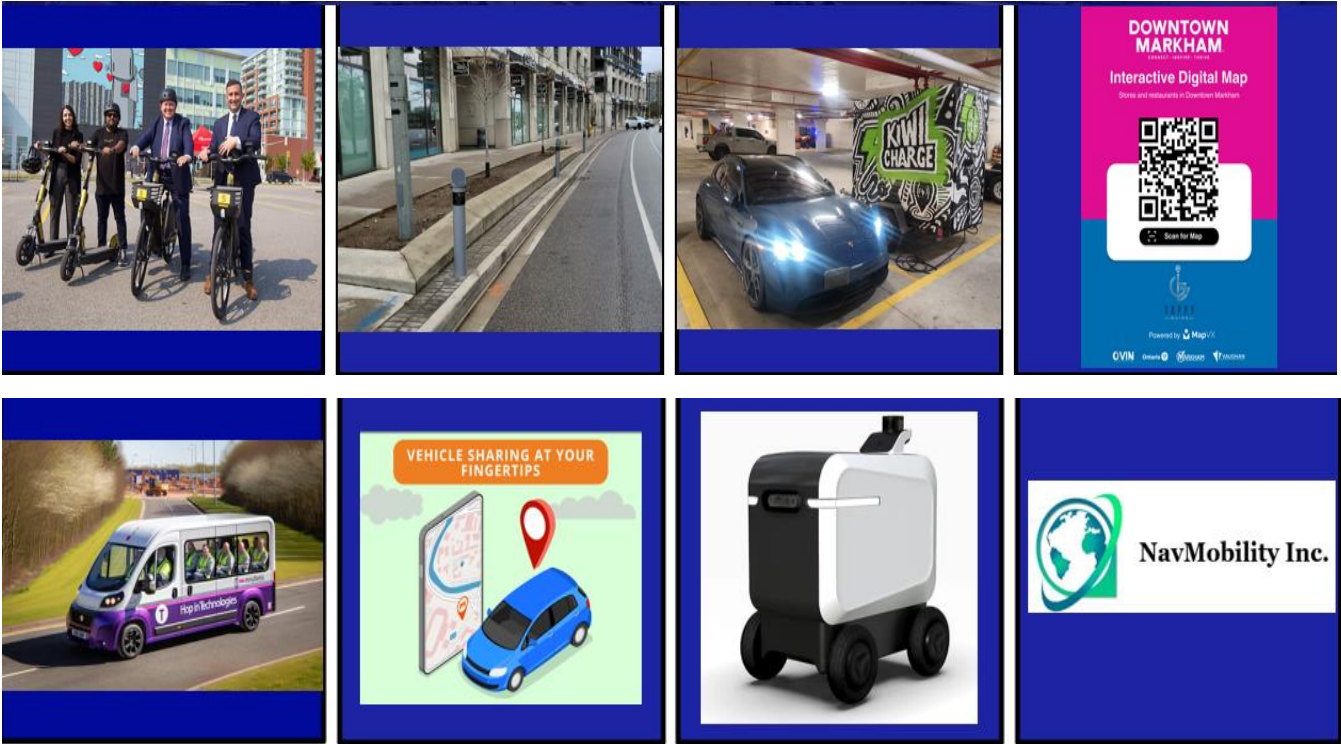


City of Markham OVIN Demonstration Zone Program 2023-2025

Demonstration Project Profiles



Acknowledgements

The OVIN Demonstration Zone is a Council-approved initiative that will position the city as a testbed for smart mobility innovations.

The Ontario Vehicle Innovation Network (OVIN) – a phase of the Transportation Innovation Program – is a collaborative effort between the City of Vaughan and the City of Markham. The OVIN Demonstration Zone offers city infrastructure and spaces for companies to demonstrate and showcase their mobility solutions. Technology demonstrations are conducted in a real-world environment to address transportation and mobility challenges, while offering the public a unique opportunity to learn and engage with emerging solutions.

Led by the Economic Development (EcDev) Department in the City of Markham, the OVIN Demonstration Zone is a transparent, streamlined and fair process established to partner with companies who wish to test their innovative and/or emerging transportation technologies that align with the City's [transportation and mobility objectives](#).

The OVIN Demonstration Zone is part of the **Ontario Vehicle Innovation Network's (OVIN)** ecosystem of innovative clusters operating around the province.

The Ontario Vehicle Innovation Network (OVIN) has provided \$2.5 million in funding to the cities of Markham and Vaughan to launch the OVIN Demonstration Zone.

The OVIN Demonstration Zone provides a real-world environment that fosters collaboration to advance the commercialization of automotive technologies and accelerate smart mobility innovation. These technologies have the potential to improve quality of life, while generating new economic opportunities for Ontario.

The City of Markham seeks new and meaningful ways to incorporate innovative solutions into city-building efforts and drive economic growth.

Table Contents

- 1. **SCOOTY Inc.**| Scooters & E-bikes for micromobility.....3
- 2. **Hop In** | Shared Mobility with York University Markham Campus.....4
- 3. **RideAlike** | Car-sharing within Condominiums application.....5
- 4. **Real Life Robotics** | Autonomous Robotic Cargo Delivery.....6
- 5. **Tappy Technology** | Interactive Accessibility Infrastructure Map.....7
- 6. **Municipal Parking Services (MPS)** | Automated Solar-Powered Parking Violation Detection Sticks.....8
- 7. **Kiwi Charge** | Portable EV Charging Solution.....9
- 8. **NavMobility Inc.**| Road Infrastructure Asset Mapping Mobile Application.....10

EXECUTIVE SUMMARY

PILOT PROJECT: SCOOTY Inc. | Scooters & Ebikes for Micromobility

SCOOTY Inc. is an all-Canadian micromobility company supported by a \$1M investment from the Ontario Vehicle Innovation Network (OVIN). SCOOTY has been in operation since 2019. The SCOOTY team was founded by experts in mobility, city building, community development, public policy, engineering, and entrepreneurship; the team has since expanded to build out its roster of specialists in these fields.

The area of Downtown Markham used for the Demonstration Zone is essentially three areas separated from each other by the railway and the Rouge River Valley. There is the commercial and residential area between the river and highway 7, the hotel/commercial area along Enterprise Boulevard (Toronto Marriott Markham), and the Institutional Zone (York U campus, Pan AM Centre, YMCA) on the east side of the railway tracks.

SCOOTY deployed as many as 50 zero-emissions micromobility vehicles (e-scooters and e-bikes) operating as a shared service connected by a mobile application. The application provided riders with information on rules and regulations, the locations of the mandatory designated parking zones to collect and drop off vehicles, and how and where to ride. The service was integrated into nearby transit hubs (Unionville Go Station and York Region Transit Viva bus rapid transit stops) within the Demonstration Zone. The 50 devices were spread across a total of 12 parking locations signed and marked using a heavy rubber parking mat.

The demonstration was operational for 4 months total from April through to June. Although the startup was slow given less than ideal weather, during the period of April 22nd - June 30th, SCOOTY logged over 1,400 rides with a 99% parking compliance rating. From April 1st - June 30th the average trip distance was approximately 3.17 km with an average duration of 19 minutes ride time.

Overall SCOOTY managed the program well and operated and the demonstration program was a success. Ultimately a longer demonstration project is needed to properly evaluate the safety impacts of micromobility devices sharing the roadway and trail network within any city, however there was a good number of long-term demonstration projects being performed now under the provinces trial regulation that should be able to provide additional data to support any provincial decisions.

This demonstration project has helped the city of Markham to identify controls that need to be in place for micromobility devices, and the experience will help the city in planning any permanent program or expansion of the SCOOTY network within.

EXECUTIVE SUMMARY

PILOT PROJECT: Hop In | Shared Mobility with York University Markham Campus

Hop In is a company established in 2018 that provides a transportation technology platform that helps large employers solve one of the most overlooked barriers to productivity: getting their workforce to and from work, reliably and efficiently. They are able to organize smaller transit services (vehicles and drivers) that can fill in last/first mile gaps in public transit services. They have a Rider App that allows riders to book, check in, receive route notifications, and stay informed, making their commute seamless and reliable. They also have a Driver's App providing drivers with a GPS-optimized route, see stop details, and allows them to manage rider check-ins. HopIn can perform commute Analytics to understand where, when, and why commute issues occur using data that links transit gaps to absenteeism and shift disruptions. They also have a mapping tool to visualize employee clusters and commute pain points to plan routes and hiring zones more effectively.

For this demonstration project HopIn partnered with York University (Markham Campus) to provide first/last mile micro transit services along three routes:

- Route 1: Kennedy Go station to the front entrance to York University Markham campus.
- Route 2: Bridlewood Mall to front entrance to York University Markham campus.
- Route 3: Bamburgh Gardens to front entrance to York University Markham campus.

The goal was for OVIN and City to learn how micro-transit technology solutions can work in collaboration with existing transit infrastructure to complement City planning, population growth, and public infrastructure.

Although ridership signup and use of the micro transit service on the three routes was not as high as hoped the demonstration project was still a success in that it helped all parties involved in the project to understand the need for municipalities, transit agencies and private micro transit service companies to work together in the marketing, route planning, the selection of safe and effective pickup and drop off points. The apps developed and used by HopIn are of significant assistance in this work and in allowing a simple way for the public to sign up for the service and monitor the services provided when they are using it.

The initial engagement and onboarding process with OVIN and designated City staff took longer than anticipated, adversely impacting the goal of aligning this pilot with the York U semester schedule.

EXECUTIVE SUMMARY

PILOT PROJECT: RideAlike | Car-sharing within Condominiums Application

RideAlike was founded in 2019 as a pay-per-view pilot and has since evolved into a full-scale, AI-powered peer-to-peer car-sharing marketplace with iOS & Android apps, dynamic pricing, a five-step verification flow, and an integrated chatbot for instant customer support.

The original intent of this demonstration project was to provide service at a high-rise condominium building in Markham, however RideAlike was unsuccessful in finding a condominium board that was willing to have the program operate on their premises.

Remington Group stepped in to support the demonstration project by allowing the vehicle sharing program to be implemented at two of its commercial buildings located at 169 Enterprise Blvd & 171 Enterprise Blvd, Markham, Ontario L6G 1B3

By the time these commercial locations were finalized there was only 3 weeks for the operational phase which restricted the breadth and depth of campaign execution. The result was very few users signed up and no real rentals occurred. However, this demonstration still had some successes. It served as a strategic initiative to enhance brand visibility and assess engagement trends within the local demographic. Over the course of three weeks, RideAlike's team focused on raising awareness and strengthening their brand presence across the Markham area.

Preliminary findings indicated that the target population responded more positively to paid digital advertising compared to traditional outreach methods such as email campaigns and television ads. This insight highlights the importance of optimizing future marketing efforts towards channels with higher engagement potential in this region. The RideAlike website and app was confirmed as accessible and easy for users to sign up for the program. The onboarding processes for verifying the vehicles being offered for vehicle sharing and the confirmation of adequate insurance was proven, so the operational workflows of their business model was also proven.

The focus of any future demonstration projects should incorporate the following recommendations:

- A phased approach with phase 1 being the advertising and outreach to building owners/operators, followed by a lengthy sign-up period to allow for a base registration with sufficient providers and users of shared vehicle.
- The operational phase needs to be at least a year to ensure longer term stabilization of the service and to allow for organic growth by word of mouth.
- Focus should be on high density residential buildings.
- To make the service more viable the use of this type of service should be included in the planning process within a jurisdiction to help reduce the number of parking spaces required and provided with a development.
- Any demonstration project or permanent implementation of RideAlike or similar vehicle sharing program should have a formalized and multi-pronged marketing program shared between the car share company, the city and developers/condo boards.

EXECUTIVE SUMMARY

PILOT PROJECT: Real Life Robotics | Autonomous Robotic Cargo Delivery

Real Life Robotics (RLR) is an automation management company, specializing in last-mile delivery. Through their operating system, known as PASSENGER, RLR is able to coordinate, visualize and generate insights from all of an organization's automated systems - including not only robots, but also IoT devices and sensors - to extract economic value and create efficiencies. They can incorporate their software to operate with a variety of micro utility devices (MUD's).

For this OVIN demonstration project, RLR has partnered with Remington Group, Rogers and Serve Robotics to provide last-mile food delivery services in downtown Markham using robots (MUD's) that can be controlled by an operator walking with the robot, although ultimately the desire would be to have the robot delivery vehicle operate autonomously.

The project involved RLR's PASSENGER software system operating on Serve robots, delivering food orders placed in a 2km radius of downtown Markham, surrounding a group of buildings owned by The Remington Group. An agreement was reached with Chatime as the restaurant partner and the RLR team coordinating the robot operations.

Sixty deliveries were achieved in the 14-day pilot period. 87% of the deliveries were delivered within 30 minutes and 80% of the customers indicated they were very satisfied with the service. Overall, the demonstration confirmed the ability of the robotic delivery service to meet customers' needs and that the robots were able to successfully traverse the sidewalks, parking lots and buildings while being led and controlled by a guide. It also allowed RLR to fine tune their service to improve upon the quality of the product delivered as the demonstration proceeded. They did not operate fully autonomously because no enabling regulations are currently in place.

RLR indicated the demonstration showed a 98% average reduction in carbon emissions vs traditional delivery methods and a 90% average reduction in delivery costs vs traditional delivery methods although it is not clear how this was determined.

In order to fully evaluate the potential of using MUD's for delivery services, there is a need for a provincial pilot project regulation that would allow them to operate within the public right of way under certain conditions when meeting certain standards. Further testing and evaluation could then be done that would help develop a set of standards on how these devices respond to fixed and moving obstacles in addition to standards for weight, size and operating speeds. In the meantime, additional demonstrations could focus on the use of MUD's in inclement weather to determine their operating limitations and allow for further development of the systems to effectively operate in rain, snow and on ice. Testing and development of recommended standards for how MUDs respond to obstacles could also be done in controlled privately owned spaces which would give legislators a greater comfort level if looking at enabling regulations.

EXECUTIVE SUMMARY

PILOT PROJECT: Tappy Technology | Interactive Accessibility Infrastructure Map

The Tappy Guide is a transportation accessibility application, which provides point-to-point navigation assistance for seniors and people with disabilities. The app will provide a virtual call centre, with live agents to support seniors and people with disabilities to navigate first and last mile transportation needs.

The demonstration project entailed the integration of a map of the Markham downtown area that focussed on the details of the Remington Group's buildings at 169 Enterprise Blvd. Layout details of the main floor of the building and the various shops available was included and locations of accessibility ramps and accessible parking on site was also provided. Remington provided the locations within the building for people to access and made a QR code for the Tappy Guide app available on monitors within the main floor of the buildings.

Users of the app were then able to use the app to identify travel routes to this site, look up what businesses were available and identify accessibility infrastructure. They were able to access a live body call centre for support.

The app was live for a two-month period (February and March 2025). During this operational phase the app was accessed a total of 68 times, and 3 routes were requested. The use of the app varied with a slow uptake followed by a significant increase in sessions occurring between February 9 and 11, with usage reaching over 14 sessions in a single day. Overall, the uptake was not as high as expected. This is primarily related to the advertising/marketing for the app was limited to screens in the Remington Group buildings.

The app itself worked well and the potential for its use to assist seniors and people with disabilities plan routes and identify areas with accessibility infrastructure is positive. This demonstration project should be considered successful in that it:

- Showed the level of coordination required between Developers, the City of Markham, and any other building owners to operate a navigation accessibility friendly navigation app for the city.
- Demonstrated the kind of data that can be captured that would aid the city in planning its accessibility services within the city.
- Demonstrated the ability of Tappy to integrate accessibility details and provide navigation assistance.
- Demonstrated the potential benefit of such an accessibility friendly app for navigation around the city.

Tappy has considerably more functionality to their app including a back-end service for providing support to visually and hearing-impaired users that was not able to be demonstrated in this project.

EXECUTIVE SUMMARY

PILOT PROJECT: Municipal Parking Services (MPS) | Automated Solar-Powered Parking Violation Detection Sticks

Municipal Parking Services (MPS) provided eight SolarSticks™ for this demonstration project. This device is a bollard shaped device that is 15 cm in diameter and 1 metre high with built in battery and solar charging capability. It uses radar technology to locate vehicles parked within a designated zone and an 8-megapixel camera with license plate reading capability to identify the vehicle. It uses LTE cellular communications to send data regarding parking sessions and violations back to a back-end software also provided by MPS.

Each unit can monitor two on street parking spaces and is easily installed in concrete sidewalk or boulevard. MPS also has a similar unit that can be connected to the power grid which will send real time parking information and provide a user with emails of parking violations allowing real time focussed enforcement techniques. The back-end system is also capable of processing and sending out parking violations although that feature was not tested in Ontario as provincial legislative framework would be required for photo enforcement of parking violations.

Four SolarSticks were installed on the west side of Birchmount Drive in a timed parking location

The demonstration project effectively demonstrated the ability of the SolarSticks to capture on street parking sessions and parking violations and if more units were deployed on a permanent basis, a city could use them to focus their enforcement efforts based on parking data captured and reported on by the back-end software.

It is suggested that a longer term and larger trial of both the SolarStick™ and the version that can be permanently connected to the power grid to help evaluate the technologies' ability to operate reliably at low temperatures and withstand winter plowing operations. This would also allow a municipality to adapt its enforcement approach to focus on areas with higher violation rates.

There is potential for this technology to significantly enhance a road authorities' ability to enforce on street parking and future use should be considered.

EXECUTIVE SUMMARY

PILOT PROJECT: Kiwi Charge | Portable EV Charging Solution

This demonstration project was completed as a collaboration between KIWI Charge Inc, Remington Group and the City of Markham staff.

The demonstration was planned and executed to prove that KIWI technology is a reliable and viable technology to help organizations provide portable public charging options for:

- areas where permanent installations are either not available or cost prohibitive due to cost related to grid connection
- local events
- assisting an organization in their EV charging network planning by providing confirmation of demand prior to significant capital investment installing permanent EV Chargers.

The demonstration consisted of KIWI charging providing a portable charging trailer with two charging ports for use over a 4-week period at a downtown Markham underground parking garage located at 179 Enterprise Blvd.

The charges were offered to the public free of charge and data was collected regarding the reliability, effectiveness and the interest in making use of the portable chargers.

The portable charging unit proved effective and reliable in providing a total of 84 charging sessions over 4 weeks totalling 664 kWh of energy. At the peak of the pilot (week 3), 29 charging sessions were completed with 118 kWh of energy dispensed.

The project confirmed the viability of the KIWI portable chargers to help fill in gaps in public charging infrastructure during temporary events or in locations where permanent installations are cost prohibitive or not technically possible. The technology can also be used as a planning tool for organizations to confirm public interest in public access to charging infrastructure prior to making a large capital expenditure on a permanent installation.

Based on feedback from internal stakeholders within the City of Markham, The Remington Group and Kiwi Charge Inc, the demonstration of the portable trailer mounted EV chargers was a success. The demonstration project benefited both the city and Kiwi Charge Inc. There is no need to perform further demonstration projects on this specific product from Kiwi and it would be considered ready to be marketed as a viable and beneficial product. However, Kiwi is developing other portable charging products that may be worthwhile evaluating in future demonstration projects.

Specifically, they are developing autonomous portable charging systems and are also looking at larger capacity Battery Energy Storage Systems (BESS) that would allow for DCFC charging capability. In addition, they may wish to pursue future demonstration projects to help develop and refine their pricing structure.

EXECUTIVE SUMMARY

PILOT PROJECT: NavMobility Inc. | Road Infrastructure Asset Mapping Mobile Application

NavMobility is a smart mobility company that has been in business for 1-4 years. We have a point-cloud processing software called 3DLiSM (3D LiDAR for Smart Modeling) currently on the market.

Their mobile mapping platform is made up of a location identification unit which includes the GNSS receiver and a data capturing unit made up of lidar and video sensors. These combined can determine location, trajectory information that is accurate down to the centimeter. This platform is mounted on a vehicle in this case to develop an accurate HD map where roadways assets can be located, identified and its condition logged.

The objective of this demonstration project was for NovMobility to use its mobile mapping platform to collect and process a roadway section data to provide an HD map identifying the roadway, sidewalks, cycling network and accurately locate traffic signs, pavement markings, handholes and maintenance chamber as well as identifying the condition of such assets.

Navmobility was able to equip their vehicle and collect the road netwrk data over a period of three hours. However, due to the limited time available to complete the project, details of the asset inventory and condition information were either not extracted or not provided to the city for review. In additin the two staff that were available for the VIN DZ project on a temprary basis left the project near the end of the project for permanent positions elsewhere resulting in insufficient staff to review and data that may have been extracted from the NavMobility system to determine its accuracy.

There would be a benefit to the City of Markham to work with NavMobility outside of the OVIN DZ initiative extract and review the asset data for accuracy to determine the accuracy of the technology used for future consideration.

In addition, if NavMobility were to do another demonstration project partnering with the city, it should be ensured that sufficient time should be built into in the schedule to provide at least 6 months dedicated for data collection and extraction of the asset location and condition data and fully compare it to field reviews for accuracy. For the city's part they should ensure that staff are available to perform field reviews and compare against the data collected by NavMobility.