WAYNE GROSZKO, PH.D. **RESEARCH SCIENTIST • APPLIED ENERGY RESEARCH**

The Nova Scotia Community College (NSCC) conducted a test of the accuracy of the LED Roadway Lighting (LRL) Toolless Sensor Platform (TSP) and its radar sensor for streetlights that detects the movements of vehicles. The NSCC Applied Energy Research Lab (AERLab) evaluated the accuracy of the TSP in a real-world test case on Tower Road, in Halifax, Nova Scotia. NSCC performed 11 sessions of manual data collection and observed 467 vehicular events. These manual observations, along with video recordings, were then compared to the TSP monitor log.



RESULTS

We found that the TSP performs well, with high accuracy in fair weather conditions. Overall accuracy of reporting vehicular traffic movements in fair weather was 86%, with 347 out of 405 events in fair weather reported accurately.

During precipitation such as snowfall, the sensor recorded false triggers that did not correspond with traffic events. Therefore, in its current version, we recommend that vehicular traffic counting by the TSP only be used at times when there is no active precipitation such as snow or rain. We understand that further refinement of the system operation by the manufacturer is ongoing to improve accuracy during precipitation events in the future.



The chart above shows the daily counts of vehicle traffic by manual counting and the TSP Radar monitor.

The most common missed detection causes were:

- Two vehicles traveling in opposite directions through the detection area at the same moment were sometimes detected as a single event. We understand that a new version of firmware has been released to address this issue.
- Vehicles traveling in the same direction in close proximity to each other may travel through the detection zone at the same time and be counted as a single event. We understand that LRL is working on an analytic filter to address this situation.

Based on the above measurements, the tested system accuracy of 86% for vehicular detection in fair weather is very good. Further testing may be conducted with the manufacturer as new firmware versions are released to measure whether a 90%+ accuracy level can be achieved. Further testing may also be conducted to measure improvements in counting during precipitation events.

MSCCC LED ROADWAY

FUTURE DIRECTION