TELEDYNE OPTECH
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Part of the Teledyne Imaging Group

APPLICATION NOTE

Client: **SDMTS** | Location: **San Diego, California**
Industry: **Public Transit** | Year: **2017**

Maverick: Mobile Mapping

Introduction

For the San Diego Metropolitan Transit System (MTS), mobile mapping has made a significant impact on day-to-day operations. Between their light rail and bus routes, MTS serves approximately 88 million passengers annually in San Diego County. Managing 106 miles of track and almost 100 bus routes is no easy feat, so when MTS heard about data collection services for State DOTs they reached out to Mandli Communications (Mandli) for a solution.

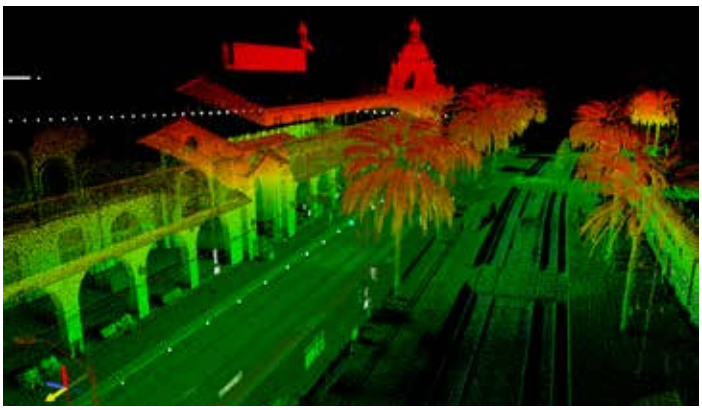
Challenge

The main challenge to collecting mobile lidar data on a light rail line is finding a mobile mapping unit capable of being mounted on a trolley without interrupting service or affecting travel times. This is a serious concern for MTS, as they provide over 310,000 trips each weekday. Any delay to that service has a serious impact on the surrounding area.

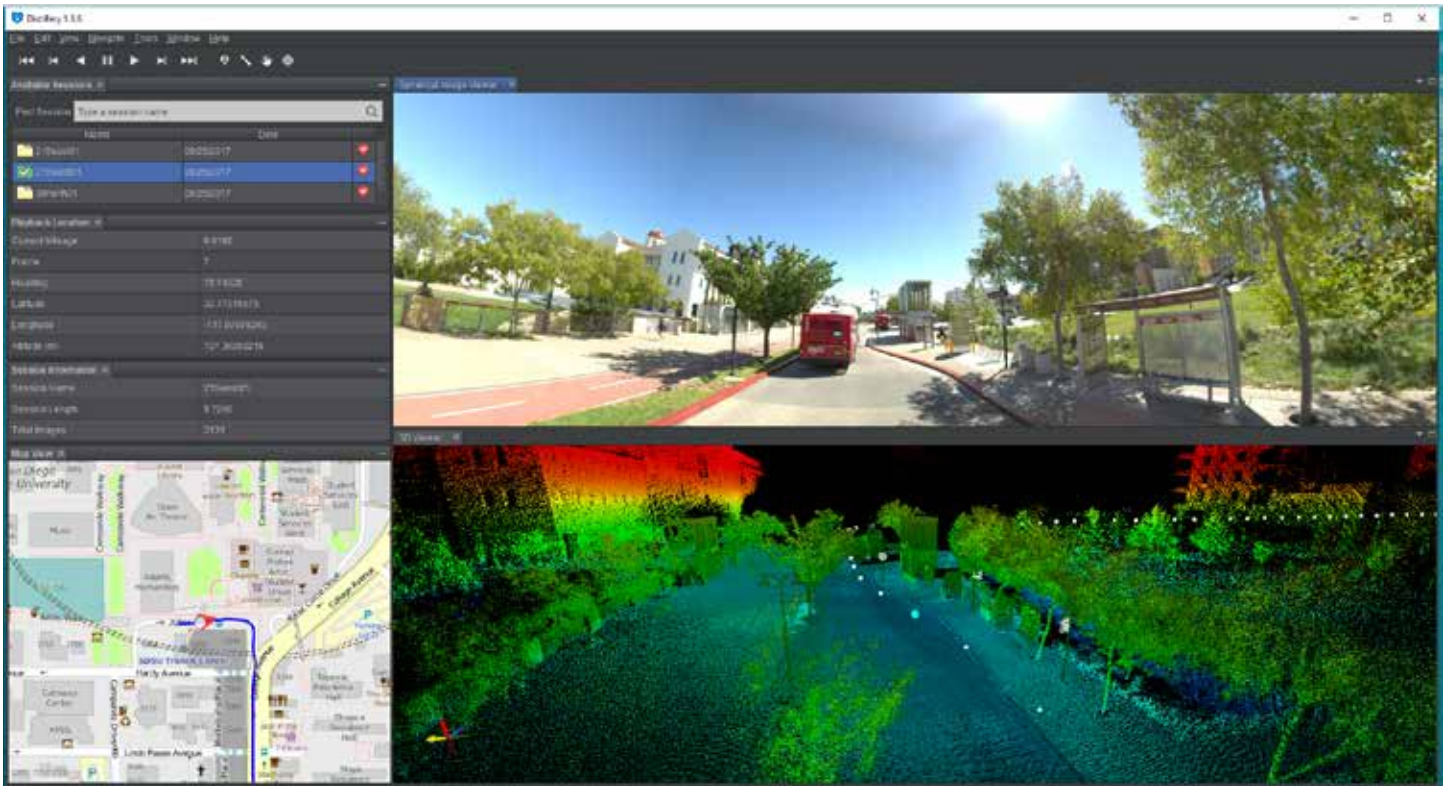
Maverick Solution

Maverick was chosen for this project because of its portability and flexibility in mounting options: It has its own traveling case, meets weight requirements to be checked as airline baggage, and its optional 4-armed vehicle mount attaches to just about any set of roof bars on road vehicles. For this rail application, Mandli developed a prototype suction cup mount, designed to attach to the windshield of any commuter train. The mount is powered by a vacuum pump with an internal back-up battery housed within the control box.

» Maverick mounted to a commuter train with Mandli's prototype suction cup mount. The mount is powered by a vacuum pump with an internal backup battery housed within the control box.



» 3D lidar representation of the Santa Fe depot in San Diego.



» The point cloud, 360 degree imaging, and map view are shown within Maverick's post-processing software, Distillery. Several assets of interest are identified within the dataset, including the bus stop, shelter, bench, and garbage cans.

Results

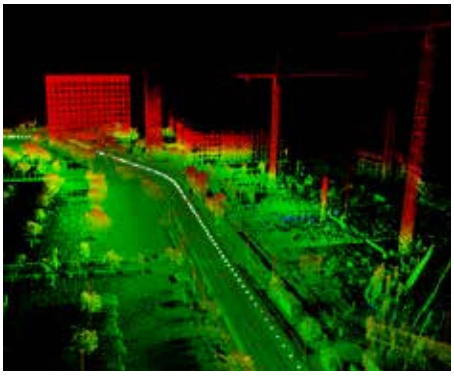
Rail

Data was collected along 106 miles of track in less than a day. The resulting dataset, viewed in Mandli's Roadview Workstation software, provided MTS with an accurate GIS inventory of all trackside assets, which allows them to inspect and monitor track condition from the safety of their offices. It also gives MTS the ability to maintain an accurate inventory of assets. "Roadview [Workstation] allows MTS to find, map, and categorize everything along the right-of-way. It's helped our track team analyze work that needs to be done faster and more efficiently," said Paul Jablonski, MTS CEO, in an article published in *Metro Magazine*.

While the Track and Wayside departments at MTS were the original groups interested in mobile lidar, other departments gained interest as they viewed the data and began to see ways it could be utilized for their purposes as well. MTS Rail System Safety Manager, Dave Jensen added, "Roadview [Workstation] is a perfect element for the train operator training program. We are just getting into the process of using it. It shows students all the intricacies of the system through a new lens. We can visually show students about defensive driving, what to look for in tough intersections, speed limits through certain areas, and much more. And, do it all from the classroom setting."

Bus

After seeing the value in mobile lidar and 360° imagery, MTS requested Mandli return with the Maverick to collect a few pilot routes for the Bus Division in September 2017. The entire collection process took less than a day. For bus applications, transit agencies can use the resulting dataset to perform an inventory of bus stops and other assets along the routes.



» 3D lidar representation of San Diego MTS' rail line. (This isn't showing anything in particular, just a zoomed out view of the rail line).

As early adopters of mobile data collection technologies in the public transportation industry, MTS plans to continue to utilize mobile data to manage its rail system's inventory. The agency also has plans to renew its GIS inventory when it begins operations on an 11-mile rail extension up the north coast to UC San Diego in 2021.

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