

## **Trimble's New Tunnel Solutions Streamline Workflows for Survey and Engineering Professionals**

### **Integrated Solutions Improve Efficiency and Safety for Tunnel Stakeout and As-Built Analysis**

SUNNYVALE, Calif., June 26, 2018 /PRNewswire/ -- Trimble (NASDAQ:TRMB) announced today a suite of solutions that enhances productivity and efficiency for surveyors and professionals working on underground tunneling projects. The solutions include new hardware and software for capturing highly accurate data in tunnels where dirt, dust, water and machinery provide a challenging work environment. The new line of products reduce the time to generate project deliverables by enabling survey and tunneling engineers to easily compare tunnel designs with field captured data. Remote operation of instruments and scanners allow surveyors to stand in safe locations and capture data efficiently in the often inaccessible, confined spaces of tunnels.

#### **Tunnel Control**

Tunneling for miles underground is a costly business, requiring the utmost dependence on surveyors to ensure tunnel breakthroughs occur at the exact location (within millimeters). To ensure accuracy, surveyors rely on precise measurements from high-accuracy total stations, such as the Trimble® S9 HP. With the new Trimble TSC7 data collector and Trimble Access™ field software, surveyors can easily control the total station and manage tunnel information. The combined solution improves the ease of use and data visibility in challenging tunnel environments. The 7-inch data collector display, backlit keypad and optimized software makes it easier than ever to capture control data efficiently and accurately. In the office, traverse and network adjustments can be processed with Trimble Business Center software to ensure high-level accuracy.

#### **Drilling and Blasting**

Survey professionals can now use Trimble Business Center Tunneling module to key-in tunnel alignment and design elements and effectively transfer tunnel designs to the field for stakeout. The large display of the Trimble TSC7 allows field engineers to view the designs more efficiently while enhancing usability for the precise stakeout of drilling locations and guide drilling and blasting machinery. The Class 3R laser pointer on the Trimble S9 HP and the Trimble Access Tunneling Application enable surveyors to clearly and quickly define drilling locations, enabling progress tracking and ensuring the project stays on schedule and on budget.

#### **As-Built Verification**

Rapid analysis and reporting on tunnel excavation and boring is critical in order to identify any potential deviations from the original design and to determine quantities for shotcrete and other linings. Trimble solutions provide surveyors with dependable solutions, whether rapidly scanning sections with the Trimble Access Tunneling Application and a Trimble S9 HP or using a Trimble SX10 to quickly capture highly detailed information throughout the tunnel. All data and designs are seamlessly shared between the field and office enabling quick analysis and reporting in the field within Trimble Access, or a more detailed comparison to design files within the new Trimble Business Center Tunneling module. Analyses includes overbreak / underbreak visualization and reporting, design to as-built comparison, clearance reporting and the accurate calculation of shotcrete lining volumes that are critical to minimizing costs and improving project efficiency.

"Surveyors working in tunneling environments rely upon quality equipment to provide the highest level accuracy with confidence," said Olivier Casabianca, director of global marketing for Trimble's Geospatial. "With the new TSC7 controller and tunneling-focused field and office software modules, we are continuing to enhance the workflow for our customers engaged in tunneling projects."

#### **Availability**

The Trimble S9 HP, Trimble SX10, Trimble TSC7 Controller running Trimble Access field software and Trimble Business Center version 4.10 are now available through Geospatial Distribution Partners.

For more information, visit: <https://geospatial.trimble.com/tunneling-solutions>.

#### **About Trimble Geospatial**

Trimble Geospatial provides solutions that facilitate high-quality, productive workflows and information exchange, driving value for a global and diverse customer base of surveyors, engineering and GIS service companies, governments, utilities and transportation authorities. Trimble's innovative technologies include integrated sensors, field applications, real-time communications and office software for processing, modeling and data analytics. Using Trimble solutions, organizations can capture the most accurate spatial data and transform it into intelligence to deliver increased productivity and improved decision-making. Whether enabling more efficient use of natural resources or enhancing the performance and lifecycle of civil infrastructure, timely and reliable geospatial information is at the core of Trimble's solutions to transform the way work is done. For more information, visit: <https://geospatial.trimble.com>.

## About Trimble

Trimble is transforming the way the world works by delivering products and services that connect the physical and digital worlds. Core technologies in positioning, modeling, connectivity and data analytics enable customers to improve productivity, quality, safety and sustainability. From purpose built products to enterprise lifecycle solutions, Trimble software, hardware and services are transforming a broad range of industries such as agriculture, construction, geospatial and transportation and logistics. For more information about Trimble (NASDAQ:TRMB), visit: [www.trimble.com](http://www.trimble.com).

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For further information: Lea Ann McNabb, Trimble, 408-481-7808, [leaann\\_mcnabb@trimble.com](mailto:leaann_mcnabb@trimble.com)

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