How RideCo planned, launched and operated a successful dynamic route on-demand van service for Metrolinx.

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How RideCo dynamically solved the first mile and last mile transit issue

RideCo, a public transit agency in the Greater Toronto Area (GTA) partnered with Metrolinx to plan, launch and operate an on-demand microtransit pilot, "GO Connect". Riders booked rides using a mobile app or website on-demand or days in advance. They were given a specific pickup and drop-off time upon booking a ride. Vehicles were dynamically routed based on passenger locations. Riders shared their rides with others going in the same direction. The system constrained the sharing and journey times to ensure all riders arrived at their destination by the promised drop-off time. The objective was to improve access to the local GO Transit station and reduce reliance on an over capacity parking lot. The town of Milton was selected for the pilot because of the congestion and parking issues at its GO station. The one-year pilot launched in March 2015 with Metrolinx and Milton Transit.

The response to the microtransit pilot was overwhelmingly positive for Metrolinx, Milton Transit and commuters. A total of over 13,000 rides were taken. Rider satisfaction was almost 90 per cent and the main reasons for choosing to use the RideCo service were convenience, affordability and reliability. Metrolinx reported that 45 per cent of riders that used the service switched from driving to the station. It also attracted new riders to the Go Train with 7 per cent of RideCo riders being new riders to the train station. The net cost per ride to Milton Transit for the RideCo solution was 27 per cent less than the municipal bus and it also generated much higher cost recovery. Over 85 per cent of rides were shared, with majority of them at 3 or more riders. The service gap between arrival of commuter trains at the station and available buses for the "last mile" was mitigated by the on-demand RideCo solution.

All three parties benefited from the RideCo solution to the first mile and last mile transit issue. Milton Transit experienced less net cost per trip to the station and had a flexible solution for its customers. Metrolinx eased congestion at its station and helped to offset the need for increased parking. Most importantly, commuters enjoyed a cost effective, flexible and reliable alternative to getting to and from the station.
The metropolitan City of Toronto has a population of almost 2.8 Million which is larger than the City of Chicago. Taking into account the region, referred to as the Greater Toronto Area (GTA), the population is 7.1 Million – the ninth largest city in North America. It is four hours from Detroit and only one and a half hours from Buffalo, the two main arteries connecting Canada with the US.

In the GTA, 23 per cent of commuters use transit to get to work. The use of transit is on the rise and the duration of the trips are getting longer. The average commuting time for workers using transit is 44.8 minutes, each way. This time does not include the time transit commuters spend getting to the bus stop or train station and the return trip back home, known as the “first mile and last mile”.

The commuter rail system in the GTA is managed by Metrolinx, a public transit agency that operates the regional GO Transit rail and bus network. The average weekday ridership on the GO Transit trains is 264,000 which is comparable to the MTA Long Island Railroad at 349,500.

The majority of communities that Metrolinx serves are low density and have “first mile and last mile” accessibility issues. It has the mandate “…to champion and deliver mobility solutions which connect people, places and communities throughout our region.” It has over 69,000 parking spaces but continues to create addition spaces to meet demand.
A transit station over-capacity and under-servicing riders

RideCo was selected by Metrolinx to launch a dynamic transit pilot and address “first and last mile” issues within its network of stations.

In the initial planning stage, RideCo supported Metrolinx with market research to identify suitable GO Transit stations for the pilot, the types of trips preferred and customer demand. After meeting with local transit planners and administrators, two transit hubs were short-listed and analyzed for fit with the on-demand service. Milton was selected for the one year pilot.

Milton is one of the fastest growing municipalities in the GTA and rapidly becoming an affordable alternative to living in downtown Toronto. It has grown by 30 per cent over five years to a population of 110,000 residents over a 13 square mile area. Milton transit operates on a 30 minute cycle. Buses cannot connect with every Go Train and to do so would be cost prohibitive.4

While more than just a “bedroom community” to Toronto, commuting remains very popular and necessary. The demand for the GO Train rail service and GO Bus service continues to grow and additional trips are being added in an attempt to address demand. In addition, the Milton GO Station draws riders from as far away as 24 miles due to its favorable schedule. This places even more pressure on the limited parking spaces. Most, if not all, of the parking spots were routinely filled by 7AM and capacity was running at 107 per cent. The cost of a new parking garage is estimated at $50 Million and would take three to five years to build.7
The proprietary RideCo solution for microtransit

RideCo uses proprietary technology to dynamically optimize the dispatching and routing for a shared trip. It adapts to real-world conditions down to the minute to ensure timely service. The data it collects on traffic use is securely stored in the cloud, which is used to build its own predictive and real-time traffic modelling. It also has built-in functionality to avoid certain routes if necessary, such as school zones or construction areas.

The technology can be deployed in market within a few weeks and riders can book on-demand or in advance using a mobile app or a website. Depending on demand, vehicle types supported by RideCo are three to four person sedans, five to eight passenger vans, and 12 to 23 passenger shuttles.

RideCo leverages its expertise and provides materials for driver training. One option is for RideCo to train and manage drivers entirely. Another option is for RideCo to work with the fleet partner by providing materials and training-the-trainer services.

Door step service features pickup or drop-off at a passenger's residence while virtual stop service is a hub location within a three minute walk.
The quick and easy rollout in Milton

In collaboration with Metrolinx staff, RideCo mapped the service area in Milton and identified 240 virtual stops for the service and the transit station pickup/drop-off location. By working with Metrolinx, RideCo determined that the service was best suited for peak commuter hours and the most efficient vehicle was a five seater passenger van. The service used five to seven vans to meet demand and offered an under 10-minute waiting time. In order to keep five vans on the ground, RideCo sourced a pool of 14 vans and drivers from a local commercial transportation company that offered licensed, insured vehicles and drivers. RideCo performed the onboarding, scheduling and performance management.

Providing the convenience of 240 Virtual Stops as well as Doorstep Service.
You’ll be presented with several options that vary by time and location.

**For Doorstep Pick up**

$1.95

Pick up 6:25 pm - 6:35 pm

1040 Kennedy Cir. 
Arrive by 6:43 pm

Milton GO Station at Main St. E
Bus loop drop-off/pick up

**For Hub Pick up**

$1.45

Pick up 6:25 pm - 6:35 pm

1059 Bennet Blvd. 
Community Mailbox 
Arrive by 6:43 pm 
Milton GO Station at Main St. E
Bus loop drop-off/pick up

For those that are interested in a lower cost ride or enhanced privacy, you choose to be picked up at a hub near you. Hubs are typically the street sign post or mailbox beside street intersections.

The quick and easy rollout in Milton (continued)

After analyzing and modelling different fares based upon distance and time, all three partners agreed on fixed price fares. The cost for a trip between the GO Station for doorstep service was $1.95 and $1.45 for virtual stop service. Riders paid for the service using their credit card via the mobile app. Under a revenue sharing model negotiated by the three parties, RideCo received a low base price per ride plus a percentage of the trip price beyond a certain threshold. This type of shared risk/reward fee structure ensured that RideCo’s compensation was based on the successful adoption of the service. The total operating budget was approximately $150,000 and funded by Milton transit and co-fare contributions from Metrolinx.

In addition, there was a small set-up fee to customize the RideCo system, perform service design analysis, and brand the website to Milton and Metrolinx requirements.

Keeping customer needs in mind, the RideCo operating schedule aligned with the first out-going train in the morning and the last returning train in the evening. The morning schedule started at 6am and ran for two and a half hours while the afternoon schedule began at 4:45pm and finished at 8:25pm to coincide with the last train arriving at the station.

During the first month of launch, the app included a “call the operator” feature to speak to, ask questions or provide feedback. This feature was staffed during hours of operation and became an effective way to collect real-time feedback on the service. Adjustments were quickly implemented based on this early adopter feedback. Virtual stop location issues, or negative comments were immediately investigated by RideCo’s operations support staff and resolved. The “call the operator” feature was disabled once satisfactory tuning was completed based on early rider feedback. Then, app based customer ride ratings and comments were the primary channels to review customer feedback.

Performance metrics were developed with Metrolinx in advance of the launch of the pilot. They included specific ridership targets, reduction in solo automobiles in the parking lot, new riders on the GO Train and customer satisfaction. In addition, cost per ride and cost recovery were targeted to meet or surpass the existing local bus system.

Prior to launch, Metrolinx conducted an audit to ensure the technology platform met the applicable data privacy legislation standards and Metrolinx’s data security standards.
Encouraging riders to use the RideCo solution

The pilot program used a brand created by Metrolinx for all rider-facing touch-points. GO Connect was selected because it reflects how microtransit connects to the GO Transit network. It was used on the website, mobile app, signage materials and all communications.

In addition to collaborating with Metrolinx and Milton Transit for onsite signage, stop integration and wayfinding, RideCo developed a comprehensive awareness program. These digital and on-the-ground tactics directed potential riders to the Milton transit website to learn more about the service and how to download the app. RideCo designed flyers and assembled a street team to hand out flyers to potential riders at the Milton GO station. Media were contacted resulting in coverage in the Toronto Star, CBC News, CHCH TV and other local news organizations.

RideCo received very positive media coverage from launch to the conclusion of the pilot.
Exceeding expectations and creating greater efficiency

As awareness of the RideCo service increased, ridership also built rapidly, to 84 passengers per day within six months. When ridership of the GO Train decreased in the December holiday period, use of the RideCo service also dipped. By January, the available vehicle capacity was being almost fully utilized. At that point, ridership stayed stable because the constrained vehicle supply was unable to accommodate any more ride demand.  

There were approximately 84 passengers per day in month 8 and onwards during commuter hours to and from the GO station. As ridership increased, the efficiency and financial performance improved in tandem, surpassing the municipal bus system within six months. The cost recovery of 39 per cent is superior to the municipal bus which ran at 24 per cent. And the net cost per ride of $5.71 is also far superior to the municipal bus at $7.28. 

The service had a fixed budget that allowed for an average of five vehicles in service. If additional budget and vehicles were made available for the pilot, the service would have continued to grow in ridership as well as operating efficiency. The following projections are based on extending the operating metrics through simulation of incremental ride volume.
Exceeding expectations and creating greater efficiency (continued)

In summary, at three times the pilot’s ridership (approximately 255 per day) the passenger-boardings-per-vehicle hour is approximately six because of the efficiency of dynamic sharing and routing. The cost recovery percentage surpasses 60 per cent and net-cost per ride is approximately $3.64. These numbers (pilot and 3x scale) are superior to most municipal bus systems in the region, as illustrated in the following charts.⁸,⁹

- **Cost Recovery % (higher is better)**
- **Net Cost per Ride (lower is better)**

In comparison to municipal bus services in the GTA, RideCo efficiency is substantially better.

Relationship of Transit Operating Cost to Urban Density, GTHA (2014)


In comparison to municipal bus services in the GTA, RideCo efficiency is substantially better.
Delighting riders with an excellent customer experience

Riders enjoyed the advance booking feature for their morning trip and last minute booking for the ride home.

Congestion at the station and the parking lot eased with less people driving and more using RideCo.

The on-time record for the promised drop-off time with bookings was 95 per cent. And according to a Metrolinx survey, rider satisfaction with the service was almost 90 per cent. The top five reasons riders chose the RideCo service were convenience, price, reliability, no access to a car, and trouble finding parking.10

There were over 230 weekly active riders and over 13,000 rides were taken during the pilot program.11

Main reason for using pilot service

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percentage</th>
<th>Number</th>
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</thead>
<tbody>
<tr>
<td>Convenient</td>
<td>42%</td>
<td>22</td>
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<tr>
<td>Affordable</td>
<td>39%</td>
<td>28</td>
</tr>
<tr>
<td>Reliable</td>
<td>28%</td>
<td>26</td>
</tr>
<tr>
<td>No access to daily car</td>
<td>26%</td>
<td>26</td>
</tr>
<tr>
<td>Other</td>
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</tr>
</tbody>
</table>

At peak ridership, over 85 percent of trips were shared with a majority of trips having three to six riders. The average shared trip was 13 minutes, which is only an extra five minutes compared to a solo car ride.8 In addition, one rider reported that she no longer had to walk 30 minutes in freezing temperatures to the GO station due to lack of available bus service. A second rider decided not to buy a $30,000 car because of the availability of the service.8

Almost two-thirds of riders booked their RideCo evening trips at the last minute, after they had caught a specific GO train and had more certainty when they would arrive at the station. Similarly, over two thirds of riders chose to book their morning trip the day or evening before travelling.8

Congestion at the parking lot was eased as 105 riders switched from solo automobile use to using the RideCo service.8

Level of Satisfaction with Pilot Service (10 very satisfied - 1 very dissatisfied)

<table>
<thead>
<tr>
<th>Satisfaction Level</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Very satisfied</td>
<td>20.8%</td>
<td>11</td>
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<tr>
<td>Very dissatisfied</td>
<td>3.8%</td>
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<tr>
<td>Dissatisfied</td>
<td>15.1%</td>
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</tr>
<tr>
<td>Neutral</td>
<td>24.5%</td>
<td>13</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source for charts: Metrolinx. Integrating New Mobility into the Regional Transportation System of the Greater Toronto and Hamilton Area. Feb. 2017
What our riders told us about the service

“It’s fantastic. I can’t believe they are actually doing it in our city.”
Loys – commuter

“Love it. Best service ever. It’s such a mind relieving thing.”
Hozefa – commuter

“I just had my first ride to the Milton GO station. I WAS SO IMPRESSED!!”

“This is great for people with busy schedules -- gives us flexibility.”

“I think it is a great idea. I hope this service isn’t cancelled. This is a concern of mine.”

“Please keep this service going. Very useful to many commuters.”

“I’m a fan and recommended the service to friends who don’t want to buy a second car just to get to the station”

“I really like the service primarily for the price”

“Saves me a long walk to the station”

RideCo: Dynamic route on-demand van service for Metrolinx
Positive feedback from stakeholders at Milton Transit and Metrolinx

Milton Transit reaction

“I believe we were able to demonstrate that there’s a demand for this type of public transportation solution and that partnerships, like the one formed for this project, are viable solutions that need to be explored for all services.”

“We had a gap in our services, and we thought this was an innovative approach to fill that gap.”

“A cost effective way to increase service... and solve parking lot congestion issues.”

Metrolinx reaction

“An attractive customer option for station access. 45 per cent of riders switched from automobile use to personalized transit. 7 per cent are net new riders to Metrolinx.”

“The GO-Connect pilot...was well received and demonstrated this sort of solution shows promise for ‘first-mile/last mile’ options at transit stations and to potentially offset demand for parking.”

“We are hoping to explore this kind of solution in Milton and across the entire network.”
Metrolinx and Milton Transit learned the "first mile–last mile" challenge can be addressed cost effectively with a quick ramp-up period using microtransit. The unique RideCo solution helped to alleviate congestion at station parking lots, offered commuters a flexible and easy to use alternative to driving, and seamlessly integrated with the municipal transit system.

Riders enjoyed the convenience of the service and enjoyed the ability to either book in real-time or in advance. While one option was to use a website to book the ride, the RideCo app was far more popular and rated highly on app stores. The mobile experience was seamless and very easy for riders to use. The RideCo app was adapted to suit the specific needs of Metrolinx and Milton Transit. It can easily be tailored to meet the needs of other municipalities and rail operators.

The vehicle routing efficiency and seamless sharing of rides resulted in 85 per cent of RideCo trips being shared, with majority of these trips having 3 or more passengers in the vehicle. This was accomplished in a low population density residential area within months of launching the service. Rider satisfaction with the RideCo solution was at almost 90 per cent. Rider feedback such as "it's fantastic" and "amazing service" described their experience and enjoyed it so much there was concern it could come to an end at some point. By ensuring a positive customer experience with RideCo driver training and support, municipalities can provide a better overall experience to their riders.

The net cost per ride of $5.71 for the microtransit pilot versus $7.28 for the municipal bus means that flexible and convenient micro-transit solutions can save municipalities money in the short and long term. At a larger scale, with three times the ridership, the savings using RideCo are even more dramatic, at a net cost per ride of $3.64 which is half that of the municipal fixed-route bus in low and medium population density areas.

While 13,000+ rides were taken during the length of the pilot, the RideCo solution scales easily to larger municipalities and much higher daily ridership. Instead of spending additional budget to address the first-mile and last-mile issue themselves, municipalities and rail operators can choose a more cost effective, rider-friendly alternative – RideCo.
Endnotes

2. Toronto Star. “Share of Torontonians taking public transit is on the rise, while reliance on cars declines.” November 29, 2017