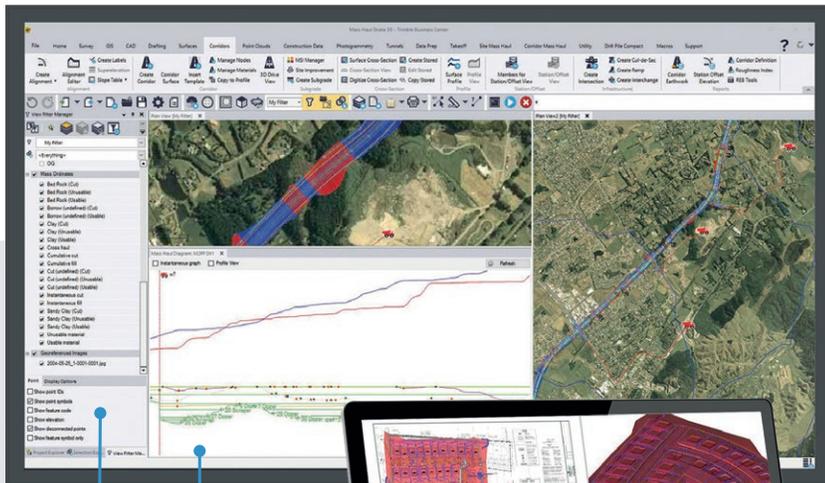
## From bid to build

Win more bids by preparing 3D earthwork and construction takeoffs quickly and accurately with enhanced levels of detail. Use Trimble Business Center's CAD tools, surface to surface comparisons and material management to accurately estimate projects and take full control over data throughout the project lifecycle.

Easily prepare data for field devices and seamlessly manage the data flow between the office and the field. Reduce rework by ensuring data is clean, up-to-date and delivered in the right format to get the job done. Deliver the highest quality results which can be displayed in a variety of reports and models.

## Connect more data

Leverage the power of survey and construction data in a single, robust software environment to confidently deliver project after project with Trimble Business Center. Connect more data without the hassle of switching between software platforms, lowering operational costs and increasing productivity. Combine raw measurements from GNSS, total stations, and levels — then, add in data from unmanned aerial vehicles (UAVs), mobile mapping systems, and terrestrial laser scanners—all of which is scaled to your survey data. No need to import and export between multiple software packages. No need for training, renewals, or support for different applications from different providers.



Prepare takeoffs with confidence

Seamlessly manage data between the office and the field



## Future-proof subscription

Get all the latest features with regular updates. Trimble Business Center works seamlessly with all Trimble civil construction solutions.

Manage data over the entire project lifecycle

Write your own commands to customise with Macros

One software for all your construction and survey needs

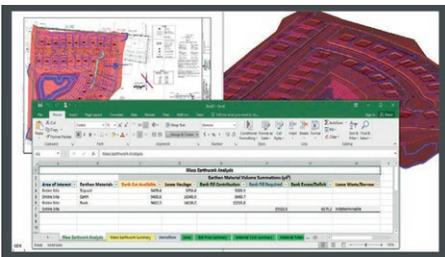
Quickly and easily create, edit and report information

# For your projects

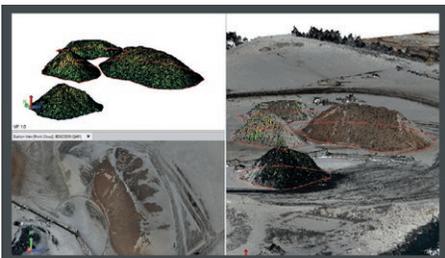
From the start to the end



*Digitise plan sets from PDF into 3D linework and models*



*Calculate earthwork, material and cost data*



*Compute precise surfaces and volume stockpile quantities*

## Supported workflows

### Data prep

Make sure your data is clean, up-to-date, and delivered in the right format to get the job done. With Trimble Business Center, you can easily organise all your data and digitise plans into 3D models, saving time and allowing you to focus on getting the job done.

### Takeoff and mass haul

Calculate earthwork and material quantities of a construction project and generate takeoff mass haul reports. Optimize site and corridor earthworks to increase profits.

### Surfaces and volumes

Create, process, and deliver complex surface models for field devices, machine control systems and third-party export. Generate quick and accurate volume reports from surface comparisons, stockpile/depression and corridor surfaces to quantify progress on your projects and see how much work is left to do.

### Alignments and corridors

Model and manipulate alignments and parametrically-designed corridors. Handle complex roadway projects, design corridor features and generate reports in minutes.

### CAD and drafting

CAD tools make it easy to produce your final survey linework, construction models and roadway design plots with ease.

### Aerial photogrammetry

Fly virtually any UAV to obtain data that you can adjust, measure and model. Simply drag and drop your drone data to import and then create industry leading, highly accurate deliverables in an easy-to-use three step workflow.

### Scanning and point clouds

View, manipulate and extract information from terrestrial, mobile and aerial point cloud data.

### Utility modeling

Create pipe and utility networks for takeoff and visualization applications.

### Drilling, piling and dynamic compaction

Prepare work plans and reports for boring and drilling, foundation and infrastructure piling and dynamic compaction, and connect to the Trimble Groundworks Machine Control system.

# Trimble Stratus

Drone data platform for construction

Trimble® Stratus Software powered by Propeller helps civil contractors use drones to map, measure and share accurate information about their worksites and assets. With Stratus, you can make quicker decisions, avoid mistakes and grow profits by always having the right information on hand.

## Communicate effectively

A visual timeline keeps everyone on the same page. Track site changes, avoid crossed wires and resolve disputes quickly.

## Take control

Save money and avoid information bottlenecks. Get answers to questions yourself with an intuitive, web-based tool.

### How it works

Place ground control



1



Fly drone over site



2

Upload ground control



3



Upload drone images

4



Dataset is processed

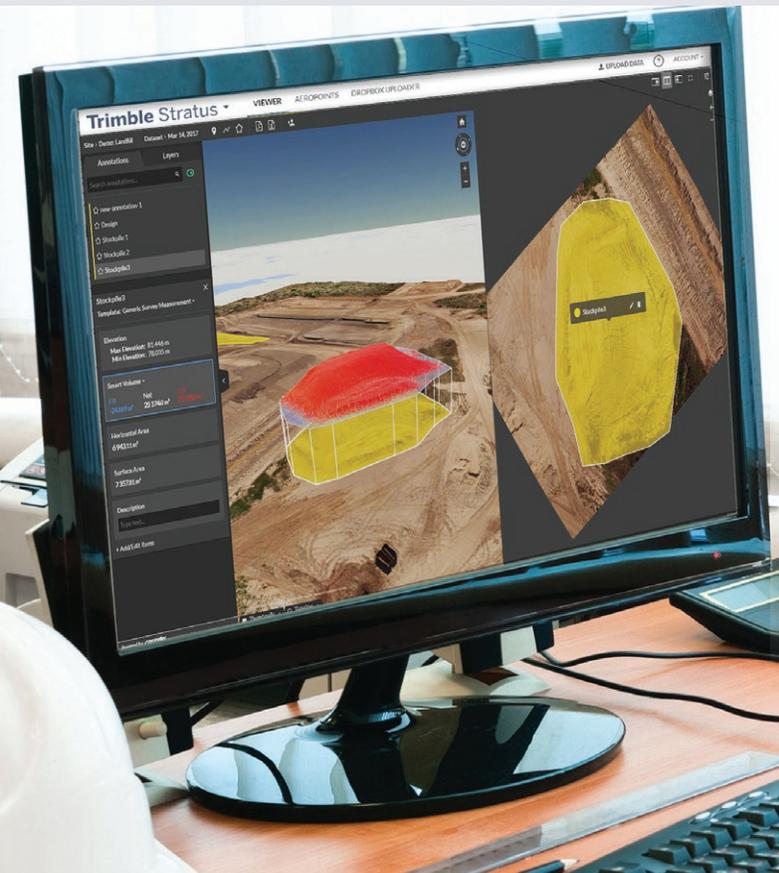
5



Analyze and share site maps and models

6

# Drone data analytics



## Site volumes

- Calculate overall material volumes added or removed from pits, stockpiles, cells, drainage channels, etc.

## Design checks

- Upload design file to compare actual surface to design surface and track progress
- Easily measure distances, slopes and heights to compare with site measurements

## Subcontractor management

- Perform quick volume calculations of material moved for progress payments
- See proof of site changes via a visual timeline
- Fewer disputes as your portal can be shared with subcontractors so everyone is on the same page

## Road and traffic management

- Measure road grades, cross-slopes, road widths and window heights with one click. Optimize traffic plans with a complete, up-to-date site map, and easily direct personnel to where they need to be
- Reduce cycle times and optimize mobile plant efficiency by tracking haul road design conformance

## Safety

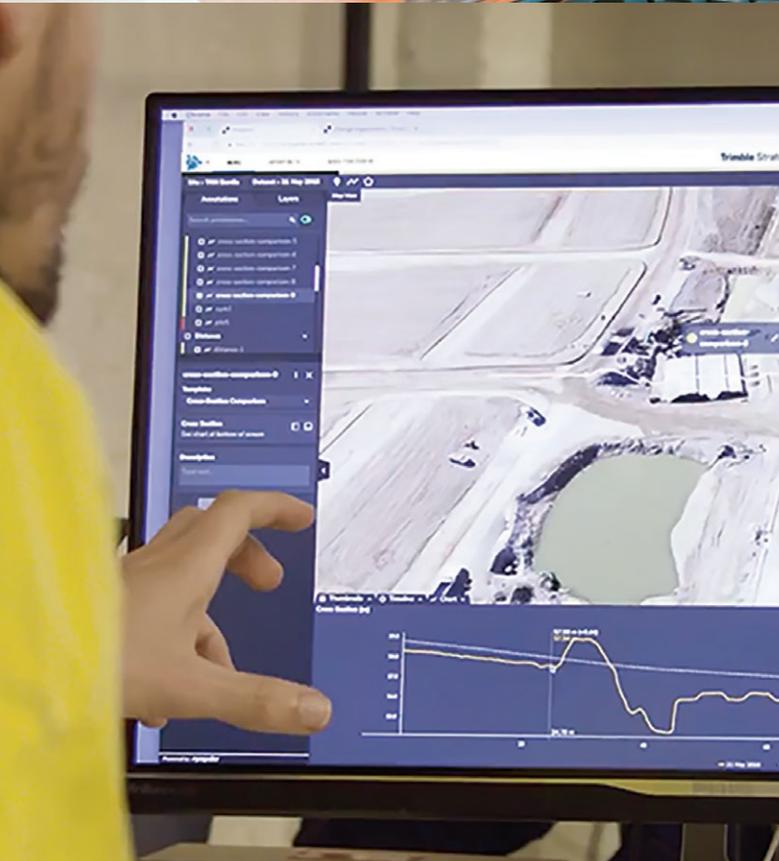
- Reduce people-to-machine interactions by surveying inaccessible or hazardous areas safely using a drone
- Get overall site images for inspection works, without sending personnel on-site
- Track changes in slope angles to better manage slips

## Environmental responsibilities

- Get frequent, detailed images of site boundaries and protected areas to easily demonstrate conformance with regulatory requirements

## Project efficiency

- Trimble Stratus integrates with Trimble Business Center and Trimble Site Positioning systems for consistent local coordinate definition
- Conduct your own site surveys for more accurate estimates
- Tighter plans and budgets as a result of more frequent and accurate volume data
- Fewer site visits needed when people can track progress and inspect work remotely
- No more information silos or unnecessary hold-ups when everyone can work from the same current survey data



# Trimble SiteVision

Augment your reality

Trimble® SiteVision® software is a user-friendly augmented reality system that brings your data to life in real-world environments so that cut/fill maps, pass count maps, density and more become visible, right from your mobile device.

With centimeter-level accuracy, this user-friendly tool with intuitive user interface is easy to use and accessible to anyone. With simple tools for measurement, volume calculations and 3D scanning, you can empower your team to perform estimates and make decisions in the field without a comprehensive survey. Don't waste time waiting for surveyors when anyone on the team can use SiteVision for accurate and timely information.



# Bring your data to life

## Key features

- Accurately place and display 2D/3D data in real-world context from any angle at true-to-life scale
- Precisely locate and reveal hidden assets
- Automatically transform complex 2D designs into visual 3D models
- Switch between 2D and 3D views
- Provide Trimble cloud-based data hosting and reporting tools
- Enable collaboration and communication of designs on the job site
- Seamlessly integrate with your data from Trimble Business Center, SketchUp, Trimble® Novapoint, AutoCAD and more
- Lightweight, portable handheld or pole-mounted unit
- **NEW:** Capture 3D data on LiDAR-equipped devices\* in a fraction of the time it takes to set up and move expensive laser scanners. Work faster by scanning on the move with the precision of GNSS, and obtain accurately georeferenced points that are exported directly to Trimble Connect

\*3D scanning is only available with certain LiDAR-equipped devices.



## Applications

- SiteVision enables users to easily understand new designs, existing underground services and how future landscapes will look over time without the need to interpret complex 2D plans
- Plan and visualize on-site progress, inspect completed work, complete quality management and identify issues early to reduce costs and time
- Check finished grade and laid material thickness against design elevations and tolerances
- Confirm designs and avoid issues by identifying the location of utilities in the context of the real world
- Monitor and conduct quality control for earthworks and paving operations
- Synchronize design and field data
- Share, communicate and collectively interact in real-time with easy-to-understand visualizations for efficient collaboration with people of all skill levels
- Improve communications between the field and office by connecting more people on and off the job site
- Take photos, measurements and notes in the field for accurate and up-to-date reporting, create tasks and assign them to team members
- Use sub-surface mapping information to improve plans by visualizing the location, size and attributes of underground infrastructure such as water, power, gas and telecommunications
- **NEW:** Perform agile 3D scans or supplement laser scanner and drone data to create as-builts as you work

# Trimble Siteworks Software

For construction surveyors and supervisors

Trimble® Siteworks software is an easy-to-use field software that enables grade checkers, site engineers, site surveyors, supervisors and foremen to do their jobs more efficiently by taking the constructible model into the field. From initial site reconnaissance to finished as-built collection, Siteworks offers an efficient way to collect and distribute site measurements, perform stakeout tasks, manage multiple work orders and job sites, monitor progress and report the results.

## Subscribe now

Now available in a subscription model with flexible terms to modernise your equipment with no large upfront cost.



# Made for the way you work

A comprehensive solution for construction surveying, with options based on the tools you need.



**Roading Module** supports road and highway projects by incorporating full alignment geometry, station equations, width transitions and multiple roadways within a selected road job. The Roading Module provides a single solution to all road staking needs—from roadway features to catch points to custom subgrades. In addition, the grade checking functions allow contractors to easily perform as-built checks and quality control.



**Advanced Measurement Module** improves “field-to-finish” as-built workflows with time-saving features such as point and line offsets, line closure, curved line measurement and continuing existing lines. The Advanced Measurement module enhances Siteworks functionality with streaming data outputs, total station traverse measurements and the ability to connect to utility locators. Improve informed decision-making by capturing additional information with each measured point: photos, dimensions, conditions and material type add valuable information about a feature in addition to its position. Collect even more detail by connecting to the Trimble® SX12 Scanning Total Station to capture the entire site through point clouds.

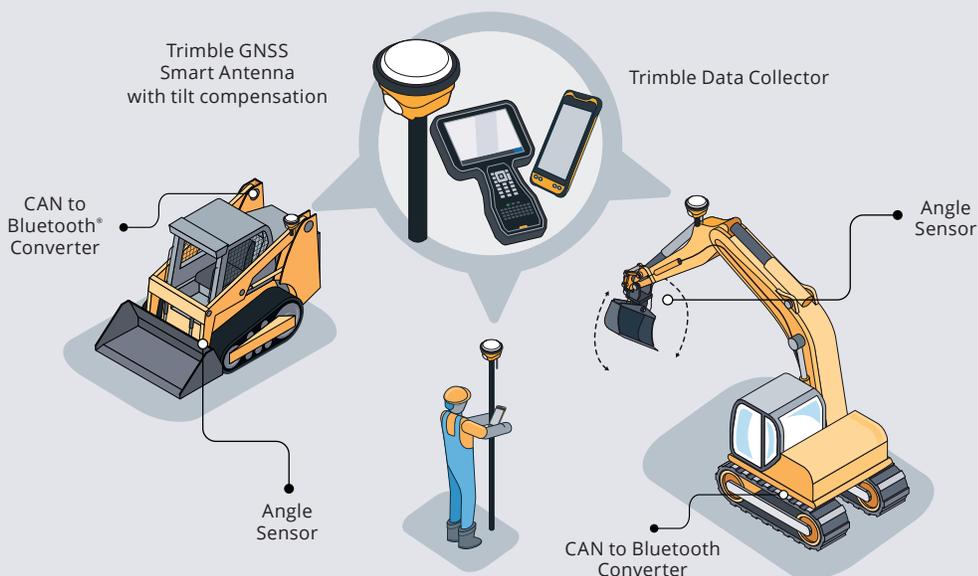


**Siteworks SE Starter Edition Software** is a simplified version of Siteworks, intended for users who do not require a full feature set and are interested in a lower-cost version to connect to GNSS only. Similar to the standard version, Siteworks SE supports PDF reporting, tilt compensation and vehicle mode measurements. Featuring full compatibility, seamlessly upgrade to Siteworks as your needs expand.



**Siteworks Machine Guidance Module** enables contractors to perform a variety of tasks on the job site, both on and off machines. Trimble® R780 GNSS Smart Antenna with tilt compensation, a machine kit and any data collector that supports Trimble Siteworks is all the hardware you need. Use it first as a rover to measure up projects and create in-field designs, then hook it up to your machine to carry out the work—building exactly to design. Go from grade checking and layout to machine operation and back again, moving between sites and machines for a system that is always fully utilized.

## Trimble Siteworks Machine Guidance Module



# Trimble Siteworks Systems

For construction surveyors and supervisors

Trimble Siteworks Positioning Systems enable surveyors, supervisors, superintendents and field engineers to do their jobs more efficiently by taking the constructible model into the field.

- Easily visualize and work with data and complex 3D models in the field
- Quickly capture accurate points and collect large data sets
- Work efficiently day or night

The Trimble Siteworks Positioning system includes:

- Trimble Siteworks software - Machine Guidance module - Roading module - Advanced Measurement module - Siteworks SE Starter Edition
- Trimble R780, R580 or DA2 GNSS Smart Antenna
- Trimble TSC5 or TSC7 controller
- Trimble T7 or T100 tablet. Or bring your own Android™ device\*

\*Not available with the Trimble® DA2 GNSS Smart Antenna



# Choose the controller

That best fits your needs

## The Trimble controllers

These ergonomically designed controllers feature backlit keyboards with customizable button commands that ensure fast, efficient operation, even when wearing gloves.

The **Trimble® TSC7 Controller** features a 17.78 cm (7-inch) screen, powerful processing power and Microsoft® Windows® 10.

Carry all the potential of a laptop right in the palm of your hand. The lightweight and easy-to-carry **Trimble® TSC5 Controller** features a 12.7 cm (5-inch) screen and Android™-based operating system.

The **Trimble® TDC6 Handheld Data Collector** features a 15.24 cm (6-inch) screen and Android operating system in a compact design that easily fits into a pocket. A powerful processor handles large data sets with ease, while compatibility with Trimble SiteVision® software enables you to visualize your site.



## The Trimble tablets

Both the Trimble T7 and Trimble T100 tablets are built tough to withstand the harsh conditions on a construction site. Unlike modern consumer-grade tablets, they come with IP65-rated military-grade ruggedness certification and withstand anything the elements throw at you.

- Long-life internal batteries ensure hours of field computing
- Sunlight readable display lets you read text, graphics and complex 3D models under any field conditions
- Standardised USB-C ports for charging and data transfer allows for more flexibility

The **Trimble® T100 Tablet** brings the advantages of fast computing power and a large screen to the field. Integrated GNSS capabilities close the gap between office design and field implementation for design changes, instant approvals and fast communication of changes to field crews. Rapid processing of maps, satellite imagery and image data ensures the T100 won't slow you down.

The **Trimble® T7 Tablet** is a lightweight, rugged handheld controller for GNSS or total station operations. The easy-to-use T7 tablet allows contractors to work with larger, more complex 3D data sets more effectively in the field. From the field to the truck cab to the office, users stay connected, work more and drive less.

## Trimble Empower Platform

With Trimble Empower™ modules, you get more out of your Trimble TSC5 and TSC7 controllers, or Trimble T7 and T100 tablets. Extend the usability of your Trimble Empower-enabled field devices for a faster return on investment. With support for a range of different correction sources, Empower modules have everything you need to turn your rugged field device into a complete data collector.



# Trimble smarter receivers

For construction surveying or machine control applications

## Trimble R580 GNSS Smart Antenna

The R580 is a precise GNSS receiver that you can depend on to deliver greater productivity and reliable accuracy in more places. It is priced as a cost-effective option to add additional receivers to your portfolio or to begin your journey into construction surveying.

## Trimble R780 GNSS Smart Antenna

The R780 is engineered to stand up to the most dynamic and rugged job site measurement applications. Full GNSS tilt compensation makes Siteworks easier to learn for beginners and saves significant time for more experienced surveyors. Using the Trimble R780 GNSS Smart Antenna, construction surveyors can capture accurate points without levelling the pole while standing, walking or driving the site in a vehicle. Tilt compensation in vehicle mode is designed to capture higher accuracy measurements on steeper slopes from a moving vehicle, and more accurate volume measurements to save time and money on material planning.

- Easily and safely survey hard to reach areas (corners, traffic lanes, utility lines)
- Faster measurements
- More efficient stakeouts
- Minimal magnetic interference

## ProPoint and RTX

All Trimble smart antennas support all constellations, with full utilisation of signals from all GNSS systems and come with Trimble® ProPoint® GNSS technology to provide survey-grade positioning in difficult places where other GNSS systems produce unreliable error estimates.



1 year free  
RTX subscription included



# Trimble Site Positioning Systems

## Trimble DA2 GNSS Smart Antenna

The lightweight and compact DA2 is a high performing software-based digital GNSS antenna, featuring proven Trimble quality. The DA2 works with Siteworks and SiteVision software on a subscription based service model to deliver centimeter accuracy. The subscription option provides access to reliable, highly accurate internet or satellite-delivered corrections to suit your business needs, all for a low fixed monthly price and negating a large upfront expense.

- Paired with Trimble Siteworks software, the DA2 is a budget-friendly option to quickly grade check, navigate to points, easily execute simple positioning tasks and record features with attributes, pictures and volumes to be more efficient in the field.
- Combined with Trimble SiteVision software, an augmented reality solution, the DA2 allows you to visualize your site. Collect data and bring it to life, see the design in the field throughout all stages of the construction lifecycle.



## Trimble R750 GNSS Modular Receiver

Whether you need a reliable GNSS base station or a rugged rover, the R750 gives you the connectivity, flexibility and scalability to meet the exact needs of your GNSS-based workflow. As a permanent or semi-permanent base station, it provides GNSS corrections for site measurements and machine control. As a vehicle-mounted rover, it can be used for fast, effective grade checking and surface mapping. The R750 receiver can access all available satellite signals and provides improved performance and reliability in challenging GNSS conditions using constellation-agnostic Trimble ProPoint® technology.

Reliably transfer data from the field to the office to keep everyone on the same page. The fully upgradable R750 can be configured in a variety of ways to suit your job site requirements in a wide variety of civil and marine construction applications. Simply purchase the receiver that you need today, and upgrade as your needs change:

- As a precise RTK base station only
- As a precise rover only
- As a flexible precise base or rover with Precision RTK accuracy



**1 year free**  
RTX subscription included

## GNSS radios

Trimble radios offer flexible configuration options and rugged reliability for efficient use of GNSS on the construction site.

- Easy setup and configuration, even in the field
- Reduces unnecessary inventory—do more with less
- Provides more flexible operation
- Streamlines field configuration and troubleshooting for maximum productivity
- Access to diagnostic data in the field
- Modify power as conditions require—dialing up the power for longer baselines and when the work area is smaller, a lower-power output extends battery life
- Built to endure the stresses of daily use in harsh construction conditions
- Fully sealed against dust, rain, splash and spray for optimal reliability in all weather conditions to minimise downtime and lower overall operating costs



# Trimble total stations

Full range of robotic and universal total stations

## Keep it accurate, but keep it simple

The Trimble SPS620 and SPS720 Robotic total stations are perfect for one-person operation on smaller site operations and work on structures such as bridges or culverts, offering very high accuracy and reliability for construction site positioning, stakeout and measurement.

Trimble SPS Robotic total stations are well suited for use on:

- Smaller construction sites or combined with GNSS on larger sites
- Tasks where the accuracy requirements are tight
- Measuring dangerous or inaccessible locations

No matter what job you are doing, Trimble robotic total stations will deliver unmatched user experience, all-around capability and incredible results, priced for a quick return on investment.



Robotic, reflectorless and machine control features satisfy all site positioning and machine control needs

Industry-leading 20 Hz dynamic positioning update rate

## Universal total station

The **Trimble SPS730 and SPS930 Universal total stations** can tackle any measurement, stakeout or machine control task on the job site — all from the same instrument.

**Trimble MultiTrack™ technology** locks on and tracks passive prisms for monitoring or control measurements and active targets for dynamic measurement, stakeout and grade control. Active targets guarantee to lock to the correct target, especially in dusty construction site conditions. Up to 16 unique channels of target identification can be used to differentiate survey crews and grade checkers from machines, eliminating downtime caused by unnecessary interference.

**Trimble's patented MagDrive™** servo technology utilizes magnetic levitation to eliminate friction. Fast response time and fast servos allow the instrument to change direction, and track more reliably. Trimble Universal total stations can provide highly accurate machine guidance for excavation, grading, compaction, milling, and paving projects. Using the same Trimble total station, your machines can work to tight construction tolerances, save expensive materials, avoid rework and get to grade faster.



Robotic and reflectorless features satisfy most site positioning needs



Active target function guarantees reliable lock on the correct target



DR Plus long-range reflectorless measurements eliminate the risk and delay of walking the surface with a target



Trimble MagDrive servos provide unmatched instrument turning and tracking speeds

# Trimble SX12 Scanning Total Station

The all-in-one survey total station and scanner

The Trimble SX12 Scanning Total Station is a state of the art combination of total station and scanner, and the first of its kind on the market. This one instrument enables you to benefit from the same workflows from a robotic total station, but also the high-end 3D laser scanning and imagery functionalities.

Get more done in the field by capturing the entire site through point clouds and images, rather than just individual points of interest. With the SX12 you can get everything you need from a site and more, in just minutes—saving you hours or days of surveying. With the additional site information from scan data, images and point clouds, you can avoid re-work and costly site revisits.



# Save time, maximize efficiency

## A robotic total station, and more

Achieve high accuracy and reliability for construction site positioning, stakeout and measurement without the need for a separate device on site. This powerful combination of high accuracy surveying and 26,600 points-per-second 3D scanning is a game changer.

## Reach the inaccessible

Rapidly collect millions of points and dozens of photos to effectively capture reality for accurate as-builts in inaccessible locations. A great option for safer surveying and avoiding the hassle and time involved in gathering data from dangerous or difficult to reach locations.

## Vivid, eye-safe laser pointer

The green laser pointer is exceptionally small, bright, and still eye safe—with auto focus functionality.

## With the SX12 you can:

- Collect millions of points rapidly
- Perform site surveying measurements
- Conduct grade checking for inspection and monitoring
- Safely and efficiently scan road surfaces, intersections, embankments and other structures
- Capture rich, accurate and complete geometrical and visual documentation of as-builts



## Capture reality

With the video enabled workflow, it is much easier and faster to find yourself if you lose tracking and to zoom in and aim at different points for DR shots. The four built-in, high quality cameras with extensive zoom allow you to capture a range of imagery.

- Capture reality with point clouds for accurate as-builts in inaccessible locations
- Geo-reference images of the site to record conditions in real-time
- Live site footage for remote control and monitoring on construction sites
- Eliminate the need for a separate camera on site



# Trimble protection plans

## Premium or Plus

You buy Trimble construction hardware and software because you know you can count on Trimble Solutions to get the job done. Your Trimble equipment comes with a factory warranty; it's our promise to you that we stand behind our Trimble products. Because we understand that you may want to continue to use your Trimble equipment beyond the warranty period, Trimble offers additional coverage with Trimble Protected Premium\* and Trimble Protected Plus protection plans. These protection plans make good business sense and are an excellent way to protect your cash flow and minimise the risk of doing business.

### Trimble Protected Premium\*

#### FIVE FULL Years of coverage plus Accidental Damage\*

Trimble Protected Premium is a multiyear plan that supplements the factory warranty to provide you with FIVE YEARS of coverage for drops, falls, liquid spills, broken screens, and similar types of damage resulting from an accident. The Accidental Damage\* coverage is in addition to instrument failures. Whether you need a warranty-type repair, your instrument broke as the result of an accident or you just want to buy coverage once and then be worry-free for five years, Trimble has you covered!

Available for purchase only at the product point of sale, Trimble Protected Premium coverage begins immediately and runs concurrently with the factory warranty and throughout the protection plan period. Trimble will either repair the instrument OR replace the instrument with a new or like new instrument if the unexpected should happen.

Trimble Protected Premium is available on Trimble Earthworks, Trimble Roadworks and Trimble Site Positioning Systems. Trimble Protected Premium also includes firmware updates for GNSS receivers, Siteworks Software for SPS data collectors and tablets, and cables and connectors for Trimble Earthworks systems.

#### Value add features of both plans

Our protection plans' value comes in the additional features and benefits available to you as long as you own the coverage. Our protection plans' value-add features include:

- Preventative maintenance (adjustments and calibrations - see your distributor for details)
- Protection against wear and tear from repetitive use that causes your equipment to not function to specification. For example:
  - If the part can no longer perform the function to which it was designed solely because of its condition (due to usage), it's covered by wear and tear
  - Cosmetic damage that does not affect the functioning of the unit is excluded from wear and tear coverage
- Equipment damage protection from surges when using Trimble power supplies
- Protection from environmental damage from dust, heat, humidity and salt air when used in accordance with intended equipment specifications

\* On select hardware only. Not available in all countries or regions. See your Trimble Protected protection plans distributor for availability.



# Protect your investment

From the hazards of everyday work

## Trimble Protected Plus

### Enhance and sustain your entire ownership experience

A Trimble Protected Plus protection plan covers everything that is covered in your original Trimble hardware factory warranty and includes our value-add features. If the unexpected happens and your equipment is damaged, that's no problem! Your protection plan ensures that you pay nothing out of pocket for parts and labour on covered repairs. There's also no deductible or fee associated with covered repairs.

When you sign up today for a Trimble Protected Plus protection plan, you can look forward to lapse-free coverage after your factory warranty has expired. If your equipment is not covered by a factory warranty or a protection plan now, you can bring that equipment back under coverage with a Trimble Protected Plus Reinstatement protection plan.

### Overall benefits of the Trimble Protected Plans:

- An annual protection plan generally costs less than the average repair
- Our Trimble Protected coverage entitles you to a new piece of equipment with comparable features if yours can't be fixed, or if it simply makes more sense to replace it
- Our plans are backed by Trimble's quality parts and quality repair service; a value you can trust. Trimble wants to keep you as a satisfied protection plan customer for life so we guarantee to stand behind you and your product for as long as you own your coverage
- Repairs are typically completed faster because there's no need for your distributor to generate an estimate and get your approval before starting work
- Protection plans are money and time savers
- Locks in tomorrow's repair costs at today's prices
- A protection plan keeps you running, minimizes unnecessary downtime and improves your overall efficiency



# Our services

Your local partner



## Service Center

As a Trimble Authorised Service Provider, we offer a wide range of technical services, all conducted by highly qualified technicians utilizing professional tools and highly precise equipment. Unforeseen repair and service costs and downtime can be significantly reduced through periodic calibration and preventive maintenance, and you benefit from equipment that is always in top condition. The broad service offering includes certification services, repairs and product upgrades.



## Training

Trimble construction technology is a game changer – and to benefit from all its power, you want to make sure to take advantage of our expert professional training.

Whether you and your crew are new to machine automation, you need a refresher or there are team members who have recently joined, let's talk and get everyone up to speed.



## Support

Our support team is dedicated to making sure your downtime is kept to a minimum. We have office based staff, just a phone call away 24/7. Many issues can be resolved over the phone or with Trimble Remote Connect.



## Rental

Get what you need, when you need it. Take advantage of our various rental programs to dip your toes – you'll get the job done right and you'll experience the benefits of the newest state of the art technology, while you take your time to make the final decision.

If you decide during your rental period that you don't want to give up your newly discovered value, a convenient rental conversion may be the solution for you.







**FRONTIER  
PRECISION**  
CIVIL CONSTRUCTION

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Additional Frontier Precision locations

