



# INFORMATION REPORT

<b>TO:</b>	Mayor and Members Public Works Committee
<b>COMMITTEE DATE:</b>	April 22, 2022
<b>SUBJECT/REPORT NO:</b>	myRide Waterdown On-Demand Transit Pilot Six-Month Review (PW22024) (Ward 15)
<b>WARD(S) AFFECTED:</b>	Ward 15
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<b>SIGNATURE:</b>	

## COUNCIL DIRECTION

N/A

## INFORMATION

### BACKGROUND:

The purpose of Report PW22024 is to provide Committee with an interim update on the Hamilton Street Railway's (HSR) Waterdown myRide on-demand transit pilot at the six-month operational milestone, and to identify the next steps for the remainder of the pilot.

Waterdown was selected for the on-demand pilot because it has a variety of characteristics and challenges that are difficult to solve with a conventional fixed route transit service model based on its recent notable residential and commercial growth in different regions throughout the urban area. Within these growth areas, the needs of many community members were not being met with the conventional transit service that was available prior to the pilot, specifically the growing business and commercial areas. Through the (Re)Envision project, Transit staff, along with staff from Economic

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OUR Vision: To be the best place to raise a child and age successfully.

OUR Mission: To provide high quality cost conscious public services that contribute to a healthy, safe and prosperous community, in a sustainable manner.

OUR Culture: Collective Ownership, Steadfast Integrity, Courageous Change, Sensational Service, Engaged Empowered Employees.

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Development and the Ward 15 Councillor, consulted with Waterdown businesses and noted the challenges that they experienced with recruiting and retaining staff because of limited transportation options available to them.

Expanding transit service to meet these and other growth needs through a conventional service model would require significant investment; however, given historically low transit ridership within this community, the investment could not be justified based on the Council approved transit service standards. Further, the investment would not align with Council priorities for Fiscal Health and Financial Management, Trust and Confidence in City Government or Climate Change. That said, not finding a solution to meet the needs of the community would not align to other Council priorities for Multi-Modal Transportation or Integrated Growth and Development.

Transit staff determined that the combination of these and other factors made Waterdown an excellent choice to explore an alternative transit delivery model and to test the feasibility of using new technologies to support transit service operations. Embedded in the (Re)envision Guiding Principles as tools for planning and service improvements, this pilot project was approved at the City of Hamilton's (City) General Issues Committee on January 22, 2021. Tying the Guiding Principles and the Ten-Year Local Transit Strategy together, staff identified a pilot to improve service, grow ridership and embrace innovation. These are key elements in making transit a first choice in Hamilton.

In January 2021, the Transit Division engaged in a knowledge-building and procurement process for an on-demand Software as a Service (SaaS) product with an implementation target of September 7, 2021 to coincide with the start of the 2021 Fall service board period. An industry scan of service offerings and on-demand transit system designs was accomplished through a Request for Information (RFI) which subsequently provided the framework for the on-demand SaaS Request for Proposal (RFP). Following an extensive review of RFP submissions by a diverse team of subject matter experts, Spare Labs was announced as the successful vendor for the City's on-demand pilot on July 7, 2021.

Over the next 2 months, development of the on-demand pilot continued with the system design of the on-demand platform, implementation of technology, marketing and education campaigns for customers, training for HSR Operators and Staff, set up of a customer phone-in booking system and eventually bringing that work to the City's Customer Contact Centre.

The on-demand pilot successfully launched on September 7, 2021 with HSR's Route 18 Waterdown changing to an on-demand service called HSR myRide. This on-demand model is a "stop to stop" service that dynamically adjusts the route of the bus as customers request to be picked up. The goal of myRide is to improve the customer

experience through more direct trips, quicker journeys and shorter wait times; while making their trip as efficient as possible.

HSR myRide is available for travel to and from designated bus stops within the Waterdown area, connecting to Burlington Transit bus routes and Aldershot GO Station, improving regional connectivity and travel choices.

This report contains a six-month evaluation of the Waterdown myRide on-demand transit program. It provides insight into the system design, its operation, benefits and lessons learned as well as the customer experience.

#### ON-DEMAND TRANSIT SYSTEM DESIGN:

The myRide on-demand service was developed to mimic the operating hours of the former Route 18 Waterdown. The service operates Monday to Saturday with the same service span on weekdays between 5 a.m. to 7:30 p.m. and 8:30 a.m. to 7:30 p.m. on Saturdays. There is no service offering on Sundays.

Route 18 operated on a bi-direction rotation, alternating between trips using a clockwise routing and trips using a counter-clockwise routing. Each directional rotation provided for a 30-minute frequency between buses in the given direction. The trunk line along Waterdown Road between Aldershot GO/Plains Road and Dundas Street, saw a higher frequency of approximately 15 minutes.

The footprint of Route 18 covered Parkside Drive to the north, the Walmart/Canadian Tire plazas west of Hollybush in the west, Spring Creek Drive in the east and Plains Road in the south. Through the application of the on-demand transit model, access to transit has been expanded to include the commercial/industrial lands and the Harry Howell Arena west of Highway 6, easterly towards Evans Road, southerly to include the new development areas south of Dundas Street and the residential developments north of Parkside Drive. The area serviced by transit has grown from 11km<sup>2</sup> to 16km<sup>2</sup>, a 45% increase in coverage area. Through this coverage area expansion, the overall service standard for system wide coverage has improved. A comparison of the conventional vs. myRide service area is included in Appendix "A" – Figure 1 attached to Report PW22024.

During the early stages of program development, Staff completed a road network validation to identify the streets within Waterdown that could be used for the on-demand transit pilot. This involved driving the Vicinity bus (30 feet) on the selected streets to test for accessibility and ease of manoeuvring in the early morning when the demand for on-street parking was at its peak. Streets were selected for the on-demand road network

only if they could provide access and manoeuvring for the transit vehicle. The following is a list of some considerations that were assessed:

- Sufficient pavement width;
- Side friction caused by on-street parking or traffic calming measures;
- Curves or bends in the road that make manoeuvring a bus difficult;
- Grade or elevation changes that could pose a challenge for the transit vehicle;
- Turning radiuses at intersections and clearances;
- All of the above conditions with consideration for inclement winter weather; and
- Destinations that are off of public right-of-way (private property, unassumed roads in new construction areas).

Only streets that met all these criteria were deemed to be suitable for the on-demand pilot. A map highlighting the final on-demand road network is included in Appendix “A” - Figure 2 attached to Report PW22024.

Completing the road network validation has allowed for the combination of testing of new technology, and to leverage the continued use of existing buses already in operation in the City’s transit system. Within the myRide pilot, the HSR has re-dedicated three 30-foot Vicinity buses to service the Waterdown area, a reduction of one peak and off-peak bus from the four that were previously required on Route 18 on weekdays and 2 buses from the four that were previously required on Route 18 on Saturdays.

While the number of buses required to deliver myRide has remained relatively constant through the first 6 months of the myRide pilot, ridership growth from September to November was being realized up to a point where a fourth peak bus was being considered to support the increasing demand during morning and afternoon peak periods in November. However, due to COVID developments late in 2021, the additional peak bus was dispatched only when operationally feasible. During February and the early part of March, ridership trends have shown that they are beginning to recover to pre-Omicron levels.

Waterdown Route 18 had 71 conventional bus stops along its route. An additional 80 new virtual stops were introduced to the myRide service area to provide customers with greater access to key destinations in Waterdown with a significantly shorter walking distance when compared to the former fixed route service. A map of myRide conventional and virtual bus stops is included in Appendix “A” – Figure 3 attached to Report PW22024.

Ensuring a change of this magnitude was embraced, communicating early and often was key. The myRide project team implemented several tactics including:

- Creation of a dedicated webpage [www.hamilton.ca/hsrmyride](http://www.hamilton.ca/hsrmyride) that housed the most up-to-date information and serves as the main point of information for customers, City's contact centre representatives, and HSR's customer service representatives.
- Investing in comprehensive staff training.
- Direct communication with over 300 businesses (including major new employers), the municipal service centre, the library, Harry Howell Arena, Chamber of Commerce, primary/secondary schools, day cares, retail stores, fast food restaurants, grocery/big box stores, nearby long-term care and seniors' residences, and community groups located in Waterdown. Communication was in the form of an information letter highlighting the service changes and myRide program, plus a personal site visit to explain the program and provide printed posters and hand-outs for distribution.
- Materials shared through the Councillor's office.
- Advertisements and promotions on traditional print media, digital media, and social media channels.
- Signage posted at all 71 existing stops.
- One week of in-person, on-board orientation provided during the launch week to engage with customers and assist with the transition to the new model.

#### ON-DEMAND OPERATIONS (HOW IT WORKS) AND CUSTOMER EXPERIENCE:

##### myRide Customer Trips

One of the many benefits of an on-demand transit system is the ability to capture and examine trip data at a much deeper level. This data is then used to operate and enhance the on-demand service through customer experience while maintaining efficiency. It is also a valuable tool to help build an understanding of how a community uses transit.

A review of the specific origin and destination data from the first 6 months of the myRide pilot provides us with the following insights:

- The purpose for transit trips in Waterdown is evenly split between Employment/Commerce, Interregional Connectivity and Residential needs. (Appendix "B" – Figure 1 attached to Report PW22024)

- The demand for transit trips is greater for commercial uses, connections to Burlington, to/from home and to Go Transit. The lowest demand is from dwellings along Waterdown Road and industrial land uses. (Appendix “B” – Figure 2 attached to Report PW22024)
- Most trips utilize the former Route 18 fixed route stops, with 18% of trips using new virtual bus stops. Only 0.5% of trips are Flag Down. A Flag Down trip occurs when a customer, who has not booked a trip, waves down the bus and requests a ride.
- Details about each specific land use vs. bus stop utilization (existing, virtual, flag down is available in Appendix “B” – Figures 3 to10 attached to Report PW22024)

### myRide On-Time Performance

On-demand differs from conventional transit in that there is no fixed route or schedule, and buses are dispatched on a request type basis. For a conventional HSR transit route, the on-time performance measures are set such that a bus is deemed to be on-time if it arrives at a stop within a window that is no more than 2 minutes early or 5 minutes late of the advertised departure time. In the on-demand model, on-time performance is also measured within a 7-minute window; however, there are different levels of flexibility depending on the method that a customer chooses to book their trip. The first of the three choices are leave now which is a live on-demand trip. With this type of trip booking, the algorithm will attempt to find the quickest trip option, and the system continuously looks for a solution to pick the customer up in the least amount of time. If a pickup time becomes available that is better than what the customer was originally offered, then the myRide app will notify the customer of the time change.

The second trip type is an arrive by trip booking. This booking method allows the customer to select the time that they would like to arrive at their destination and the algorithm will assign the appropriate pickup time.

The third booking option is leave at. This booking method accepts bookings up to two days in advance and is commonly used by daily customers who complete routine trips, such as repetitive commuting trips, or by those who rely on the Customer Contact Centre to manually book their trip.

On-time performance is a valuable indicator of customer experience in a conventional service model but is one of the more challenging adjustments for customers transitioning from a conventional to an on-demand transit model. This is because there is no route or schedule to follow and timing of trip departures is dynamically adjusted. The on-time performance for departures in the conventional Route 18 service was 85.2%, under pre-COVID conditions, schedule adherence was at 88.1% under COVID

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conditions and myRide on-time performance is at 94.3%. This example is presented in a graph format in Appendix “C” – Figure 1 attached to Report PW22024.

#### myRide Ridership

Waterdown Route 18 has traditionally not achieved the HSR’s current weekday productivity standards of 25 boardings per hour in peak periods and 15 boardings per hour during off-peaks. The conventional service saw an average of 7 boardings (28%) per bus per hour during the peak periods under pre-COVID conditions and about 3-4 boardings (16%) per bus per hour under COVID conditions. The myRide service is seeing the same 3-4 boardings per bus per hour. This example is presented in a graph format in Appendix “D” – Figure 1 attached to Report PW22024.

The Saturday productivity standard is 15 boardings per hours and again the conventional and myRide demand does not achieve that target. The conventional service saw an average of 4 (27%) boardings per bus per hour throughout the day under pre-COVID conditions and about 2-3 (20%) boardings per bus per hour under COVID conditions. The myRide service is consistent with 2-3 boardings per bus per hour. This example is presented in a graph format in Appendix “D” – Figure 2 attached to Report PW22024.

Average transit boardings represent an indicator of trends in transit ridership. A boarding is an unlinked passenger trip, which counts a passenger each time they board a bus, regardless of how many buses they use to travel from their origin to their destination. On a conventional bus service like Waterdown Route 18, these are based on samples of trips measured by automatic passenger counters and in an on-demand model, this data is collected from individual passenger trip bookings.

A comparison of the average passenger boardings during revenue service (when vehicles are available to carry passengers), showed comparable ridership trends between Route 18 and the myRide on-demand service. Route 18 had 5.3 boardings per revenue service hour (pRSH) pre-COVID and 3.41 boardings (pRSH) under COVID conditions. myRide on-demand observed 3.00 boardings (pRSH) under COVID conditions. It is difficult to assess the direct impact that the 2021/22 December Holiday closures and subsequent Omicron prevention efforts had on ridership during this time. This example is presented in a graph format in Appendix “D” – Figure 3 attached to Report PW22024.

There are currently 1,793 registered participants (via phone or mobile app) and approximately 557 active myRide customers. 778 unique customers have tried the service at least once since its inception. Based on the customer satisfaction feedback through the in-app ratings, the myRide service is receiving a 90% satisfaction rating.

myRide Key Performance Index's (KPI's)

One of the key emerging benefits of on-demand transit is the reduction in greenhouse gas emissions while providing the residents living in lower density communities an alternative mobility option that is flexible and convenient. Not only does the on-demand service itself require less kilometres to be driven to provide a comparable level of service with fewer vehicles in a 45% larger service coverage area, but it also provides an alternative to vehicle travel.

For this six-month review, seven of the main KPI's were used to show the comparison between the conventional service pre-COVID, conventional service during COVID times and myRide During COVID times. These are detailed below:

Total Service Kilometres is the measure for the total distance that buses travelled to deliver the transit service. During the same six-month period in 2019-20 (pre-COVID) HSR buses travelled 236,370km in Waterdown. In 2020-21 (COVID), the milage had dropped by 12% to 208,507km and with myRide in 2021-22, the service kilometres were reduced by 45% to 114,277km., a substantial savings given the similar ridership during the two COVID periods. This example is presented in a graph format in Appendix "E" – Figure 1 attached to Report PW22024.

Total Revenue Kilometres is the measure for the distance that buses travelled while being in-service and capable of carrying passengers. During the same six-month period in 2019-20 (pre-COVID) HSR buses travelled 214,251km in Waterdown. In 2020-21 (COVID), the mileage had dropped by 14% to 184,706km and with myRide in 2021-22, the service kilometres were reduced by 46% to 100,389km. A substantial savings with similar ridership during the two COVID periods. This example is presented in a graph format in Appendix "E" – Figure 2 attached to Report PW22024.

Total Service Hours is the measure for the total time that buses travelled to deliver the transit service. During the same six-month period in 2019-20 (pre-COVID), 9,404 service hours were required by the conventional transit service. In 2020-21 (COVID), service hours were reduced by 13% to 8,162 and subsequently by another 22% to 6,358 with myRide in 2021-22, as a result of fewer buses required for the on-demand service. This example is presented in a graph format in Appendix "E" – Figure 3 attached to Report PW22024.

Total Revenue Service Hours is the measure for the total time that buses are in-service and capable of carrying passengers. During the same six-month time period in 2019-20 (pre-COVID), 7,289 service hours were required by the conventional transit service. In 2020-21 (COVID), service hours were reduced by 14% to 6,275 and subsequently by another 25% to 4,709 with myRide in 2021-22, as a result of fewer buses required for



the on-demand service. This example is presented in a graph format in Appendix “E” – Figure 4 attached to Report PW22024.

**Operating Costs** The cost to operate the myRide on-demand pilot for the first six-months is \$712,795. This cost is inclusive of all sunk costs of software licensing, promotional materials, training etc. Operating a conventional service during the same six-month time period in 2019-20 (pre-COVID) cost \$1,014,931 and in 2020-21 (COVID) \$880,968. This example is presented in a graph format in Appendix “E” – Figure 7 attached to Report PW22024.

**FTE** The number of Full Time Employees (FTE) required to operate transit in Waterdown was reduced by 25% from 11 FTE’s to 7 FTE’s. This example is presented in a graph format in Appendix “E” – Figure 6 attached to Report PW22024.

**Bus Allocation** The total bus allocation was reduced from 4 buses required to operate the conventional Route 18 Service to 3 buses for myRide with an occasional 4<sup>th</sup> bus being added for those times when peak demand requires additional capacity. This example is presented in a graph format in Appendix “E” – Figure 5 attached to Report PW22024.

An extensive list of additional KPI’s and service performance metrics are provided in Appendix “E” – Tables 1 through 5 attached to Report PW22024.

#### LESSONS LEARNED AND THE UNEXPECTED:

The on-demand transit platform provides the HSR with a level of trip detail that staff have never had before. Staff can easily gain insights from trip data that provides us with a good understanding of customer needs. Staff also receive ongoing feedback through the myRide app and through communication with the Customer Contact Centre. This provides the ability to receive, assess, and address customer feedback and complaints quickly because of operational flexibility. Changes to conventional transit require months of preparation, programming and implementation. Operational changes to enhance or improve on-demand transit can be done on-the-fly as long as the appropriate resources are available to do so.

The new on-demand model is a significant shift from the familiar fixed route approach and there was a learning curve for both staff and customers, with time required to adapt to the changes. Further, a significant amount of customer education needs to be done to avoid customer confusion in the early adoption phase. This came with a significant educational piece for everyone.

A common misconception for a customer transitioning from a conventional bus service to on-demand transit is that it operates like Uber or Lyft where a customer is picked up

and dropped off exclusively in a single trip, where the intent of public on-demand transit is to pool customer trips with similar origins and destinations. This means that the bus may deviate from the most direct route for one passenger to pick up another, who is heading in a similar direction.

Another key learning is the challenge associated with the rightsizing of vehicles for the service. Since on-demand transit solutions are typically deployed in areas with lower ridership, smaller vehicles, with a 12-to-15 person seating capacity are traditionally used. These vehicles tend to provide more flexibility with navigation on narrower residential streets and in some cases accommodate a door-to-door on-demand transit offering which provides better access to transit for those with disabilities. Future deployments of on-demand transit in Hamilton should consider the right sizing of vehicles for the specific use, including procuring vehicles at a smaller size than is currently in the fleet mix.

Most of the myRide customers are satisfied with the service; however, staff have noted that there is a specific trip travel path which would require an increased need for customers to adapt to the on-demand service model. A common travel path on the fixed route service was to/from Aldershot Go or Burlington, straight up Waterdown Road and finish their trip at Dundas Street at the top of the escarpment, with service every 15 minutes. This is a regularly requested trip that now needs to be booked by the customer. Favourably, the software does allow for routine bookings for regular trips of this nature.

#### Provincial Support and Study of On-Demand Transit:

In the fall of 2020, funding had become available from the Federal and Provincial governments to make public transit more accessible and convenient through the Safe Restart Agreement. Under this agreement, 50% of the cost for approved new initiatives that made transit more accessible or affordable could be subsidised through the \$2 billion in funding available to Canadian municipalities. The Waterdown myRide on-demand transit pilot has leveraged this opportunity to fund a portion of the upfront costs of the pilot.

HSR is monitoring the myRide on-demand service, listening to customer feedback and applying changes whenever possible to enhance the customer experience. The following is a list of objectives to accomplish during the remainder of the pilot through continuous evaluation and innovation:

- A virtual stop utilization assessment (removal of unused stops and addition of new stops in anticipated growth areas).

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- Assessment of an on-demand hybrid model with a more robust and predictable connection to Aldershot GO and Burlington Transit during peak demand periods.
- Enhancements to the customer-app in both functionality and notifications about trip specific information.
- Improved communication about trip details for the customer.
- Proceed with an additional pilot period to test the unrealized flexibility of on-demand transit during significant construction projects on Parkside Drive and Waterdown Road, during which the operation of conventional transit would be significantly impacted and explore the potential of hybrid on-demand modelling for this purpose.
- Begin exploring the potential to deploy on-demand transit in areas of the City that traditionally experience low ridership demand on existing fixed routes or in areas that do not have access to transit.
- Report back with a full year evaluation and recommendation regarding other potential uses during the 2023 Budget Presentation.

**APPENDICES AND SCHEDULES ATTACHED**

Appendix “A” to Report PW22024 – myRide Maps (system design)

Appendix “B” to Report PW22024 – Summary of myRide OD Data – First 6 months

Appendix “C” to Report PW22024 – Summary of myRide Performance Data – First 6  
Months

Appendix “D” to Report PW22024 – Summary of myRide Demand Data – First 6  
Months

Appendix “E” to Report PW22024 – Summary of myRide Service Data – First 6 Months