

Airborne LiDAR Reflective Linear Feature Extraction for Strip Adjustment and Horizontal Accuracy Determination

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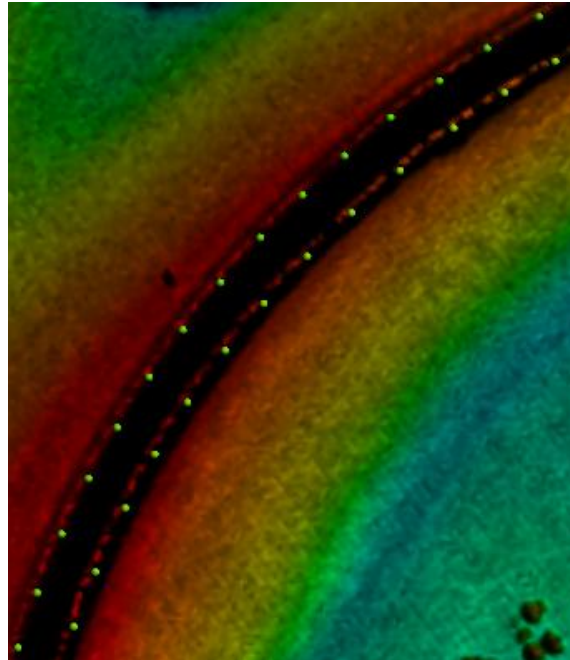


Figure 1. Road pavement marking points used for ground control.

The ultimate objective of this research project was to advance the earlier developed LiDAR-specific ground control-based LiDAR data accuracy improvement technique by including existing natural and man-made objects as targets, in particular using pavement markings, and extending the methodology for handling both types of targets in a highly automated way. Obviously, the total elimination of the deployable targets was the desirable long-term research objective.

The developed technique in this research project, which is based on using road pavement markings, has shown good automation potential and attractive performance as a tool to validate the horizontal accuracy and/or to provide for strip corrections, if needed. Except for the automated pavement markings extraction component, all the other processing steps exhibit a rather robust performance. Ongoing tests are expected to further increase the performance level of this process.

In summary, based on our test results, the horizontal accuracy terms can be obtained around 5 cm precision for typical transportation corridor projects, at engineering scale, flown by the ODOT OAE LiDAR system. This performance level should satisfy the accuracy requirements of most OAE products.