CITY OF HAMILTON
PUBLIC WORKS DEPARTMENT
Transit Division

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	April 3, 2023
SUBJECT/REPORT NO:	myRide Waterdown On-Demand Pilot Review (PW23023) (Ward 15)
WARD(S) AFFECTED:	Ward 15
PREPARED BY:	Jason Vander Heide (905) 546-2424 Ext. 2390
SUBMITTED BY: **SIGNATURE:**	Maureen Cosyn Heath Director, Transit Public Works Department 

RECOMMENDATIONS

(a) That myRide Waterdown on-demand pilot that commenced on September 7, 2021, be considered complete;

(b) That the hybrid transit service, introduced on November 7, 2022 and currently operating as a combination of fixed route service and myRide on-demand service, continue to operate as the recommended transit solution for Waterdown; and

(c) That the General Manager, Public Works or designate, be directed to incorporate any future changes to service in Waterdown or any future introductions of on-demand service into the Transit growth plan recommendations.

EXECUTIVE SUMMARY

This report is the final overview of the Hamilton Street Railway's (HSR) review of the Waterdown myRide on-demand transit pilot after the full year of operation, post period changes, and recommendations for the continuation of the current transit service solution in Waterdown, as well as potential applicability for other on-demand services elsewhere in Hamilton's urban transit area.

Alternatives for Consideration – See Page 11

FINANCIAL – STAFFING – LEGAL IMPLICATIONS

Financial: N/A

Staffing: N/A

Legal: N/A

HISTORICAL BACKGROUND

In September 2021, the myRide Waterdown on-demand pilot was launched to test a Software as a Service (SaaS) product that would allow existing HSR resources to be leveraged to provide a different type of service solution than had been provided in Hamilton previously.

The on-demand model is a “stop to stop” service that dynamically adjusts the route of the bus as customers request to be picked up rather than the traditional model of service where a customer waits at a bus stop for the next bus to pass based on a fixed schedule.

The goal of myRide was to improve the customer experience through more direct trips, quicker journeys, and shorter wait times, while making their trip as efficient as possible.

Key performance indicators (KPI’s) were measured and compared to the pre-pilot period of traditional service throughout the pilot. These KPI’s were: ridership, total kilometres driven, total hours of operation, coverage area, operating costs, service performance, and resource requirements of each service model. Additionally, the pilot review considers the voice of customer through feedback provided throughout as well as lessons learned and data analysis from pre-launch through launch, implementation, and operation of the one-year period.

On April 22, 2022, an Information Report (PW22024) was provided to Committee as a review of the first 6 months of the pilot. In this review, staff identified a list of objectives to accomplish during the remainder of the pilot to continue to improve the transit service in Waterdown. These objectives included:

- A virtual stop utilization assessment (removal of unused stops and addition of new stops in anticipated growth areas);
- 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;
- Proceeding 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;
- Beginning to explore 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; and
- Reporting back with a full year evaluation and recommendations in 2023.

During the second 6-month assessment and review of the pilot and based on extensive service analysis in combination with customer feedback, the previously anticipated need to re-think the fully on-demand service model and look for ways to provide a more robust and predictable connection to Aldershot GO and to Burlington Transit during all time periods was supported. It was clear that the myRide on-demand service could not operationally provide the desired outcome of good, connected service to interregional and neighbouring transit service and that a modification was needed; however, the myRide on-demand data proved to be invaluable and played a crucial role in identifying the best case for re-introducing a fixed route to operate in combination with the myRide on-demand service as a hybrid service delivery model. This new service model better meets the transportation needs of this diverse and growing community, while retaining some of the benefits that myRide on-demand provided that a fully fixed route service could not.

On October 18, 2022, a Communication Update (TRN2202) informed Committee of the intention to launch this new hybrid service on November 7, 2022. The hybrid service went into operation on the identified date as planned and has been operating successfully as a balanced solution up until the time of this report.

Service models in each scenario remained consistent with the pre-pilot service spans to operate 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 on Sundays.

POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS

N/A

RELEVANT CONSULTATION

Prior to the pilot and through the early stages of the (Re)envision project, staff from both the Transit and Economic Development divisions along with 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.

Throughout the pilot, staff have continued to engage and consult with customers, employers, and the Ward 15 Councillor's office to identify and operate the "best transit fit" for the Waterdown community.

Customers have been provided an opportunity to provide feedback on the myRide on-demand pilot through the service app., through our customer contact center, through the Ward 15 Councillor office and through surveys both during the early days of the pilot and again after the hybrid service model was introduced.

ANALYSIS AND RATIONALE FOR RECOMMENDATION

Ridership

Transit ridership in Waterdown as a community has been historically low. As it relates to the Council approved service standard for productivity ridership on service provided to the community, it never met the minimum standard to justify further investment in service.

An objective of this pilot was to assess whether a change to the service model could stimulate more transit use to recover ridership in the near to mid-term and grow ridership in the long term. As evidenced in data collected from prior to the pilot, throughout the pilot and during the post pilot and hybrid periods, this objective has not been realized.

Figures 1 and 2 of Appendix "A" attached to report PW23023 show ridership levels as they compare to the Council approved service standard for productivity and as they relate to the average boarding per revenue service hour during the various time periods.

Coverage Area

During the pre-pilot consultation efforts between staff, the Ward 15 Councillor, and employers, it was identified that transit service was not being provided in the western portion of the community where new and expanding business areas were being developed. There were also areas of growth in the town centre and on the eastern portion of the community that were not within 400m of transit during weekday peaks,

leaving parts of the community falling short of contributing to the overall measurement of the Council approved service standard for coverage.

An objective of this pilot was to find a way to deliver service to these areas, while remaining cost neutral, given that transit ridership has been historically low in Waterdown. Given that the myRide on-demand service is dynamically routed based on individual customer needs rather than following a traditional fixed route model, a greater coverage area could be established with the same, or less, resource requirements to achieve a similar result.

As evidenced in figure 3 of Appendix "A" attached to report PW23023, the service coverage area increased from 11 square kms prior to the pilot to 16 square kms throughout the pilot and during the post pilot and hybrid periods.

While there has not been a boom of new ridership in the new service areas, there were 3,532 trips originating from or destined for these areas throughout the pilot. Therefore, staff are recommending continuing to provide service into these new areas through the continuation of the hybrid service model.

Total Operating Kilometres

The total number of kilometres operated by a service is a key indicator in the efficiency of the service provided. In combination with historically low ridership prior to the pilot, many kilometres driven were either empty or underutilized. As a result, fuel and carbon emissions are being used or generated unnecessarily.

An objective of this pilot was to find a way to deliver service in a more efficient manner and to reduce the number of operating kilometres being driven through the dynamically routed service as compared to a traditional fixed route service. As evidenced in figure 4 of Appendix "A" attached to report PW23023, and despite having increased the service coverage area by 45%, there was marked reduction in total operating kilometres throughout the pilot and during the post pilot and hybrid periods, resulting in operational efficiencies.

Total Operating Hours

The total number of hours operated by a service is the key driver of total operating costs. Total operating hours are determined by how long a single bus is on the road from the time it departs the transit garage until the time it returns to the transit garage, inclusive of the time to get to and from the route location (non-revenue time) and the time driven in service (revenue time), multiplied by the total number of buses on route needed to provide the desired service level.

An objective of this pilot was to assess whether a change to the service model could result in a reduction in the number of total operating hours given that service might be able to be delivered more efficiently.

As evidenced in figure 5 of Appendix "A" attached to report PW23023, there was a marked decrease in total operating hours during the pilot; however, during the post pilot period when there was a subtle increase in demand, performance of the exclusively on-demand model suffered to the point that additional resources comparable to the pre-pilot service levels were being considered and which would have negated most, if not all, of any decrease in total operating hours experienced during the pilot period.

During the hybrid period and with demand returning, total operating hours are returning closer to the pre-pilot operating hours. Accordingly, staff concluded that on-demand, while suitable in a small-scale situation, it is largely susceptible to being influenced by demand and as such, is more suitable to be operated in combination to complement fixed route service rather than being scaled up to meet demand levels while maintaining performance. Staff have also concluded there should be no expectation that an exclusively on-demand model will reduce total operating hours long term, but could be used as a service in a new area that has not previously had fixed route to keep total operating hours lower at the beginning before introducing fixed route service.

Total Operating Costs

Total operating costs are determined by the number of hours operated by all buses on route needed to provide a desired level of service multiplied by a cost per hour to operate, inclusive of vehicle and staffing costs.

An objective of this pilot was to assess whether a change to the service model could result in a reduction in the total operating costs of the service given that service might be able to be delivered more efficiently and with fewer resource requirements.

As evidenced in figure 6 of Appendix "A" attached to report PW23023, there was a marked decrease in total operating costs during the pilot and post pilot periods, despite having a slightly increased cost per hour due to the inclusion of the licensing fee for the SaaS use and some upfront costs related to telephone reservations, as well as some upfront capital costs for tablets and tablet mounts on the buses.

However, as demand has been subtly increasing and the hybrid model was introduced requiring a return to the same resource level as was in place prior to the pilot, the gap between the pre-pilot total operating cost and the current model total operating costs is narrowing. Retaining the current hybrid model is expected to remain cost neutral when compared to the pre-pilot service period.

Based on the analysis, staff have concluded that an exclusively on-demand service is largely susceptible to fluctuating costs due to changes in demand, and as such it is more suitable to be operated in combination to complement fixed route service rather than being scaled up to meet demand levels while maintaining performance. Staff have also concluded there should be no expectation that an exclusively on-demand service will reduce total operating hours long term but could be used as a service in a new area that has not previously had fixed route to keep total operating costs lower at the beginning before introducing fixed route service.

Service Performance

How a service performs is a key indicator of what the customer experience and satisfaction with the service will be, which inevitably can impact whether more or less people decide to use the service.

An objective of this pilot was to assess whether a change to the service model could improve service performance.

As evidenced in figure 7 of Appendix “A” attached to report PW23023, there was a marked increase in the on-time performance, as measured based on advertised departure time throughout the pilot, post pilot and hybrid periods compared to the pre-pilot period. However, there was a noted drop in performance during the post pilot period and prior to the hybrid service being introduced as demand subtly started to pick up in September 2022. Additionally, in figure 7 of Appendix “A” attached to report PW23023, a comparison of the average wait time in minutes for service shows the benefits of reduced wait times provided by an on-demand service versus a fixed route service, and how in the post pilot period wait times increased when subtle increases in demand occurred. The introduction of the hybrid model restored improved wait times for customers using the on-demand portion of service while balancing the predictability of wait times for customers using the fixed route portion of service.

Based on the analysis, staff have concluded that an exclusively on-demand service is largely susceptible to fluctuating performance due to changes in demand, and without adding resources to compensate for said increases, the overall performance of the service will suffer long term. As such, staff have concluded that exclusive on-demand service is more suitable to be operated in combination to complement fixed route service rather than being scaled up to meet demand levels while finding a balance in maintaining performance and overall operating costs.

Resource Requirements

The number of resources, vehicles, operators and supporting staff, required to deliver service is a key driver of overall costs to deliver a service.

An objective of this pilot was to assess whether a change to the service model could result in fewer resource requirements to deliver the service which would result in a reduction in the total operating costs of the service given that service might be able to be delivered more efficiently.

As evidenced in figure 8 of Appendix "A" attached to report PW23023, there was a marked decrease in the resources required to deliver the revenue portion of the service; however, an exclusively on-demand service does require less obvious operational changes in resources than is shown within figure 8. There were 3 key takeaways from the pilot as they relate to the less obvious operational changes in resources.

Firstly, given that service is not running on a fixed route and the schedule is being dictated in real time and dynamically based on individual customer needs, there is a requirement to overlap buses and operators for short durations throughout the day while one operator is starting their shift, and another is ending their shift. This results in a phenomenon not experienced with fixed route service where in this case during the pilot period there were 3 buses in revenue service and 3 buses in non-revenue service at the same time to complete this transition and continue to maintain bus availability to customers. While the overall costs and hours are contemplated into their respective comparisons, this does cause a nuanced increase in the non-revenue portion of the overall hours when compared to the pre-pilot period.

Secondly, given that service is operated differently and booked differently than traditional transit service, there is a need for some extra monitoring by Operations Supervision as well as some extra booking duties by Customer Service representatives for those bookings not done in the service app. In both cases, the myRide pilot was small enough to not require additional staff to perform these duties; however, staff have concluded that scaling the service up into new areas will require additional supporting staff to manage the monitoring and bookings for on-demand service.

Lastly, when using a dynamic routing model and to maximize use of a local street network, small vehicles must be used. In the case of the myRide pilot, existing smaller 30-foot buses have been used to operate the service. Staff have concluded that scaling the service up into new areas will require a review of smaller vehicle types that can navigate neighbourhoods in all weather conditions, so service is more of a door to door/stop service rather than a stop to stop service.

Customer Feedback

Customer satisfaction is a key indicator as to how a service is performing, whether it is fitting the needs of the community, and if the service has the potential to attract new customers.

An objective of this pilot was to assess how a change to the service model would impact existing customers, benefit potential customers, and attract new customers.

Customers have been provided an opportunity to provide feedback on the myRide on-demand pilot through the service app, through our customer contact center, through the Councillor office and through surveys both during the early days of the pilot, throughout the pilot period, and again after the hybrid service model was introduced.

As evidenced in figure 9 of Appendix "A" attached to report PW23023, there has been considerable feedback from customers providing both positive and negative feedback on the pilot and hybrid service models both from a design and delivery perspective.

From the feedback received, sentiment related to the service model design has been mixed with some customers favouring the predictability of a traditional service model and some customers being more attracted to the conveniences of an on-demand model. There is a strong indication in the short period of operation that most customers are in favour of the hybrid model over either of the other models as a service that provides the best of both worlds and customer feedback in general has provided an indication that customers would like to see service span increased to later evening and Sundays.

Transit conducted a 25-question survey in Winter 2023 to assess customer sentiment towards the myRide on-demand service and the change to the hybrid service model that was launched in November 2022. There were over 500 respondents to the survey with general sentiment favouring positive responses to the questions about each service model. A few key takeaways from the feedback received in the survey were:

- Of customers using the myRide on-demand service:
    - 96% of respondents had access to a mobile device with cellular or data.
    - 68% of respondents were satisfied with the wait times for the service.
    - 73% of respondents were satisfied with the directness of their trips.

- Of customers using the fixed route portion of the hybrid service:
    - 42% of respondents were challenged by the lack of ease in connecting to Burlington Transit, while 77% of respondents found it easy to connect with GO Transit.
    - 64% overall satisfied with the service, but customers transferring from myRide to fixed route were finding this challenging and would like to see improvements in the connections between service models.

Conclusion

The testing of a Software as a Service (SaaS) to support an on-demand service model has resulted in several benefits and lessons learned. It provided sufficient information to drive data-based decision-making based on where transit customers in Waterdown are travelling to and from, to inform the change to the hybrid service model currently in operation. It has shown potential benefits as they relate to how much resourcing and investment is required to meet the demand of a specific area, and specifically what type of resourcing might be needed to introduce a new service at a lower cost than what would be required to do the same with a traditional fixed route service. It has also benefited customers who value shorter, more direct trips that are personalized to their travel needs while providing more access to transit in general in this community.

However, staff have concluded that while on-demand service has many benefits and is a valuable addition to the family of transit services that a municipality can offer residents, it is not a one size fits all solution. During the pilot, staff determined that on-demand service has potential for success in suburban areas where there currently is not good access to fixed route service, where demand is relatively low, where the geographic area or zone in which it operates is small, and where it can connect to a complimentary fixed route service to take advantage of the economies of scale that exist within a larger group of customers taking one vehicle to a common destination.

It has also been concluded that on-demand service has limitations wherein it is largely susceptible to fluctuating costs and performance resulting from changes in demand. In essence, over the long term, if successful in attracting new transit customers, on-demand service would become a victim of its own success, whereby more resources might be required to fulfil individual trip demand than would be required to provide a fixed route service to many people using it all at once. The threshold to trigger this is likely to be less than the traditional service standard for productivity, which is currently used to justify investments.

Potential future use cases for on-demand service in Hamilton's urban transit area include the following suburban areas, provided that complimentary fixed route service is also in operations during the same periods:

- Stoney Creek
- Waterdown
- Dundas
- Ancaster

Introduction of on-demand service into these areas could be as a replacement of a portion of existing fixed route service that meanders through neighbourhood streets; as a replacement for other alternative service delivery models; or as a new service to

provide increased access and to build service towards transitioning service over to fixed route service in the long term. There are also benefits to on-demand transit as a mobility option for integration with accessible transportation services. These implementations should be considered as part of the longer-term transit growth plan, how they could connect into the Rail Ready network, and with consideration to a full analysis of the anticipated cost implications of scaling on-demand services inclusive of a review of vehicle types to best deliver this type of service, a review of staff requirements (Operators, Supervisors, Customer Service) to best support this type of service, and how this type of service could be best integrated into other service models as a family of services.

ALTERNATIVES FOR CONSIDERATION

1. Return to the exclusively fixed route transit service model that operated prior to the pilot; however, this would result in the loss of ~5 square kilometres of service coverage within which customers have benefited from reaching new destination locations by transit, particularly in the western most part of Waterdown and along Hamilton Street in the town centre.

   Financial: Financial implications associated with this alternative remain cost neutral*. The pre-pilot fixed route model utilizes the same number of (4) buses as the current hybrid model.

   Staffing: N/A

   Legal: N/A

2. Return to the exclusively fully dynamic on-demand transit service model that operated throughout the pilot; however, this would result in the loss of the more predictable and robust connection to interregional and neighbouring transit services that form the vast majority of trip purposes for customers in Waterdown and will be very susceptible to performance and customer satisfaction indicators, based on demand.

   Financial: Financial implications associated with this alternative remain cost neutral*. The dynamic on-demand model utilizes the same number of (4) buses as the current hybrid model.

   Staffing: N/A

   Legal: N/A

Alternatives (1) and (2) are not recommended.

* To respond to increases in demand due to post-COVID growth in trips and land use changes, it would be inevitable that more resources would be needed to support the service, inclusive of vehicle acquisition and staff hiring, which could result in a scenario where the annual operating costs for the service exceeds that of the pre-pilot and post pilot service alternatives, in order to meet demand at a satisfactory performance level.

ALIGNMENT TO THE 2016 – 2025 STRATEGIC PLAN

Healthy and Safe Communities
Hamilton is a safe and supportive City where people are active, healthy, and have a high quality of life.

Clean and Green
Hamilton is environmentally sustainable with a healthy balance of natural and urban spaces.

Built Environment and Infrastructure
Hamilton is supported by state-of-the-art infrastructure, transportation options, buildings and public spaces that create a dynamic City.

Our People and Performance
Hamiltonians have a high level of trust and confidence in their City government.

APPENDICES AND SCHEDULES ATTACHED

Appendix “A” to Report PW23023 – myRide Assessment Data