



Markham, ON

Case Study

Overview

- 1 The City of Markham partnered with CITYROVER to improve service level and regulatory compliance.
- 2 The project initially started with one CITYROVER device and was expanded to five devices once the system was proven effective.
- 3 The City reported \$36,400 in operational efficiencies per device and a boost of over 400% in pothole reporting output.
- 4 The City of Markham has gained national recognition and won several awards for its use of CITYROVER, including Good Roads and IDC.

Limitations of Previous Methods

The City's road maintenance system prior to working with CITYROVER was experiencing several points of inefficiency. Pothole reporting was time consuming, required frequent stops and was error prone as potholes were often missed due to time restrictions.



Challenges

The City of Markham houses over 350,000 residents and includes a road network of approximately 2,200 lane km (1,370 miles). Due to this large infrastructure and traffic volume, road failures occur regularly. These include potholes, cracks, damaged signs, debris and other deficiencies. The City aimed to better comply with the province's Minimum Maintenance Standard.

- > Prior to using CITYROVER, the City relied on staff and civic reporting to discover new potholes and road deficiencies.
- > Potholes reported by staff were logged using pen and paper — a slow, inefficient and error prone process.
- > Staff were focused on prioritizing tasks due to the time constraints of stopping.

Solution

In February 2020, the City of Markham initiated a pilot project, partnering to develop the artificial intelligence solution CITYROVER. The project aimed to help the City increase road safety and compliance with Ontario's Minimum Maintenance Standards (MMS).



The software is deployed through the use of a smart camera running CITYROVER's intuitive AI, making it reliable and easy to use. The proprietary windshield



mounting system secures CITYROVER enabled devices to the patrol vehicle, creating a seamless experience.

Once installed, CITYROVER AI finds potholes and other road deficiencies automatically as the patrol vehicle drives. Any detected incidents are then uploaded to the cloud and become accessible immediately, providing City staff with real-time actionable data on road conditions.

CITYROVER's built in privacy feature blurs any licence plates, faces and other personal information that is captured. This allows the City to easily use the data collected by CITYROVER in public settings.

- > The CITYROVER technology was introduced at an initial meeting to describe the technology and explore its benefits.
- > A pilot program was initiated to evaluate CITYROVER and collect feedback from the City.
- > The CITYROVER device was installed in a patrol vehicle and city staff were trained on the app and platform.
- > CITYROVER and the City of Markham improved the technology to better serve the City's needs.
- > The single device pilot was deemed successful, leading the City to expand to a total of five devices.



Alice Lam,
Director of Operations
City of Markham



Having this device capturing the pothole location can save them (inspectors) time from stopping and having to mark down the location. It also eliminates human error.

Results

As one of the first cities to participate in the CITYROVER pilot program, the City of Markham was able to collect valuable and measurable data about road deficiencies. The City realized tangible benefits including:



Improved Safety

CITYROVER has helped the City greatly improve road safety by addressing priority incidents. This has significantly reduced risk and liability for the City and reduced the number of reports.



400% Efficiency

The City has experienced an increase of up to 400% in road deficiency reporting (depending on road / traffic conditions), and has significantly increased productivity, efficiency and accuracy.

CITYROVER was also able to help the City increase maintenance efficiency by reducing the number of stops during patrol, scheduling road repairs more efficiently, increasing pavement lifecycle with timely repairs, and measuring service levels better.

City patrollers are now able to focus on driving and pothole locations are automatically logged on the cloud. On average, the City has saved \$36,400 per CITYROVER device per year and has won several awards.

Recognition

Some of the awards the City has won for its innovative use of CITYROVER include



Ontario Good Roads Association
John Niedra Better Practices Award



DC Smart Cities North America Award
approach to road maintenance and safety