

How Tunnel Projects Benefit From Digital Records

Seattle completed its SR 99 tunnel in 2019, a project that replaced the aging Alaskan Way Viaduct with a tunnel that runs under the city and offers substantially more protection to motorists against the effects of an earthquake. The Washington State Department of Transportation (WSDOT) bills the tunnel as “one of the smartest tunnels ever built”. It’s no surprise, therefore, that WSDOT required that product data for the segments manufactured for each ring of the tunnel be captured and transmitted to the DOT in digital form.

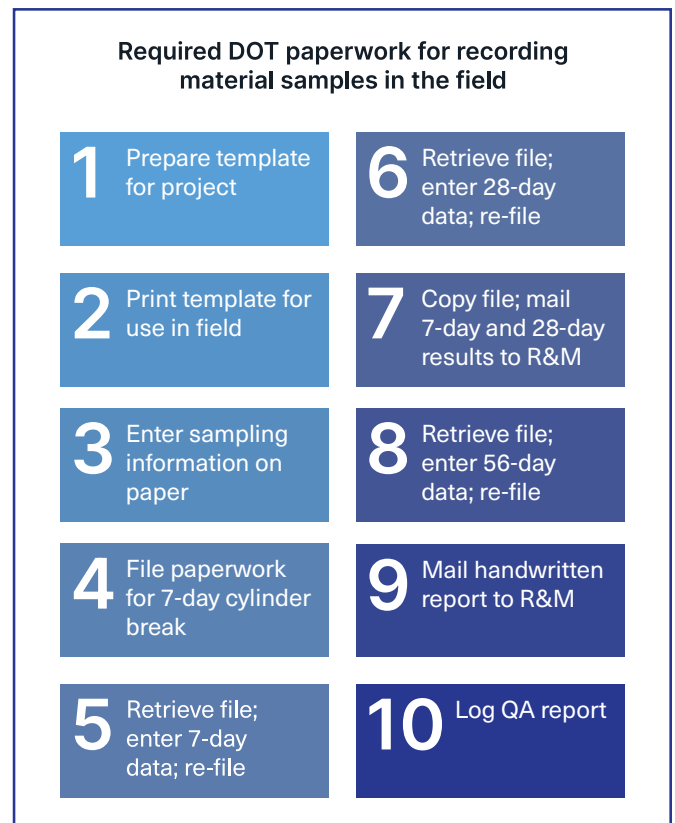
Idencia OneSource™ (OneSource) was selected as the service to capture and host this information. The SR 99 tunnel is just one of many tunnel projects that chose OneSource to digitize its product information. With more and more projects seeking digital product records, it is important to dig into why.

DOT cost efficiency

The cost of data tracking services can be allocated to the project cost while the DOT uses the system for its own internal efficiency. This is quite attractive to DOTs facing shrinking operating budgets.

How does this work? MassDOT has done this with two bridge projects using OneSource. The DOT specs the use of RFID tracking into a project. The tags are embedded by the manufacturer. The manufacturer can be required to collect QC information on tablets using the OneSource app and/or the DOT inspectors can use it to collect test information. This is automatically uploaded to the DOT’s web-hosted OneSource account and customized reports are automatically updated in real-time. This saves substantial time in managing a paper trail that would otherwise look something like what is illustrated to the right.

In addition to saving time, reducing the number of people required and minimizing the cost of purchasing and storing paper, digital records enable the DOT to perform analytics and transfer information easily. While funding is attributed to the capital cost of the project instead of the DOT’s operating budget.



Manufacturing and construction efficiency

Digital records [enable cost efficiency in manufacturing and construction](#) as well. The complex nature of tunnel construction can make inventory management a highly inefficient process. Digital records address this. For instance, organizing the segments for each ring in the laydown yard (or the manufacturer's yard) can be logistically challenging and result in time delays. With each segment serialized by an RFID tag, the contractor can simplify the organization process by scanning a piece and instantly identifying the ring in which it is to be placed. Additionally, the records for each segment can be associated with its ring, so information retrieval is much simpler and more effective.



Photo of SR 99 by SounderBruce, used under [CC BY-SA 4.0](#), via Wikimedia Commons / Color and exposure edits, cropped from original

Forensic analysis

Unfortunately, accidents happen and analysis needs to be undertaken to determine the cause. In 2006, a ceiling panel fell out of the Fort Point Channel Tunnel in Boston. In March 2018, a pedestrian bridge at the Florida International University collapsed while under in construction.

Serializing each product used in the project and retaining digital records can make forensic analysis much quicker and more effective, both critical factors in times of emergency. Equally as important, digital data enables project managers to perform better predictive analysis that can prevent accidents from happening.

For these reasons and more, tunnel project managers recognize the value of digital product records and are increasingly specifying them in their projects. Other projects that have used OneSource to collect and host digital records include the Toronto Subway Extension Project (Toronto, Ontario, Canada) and the Ottawa Combined Sewage Storage Tunnel (Ottawa, Ontario, Canada).

OneSource makes your infrastructure project more efficient, safe and smart. Learn more on [our website](#) and reach out to us to schedule a demo. We are available via email, sales@idencia.com, or phone, (603) 541-7704.