

## CASE STUDY

### Automated Vehicle Health Monitoring



## Automated Vehicle Health Monitoring Helps Agency Reduce Mechanical Breakdowns

When a city in the Canadian province of Ontario put in place its vision for the future, enhancing its public transportation infrastructure played a critical role. Over five years, this transit agency implemented transit technology solutions that contributed to achieving that vision. In 2019, they received a Smart City Award for the deployment of Automated Vehicle Monitoring (AVM) from Clever Devices.

### CHALLENGE

Prior to the implementation of AVM, this agency's maintenance processes were almost entirely manual. When a vehicle had a mechanical or electrical fault, the agency was dependent upon drivers to report it. Repairs were only made after there was an issue. Often, that issue resulted in the bus breaking down in service and needing to be towed to the garage for repair. This resulted in inconvenienced passengers and significant service delays. Additionally, the agency had no way to detect fleetwide issues that could possibly be covered by the manufacturer's warranty if exposed in time. Without AVM, the agency had to wait until those issues accumulated, causing significant service disruptions and increasing repair costs.

Lastly, they had no automated way to disable active regeneration on diesel-powered buses inside their garages resulting in dangerous air quality and a safety hazard to workers.

### Summary

---

#### Customer

A suburban transit agency in the Toronto, ON metro area

---

#### Fleet Size

- 460 buses
- 68 light rail vehicles
- 49 million annual riders



## SOLUTION

### Automated Vehicle Health Monitoring- AVM

AVM helped this agency automate many of its maintenance processes and increase the reliability and state of good repair of its fleet. The system ultimately helped them to increase the lifecycle of their fleet and because it reduces the likelihood of a mechanical breakdown on the road, it reduces the road calls that lead to unhappy, inconvenienced customers.

## RESULTS

### From Reactive to Proactive Maintenance

Because AVM automatically reports mechanical and electrical faults, the agency was no longer dependent upon its drivers to report faults that occur while out on the road. Maintenance crews could see the faults and proactively address them, reducing the likelihood that a fault goes unreported or a vehicle with an issue is accidentally sent into service.

### Reduced Road Calls

AVM enabled this agency to address mechanical breakdowns **before** they occurred, resulting in fewer service-crushing road calls and fewer unhappy, inconvenienced customers.

### Reduced Maintenance Costs

The visibility that AVM provides into the health of the entire fleet enables agencies to better manage their entire maintenance process, control overtime costs and identify warranty repairs faster.

### Improved Indoor Air Quality and Worker Safety

With AVM, this agency was able to set a geofence around the perimeter of the depot, automatically disabling the regeneration functionality prior to the bus entering the building resulting in improved indoor air quality and reducing the likelihood of injury to maintenance workers.

## PILOT PROGRAM UNCOVERS FLEETWIDE DEFECT

### Saves Agency More Than \$30,000

During an evaluation pilot program, this agency sought to evaluate the return on investment of AVM should it opt to deploy it fleetwide. As part of the evaluation process, they tested forty vehicles. Twenty were installed with AVM, and twenty served as the control group.

After six months, the agency identified savings in towing, lost vehicle hours, components, fuel, labor and parts on vehicles with AVM installed. They also cited intangible benefits such as service reliability, passenger safety and comfort as well as improved planning for repairs in their findings.

But, perhaps more significant was an unexpected discovery that occurred during the pilot when AVM uncovered an issue on two engines in the AVM group that were approaching the end of the warranty period. Had AVM not exposed the problem, the engines likely would have failed at some point in the future when the warranty had already expired, costing the agency between \$15,000 - \$20,000 each.