

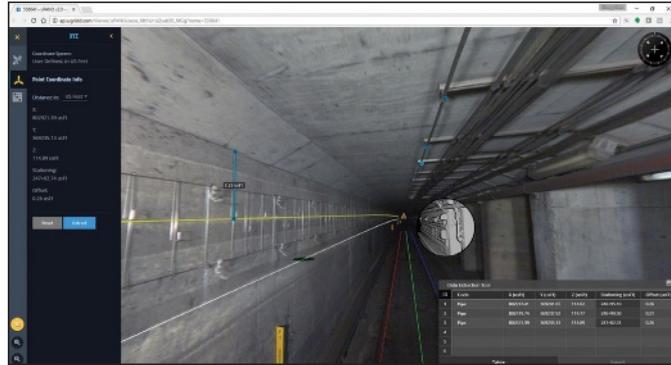
WMATA Metrorail Using 'Big Data' to Install Cellular Service

Washington Metropolitan Area Transit Authority (WMATA) is installing a large cellular antenna phone service system in its Metrorail system, using a "leaky" coax cable technology that will ensure all riders have reliable cell phone service.

The system, accessible to a consortium of cellular service companies (including major carriers) will be funded by the cellular carriers, Metrorail officials said. (In conjunction with the cellular system installation, Metrorail will develop an FTA-funded cable system to upgrade internal communications.)

The cellular system installation involves a cable management system platform that will hold about one million feet of cables in Metrorail's 104 miles of subway tunnels.

Metrorail Assistant Chief Engineer Don Falken, a geomatics expert, said, "One of the biggest challenges of the project was not having accurate 'as-built'



Metrorail LiDAR display showing cable placement and data extraction tool.

data of the subway's current condition. Such data is essential to protect the train clearance envelope. Anything installed along the subway tunnels can be within no more than two inches from the envelope. We decided the best way to get accurate condition data is through LiDAR scanning technology."

The most accurate LiDAR scans are through stationary terrestrial equipment setups; however, this process would take months to accomplish. Instead, Metrorail chose mobile scanning, which

involves installing the LiDAR scanning equipment on a vehicle traveling 5-10 miles per hour through the system, which would collect data in a matter of days.

"In the U.S., mobile LiDAR mapping technology had not been used in tunnels on any known project more than five miles in length," Falken said. Metrorail engaged Maser Consulting, P.A., an engineering firm specializing in geospatial services, to test the mobile technology on a five-mile section.

The demonstration was successful. Next, the engineering firm made the "big data" readily available to Metrorail engineers and the cellular companies using uGRIDD infrastructure data management service, which allows users to view, measure, extract and download information in a secure server environment.

The service, along with other software, enables engineers to accurately calculate the exact lengths of the cables required so they can be terminated in the factory rather than in the field after installation.

Metrorail expects to have the new cellular service operational by 2022.

Hampton Roads Transit Studies High-Capacity Options To Naval Station Norfolk

ADDRESSING MOBILITY concerns to Naval Station Norfolk (NSN)—the largest naval base in the world and the region's largest employment center—is a vital regional interest.

The base and its nearby facilities host 60,000-70,000 sailors, contractors and civilians daily, with about 30 percent of base commuters living in Norfolk, home of Hampton Roads Transit (HRT). Congestion on a major interstate and the surrounding arterial roads leading to the base is a daily occurrence.

In 2015, the Naval Station Norfolk Transit Extension Study evaluated potential transit extensions to the base. It identified an east and west corridor option, each with a different purpose and need. Subsequently, FTA directed HRT to identify a reasonable alternative in the west corridor before entering the environmental impact review.

A new federally funded study—the Norfolk Westside Transit Study, a joint effort exploring a potential high-capacity transit connection between HRT's The Tide light rail and NSN—will focus on this task. The 12-month effort, which began in April, will identify:

- A solution that addresses the defined purpose and need for high-capacity transit extending to the



Navy base in the western part of the city;

- An alignment that connects The Tide to the base in a cost-effective and sustainable manner;
- A solution that can effectively compete for federal funding; and
- A resilient alignment solution that addresses serious flooding challenges.

The base, while a critical destination, is not the study's only focus. It also will examine the transportation needs of other regional destinations, including Old Dominion University, national historic neighborhoods, commercial and retail areas and adjacent communities.

A high-capacity public transit connection—such as light rail, streetcar or BRT—between The Tide and NSN promises to make travel time more reliable and provide a reasonable transportation alternative to driving alone.

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RTD Says 'Happy Birthday, A Line'

Denver's Regional Transportation District recently marked the first anniversary of the University of Colorado A Line, which has carried five million passengers and traveled 1.2 million miles.

The 23-mile commuter rail line features eight stations, from Union Station to Denver International Airport. "The opening of the University of Colorado A Line launched a new era in public transit in the region as it connected metro Denver to the world," said RTD General Manager and CEO Dave Genova. "The community and economic benefits of connecting downtown to the airport are already beginning to show."



Photo courtesy of Denver RTD