

MaineDOT Is Working Smarter & Safer

**How the Trimble SX10 Scanning Total Station
Is Pulling Its Weight—And Then Some**



With aging infrastructure and growing populations, DOTs have an ever-increasing amount of work on their plates. The ability to work efficiently and maximize resources has never been more important; our collective progress relies on it. At the same time, budgets grow tighter and the need to work as safely as possible gains universal recognition.

DOTs rely on technology to give them the edge they need. Any product that can save time, money, and even lives becomes a valuable—if not necessary—way for any department to Cover More Ground.

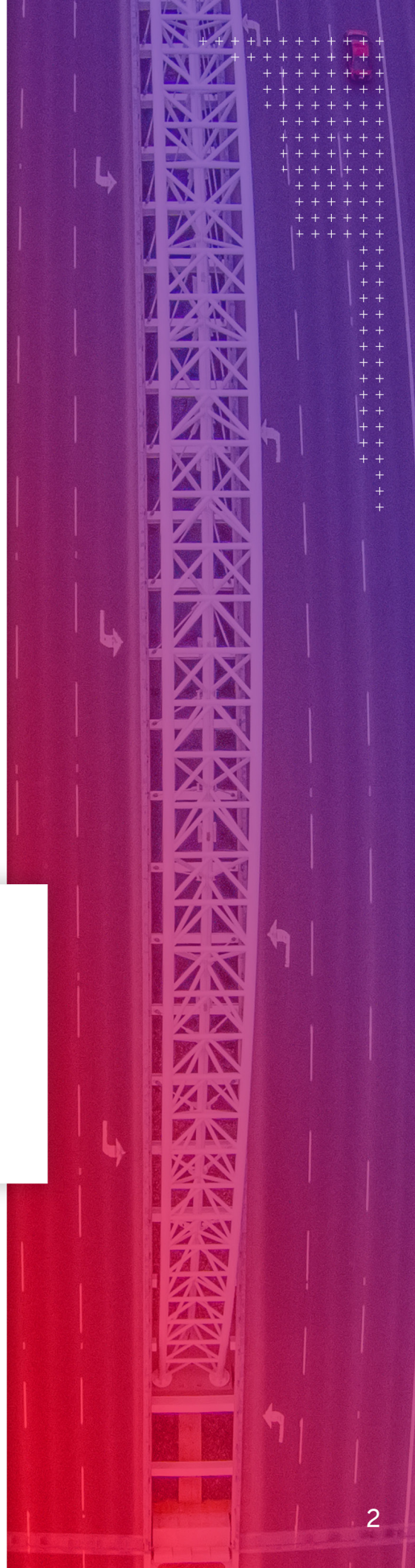
The Trimble SX10's multi-functionality makes it a no-brainer.

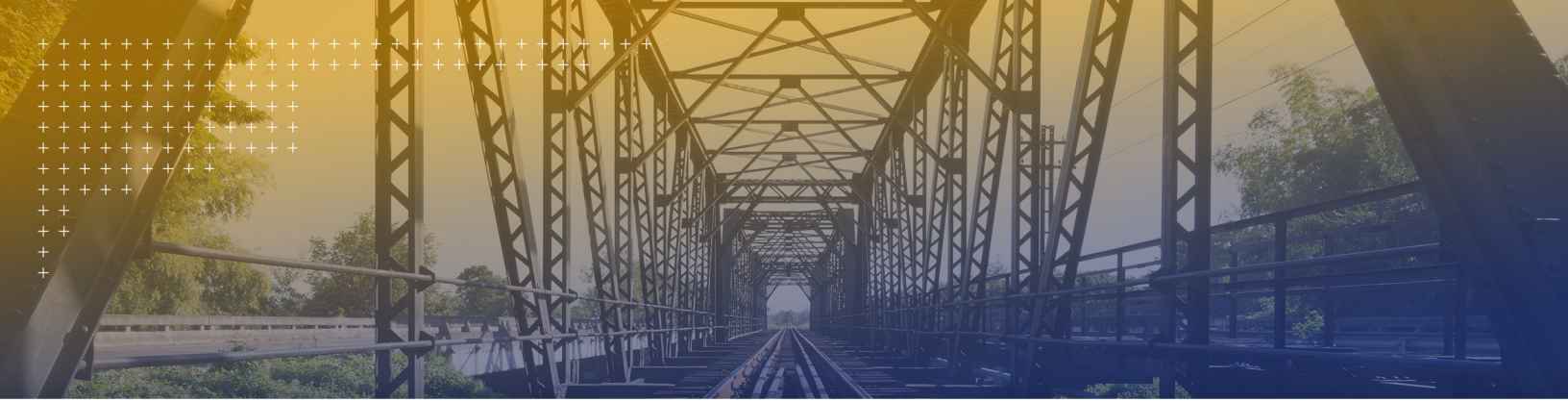
In the summer of 2017, MaineDOT acquired its first SX10 Scanning Total Station. At this time, Nick Dutil, a Civil Engineer and Land Surveyor at the Department, said they were just becoming proficient in processing LIDAR data in-house. MaineDOT saw the SX10 as a good replacement for some of its Trimble S6s, which were still going strong after 12 years of heavy use. The SX10 quickly and massively expanded both the data capture and processing capabilities of MaineDOT.



Nick Dutil, PE, PLS
Transportation Engineer
Maine Department of Transportation

Nick and his team were blown away by all the SX10 can do. It allowed them to capture a combination of high-density 3D scan data, enhanced Trimble VISION™ imaging, and take high-accuracy total station measurements. "This saves us the time, money, and the hassle of returning to the field to collect more data," said Nick.





Familiar workflows make using the SX10 quick and easy.

When asked if getting up to speed on using the Trimble SX10 was difficult or time-consuming, Nick said, “Anyone familiar with an S-Series Total Station will be able to use the SX10 in about 15 minutes.” This allows for quick and complete integration of the SX10 with Trimble Access and Trimble Business Center software, enabling familiar and efficient survey workflows to get your crews up and running fast.

How the SX10 became the hero in surveying a 100-year-old bridge.

In 2018, the MaineDOT bridge maintenance team asked Nick and his crew to survey a 100-year-old rail bridge in Burnham that had no as-built plans. A load rating needed to be applied to the bridge, but couldn't be done without analyzing its existing structural components. This would have required a team to go out in a hi-rail bucket setup and measure beams by hand, which is often a time-consuming and dangerous task.

When asked if they had a better option, Nick immediately grabbed their SX10s. “Thanks to its one-second total station mode, we were able to establish a control network and then run two SX10s in tandem and get a 360-degree scan of eight different locations. Each scan took only 20 minutes, so we were able to capture a full 3D model of the bridge in a single morning. A few days later, Nick extracted 3D solids of the bridge structure, allowing their bridge engineers to load rate it in a CAD workspace.



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When the I-95 overpass was struck by an unknown object, the SX10 saved valuable time.

“Before the SX10,” Nick explains, “It would have taken two survey crews a full week to survey this damaged overpass—and several more pieces of equipment—to finish this job.” But with a team of only three surveyors, the Trimble SX10, and a Trimble R8, MaineDOT was able to survey and scan the I-95 overpass, process the LIDAR data, create true 3D models—and extract precise data from the Point Cloud to deliver clearance reports. They did the entire job in only two days, saving MaineDOT valuable time.

Another plus? DOTs can safely divide and conquer to Cover More Ground.

“As a total station and a 26.6 kHz scanner, the SX10 is the perfect tool for a DOT surveyor,” says Nick. “We can set it up a safe distance from a busy intersection, scan the area, and then flip to total station mode and begin collecting right-of-way and property data.” It’s that easy.

As Nick explains it, “We used to feel safe in a work zone when we made eye contact with drivers because we knew they could see us.” But that’s not the case anymore. With today’s distracted driving, work zones are more dangerous than ever. “Any surveyor or construction worker today will tell you that they observe distracted drivers on an hourly basis,” says Nick. “It’s pretty scary.”



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Protecting our most valuable resources.

"Tragically, back in 2006, one of our men was struck and killed on the side of the highway," says Nick. "This loss drove us to institute even stronger safety measures across the state, including a campaign to improve safety by purchasing robotic and autonomous surveying equipment."

As part of this mission, MaineDOT is always looking for products that improve its workers' safety—one of the most prominent being the Trimble SX10 Scanning Total Station.

All-in on SX10.

One hundred percent of the total stations, lidar scanners, and GPS receivers that Nick and MaineDOT use are Trimble. Relying on products like the SX10 offers previously-unseen levels of efficiency and safety. With an eye on the future, Nick confidently says, "We're ahead of many DOTs right now in surveying technology which hasn't always been the case in the past."

