DILLON CONSULTING

City of Hamilton

Review of A.T.S. Eligibility Determination Process and Services

Final Report

September 2021 – 21-1969

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Executive Summary

Study Purpose

In November 2019, the Public Works Committee of Hamilton City Council asked the Office of the City Auditor (O.C.A.) to complete an audit of the Accessible Transportation Services (A.T.S.) eligibility processes. This request arose as a result of rising trip counts and costs of the specialized transit service overseen by A.T.S.

The audit, completed in December of 2020, focused on identifying ways to increase process efficiencies and explore opportunities for cost savings. Through the completion of the audit, the O.C.A. identified 14 key recommendations to improve the cost effectiveness of the service. This report addresses five of these recommendations, as described below:

- Recommendation #1: Evaluate and potentially redesign the eligibility assessment process.
- Recommendation #3: Create standard operating procedures and guidelines for all assessment processes.
- Recommendation #6: Assess the need for strengthening the professional qualifications and experience required for making eligibility determinations.
- Recommendation #8: Explore the feasibility, potential savings, costs and benefits of an expanded taxi scrip program, integrated service model, expanded travel training, shuttles and community buses.
- Recommendation #13: Create performance metrics to measure process efficiencies and community impact and report on these regularly.

This report provides the business case which A.T.S. agreed to develop to assess the costs, benefits, and best practices of the above noted recommendations.

Methodology

The first step in the development of this business case is better understanding the existing operations of A.T.S. This included the collection and review of data from the Office of the City Auditor, A.T.S. registration forms, policies and procedures, travel

training documentation, and information on the taxi scrip program, and other reports such as the Lifemark report, and the recommendations from a previous study completed by Nelson\Nygaard. Following this information gathering and background review stage, the consulting team undertook a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis of the existing application process, Taxi Scrip process, and travel training program. This was followed by a series of benchmarking interviews with specialized transit agencies across Canada to assist A.T.S. in identifying means to implement recommendations from the O.C.A. The results of these interviews provide valuable insight to the varied operations of agencies across the country.

The findings of the benchmarking interviews and SWOT analysis, combined with industry best practice, all aided in the development of this Business Case and recommended implementation plan.

Conclusion

It was concluded that three areas would provide the largest potential for cost savings:

1. Update the application process and conduct reassessments of existing passengers
2. Expand the travel training program and move towards integrated trips
3. Identify opportunities to increase the number of group trips.

The recommendations are detailed in full below.

The expansion of the Taxi Scrip program and the introduction of Community Bus were also explored. While these were identified as a potential to increase accessible transportation options for A.T.S. customers, they were not identified as opportunities to increase cost savings.

Priority Recommendations

The following recommendations are prerequisites to all other recommendations and are strongly recommended to begin implementation as soon as practical following the adoption of this report.

1. **Hire Transit Abilities Coordinator**
   This individual will ensure that A.T.S. has the in-house capacity to implement the priority recommendations of updating the application process and implementing reassessments of existing registrants. This should be completed as soon as possible as a way to initiate change management. The cost would be approximately $100,000 annually for a full-time employee.

2. **Implement Late Cancellations and No Show Points System**
   While not directly related to the recommendations reviewed as part of this study from the City Auditor, this will lead to improved service and cost savings and will help to increase the ability to group trips. This initiative was planned to go to Council, but was delayed due to the COVID-19 pandemic. This would require the hiring of a full-time clerk (Customer Service Representative) to administer the policy. The cost would be approximately $75,000 annually for a full-time employee.

3. **Initiate Change Management Plan**
   This should involve retaining an outside firm to assist A.T.S. in building the organizational capacity to lead itself through implementing the recommendations in this report. With certain areas, such as the revised application process, representing a significant change, this will be an important step. It is anticipated that this will cost between $15,000 to $30,000, plus the cost of implementation.

4. **Hire full-time Accessible Transit Coordinator**
   This position will ensure that A.T.S. has the in-house capacity to implement the integrated trip model and travel training program. Their role initially will also be to work with the Transit Division to set up both programs. The cost would be approximately $90,000 annually for a full-time employee.

5. **Communications Campaign**
   There will be some initial work to inform registrants and the community in general of changes to A.T.S., including the various benefits. This will include the revised application process, reassessment process, travel training and integrated trips, and the Late Cancellation and No Shows points program. About $10,000 to $15,000 combined per year was assumed.

Summary of Recommendations

The following recommendations should be implemented once the new staff hires and travel training program have been implemented. The exact order of implementation should be determined by A.T.S. staff with consideration of the needs and resources available, and will also be informed by the Change Management process noted above.

Application Process and Form

The following is a summary of recommendations to respond to Recommendation #1, #3 and #6 of the Auditors Report on the Application Process and Form and qualifications for eligibility determinations.

The review of the audit revealed a potential cost savings of $6.1 million by 2026 and $7.0 million by 2031 over the 'business-as-usual' scenario, noting the assumptions in **Section 3.6** of this report. It should be noted that these savings are calculated for the purpose of confirming the recommendations of the Auditor Report, and should be recalculated with more current assumptions upon implementation.

The cost to achieve this potential savings is approximately $247,000 per year, plus a one-time implementation cost of $65,000 for change management and set-up. The recommendations and costs to achieve the above noted savings are noted below:

Application Process

1. Review and Update the application process to:
    a. Request potential applicants to make an initial contact to A.T.S. so that staff may use a structured screening process to assess if applying for specialized transit is appropriate.
    b. Advance an Integrated Trip (Family of Services) approach including travel training.

    Costs to City: Completed by existing staff, and organized by new Transit Abilities Coordinator (cost below).

Increase In-House and Contracted Expertise and Capacity

1. Engage health professional expertise to assess applicants' abilities and determine eligibility through an in-house Transit Abilities Coordinator position (1 FTE).

2. Establish a contract with a third-party health services provider to complete more detailed abilities assessment, when required, and to undertake an updated appeals process.

   Costs to City: $100,000 per year to hire a full-time Transit Abilities Coordinator. $120,000 per year for a Third Party health services provider to complete assessments for more complex needs and to support an updated Appeals process.

Conditional Eligibility

1. Increase conditions of eligibility as part of the intake process to include various conditions as noted in **Section 3.5.3**.

   Costs to City: Completed by existing staff, and organized by new Transit Abilities Coordinator (cost below).

Reassessment

1. Set a maximum eligibility limit of three to five years for new applicants.
2. Reassess existing registrants, including Taxi Scrip Only, using the updated application process and Integrated Trip (Family of Services) approach over a four-year time period.

   Costs to City: Completed by new Transit Abilities Coordinator (cost above).

Auditor Recommendation #8: Integrated Trips and Travel Training

The following is a summary of recommendations to respond to Recommendation #8 of the Auditors Report to expand the Travel Training program and implement an Integrated Trip model (Family of Services) as a cost saving measure.

The review of the audit revealed a potential cost savings of $493,400 by 2026 and $1,417,100 by 2031 over the 'business-as-usual' scenario, noting the assumptions in **Section 4.7** of this report. It should be noted that these savings are calculated for the purpose of confirming the recommendations of the Auditor Report, and should be recalculated with more current assumptions upon implementation.

The cost to achieve this potential savings is approximately $111,400 per year, plus one time expenditures of $125,100 for scheduling software upgrades and $80,000 for

supervisor vehicle upgrades (to accessible vehicles). It is assumed that the existing annual Travel Training budget of $175,000 would be repurposed to cover some or all of these costs. The recommendations and costs to achieve the above noted savings are noted below:

Integrated Service Delivery Model

1. Identify potential integrated routes and stations using the criteria noted in **Table 11**. Two recommended corridors were identified:
    a. 10 B-Line Express between Eastgate Terminal and downtown Hamilton.
    b. Burlington Transit Route 1 and/or Lakeshore West GO Train between Aldershot GO Station and downtown Hamilton / West Harbour Station and Burlington Route 1 and GO Line (would require discussions with Burlington Transit and Metrolinx).
2. Use the Guidelines identified in **Table 11** to design stops, stations and platforms of the future BLAST network, L.R.T. line and GO Rail stations with consideration for future specialized transit trip integration, ensuring dedicated platforms for this purpose are made available and accessibility features are prioritized.
3. Implement the integrated trip model on one or two corridors in the short-term, selecting suitable trips on a case-by-case basis that provide customers with comparable travel times as direct door-to-door trips and reduce vehicle kilometres on specialized transit services.

    Costs to City: Completed by Transit Division staff and supported by new Accessible Transit Coordinator (cost below).

Booking Integrated Trips

1. Working with the Transit Division, specialized transit services, and Trapeze to better understand the functionality of the existing scheduling program and access components of the platform that allow the specialized transit reservations personnel to see the conditions of eligibility of each client, including where a client has been deemed able to take an integrated trip.
2. Provide specialized transit booking agents with access to H.S.R. routes to determine which trip may be appropriate for an integrated trip.

    Costs to City: Completed by new Accessible Transit Coordinator (cost below).

Conditional Eligibility

1. Develop a voluntary integrated trip delivery approach in the short-term. Integrated trips should be made mandatory based on a registrant's abilities when:
    a. The application process has been revised and new conditions of eligibility are in place (**Section 10.2**).
    b. Additional integrated routes and corridors are identified and implemented (e.g. the introduction of the BLAST network); and
    c. Scheduling software integration between conventional and specialized transit services is complete.

    Costs to City: Completed by A.T.S. staff and supported by new Accessible Transit Coordinator (cost below).

Incident Management

1. Replace a portion or all supervisor vehicles with wheelchair accessible vans when they reach end of life.
2. Purchase wheelchair accessible vans for all expansion supervisor vehicles.
3. Develop policies and processes for incident management, including how to respond when pass-bys occur, specialized transit vehicles are late for a connection, severe weather conditions exist, a specialized transit customer needs assistance due to a mobility aid issue, e.t.c.

    Costs to City: $20,000 for 2022, $40,000 by 2026 and an additional $20,000 by 2031 for upgrade of supervisor vehicle to an accessible vehicle (assumes four in total).

Travel Training

Hire a full-time in-house Travel Trainer, with a title of Accessible Transit Coordinator, to lead the following functions:

1. Develop a comprehensive travel training program using the material already developed as part of the existing Community Access to Transportation (C.A.T.) Travel Training program targeted for persons with developmental disabilities. This would need to be modified and expanded to be applicable for other A.T.S.

registrants (e.g. persons that use a mobility aid) and Hamilton residents that are not registered for specialized transit (e.g. seniors, students and newcomers).

2. Update travel training material to consider the production of a short "how to ride" video or visual guide to share online via the "Riding H.S.R." web page. This material should then be shared as a resource with other community organizations, many of whom already provide general orientation on services like transit.
3. Liaise with community organizations to develop and administer a 'Train-the-Trainer' program, where representatives would be certified by A.T.S. to deliver the program one-on-one or in group settings where appropriate. Another branch of the "Train-the-Trainer" program could be the introduction of "Bus Buddies" so that in addition to receiving specialized training on a particular trip, volunteers could be trained to accompany people for their first few integrated trips to ensure a high level of comfort with the network.
4. Help implement the Integrated Trip model noted above, including:
    a. Review and confirm routes and terminals/stations and stops that meet integrated service criteria noted in **Table 11**.
    b. Develop communication materials to promote the change in trip delivery model to new registrants, existing customers, specialized transit booking agents/schedulers/dispatchers and specialized/conventional transit operators.
    c. Oversee any updates to Trapeze and operating agreements that need to be completed to provide integrated trips.
    d. Work with the Transit Abilities Coordinator to identify potential customers that may be eligible for an integrated trip.
5. Conduct one-on-one Travel Training with individuals identified as having a conditional eligibility based on traveling to an unfamiliar destination.

Costs to City: $90,000 per year to hire a full-time Accessible Transit Coordinator.

Next Steps

1. To better optimize the potential for savings, work with the specialized services contractor to change the fee structure DARTS has with its current subcontractors based on a per-kilometre rate in order to optimize potential cost savings of integrated trips.

Costs to City: Completed by A.T.S. staff.

Auditor Recommendation #8: Community Bus

The following is a summary of recommendations to respond to Recommendation #8 of the Auditors Report to introduce a Community Bus as a cost saving measure.

A Community Bus would require an annual expense of approximately $260,000 (including the amortized cost of a new bus). To off-set this expense, over five boardings per Community Bus hour would have to be diverted from Specialized Transit onto Community Bus. Based on experience elsewhere and a review of a potential market in Hamilton, this is not considered realistic for Hamilton. Therefore, it is recommended that a Community Bus is not implemented as a means of achieving immediate cost savings for A.T.S.

This should not exclude the potential of introducing a Community Bus, as it still provides the potential to improve mobility options for Specialized Transit customers (both existing and future). Should H.S.R. seek to implement a Community Bus to improve accessibility and provide further travel options to A.T.S. registrants, two recommendations are provided below:

1. Engage with residents of major seniors homes and apartments in the local area where Community Bus is being targeted to ensure their wants and needs were taken into consideration while designing the route.
2. Assess the potential to use On Demand transit as a service model instead of Community Bus, based on input and data from the On Demand pilot service in the community of Waterdown.

Auditor Recommendation #8: Taxi Scrip

The following is a summary of recommendations to respond to Recommendation #8 of the Auditors Report to increase the subsidy and number of Taxi Scrips as a cost savings measure.

Based on the above analysis, it is anticipated that there would be no cost savings to A.T.S. if the subsidy to Taxi Scrip was increased and the number of booklets made available to registrants was also increased. Therefore, it is therefore recommended that the City:

1. Does not increase the subsidy to Taxi Scrip or the number of booklets made available per month for Taxi Scrip.
2. Consider reassessing existing legacy Taxi Scrip clients as per the recommendation in **Section 3.6.3** of this report.

Auditor Recommendation #8: Group Trips (Shuttle Bus)

The following is a summary of recommendations to respond to Recommendation #8 of the Auditors Report on the introduction of Shuttle Buses.

The review of the audit revealed a potential cost savings of $589,000 by 2026 and $1,338,300 by 2031 over the 'business-as-usual' scenario, noting the assumptions in **Section 7.6** of this report. It should be noted that these savings are calculated for the purpose of confirming the recommendations of the Auditor Report, and should be recalculated with more current assumptions upon implementation.

The cost to achieve this potential savings is approximately $80,400 per year. The recommendations and costs to achieve the above noted savings are noted below:

Reduce Late Cancellations and No Shows

1. Prioritize the implementation of a Late Cancellations, No Shows Points program in the short-term as a way to improve efficiencies and increase the potential for Group Trips.
2. Initiate an information campaign to advise riders that it is being implemented and to send messaging of the need to cancel in advance as much as possible and its importance to ensure rides are there for others to access.
3. Work with scheduling software vendor and operator to ensure that the Trapeze functionality to track these points is enabled in their registrant database.
4. Hire another Clerk to help administer the program.

Costs to City: $75,400 per year to hire a Clerk (Customer Service Representative) and $5,000 per year to communicate information on the new Late Cancellations and No Show Point System policy.

Focus Large In-House Dedicated Vehicles during Periods of High Trip Density

1. Review the potential to increase the use of non-dedicated vehicles where trip density (trips per square kilometre per hour) is low in order to deploy specialized

transit service delivered by DARTS operators in the higher demand time periods and locations.

2. Schedule and deploy larger capacity vehicles (DARTS buses and Pro Masters) during these periods (weekdays between 9:00 a.m. and 4:00 p.m.), while focusing subcontracted services during lower demand periods (e.g. evenings and weekends).
3. Work with DARTS to review the subcontracting model to create more cost efficiencies per shared rides.

Costs to City: A.T.S. time to work with contractor on scheduling of service.

Partnerships with Community Agencies

1. Work with the DARTS to develop partnerships with community agencies that provide services such as adult day programs to create scheduled Group Trips dedicated to specific destinations using higher capacity vehicles.
2. In the medium-term, review fleet mix to assess the most cost effective mix of vehicle types and ownership.

Costs to City: Could be completed by existing A.T.S. staff or the new Accessible Transit Coordinator (position and cost noted above).

Recommendation #13: Performance Metrics

The following is a summary of recommendations to respond to Recommendation #13 of the Auditors Report to create performance metrics to measure process efficiencies and community impact and report regularly.

1. Monitor the following Key Performance Indicators bi-annually to assess the effectiveness of the above noted recommendations:

KPI	Description	Industry Standard	Current
Cost per Trip	The cost of providing specialized transit service to one passenger for one trip.	<$25.00	$27.04
Trips per Hour	The average number of trips that are provided per vehicle hour of service.	2.5 - 5.0	2.17
Trip Density	The number of trips provided per square kilometre per hour.	N/A	N/A
No Shows	The number of booked trips that a customer cancels late or does not arrive at the pickup location within 5 minutes of the pickup time.	0%	16.5%
Registrants per Capita	The rate of specialized transit registrants per capita.	N/A	0.018 registrants per capita
Trip Denial	Trip denials occur when an agency is unable to provide a specialized trip within an acceptable time window.	0%	1.6%
Average Trip Length	The average length of a trip provided by specialized transit in kilometres, minutes or hours.	N/A	9.75 k.m.
On-Time Performance	The percentage of trips arriving on-time for pickup at origin and destination points within the allowed window for pickups.	90%-99%	98.9%
Missed Trips	Incidences when an operator does not pick up a passenger as scheduled.	0%	0.8%

Customer Satisfaction Survey

1. Implement a comprehensive Customer Satisfaction Survey to better understand the needs of clients, and the impact that any changes may have on their experience with the service.

2. Undertake the survey biannually or at a similar frequency as on conventional transit service.
3. Consider using a telephone survey of a representative sample of active registrants (including caregivers for those not able to participate directly) to administer the survey.

Benchmarking for Improved Eligibility Assessment

1. Collect and monitor the following benchmark data to assess the effectiveness of the revised application process and eligibility assessment:
    a. **Number of Applicants by Period.** Should be tracked quarterly and annually and show a decrease in new applications per capita from baseline.
    b. **Registrants per Capita**. The number of registrants per capita should decrease to industry standards with the revised application process.
    c. **Conditional Eligibility.** Should show an increase in conditional approval over current applications.
    d. **In-Person Assessments:** The number of in-person assessments should be tracked by period (quarterly and annually) once the revised application process is in place.

1.0 Introduction

1.1 Study Purpose

Dillon Consulting Limited in association with Trestle Consulting was retained by the City of Hamilton to develop a business case and implementation plan of the City of Hamilton's Auditor's recommendations on the City of Hamilton Transit Division Accessible Transportation Services (A.T.S.). The audit focused on identifying ways to increase process efficiencies and explore cost saving opportunities, with a focus on eligibility determination process and service delivery.

1.2 Summary of City Auditor's Recommendations

In November 2019, the Public Works Committee of Hamilton City Council asked the City Auditor to complete an audit of the Accessible Transportation Services (A.T.S.) eligibility processes. This request arose as a result of rising trip counts and costs of the specialized transit service overseen by A.T.S. The overall objective of the audit was to assess current accessible transit eligibility processes and services with an aim to identify opportunities for efficiency, effectiveness and cost containment.

The City Auditor identified 14 key recommendations to improve the cost effectiveness of the service. This report addresses five of these recommendations. They are repeated below:

- Recommendation #1: Evaluate and potentially redesign the eligibility assessment process;
- Recommendation #3: Create standard operating procedures and guidelines for all assessment processes;
- Recommendation #6: Assess the need for strengthening the professional qualifications and experience required for making eligibility determinations;
- Recommendation #8: Explore the feasibility, potential savings, costs and benefits of an expanded taxi scrip program, Integrated service model, Expanded travel training, Shuttles and Community buses; and
- Recommendation #13: Create performance metrics to measure process efficiencies and community impact and report on these regularly.

This report forms the business case that A.T.S. agreed to develop to assess the costs, benefits, and best practices of the above recommendations.

2.0 Background – A.T.S.

2.1 Overview

Accessible Transportation Services (A.T.S.) is the Section of the City of Hamilton Public Works Transit Division that is responsible for specialized transit services. Some aspects of the service are contracted out. The contractor is the Disabled & Aged Regional Transportation System (DARTS). The current responsibilities of the City and the contractor related to the planning and delivery of specialized transit services are noted in **Table 1** below:

Table 1: Summary of Responsibilities between Transit Division and the Contractor for Specialized Transit Services

Responsibility	Transit Division	Contractor for Specialized Transit Services
Eligibility Process and Registration	• Develop Eligibility Criteria • Review Applications for service • Lead the appeals process	• N/A
Trip Booking, Scheduling and Dispatching	• Develop policy on booking window, waiting time, attendants and companions, trip denials, late cancellations and no shows • Address cancellations and no shows	• Book client trips • Schedule and dispatch trips
Operations	• Oversight of Contractor • Customer Service (complaints and commendations) • Client profile maintenance	• Driver hiring and training • Operations & compliance • Contract with taxi provider for overflow/on-demand trips

Responsibility	Transit Division	Contractor for Specialized Transit Services
Vehicle Procurement, Storage and Maintenance	• Two low-floor buses leased to the contractor	• Vehicle procurement (buying and leasing) • Vehicle maintenance and storage (contractor and City of Hamilton owned and leased vehicles)
Passenger Fares	• Fare policy • Implement PRESTO smartcard • Fare sales	• Collect and reconcile passenger fares
Travel Training	• Coordinate and deliver travel training programs	• N/A
Taxi Scrip	• Print, distribute, and sell booklets of taxi script coupons • Keep record of monthly purchases by customer and enforce limit • Determine which taxi operators are eligible to provide taxi scrip trips	• N/A

In 2019, there were a total of 195 specialized transit employees (122 full-time and 73 part-time), of which 126 were operators (66 full-time and 60 part-time). The majority of the staff, including all operators, are employed by DARTS, with the remainder employed by the City of Hamilton Transit Division directly.

To meet the demand for specialized transit trips, DARTS also has a separate contract with three personal transportation providers (i.e., subcontractors), and uses a taxi company for overflow/on-demand trips when required. These Subcontractors deliver service that cannot be accommodated by a DARTS vehicle, to a maximum of 10% of the total non-ambulatory trips provided.

2.2 Registrant Breakdown

As of 2019, A.T.S. had 9,819 active registrants. This can be broken down into the following:

- 2,768 are ambulatory registrants;
- 6,357 are non-ambulatory registrants; and
- 694 are registered with A.T.S. for Taxi Scrip only.

As noted above, 694 legacy registrants are eligible for Taxi Scrip only. This is an old eligibility outcome that is no longer offered to applicants.

2.3 Service Area and Hours of Operation

Specialized transit services are provided to the entire City of Hamilton (1,117 k.m.^{2}), including the rural areas of the city that are not all serviced by conventional transit (service area of 243 k.m.^{2}). The service area has a total population of 549,900 people. Specialized transit also travels to three destinations in Burlington, which can be used as transfer points to Burlington's specialized transit service.

Service is provided during the following hours:

- 5:00 a.m. - 2:00 a.m.; Monday-Friday;
- 6:00 a.m. - 2:00 a.m.; Saturdays; and
- 6:30 a.m. - 12:30 a.m.; Sundays and Holidays.

2.4 Operations

Hamilton's fleet of specialized transit vehicles is largely owned and operated by the contractor, DARTS, except for two low-floor buses owned by the City of Hamilton and leased to DARTS. There are 68 total vehicles in DARTS' fleet, which includes the low-floor accessible buses, vans, minivans and non-accessible minivans. Of these vehicles, DARTS owns 70% of them and leases the remaining 30%.

The overall Specialized Transit fleet (including Subcontractor vehicles) consists of approximately 165 vehicles, of which 148 are used for peak service (based on 2019 data).

There are four different types of operating models provided by A.T.S. The percent of trips and the budget for each service type is noted in **Table 2** below.

Table 2: Service Delivery Models

Operating Model	% of Trips Delivered	Annual 2019 Cost	Costing Model	Unit Cost*
Dedicated DARTS In-House service	34.7%	$11,278,071*	Hourly Rate	$72.02/ hour
Dedicated DARTS Subcontracted Service	52.7%	$11,105,879*	Per Trip Rate	$22.40/trip
Non-Dedicated DARTS subcontracted Service	2.3%	$391,267*	Per Trip Rate	$18.16/trip
A.T.S. Taxi Scrip	10.3%	$407,713**	Subsidy per Booklet sold	4.84/trip

*As reported by DARTS using actual 2019 costs (this does not include revenue or administration costs)

**This is based on 40% of the value of Taxi Scrip vouchers claimed in 2019 by taxi operators (based on trips made).

Dedicated in-house service is provided by DARTS employed drivers with vehicles that are owned or leased by DARTS. Operators are paid an hourly rate no matter how many trips are delivered. Therefore, each additional trip delivered on a dedicated in-house service will reduce the cost per passenger.

Dedicated subcontracted service is provided by three Subcontractors to DARTS, who employ operators and use their own vehicles dedicated to the specialized transit service. These Subcontractor contracts are procured and negotiated exclusively by DARTS, and are based on a cost per passenger trip. Under this model, the Subcontractor is incentivized to deliver a good volume of trips in order to receive sufficient compensation to cover costs and support a living wage for drivers. Each trip added is an additional charge and grouping trips together does not result in an improved efficiency. The majority of passengers (approximately 95% in 2019) on the contracted service are ambulatory, as the DARTS union agreement stipulates that a maximum of 10% of non-ambulatory trips may be provided by DARTS' subcontractors.

Non-dedicated subcontracted trips typically make up approximately 2% of all trips. These are trips that are subcontracted by DARTS to on-demand taxi vehicles as overflow, if a trip cannot be accommodated using a dedicated service. These are only used for ambulatory passengers and generally receive higher numbers of complaints, which is part of the reason that trips are not routinely booked on this service.

Taxi Scrip trips make up the remaining 10% of trips made in 2019. These are trips paid for by A.T.S. eligible registrants using Taxi Scrips, when booked on either of two authorized taxi companies: Blue Line and Hamilton Cab. Taxi Scrip booklets are sold to A.T.S. registered clients at a 40% discount and can be used to pay for the price of a regular taxi fare. The average cost to A.T.S. per trip is $4.84.

DARTS also charges an administration fee to A.T.S. per trip booked, scheduled and dispatched through DARTS. This does not apply to Taxi Scrip trips.

The total amount of service provided in 2019 was 844,007 trips. The dedicated service includes 81% ambulatory and 19% non-ambulatory trips. Non-dedicated service was primarily (99.6%) used to provide trips for ambulatory passengers. In addition to the above, 83,238 trips where made using Taxi Scrip, of which the majority were ambulatory passengers.

Fares are collected through cash and the PRESTO smartcard. The PRESTO smartcard allows for customers to pay using either individual fares or monthly passes. PRESTO e-tickets are also available on a smartphone app on Apple and Android phones. The Transit Division stopped selling paper tickets and passes to A.T.S. clients on March 31, 2021 and stopped accepting paper fare media for travel on specialized transit on June 30, 2021.

2.5 Existing Utilization and Anticipated Growth

A key reason for the auditor review of A.T.S. was due to concerns over rising costs. Over the past five years (2015 to 2019), A.T.S. costs have increased by 31%. **Table 3** illustrates this in more detail, including some of the potential factors that have influenced the increase in cost. Performance measures by year are also noted to assess costs relative to other factors (e.g. increasing trips). It should be noted that 2019 is used as a base year due to the change in travel behaviour that occurred with the start of the COVID-19 pandemic in early 2020.

Table 3: A.T.S. Registrants, Ridership and Costs

Measure*	2015	2019**
Population	532,590	549,897
Active Registrants	6,530	9,819
Ridership Total	679,966	940,097
Ridership Dedicated	579,124	832,980
Ridership Non-dedicated	100,842	100,117***
Operating Expenses	$19,009,441	$25,420,913
Registrants per Capita	0.012	0.018
Trips per Registrant	104.1	93.3
Operating Cost per Trip	$26.88	$27.04
Late Cancellations and No Shows	97,491	196,097

*Source: C.U.T.A. Specialized Transit Fact Books, 2015, 2019

**Source: 2019 data was adjusted based on revised data received from DARTS and Taxi Scrip data received from A.T.S.

***This includes both subcontracted taxi service by DARTS and Taxi Scrip trips provided by A.T.S.

The following summarizes changes which have occurred between the years 2015 and 2019:

- The number of active registrants has grown by approximately 50%. This was not all due to population growth, as the number of registrants per capita also grew by 50% during this same period;
- Ridership has increased by approximately 35%. This is primarily due to the growth in registrants, as the number of trips per registrant decreased during this same period; and
- Late cancellations and no shows have increased by 101%. This adds to operating costs as Subcontractors are still paid for booked trips, and dedicated trips become less efficient as there is not enough time to fit in and optimize same day trip requests.

As a result, with an increase in active registrants, overall trips and late cancellations/no shows, operating costs have increased by 31%.

2.6 Projected Baseline Growth

A do-nothing scenario was developed to be used as a baseline to compare against any potential cost-savings that would arise from the various recommendations from the City Auditor. This is presented to the year 2031 and is illustrated in **Table 4**.

The do-nothing scenario is based on the following assumptions:

1. 2019 is used as a base-year due to the COVID-19 pandemic. It is also assumed that specialized transit ridership will recover from the pandemic prior to 2025.
2. Growth in A.T.S. registrants is based on both the growth in population and the impacts of an aging population, and is based on the forecast completed for the 2019 City of Hamilton Development Charges Study: Transit Background Paper. This was adjusted by reducing the number of Taxi Scrip Only Legacy registrants by 10% per year.
3. Ridership growth on specialized transit service contracted to DARTS is calculated by applying the 2019 number of trips per registrant (92.5) to the projected growth in registrants, and carrying it through the 2031 horizon year.
4. Ridership growth on Taxi Scrip is calculated by applying the 2019 number of trips per registrant (27.9) for registrants that use Taxi Scrip (2,980), and carrying it through the 2031 horizon year.
5. The 2019 trip denial rate of 1% remains constant throughout.
6. The ratio of trips delivered by dedicated DARTS in-house service, dedicated subcontracted service, non-dedicated taxi service in 2019 continues through to 2031. This is noted in **Table 2** above. The ratio of Taxi Scrip trips is reduced by reducing the Taxi Scrip Only Legacy registrants by 10% per year, as noted above.
7. The 2019 ratio of dedicated (contractor DARTS and subcontracted) annual trips (822,458) per peak vehicle (148) was used to calculate the growth in peak vehicle requirements with ridership growth. This ratio is 5,557 trips per peak vehicle.
8. The 2019 spare ratio of 17% was reduced to the desired spare ratio of 10% and carried through to 2031. Spare ratio is defined as the ratio of spare vehicles over peak vehicles required to operate peak service. Having a healthy spare ratio is required to ensure there are enough vehicles to operate peak service, taking into account vehicles being out of service for maintenance and repair.
9. Operating cost increases based on growth in trips was based on the following 2019 statistics:

a. Dedicated In-house service - Hourly rate of $72.02 applied to growth in service hours;
b. Dedicated contracted service - Per trip rate of $22.40 based on growth in dedicated passengers;
c. Non-dedicated service - Per trip rate of $18.16 based on growth in non-dedicated passengers;
d. Taxi Scrip trips - Based on an average municipal subsidy per trip of $4.84;
e. Administration: Remained consistent to 2031.

10. All costs remain at 2019 levels for comparative purposes.
11. All expansion vehicle costs were assumed to be included in the 2019 rate, as these are primarily leased vehicles.

Based on the assumptions above, **Table 4** below forecasts the growth of specialized transit active registrants, ridership and operating costs over a 10-year period.

Note: Active registrants are defined as registrants that have taken at least one trip on A.T.S. within the past 12 months.

Table 4: Baseline Specialized Transit Projection to 2031

Measure	2019	2022	2026	2031
Population	549,897	562,906	595,429	636,080
Active Registrants	9,819	10,117	10,706	11,757
Ridership Total	940,083	984,100	1,057,000	1,174,900
Ridership In-House Dedicated	326,617	344,000	371,300	413,800
Ridership Contracted Dedicated	495,841	522,300	563,700	628,200
Ridership Third Party Vehicles	21,549	22,700	24,500	27,300
Ridership Taxi Scrip	83,238	82,400	84,500	91,500
Ridership Taxi Scrip Companions	12,838	12,700	13,000	14,100
Fleet Total	148	156	168	188
Fleet Peak Vehicles	17	15	18	21
Fleet Spare Vehicles	165	171	186	209
Dedicated Service Hours	377,168	397,600	428,100	479,100

Measure	2019	2022	2026	2031
Operating Cost Total	$25,420,913	$26,642,300	$28,526,900	$31,575,900
Operating Cost Dedicated	$22,383,950	$23,588,400	$25,430,300	$28,394,500
Operating Cost Non-Dedicated	$391,267	$412,200	$444,800	$495,700
Taxi Scrip	$402,713	$398,700	$408,800	$442,700
Operating Cost Administrative	$2,242,983	$2,243,000	$2,243,000	$2,243,000
Cost per Trip	$27.04	$27.07	$26.99	$26.88

*Note: Projection does not take into account the impact of COVID-19 for comparative purposes.

**Note: All Forecasts rounded to the nearest 100.

Between 2019 and 2031, it is estimated that the operating costs will increase by 24%, but the overall cost per trip will decrease by 1% if none of the recommendations from the Auditor report are implemented. This decrease is partially due to a decrease in Taxi Trip rides due to the gradual decrease in Taxi Scrip Only legacy registrants.

2.7 Note on Forecasting and Cost Projections

Ridership, service hour, vehicle and cost forecasts noted in this report are forecasts based on certain assumptions occurring and should only be used to advise the City of Hamilton on the potential for cost savings for each of the Auditor recommendations. Each forecast presented in the assessment of Auditor Recommendations below:

1. Was conducted independently of other recommendations in the Auditor Report to allow the City to determine the effectiveness of each recommendation in isolation.
2. Is compared against the baseline growth in registrants and ridership presented in **Table 4** to the year 2031, which assumes the potential growth in ridership and operating costs from population growth and an aging population to the year 2031, assuming none of the recommendations in the Auditor's Report are implemented.
3. Does not include passenger revenue (only a comparison of costs).

4. Assumes no impact on ridership and registrants due to COVID-19 for comparative purposes.
5. Assumes no change to 2019 costs per hour and per trip (unless noted in the assumptions in each of the recommendations.
6. Assumes implementation at the beginning of 2022.

Ridership and cost estimates should be updated with more current information if a decision is made to move forward with the recommendations contained in this report.

3.0 Application Process and Form

3.1 Auditor Recommendation

The auditor identified three recommendations regarding eligibility process that are addressed in this section of the report:

- Recommendation #1: Evaluate and potentially redesign the eligibility assessment process
- Recommendation #3: Create standard operating procedures and guidelines for all assessment processes
- Recommendation #6: Assess the need for strengthening the professional qualifications and experience required for making eligibility determinations

As described in the Audit's findings, 'Eligibility outcomes drive service level and costs'. As an accommodated service, specialized transit exists to ensure persons unable to use conventional transit due to a disability have access to a comparable level of service to those without mobility limitations.

However, conventional transit is becoming more and more accessible. The Transit Division has invested in a fully accessible fleet on its conventional service (the H.S.R.) and is increasing the number of accessible stops on the network. The city is also seeing a growth in universally accessible places and services. Persons with disabilities are advocating for a more integrated and accessible environment to minimize the need for special and often separate services. While specialized transit continues to be an important component of a transit agency's continuum of services (often called Family of Services), the advancing accessibility of conventional transit services on the H.S.R. is providing another mobility option for certain individuals that may have previously had challenges using the service. This needs to be reflected in the Accessible Transportation Services eligibility application process.

3.2 Vision

As early as 2003, the Transit Division articulated a vision to design and implement an in-person eligibility process that would support the goal of identifying ability and potential for fixed-route use, and serve as a tool to place the individual on the least restrictive

mode of public transit for each trip, based on personal ability, and the accessibility of the environment and the transit system. This is described in the Nelson\Nygaard Consulting Associates 2009 report Implementation of New Eligibility Policy at Accessible Transportation Services.

A person-centred approach focused on ability is a foundation to building a Family of Services (integrated service) model to ensure that individuals can access the right transit service at the right time under the right conditions (see Recommendation #8 of the Audit Report). An easy to understand, on-line application with clear policies and processes is desired, as is access to professional knowledge and expertise to help persons with disabilities understand their travel options. The Re (envision) H.S.R. initiative and Age-Friendly Hamilton link well into a vision of universally accessible, inclusive services that meet the needs of a diverse and growing population as much as is reasonably achievable.

3.3 Assessment of Existing Process and Form

Under the current process, to determine eligibility, individuals complete an application form describing what disability or condition prevents them from using public transit, information about their functional abilities, and their current use of public transit, if applicable. A healthcare professional, including Physician, Nurse Practitioner, Chiropractor, Registered Nurse (R.N.), Physiotherapist, Occupational Therapist or Recreational Therapist, is required to provide information and certify accuracy about the medical diagnosis and how it compromises the applicant's mobility to use conventional transit service (H.S.R.), including the date of onset, staging and prognosis. The health professional is asked if the applicant requires the assistance of a Support Person in order to travel on conventional transit and/or specialized transit and the reason, if someone is required.

Applicants submit their completed application to City of Hamilton Accessible Transportation Services (A.T.S.) for review. The current application indicates that travel training is available for persons interested in learning how to travel on H.S.R. buses.

The A.O.D.A. outlines that the City has 14 calendar days to make an eligibility decision once they have received a completed application. Transit Customer Care Representatives (C.C.R.) review applications for completeness. If incomplete, they

follow-up with the applicant requesting the missing information. The C.C.R. compares the applicant's responses with that of the health professional and makes an eligibility determination.

If determined eligible, the applicant is given an A.T.S. client number and mailed an information package on using specialized transit, a guide to using Taxi Scrip, and any other supplementary information that may be required. For example, during COVID-19, applicants received information on safety protocols. Registered A.T.S. clients can begin booking specialized transit trips and purchasing Taxi Scrip once they are set up in the system.

Applicants can appeal a decision made by A.T.S. regarding their level of eligibility for specialized transit service. A form is provided on the A.T.S. website for a person to complete and submit, including the reason for the appeal. Individuals, or a representative, may appear before an A.T.S. Eligibility Appeals Panel. A.T.S. uses a third party assessment process to offer an independent process. One request for an appeal was received in 2019.

3.3.1 Summary of Existing Registrants

In 2019, A.T.S. processed 3,378 applications. **Table 5** below shows a breakdown of the eligibility outcomes in 2018 and 2019. Less than 1% of all applications received were denied in 2019, with the majority of applicants (76%) receiving unconditional eligibility and another 18% approved for temporary status. Hamilton currently uses a very 'generous' eligibility process based on a health professional verifying an applicant's information. This results in almost all applicants receiving full eligibility for specialized transit in the categories of unconditional, temporary or visitor. One percent or less are assessed as conditionally eligible. As transit systems continually improve the accessibility of their services, more persons with disabilities applying for specialized transit are being assessed as conditionally eligible, that is, have the ability to access conventional transit for some or all of their trips.

In addition, Hamilton has no process in place for reassessment of existing registrants and has maintained those who were deemed eligible prior to 2012 (legacy registrants).

As concluded in the Audit, there are opportunities to improve the application process for specialized transit.

Table 5: 2018 and 2019 New Applicants - Summary of Eligibility Outcomes

Type of Eligibility	2018 (#)	2018 (%)	2019 (#)	2019 (%)
Unconditional	2,608	81%	2,551	76%
Conditional - Seasonal	10	0.3%	30	1%
Temporary	439	14%	616	18%
Visitor	101	3%	139	4%
Not eligible	0	0%	5	0.1%
Other (pending; unable to process; e.t.c.)	46	1%	37	1%
Total	**3,204**	**100%**	**3,378**	**100%**

The preparation of this report created an opportunity to undertake an analysis with key Transit Division staff to help build a critical path forward to implement the recommendations of the Audit. The following Strengths, Challenges (Weaknesses), Opportunities and Threats were identified through an interactive workshop:

Strengths

- **Council Support:** Hamilton City Council requested the Audit and are engaged in improving processes for this important transit service;
- **Leadership Commitment:** Transit leadership is committed to making improvements guided by evidence-based decision-making. An organizational change to re-establish a Manager of A.T.S. position will assist in creating a champion to lead the required improvements; and,
- **Dedicated and Committed Staff:** An existing complement of administrative A.T.S. staff are supportive of standardized processes and policies and bring a commitment to serving specialized transit customers. There is potential to manage roll out of reassessment with current staff if done at a reasonable pace (i.e. not all at once).

Challenges

- **Capacity and Expertise:** There is limited staff capacity and expertise within A.T.S. to implement the required processes and policies needed to sustain these improved processes. A more robust application process, travel training and an integrated service (Family of Services) requires personnel with expertise and capacity to implement and sustain improvements over time;

- **Lack of Continuity:** Since 2009, when the Nelson\Nygaard report presented a way forward and the City began the journey of improving the application process, there has been a turnover of personnel which has stalled the advancement of improvements; and,
- **Access to Information:** A.T.S. administers the application process and client information. Management of client profile and eligibility information is performed by A.T.S. staff and is not within the scope of the contractor for specialized transit reservations, scheduling and trips. To enable more conditions of eligibility, detailed eligibility criteria specific to individuals would need to be available to the contracted Reservationists to administer trip by trip eligibility.

Opportunities

- **Implementing Audit Recommendations:** The Audit offers A.T.S. an opportunity to update its processes to align with best practices and advance a Family of Services (integrated service delivery) approach to support individuals to access the level of service that matches their abilities; and,
- **Access the Right Expertise:** There is an opportunity to increase the capacity of A.T.S. staff with the required expertise and qualifications to advance and sustain a more integrated service across conventional and specialized transit service offerings.

Threats

- **Change for Stakeholders:** The Advisory Committee for Persons with Disabilities expressed concern that people will lose access to services and/or will not get the service they need. Not all healthcare providers fully comprehend the abilities required to use transit - more education is needed to ensure a good understanding of improved accessibility of transit, overall; and,
- **No Reassessment:** Reassessment has been a decision by Council. The Audit report notes that the City maintained the status of all existing A.T.S. clients as of November 1, 2012 when the A.O.D.A. eligibility requirements were adopted, meaning these clients were automatically given unconditional eligibility without being reassessed under the new eligibility criteria. No ongoing reassessment of A.T.S. registrants is happening. This does not align with prevailing or best practices across the industry.

3.4 Benchmark Review

A benchmark review was completed with a number of peer specialized transit agencies to determine best practices and lessons learned. The following section summarizes the key highlights from interviews conducted with each of these agencies on their application process.

3.4.1 Application and Eligibility Assessment Process

Similar to Hamilton, peer agencies require applicants to provide detailed information about the conditions that prevent them from using conventional transit, and request medical verification. In addition, an in-person component is undertaken by many to varying degrees using personnel with qualifications in health care fields.

An in-person interview typically involves a one-on-one meeting with an applicant that takes approximately 20 to 45 minutes to observe and review the person's abilities to access conventional public transit. An in-person assessment involves undertaking standardized tests to determine an applicant's abilities specific to the skills required to make a trip on conventional transit.

Calgary Transit Access in-house staff, with health care qualifications, meet with a large portion of applicants (90%) to assess their abilities using applicable tools, as required. London Transit contracts with an Occupational Therapist (O.T.) to meet with approximately 90% of applicants to understand their abilities and determine eligibility.

York Region and Durham Region both employ internal staff with healthcare qualifications to administer the application process and determine eligibility.

Grand River Transit, Peel Region and the T.T.C. Wheel-Trans use an 'eligibility key' to assist their internal administrative staff to compare an applicant's responses with that of the healthcare professional completing the medical verification portion. These three agencies then access an external health services organization to undertake in-person interviews/assessments for a portion of applicants ranging from 50 to 70% in Kitchener Waterloo to 10 to 15% in Peel and the T.T.C.

Regina Transit reports that they receive a large portion of their applications from long term care facilities and persons participating in day programs. These individuals have undergone a detailed assessment to qualify for other services that Regina Transit

accepts as an equivalent. About 5% of other applicants participate in an in-person meeting with the agency.

Ottawa outsourced its specialized transit application and eligibility determination process to Lifemark Health Services in 2017. Occupational Therapists review applications and make the determination. An in-person component is a potential part of the process if required. So far, only one in-person assessment has been undertaken.

The Nelson\Nygaard report in 2009, recommended an in-person component for all applicants to ensure an equitable process for determining eligibility for specialized transit as well as to ensure that applicants understand their available travel options. C.U.T.A.'s *Canadian Code of Practice for Determining Eligibility for Specialized Transit* (2013) also emphasized the importance of the in-person component to deliver accurate assessments of abilities. In addition, Easter Seals Project ACTION guide, p.3-17, *Determining ADA Paratransit Eligibility – An Approach, Recommendations and Training Materials* (updated December 2014) notes 'including in-person interviews in the process typically results in finding far more applicants able to use fixed-route services some of the time'.

3.4.2 Conditional Eligibility

In the category of conditional eligibility, the individual can be reasonably expected to make some trips on the conventional service under certain conditions.

Less than 1% of existing Hamilton A.T.S. registrants are categorized as 'conditional'. An opportunity exists to increase conditional eligibility with a more robust assessment process. Existing conditions of eligibility are currently based on:

- Seasonal - ability to travel on conventional transit during summer monthly only; and
- Trip by trip - travel to approved locations only.

A small number of applicants are assessed as seasonal, that is, 0.3% in 2018 and 1% in 2019.

Other specialized transit agencies apply more conditions of eligibility. Calgary Transit Access uses these ten conditions which make up about 65% of their registrants: Snow

and ice; Cold weather; Hot weather; Rush hour; Dusk to dawn; Travel Training; Path of travel; Cannot transfer; Distance; Attendant required (mandatory P.C.A.).

T.T.C. Wheel-Trans assign these conditions as they advance their Family of Services initiative: Accessible T.T.C.; Unfamiliar Routes Only; Life Sustaining Treatments; Travelling Alone; Darkness; Rush Hour A.M.; Rush Hour P.M.; Summer Service; Winter Service. Most recent data indicate that 64% of active registrants have conditional eligibility.

In York Region, regardless of any disability, everyone starts off with conditional eligibility and is approved for Family of Services unless temporary or seasonal. Only after unsuccessful travel training would they be determined as unconditionally eligible.

Conditionally eligible registrants typically make less trips on specialized transit, due to the opportunity to use conventional transit for a portion of their trips. The existing Hamilton application process is not set up to identify conditional registrants. By adopting more specific conditions of eligibility, including an in-person component for a large portion of applicants, A.T.S. can advance its processes to more accurately match service level to applicant abilities.

Hamilton has an opportunity to increase the conditions of eligibility to support a family of services or integrated service model. Trip by trip eligibility is a foundational component of a Family of Services or integrated service approach.

3.4.3 Reassessment of Registrants

Reassessment or recertification, as it is sometimes called, involves reviewing existing registrants' eligibility for specialized transit after a specific time period to assess any changes in their abilities as well as improvements to the transit service's accessibility and advancements in assistive devices. Reassessment enables the transit service to ensure good matching of services available to those with the greatest needs and supports a continuous improvement approach to service delivery.

Reassessment of individual registrants is typically completed every three to five years and is incorporated into the agency's application review processes.

As noted in the Audit Report, A.T.S. has approximately 3,800 legacy active clients who use DARTS and/or Taxi Scrip accounting for about one quarter of DARTS trips and Taxi

Scrip booklets sold in 2018. In addition, those persons registered after 2012, have not undergone a reassessment process.

Most peer agencies have completed a reassessment of specialized transit registrants within the past few years or have a three to five-year reassessment cycle. Calgary, Ottawa, Regina and Grand River Transit set a maximum eligibility period at the time of registering for the service. This builds the reassessment into the administrative processes of these organizations. The benefits of reassessment include maintaining current and accurate information, ensuring fairness and equity is applied across the board and verifying that customers continue to be aligned with the right level of service for their needs.

Table 6 below outlines peer agency approaches to doing reassessment of registrants:

Table 6: Peer Approach to Reassessments

Agency	Approach to Reassessment
Regina	Five-year maximum eligibility
Calgary	Grant eligibility for a maximum of three years
G.R.T.	Eligibility expiry dates of three to five years set by Eligibility Specialists at the time of application approval registrants with permanent disabilities
Ottawa	Reassessments delayed due to pandemic – planning to do three year renewal process
D.R.T.	Currently reassessing registrants prior to 2015; considering implementing a reassessment cycle
T.T.C.	New eligibility process implemented in 2017. No reassessment unless registrant submits updated information to change conditions
Peel TransHelp	In 2017, completed reassessment of registrants with change in conditions of eligibility
Y.R.T.	If customers don't travel in 18 months, they are asked to reapply. If they don't, they become inactive. Reassessed if some reason arises to do so. Otherwise, only for temporarily eligible registrants
London	A mass reassessment undertaken as part of an eligibility update. Otherwise, only temporarily eligible registrants are reassessed

3.5 Recommendations

Based on the above assessment, the following changes to the application and eligibility determination process are recommended.

3.5.1 Application Process

It is recommended that the application process be reviewed and updated to:

Request potential applicants to make an initial contact to A.T.S. so that staff may use a structured screening process to assess if applying for specialized transit is appropriate.

Update the application form using information from peers to advance a Family of Services approach including travel training. Specific examples include York Region MobilityPLUS; T.T.C. Wheel-Trans; and Calgary Transit Access.

3.5.2 Increase In-House and Contracted Expertise and Capacity

It is recommended that A.T.S. engage health professional expertise to assess applicants' abilities and determine eligibility, and that A.T.S. establish an in-house Transit Abilities Coordinator position (1 Full-time equivalent). It is important that the person filling this position have qualifications in relevant healthcare services to administer the application process and to build internal capacity that supports a robust in-person evaluation component. Sample position descriptions are available from peers with similar roles. In addition, the Transit Abilities Coordinator can support travel training and orientation of specialized transit riders and work with the proposed Accessible Transit Coordinator (Travel Trainer) to implement improvements and coordinate efforts.

With an updated eligibility process, an enhanced customer appeal process will be required in order for applicants to request a review of their decision, including denial of specialized transit and the conditional eligibility assigned through the determination process.

It is also recommended that A.T.S. re-establish a contract with a third-party health services provider to complete more detailed abilities assessment, when required, and to undertake an updated appeals process.

3.5.3 Conditional Eligibility

It is recommended that A.T.S. increase conditions of eligibility as part of the intake process to include the following:

- Snow and Ice (formerly Winter Only or Seasonal) - it is more specific to the hazard experienced by individuals with conditions that expose them to falling;
- Hot weather and/or Cold weather;
- Dusk to Dawn (Darkness);
- Travelling Alone (No escort) - able to use specialized transit when alone. If accompanied, can access conventional;
- Unfamiliar Routes Only or Unfamiliar Destinations - have not travel trained to access these routes/areas;
- Extreme Fatigue (Life Sustaining Treatment) - unable to use conventional after treatment; and,
- Accessible Transit / Family of Services (Integrated Service) - able to travel on accessible conventional service and needs specialized service for portions related to path of travel barriers, distance, time of day, e.t.c.

3.5.4 Reassessment

It is recommended that A.T.S. set a maximum eligibility limit of three to five years for new applicants. For existing registrants (both active and inactive), including Taxi Scrip Only, it is recommended that they be reassessed using the updated application process and Family of Services approach in order to ensure those with the ability to use the now more accessible conventional transit for all or a portion of their travel needs and / or with supports such as travel training are aligned with the most appropriate service level. A more detailed discussion on the integrated service model is provided in **Section 4.0** of this report.

The reassessment should be completed over a four-year time period and if the recommended Transit Abilities Coordinator is adopted, this increased internal capacity could assist as well as the Customer Service Representatives who would no longer be required to do the full assessment of applications.

3.6 Potential Cost Savings

The four recommendations above are expected to lead to a reduction in registrants and the average trip rate made on specialized transit per registrant. The following assumptions were used to calculate potential cost savings.

3.6.1 Application Process:

1. Initial contact with staff when applying for specialized transit services can be accommodated within existing resources available within the A.T.S. Section of the Transit Division. No additional staff required.
2. Updating the application form can be completed in-house using existing resources. This will need to be updated on the City website, which can be done internally. It is assumed that the majority of these changes can be completed with existing resources and a one-time budget of $5,000 is expected to cover external resources to support full accessibility of materials.
3. In-house Transit Abilities Coordinator salary assumed to be $100,000 ($80,000 salary and 25% benefits).
4. Third Party health services provider to complete assessments for more complex needs and to support an updated Appeals process - $120,000 annually.
5. Taxi fares for applicants that do not have transportation to attend in-person assessments (assume 30% of applicants). Estimated to cost of $22,000 annually.
6. Keeping citizens informed and engaged is a key success factor. Budget $5,000 annually for communications and engagement initiatives regarding the application process and reassessment (see below).
7. Revised application process anticipated to result in the following (which is illustrated in **Table 7** below):
    a. A 20% reduction in number of applications made for A.T.S. services in first year after implementing in-person component;
    b. An increase in number of Conditional registrants to 30.6% by 2026 and 40.6% by 2031;
    c. An increase in application denials to 3%; and
    d. No change in Temporary/Visitor registrants assuming Visitors are accepted under reciprocal agreement with peers.

Table 7: Change in Eligibility Type by Year (% of Total)

Year	Unconditional	Conditional	Temporary	Visitor
2019	91.11%	0.47%	6.83%	1.59%
2026	61.0%	30.6%	6.83%	1.59%
2031	51.0%	40.6%	6.83%	1.59%

8. The number of trips made by each type of registrant is assumed to remain the same for unconditional, temporary and visitor registrants. For conditional registrants, this was increased from 32.67 trips per registrant to 50% of the trip rate of unconditional registrants (as noted in **Table 8** below). This is a conservative estimate since the existing trips per registrants is based on a very small sample size.

Table 8: Change in Trip per Type of Registrant

Year	Unconditional	Conditional	Temporary	Visitor
2019	98.04	32.67	36.92	31.09
2026	98.04	49.02	36.92	31.09
2031	98.04	49.02	36.92	31.09

3.6.2 Conditional Eligibility

1. No cost in changing the application to include more conditional eligibility.
2. Registrants who have conditional eligibility typically make fewer trips on specialized transit than registrants with unconditional eligibility. This is because certain trips can be made on accessible conventional transit routes (based on the conditions of eligibility noted). This will increase further if an Integrated Service Model is in place (see **Section 4.0** of the report).

3.6.3 Reassessment Process

1. This can be completed using existing staff and the recommended Transit Abilities Coordinator, spread over a four-year period.
2. Staff would reassess all registrants starting with those taking the most trips and have been registered for more than three years.
3. Reassessment is expected to achieve the following results:

a. 10% of active registrants would choose to not maintain their status (not go through the process);
b. 70% of active registrants that go through reassessment would maintain unconditional eligibility; and
c. 30% of active registrants that go through reassessment would move to conditional eligibility.

Based on the following assumptions, the implementation of the above recommendations will result in an initial investment of $5,000 for office equipment and set up of a new staff person, an annual investment of $5,000 for communications and engagement, an annual investment of $22,000 to pay for taxi fares to support transportation for a portion of applicants to in-person assessment interviews, and an ongoing investment of $220,000 for an in-house Transit Abilities Coordinator and an external Third Party contractor.

A change management plan should be developed to ensure an effective change management strategy is prepared and implemented to support a successful implementation of these improvements. This is estimated to cost between $15,000 to $30,000 for the strategy and an additional $30,000 for implementation.

These costs, along with the potential reduction in registrants and trips per registrant were added to the baseline financial model to determine any potential cost savings that would occur with the implementation of the above recommendations. This is illustrated in **Table 9**.

Table 9: Potential Cost Savings for Updated Application Process

Ridership and Costs	2019	2022*	2026	2031
Baseline Specialized Transit Trips	940,083	984,100	1,057,000	1,174,900
Reduction in Specialized Transit Trips from New Application Process and Reassessment	Not applicable	-38,500	-254,300	-281,600
Adjusted Specialized Transit Ridership	940,083	945,600	802,700	893,300
Baseline Operating Cost	$25,420,913	$26,642,300	$28,526,900	$31,575,900

Ridership and Costs	2019	2022*	2026	2031
Reduction in Operating Costs Based on Change in Application Process	Not applicable	-$943,496	-$6,391,307	-$7,248,038
Salary of Transit Abilities Coordinator	Not applicable	+$100,000	+$100,000	+$100,000
Third-Party Contractor (Detailed Assessments/ Appeals)	Not applicable	+$120,000	+$120,000	+$120,000
Transportation for a portion of in-person interviews	Not applicable	+$22,000	+$22,000	+$22,000
One-time Set-up Costs (office) and ongoing communications, e.t.c.)	Not applicable	+$10,000	$5,000	$5,000
One-time Change Management Costs	Not applicable	+$60,000	$0	$0
Total Operating Cost with New Application Process	$25,420,913	$26,008,600	$22,381,300	$24,576,800
Cost Difference	**$0**	**-$633,700**	**-$6,145,600**	**-$6,999,100**

*Note: Based on Year-One of Implementation and does not account for the impacts of COVID-19

Overall, the implementation of the above recommendation is anticipated to result in annual savings of $6.1 million by 2026 and $7.0 million by 2031 from 'business-as-usual' costs in the during the same horizon years. Much of this is due to the reassessment of existing clients and the reduction in trips made on specialized transit by conditionally eligible registrants.

3.7 Next Steps

There are a number of other benefits that will be realized through the revised application process noted above. These do not have monetary value.

A robust, abilities-based application process exposes citizens to the broad range of accessible services available to them in their community. It supports independent living and people sometimes with severe disabilities learn that they can do it and may not have experienced that had there not been this process in place.

If approved, recruiting the Transit Abilities Coordinator to support the work required to update the application and eligibility determination process is the priority.

4.0 Integrated Service Model / Travel Training

Supporting people to get to the places they need to go is at the core of public transit's reason for being. Making transit systems more and more universally accessible is a vision municipalities share in order to meet the needs of as many travelers as possible. Access to conventional transit that is accessible and functional has benefits for both riders and transit agencies. It offers the greatest level of freedom and flexibility for riders with a diverse range of abilities and needs.

Determining eligibility is about supporting individuals to access the right transit service for their needs. It necessitates focusing on a person's ability to use conventional transit under the right circumstances and the right conditions. With more and more accessible features and a customer experience focus becoming prevalent in transit agencies, an integrated approach to delivering services to people with different abilities is growing. Supporting use of conventional transit through travel training, good policies and procedures to create a supportive environment that welcomes persons with different abilities are elements of an integrated service model (also known as Family of Services).

Trending towards more integrated service, many agencies began offering this type of service in the 2000s. Low floor accessible buses started operating in the early 1990s with the majority of transit systems now deploying fully accessible fleets. As conditional trip by trip eligibility is integrated into the initial application and eligibility determination process, people applying for specialized transit can be assessed using a more accurate approach to match abilities with the service required to meet their needs.

As the costs of specialized transit service grows, transit agencies are exploring ways of integrating fixed-route and specialized transit in ways that remain consistent with the intent of legislation such as A.O.D.A. and continue to improve accessibility for all passengers, regardless of ability.

One of the most effective means of managing the costs of providing specialized transit services is shifting riders to accessible conventional transit service for part, or all, of their trip. The remainder of this section will examine the benefits and potential cost savings that would result from the development of a more integrated service delivery model for current specialized transit users, and the role that travel training could have in enabling a shift to conventional transit use and more integrated trips.

4.1 Auditor Recommendation

Recommendation #8 of the City Auditor's Report directs that the merits of different service options should be explored as a means of reducing costs, including adopting an integrated service model and expanded travel training.

Integrated service models are used or being introduced in Durham, York, Calgary and Toronto, and involve individual trips being provided by more than one accessible vehicle or by a combination of specialized and conventional transit service.

The report surmises that transit costs to the City will be reduced if more registered specialized transit customers use accessible fixed-route transit, even for part of their trip. The City Auditor suggests that this service model may be effective "within the H.S.R. service area where a client's most limiting factor is the distance they must travel to the nearest bus stop".

A key element to the successful transition of clients from specialized service to conventional transit is the provision of travel training. The City Auditor's Report states that travel training could be expanded to include a wider range of transit customers, including those who only use conventional transit, or do not yet use transit at all. The report also suggests that "a more inclusive training program may be beneficial if A.T.S. implements an eligibility renewal program or adopts an integrated service model".

This section of the report assesses the potential of this Auditor recommendation to be realized in Hamilton, and the potential for cost savings.

4.2 Background

4.2.1 Vision

A workshop was held with Transit Division staff to identify their vision that integrates conventional services with specialized transit to promote independence, inclusion and self-sufficiency for the customer. Operationally, the services would function in tandem. Staff would be trained on the service provision of both components with communication and information flowing freely between them to optimize service provision and enhance the customer experience. Operators of conventional transit would be familiar with categories of disability used by A.T.S. and be prepared to support customers of all abilities in using conventional service. Accessible infrastructure would

be prioritized as a standard practice, ensuring that all users can safely and reliably access transit services.

4.2.2 Defining and Integrated Service Model

An integrated service model would encourage the use of any type of transit service available to help a registered specialized transit client make their trip, subject to the conditions of their specialized transit eligibility. This typically would involve providing a multi-modal trip booking when the conditions of a client's eligibility are not met. For example, when a client calls to book a specialized transit trip, based on their eligibility, their trip might involve the customer using specialized transit at either or both the start and/or end of their trip to access an accessible fixed-route (conventional) transit service at an accessible fixed-route station, terminal or stop.

The reduction of the trip distance being provided by specialized transit service provides a proportional reduction in operating costs for that trip, while also ensuring that the specialized transit service is more likely to be available to those that cannot use an accessible fixed-route service. By contrast, when a client has unconditional eligibility, or conditional eligibility but their conditions are present, they will still receive a door-to-door specialized transit trip.

In deciding whether or not an integrated trip is appropriate, most transit agencies also consider the following elements:

- How many transfers/legs would the integrated trip require? Is the client capable of making them?
- Does the transfer location provide a safe, comfortable, and accessible waiting environment? Are there staff available at the transfer location to assist in the transfer if required?
- Does the conventional route that the client would be transferring to provide frequent and reliable service?
- Does the specialized driver need to wait for customers to board their next vehicle?
- Is the leg of the trip which would be made on conventional service long enough to justify the transfer? Are clients being inconvenienced by adding a transfer for only a short trip on conventional transit?

- Will the client have a similar trip duration for an integrated trip as they would a door-to-door trip?

4.2.3 Customer Benefits

An integrated service delivery model has the opportunity to introduce riders to conventional service who otherwise may not have chosen to use it independently. The conventional portion of an integrated trip would include an additional level of support from a booking agent, as well as travel training if it is provided, which may serve to reduce uncertainty about using conventional service. Furthermore, if a customer becomes comfortable using conventional service as part of an integrated trip or independently, this would increase their overall mobility and could be seen as an improvement in service.

4.2.4 The Role of a Travel Training Program

Travel Training is a service that teaches new and potential transit users how to plan and successfully complete trips on conventional transit. It can be targeted to existing and prospective specialized transit customers to promote their use of conventional service where possible, particularly in cases where a registrant is conditionally eligible for specialized service.

Providing travel training may also result in customers eligible for specialized services electing to use conventional transit, in order to take advantage of the increased flexibility and mobility it provides. Training may also be provided to users who have never been eligible for a specialized (or integrated) trip, providing education and awareness of how to use transit services to a wide range of audiences such as seniors, students and newcomers. A generalized travel training program may also divert or postpone registration for specialized transit services.

Elements of a travel training program may include:

- Group sessions providing general information about how to use transit;
- Written materials and brochures, including trip planning guides;
- Using an out of service bus to practice boarding and alighting with or without a mobility device;

- One-on-one on-street training wherein a Travel Trainer accompanies a customer through a trip from origin to destination or for a portion of the trip; and
- Partnering with community organizations that serve persons with disabilities and seniors to support them with information and tools to provide transit training as part of their programs.

4.2.5 Travel Training for Integrated Service Delivery

Travel Training is often offered in conjunction with an integrated service model, providing customers the opportunity to learn how to transfer to and from conventional portions of an integrated trip. Many conditionally registered persons with disabilities may be able to use conventional transit for part of their trip, but accessing or transferring to conventional service may present additional complexities. In many cases these barriers can be overcome for recurring trips made through one-on-one training, in which a Travel Trainer helps the customer identify the correct platform or location to board a conventional vehicle, board the vehicle, pay their fare, secure their mobility device (if applicable), identify their stop, disembark, and find their specialized vehicle to transfer to (if applicable). In some cases, the training may also include how to plan a trip using maps and timetables.

4.3 Assessment of Existing Travel Training Program

A.T.S. has an existing Travel Training program in place for persons with developmental disabilities. The program is contracted to an outside organization to recruit participants and train them to use transit based on a combination of classroom and one-on-one on-bus training. The City provides a contract of $175,000 per year to train 100 participants to the Community Access to Transportation Program (C.A.T.). It should be noted that the program was temporarily discontinued due to the COVID-19 pandemic, although C.A.T. offered virtual training online from March to June 2021 under the terms of a revised interim funding agreement with the Transit Division.

The strengths and challenges of the existing program were assessed, as well as the potential external opportunities and threats that should be considered in expanding the travel training program.

Strengths

- **Travel Training Curriculum:** A.T.S. has access to the fully developed travel training curriculum currently being used by the Community Access to Transportation Travel Training program provided to participants with developmental disabilities, and there is a high level of awareness of the program within the special education departments of local high schools. This provides a strong foundation upon which the expansion of the Travel Training program can be built and tailored to meet the unique needs that may arise to ensure that some specialized transit users have individualized help; and,
- **Train-the-Trainer:** A.T.S. could pursue a "Train-the-Trainer" program using the existing curriculum and community networks. A.T.S. could train community advocates or organizations on the use of the conventional transit network, and then provide them with support (e.g. maps, timetables, tickets) as they assist their clients in navigating the conventional network.

Challenges

- **In-House Resources:** There are no in-house resources available to staff a dedicated coordinator for Travel Training, should that be required. It is also anticipated that an increase in budget to account for an additional staff member will not be available unless there is evidence that doing so will directly reduce specialized transit trips or trip costs. As noted above, however, it is possible that A.T.S. could leverage the existing Travel Training budget to hire a Travel Trainer and use existing materials and community partners to offer expanded travel training;
- **Communications:** In order to identify specific trips that a customer could be trained on and what service should be offered to a travel trained customer, new communication processes would need to be in place between A.T.S. and the specialized transit services contractor, and conventional H.S.R. scheduling information would need to be integrated in the specialized transit scheduling software. This would require additional functionality and training on the Trapeze software.

Opportunities

- **Community Partners:** There are a number of potential partners in the broader community who could participate in the Travel Training program in some capacity. High school and university students could be recruited as trainers as part of required volunteer hours or as summer student positions;
- **Peer-to-Peer Training:** There are also models wherein individuals who have disabilities conduct travel training, which has the added benefit of peer-to-peer interactions which may increase uptake; and,
- **Funding:** There is potential government funding support available for these positions. The Nelson\Nygaard report recommended hiring an internal resource to champion awareness and training, which would offer additional capacity internally to advance improved accessibility.

Threats

- **COVID-19:** COVID-19 has restricted the ability to conduct in-person training, which is essential for on-bus experiential learning, and to build comfort with using the network; and,
- **Customer Participation:** There is hesitancy on the part of some customers to participate in Travel Training as they may wish to remain on specialized transit service.

4.4 Assessment of Accessibility of H.S.R. Service

The successful roll out of an integrated service delivery model is contingent on a conventional transit network which offers safe, accessible, and reliable service. The following section provides an overview of the existing network, including its strengths, challenges, opportunities and threats.

Strengths

- **Fleet:** The entirety of H.S.R.'s bus fleet is equipped with accessible low floor buses which provide access for customers using wheelchairs, scooters and walkers. These vehicles have ramps that can be extended to create a flat surface for boarding and alighting with no steps. All buses have the International Symbol for Accessibility on the front and side of the vehicle to indicate this feature. Each

bus has two rear-facing wheelchair spaces which can accommodate persons using wheelchairs and scooters within the standard size of 30 feet wide by 48 feet in length. Conventional buses are also equipped with features which provide automated verbal on-board announcements and electronic visual display of all destination points or stops while the vehicle is being operated on route. If this system is inoperable, then operators will provide manual verbal announcements of all destination points or stops;

- **Driver Training:** All staff are required to complete A.O.D.A. Customer Service Awareness Training. As well, training regarding accessible service is incorporated as part of the hiring process. The role of operators in integrated trips, both conventional and specialized, would need to be clearly established through policies and procedures. This information must also be clearly communicated to the customer;
- **Bus Stop Infrastructure:** H.S.R. established Transit Bus Stop Accessibility Criteria & Guidelines in 2014 which can be used to identify which bus stops are accessible. The criteria do not consider the context of the site outside the immediate vicinity of the stop itself in terms of cleared pedestrian infrastructure. H.S.R. is in the process of developing a software to manage and maintain a database of accessible bus stops in the system. There is interest in making this database available publicly to further promote the conventional service's accessibility. At time of writing, approximately 65% of H.S.R. stops are currently deemed accessible, which will increase to 69.1% by the end of the 2021 construction season based on planned upgrades; and,
- **Community Awareness and Promotion:** The Transit Division hosts an Annual Transit Accessibility Public Event, which provides the opportunity for the agency to share information and updates regarding accessible transit service to customers as well as an opportunity for customers to provide feedback and input regarding areas of interest and concern.

Challenges

- **Incident Management Process:** Implementing an integrated service delivery model requires a strong incident management process to support vulnerable persons using conventional transit. The transfer process between specialized transit service to conventional transit can present risks such as bus pass-ups, loss

of power in a motorized mobility device, or unexpected service disruptions. H.S.R. would benefit from having stronger policies in place to mitigate potential issues. Further, as existing H.S.R. supervisor vehicles are also not accessible, it is noted that H.S.R. would a benefit from having accessible supervisory vehicles to provide on-site support as a means to address some of these risks (e.g. transport a non-ambulatory specialized transit. passenger that was not able to board a conventional bus);

- **Route Frequency:** There are two personal mobility device (PMD) seats available on conventional buses which would limit the number of non-ambulatory customers able to board a given trip. The selection of bus routes used for integrated trips would need to take route frequency into account as this high frequency (e.g. every 15 minutes or less) reduces the negative impacts of a pass-by in such a scenario. In the current network, approximately 5 routes have a peak frequency of every 15 minutes or less;
- **Booking, Scheduling and Dispatching:** Booking, scheduling, and dispatch of specialized trips is currently the responsibility of the contractor for specialized transit (DARTS). The lack of integration between scheduling software used for conventional service by H.S.R. and specialized service by the contractor would need to be overcome, by investing in software upgrades or changing the entity responsible for booking trips;
- **Travel Training:** A robust travel training program, integrated trip orientations, and public promotions regarding the accessibility of conventional service are essential for the successful implementation of a Family of Services model. Internal capacity and staff resources must be built up and a thorough, strategic action plan developed to support these initiatives;
- **Layover Area for Specialized Transit Vehicles at Terminals/Stops:** Best practice involves the identification of accessible terminals, stations and stops where the transit service provider has determined that eligible specialized transit users can be dropped off, picked up, and wait unaccompanied in order to transfer between specialized and conventional transit. Through discussion with Transit Division staff, it was determined that there are only two transit terminals in the network that have room to accommodate a layover area for a specialized transit vehicle; and,

- **DARTS Dedicated Contract Model:** The contractor for specialized transit services, DARTS, contracts 59% of its trips to three (3) dedicated Subcontractors to deliver service (2019 data). The Subcontractors charge DARTS a flat fee for every trip delivered. There is no adjustment in fee based on the number of rides that are shared in the vehicle or the distance of a trip. One of the challenges with this model under an integrated service delivery approach is that integrated trips may cost DARTS more, even if the overall length of the trip on DARTS is less. For example, a single 15 kilometre door-to-door trip provided by a dedicated subcontracted service would be one flat fee of $22.40 (2019 average based on all subcontractors), while an integrated trip with a two kilometre DARTS drop-off at terminal and two kilometre DARTS pick-up at the end of the conventional portion of the route would be considered two trips, and would be a total fee of $44.80. Existing DARTS scheduling practices do not prioritize placing trips on in-house dedicated service, which charge by the hour and would see cost savings under an integrated model. The contract pricing model would need to change in order for an integrated trip model to be more cost effective than the existing door-to-door model.

Opportunities

- **Expansion of the Network:** The H.S.R. network currently provides good coverage of the city, and many destinations are within fairly short access of existing conventional transit service. As the H.S.R. fleet is 100% low floor accessible, and the number of accessible stops is increasing every year, the Integrated model becomes easier to implement, and a more viable option for specialized transit users. Planned future investments in both LRT and the BLAST network will further enhance the viability of the integrated service model by introducing more reliable and high frequency routes across the city which specialized customers could use.

Threats

- **Customer Participation:** It is likely that some specialized clients would dislike transferring or making use of the conventional transit network. Accustomed to receiving a door-to-door specialized trip, it is possible that the integrated model will not be well received, and if optional, it is likely that at least in the beginning, few specialized users will choose to use this option. To mitigate this threat,

change management will be required, including discussion and consultation with stakeholder organizations and A.T.S. customers. As well, ensuring that the service quality (e.g. frequency, on-time performance) of routes used in integrated trips is of a high standard may increase customers' willingness to transfer to conventional service for a portion of their trip.

4.5 Benchmark Review

A benchmark review was completed with a number of peer specialized transit agencies to determine best practices and lessons learned. The following section summarizes the key highlights from interviews conducted with agencies that have travel training and integrated trip models in place.

4.5.1 Eligibility

Peer transit systems interviewed are at various stages of implementing a Family of Services (integrated service) model. For example, York Region Transit (Y.R.T.) has a high level of conditionally eligible registrants at 92%. Calgary reports about 65% conditionally eligible registrants across 10 eligibility conditions. Ottawa reports that it is tying its adoption of a more integrated service with the rollout of its light rail system over the next few years. The T.T.C. has adopted nine eligibility conditions for 64% of its registrants, associated with ability to use fixed-route transit for some trips or portions of trips and invested in improving key transit hubs to support a more universally accessible transit system overall. Eligibility decisions tied closely to travel training and integration with conventional transit are prevalent and deemed essential by the transit systems.

Integrated trip delivery is in the initial stages of implementation in Grand River Transit (G.R.T.), Calgary and OC Transpo (Ottawa). In these agencies, specific transfer points and routes have been identified as well-suited for integrated trips, and customers may voluntarily book trips that include transfers on conventional service. They may be encouraged to do so in cases where transferring is convenient and may result in time savings (i.e., transferring to a Light Rail Transit (L.R.T.) vehicle for long-distance trips).

Specialized transit customers using the T.T.C. may be offered integrated trips based on their eligibility and any associated conditions. When none of their conditions are met in a given trip, they will be offered an integrated trip. At this time, customers can choose to opt out of integrated trips; however, this will no longer be available starting in early

2022, at which time conditionally eligible customers will only be able to book door-to-door trips when their conditions are met. The T.T.C. has noted that uptake of Integrated trips has been limited while the program is optional, and that a significant increase in integrated trips is anticipated when this model becomes mandatory.

Eligibility may also be tied to travel training. For example, Y.R.T. customers will not be booked for a Family of Service trip until they are travel trained on that specific trip. However, once they have received and successfully completed training, customers will not be offered door-to-door trips when travelling between the same origin and destination under similar conditions or eligibility (e.g. weather).

4.5.2 Integrated Trip Routes and Transfer Points

The success of an integrated service delivery model relies on high-frequency, reliable conventional service as well as appropriate locations for customers to transfer between specialized and conventional vehicles. All agencies emphasized the importance of high frequency on routes used for integrated trips, as this reduces overall trip time, transfer time, and serves as a buffer in cases where a customer misses their connection or cannot board the vehicle because there are no available spots. Where higher order transit or express routes are available like in Toronto, Ottawa, Calgary, York Region and Waterloo Region, those routes are strong candidates for trip integration. Agencies without these services can also select routes based on the context of their service area, such as Durham Region Transit, which emphasizes its Pulse Bus Rapid Transit network for integrated trips due to availability of long distance, high-frequency routes with transit priority.

There are a number of important characteristics that must be present in an integrated trip transfer point in order to facilitate integration. The transfer point must be at a stop or terminal that a conventional route serves, and the stop or terminal must be accessible. Sufficient platform or curbside space must be available for the conventional vehicle to pick up and drop off passengers as well as for the specialized vehicle to drop off, pick up, and if necessary, wait for integrated trip passengers. Basic amenities such as lighting, benches, and shelters are required by all agencies for integrated transfer points.

4.5.3 Targeted Demographics for Travel Training

The targeted demographics for Travel Training vary across transit systems, highlighting different goals of each agency's program. Some programs are intended to support customers who are not eligible for specialized transit but who require some level of assistance to comfortably and safely use the conventional service. This approach is taken by TransLink, Grand River Transit, Calgary Transit and OC Transpo. Calgary is in the early stages of implementing Travel Training for their "Link" (i.e. integrated) trip passengers, however apart from this group, Travel Training is not targeted to specialized transit users. Instead, Travel Training is offered to all members of the community with the goal of removing barriers to conventional transit. These models may use group training sessions exclusively, one-on-one training exclusively, or a combination of both.

Another approach of Travel Training targets registered specialized transit users, offering higher levels of support to use conventional service for part or all of their trip. Regina Transit does not offer integrated trips and as such their Travel Training program provides training for customers to fully replace specialized trips with conventional trips. Other agencies such as Y.R.T. and T.T.C. use Travel Training to support specialized transit users in completing integrated trips. Y.R.T. links Travel Training to an individual's eligibility for an integrated trip; the first time an integrated trip is booked, Travel Training will be scheduled, and only after it is successfully completed will that customer be booked on that specific integrated trip. In this way Travel Training is a prerequisite for integrated trips for Y.R.T. customers, while T.T.C. offers but does not mandate Travel Training for their integrated trips.

4.5.4 Travel Training Processes

Travel Training can be provided in-house or contracted to an external vendor. OC Transpo (Ottawa) and Regina Transit fully outsource their Travel Training programs and do not directly administer the programs. OC Transpo provides "Travel Training passes" (fare cards) to over 100 local partners such as schools, community agencies, hospitals, and rehabilitation centres. Trained staff from each of these partner organizations conduct training sessions independently; OC Transpo's only involvement is providing the Travel Training passes. This allows for individuals to receive training from someone who is an expert in their specific disability, which is beneficial as the barriers to accessing

transit that must be addressed through the training may differ significantly from person to person depending on their individual conditions.

Regina Transit partners with a community organization that trains individuals that work or volunteer with persons with disabilities to administer training to specialized transit customers. This structure benefits from the positive reputation that the partnering agency has in the community, as well as the efficacy of a peer-to-peer training relationship. Travel Trainers have become champions for transit in the community, helping trainees navigate the physical logistics of accessing conventional transit while more generally promoting the service in an authentic manner. Regina Transit has a $10,000 annual contract with the community agency for providing this service.

Another Travel Training model utilizes internal transit agency staff to conduct training. Some agencies have dedicated Travel Trainers whose primary responsibility is related to the programs, such as in Calgary and Toronto. Other systems have roles that span specialized transit eligibility/assessment as well as Travel Training, as is the case in Y.R.T. and G.R.T.

Calgary Transit's Travel Training participants are often referred to the program as part of the specialized transit assessment process if they are deemed not eligible; customers can also reach out to the agency proactively to request training. The latter is the most common method for customers to access Travel Training across all agencies, particularly when there is limited availability of staff. In contrast, Y.R.T. proactively schedules Travel Training the first time a customer takes a specific integrated trip.

On-vehicle training follows a similar structure across all systems, wherein a Travel Trainer meets the customer at their home or at the platform of their first transfer point, depending on whether the training session is for a fully conventional or integrated trip. The Trainer shows the customer how to read and understand bus schedule information, identify and board their vehicle, provide fare payment, use any accessibility features located on the vehicle, identify their stop, exit the vehicle, and identify their transfer to a specialized vehicle in the case of an integrated trip, or navigate to their end destination.

4.5.5 Performance/Cost Savings

All agencies interviewed that operate Travel Training noted positive impacts of the program, either anecdotally or through quantifiable means such as survey results or cost reductions. The scope of these impacts varied based on the intended goals and targeted participants of each agency's program. These are illustrated in **Table 10** below.

Table 10: Potential Impact of Travel Training from Peer Agencies

Agency	Program Structure	Impact
Grand River Transit	• Specialized and non-specialized users • One-on-one and group sessions • In-house with some community partnerships	Anecdotal positive public response
Calgary Transit	• Non-specialized users only, except for minimal Link (integrated) trip users • One-on-one and group sessions • In-house with some community partnerships (Train the Trainer)	Successful completion of program: • 2019: 76% (28 of 37) • 2020: 92% (34 of 37)
OC Transpo	• Non-specialized users • One-one-sessions • Administered through community partnerships	In 2018, 90% of participants (2,465 total) successfully completed the program. Of those: • 47% of participants use transit independently • 43% are able to use transit with the assistance of a support person or are still in training
Toronto Transit Commission	• Specialized users • One-on-one sessions, group sessions, phone sessions • Administered in-house	100-150 individuals trained per year, with very positive feedback from participants
TransLink	• Open to everyone • Group sessions • Administered in-house	Post group session surveys indicate increased likelihood to use conventional transit, more favourable view of TransLink

Agency	Program Structure	Impact
Regina Transit	• Specialized users • Largely one-one-sessions • Administered by community agency, annual $10,000 cost	90% of participants successfully complete the program In 2019, 2,325 conventional transit trips were taken by registered specialized transit users who had received Travel Training, resulting in approximately $36,500 in annual savings
York Region Transit	• Separate program for specialized and non-specialized users • One-one-one sessions for specialized users learning integrated trips • Group sessions for non-specialized • Administered in-house	Very successful in supporting customers to use conventional service 2019: Mobility On Request Operated 9,668 Family of Service trips saving approximately $115,700 paid revenue kilometres - Travel Training integral for Family of Services trips.

4.6 Recommendations

The following section identifies preliminary recommendations that were costed to determine the potential for cost-savings to A.T.S.

4.6.1 Integrated Service Delivery Model

An integrated service delivery model should be implemented by the Transit Division, with an initial focus of one or two routes, with further expansion as the planned BLAST rapid transit network and L.R.T. expands.

The benchmarking review of peer agencies highlighted the importance of selecting routes for potential trip integration with short headways and reliable service, with rapid or express routes particularly suitable for this purpose. A maximum peak headway of 15 minutes is recommended to minimize disruption in the case of a missed connection and reduce potential need for incident management support.

Trips that are integrated should provide comparable travel time to the customer as those that are provided door-to-door. This would suggest focusing on long-distance trips where the conventional portion of the route is direct and potentially has semi-express or transit priority features.

Therefore, a successful integrated model requires a comprehensive express or rapid transit network with specific transfer points that have sufficient space for both specialized and conventional vehicles through the transfer process, as well as amenities for customers.

Minimum and desired requirements for both integrated routes and transfer points that are recommended are provided in **Table 11**.

It is recommended that the guidelines identified above should be used to assess the existing bus network to identify potential integrated stops and routes. In the long-term, the BLAST network, future L.R.T. line and future expansion of GO Rail service would be ideally suited for the integrated trip model. As infrastructure related to these projects enters the planning phase, stops, stations and terminals should be designed with consideration for future specialized trip integration, ensuring dedicated platforms for this purpose are made available and accessibility features are prioritized.

In the short-term, an integrated trip model should be implemented on one or two corridors, selecting suitable trips on a case-by-case basis that provide customers with comparable travel times as direct door-to-door trips and reduce vehicle kilometres on specialized transit services.

The criteria in **Table 11** above was used, along with 2019 specialized transit trip Origin-Destination patterns to identify potential integrated routes and stations. Two recommended corridors were identified:

- 10 B-Line Express between Eastgate Terminal and downtown Hamilton; and
- Burlington Transit Route 1 and/or Lakeshore West GO Train between Aldershot GO Station and downtown Hamilton / West Harbour Station.

Table 11: Characteristics of Integrated Trip Routes and Transfer Points

Priority	Integrated Route	Integrated Transfer Point
Required	• 15-minute peak headways or less for bus or light rail service • Located on a long-distance arterial or passenger rail corridor (minimum 10 kilometres in length) • Vehicles that operate on corridors are fully accessible with two or more spaces for mobility aids • The majority of stops on the route are accessible	• Stop is accessible* • Paved hard surface path for passengers transferring between the specialized transit and conventional transit vehicles* • Sufficient space for specialized vehicle to layover without impeding the conventional transit vehicle • Integrated stop should be in place for both directions of the trip (within close proximity to each other) • Presence of adequate lighting, bench, shelter*
Preferred	• "Express" designation or rapid transit corridor (BRT, LRT or passenger rail) • 10-minute peak headways or less for bus or light rail service All stops on the route are accessible	• Located at a transit terminal or station with multiple connections to accessible transit routes • Customer amenities such as a washroom, heated shelters, indoor waiting area* H.S.R./GO Transit staff presence to address customer questions or potential incidences

*Note: All requirements should meet Hamilton's Transit Bus Stop Accessibility Criteria & Guidelines (2014)

Route 10 B-Line Express

This route operates at a 15-minute peak headway, providing a direct and rapid service between east Hamilton and downtown Hamilton. The Eastgate Terminal near the border of Hamilton and Stoney Creek provides an appropriate transfer point with the Route 10 bus that meets the criteria identified in **Table 11**. Other transfer points would need to be located along the route to pick up passengers and transfer them to a specialized vehicle for the remainder of their trips, if required. These should follow the criteria identified in **Table 11**.

Figure 1 illustrates the Route 10 B-Line Express, along with potential integrated stops that should be explored. An assessment of each of the integrated stops is shown in **Table 12** below.

Figure 1: Potential Integrated Route (10 B-Line Express)

Table 12: Potential Integrated Stops on Route 10 B-Line Express

Stop Names	Direction	Strengths	Challenges
East gate Terminal	Westbound	• Terminus station of 10 B-Line Express • Connection to specialized transit origins and destinations to the east • Multiple bus bays • Close access to shopping centre facilities • Provide access to east-end of Hamilton (Stoney Creek)	• Minimal
University Plaza	Eastbound	• Terminus station of 10 B-Line Express • Connection to origins/destinations to the west	• Only two bus bays in current configuration; space limitation • Would require expansion of terminal
King and Ottawa	Westbound and Eastbound	• Bench, shelter, parking lot for specialized vehicle to layover	• Commercial parking lot, need to ensure permission
King and Sherman	Westbound	• Bench, shelter, parking lot for specialized vehicle to layover	• Commercial parking lot, need to ensure permission
King and Wentworth	Westbound	• Bench, shelter, parking lot for specialized vehicle to layover	• Commercial parking lot, need to ensure permission
King and Dundurn	Westbound	• Bench, shelter, parking lot for specialized vehicle to layover	• Commercial parking lot, need to ensure permission
Main and Dundurn	Eastbound	• Bench, shelter, parking lot for specialized vehicle to layover	• Commercial parking lot, need to ensure permission
Main and Wellington	Eastbound	• Bench, shelter, parking lot for specialized vehicle to layover	• Commercial parking lot, need to ensure permission
Main and Wentworth	Eastbound	• Bench, shelter, parking lot for specialized vehicle to layover	• Commercial parking lot, need to ensure permission

GO Train / Burlington Route 1

A second option that is recommended to be explored involves transit services that operate in Hamilton by other agencies. Both routes provide potential connections to the community of Waterdown, where a specialized transit or an On Demand vehicle (currently being piloted in the community) can be used to connect specialized transit customers to/from the Aldershot GO Station.

Burlington Transit operates Route 1 between the Appleby GO Station and downtown Hamilton via the Aldershot GO Station at a 10-15 minute peak headway. H.S.R. currently has a service and fare integration agreement in place with Burlington Transit, where passengers transfer between Burlington and H.S.R. buses at no additional cost.

Metrolinx recently announced the expansion of two-way all-day GO Train service between Aldershot GO Station and West Harbour GO Station. GO Transit has a co-fare agreement in place with H.S.R. where passengers only pay $0.75 on H.S.R. when transferring to/from a GO Train at a GO Train Station.

Both options would require discussions with Burlington Transit and Metrolinx regarding service integration and communications. The potential to use the GO Train as part of an integrated trip would also require further discussions with Metrolinx regarding fare parity with an equivalent door-to-door trip on specialized transit (how is the cost-difference covered).

4.6.2 Booking Integrated Trips

Implementing an integrated delivery model may require either a change in use or an upgrade of the existing Trapeze scheduling software (Version 18) to allow specialized transit reservations staff to:

- access information on conventional service (H.S.R., Burlington Transit and GO Transit) to book/schedule an integrated trip (the software currently has access to Google Transit Feed Specification data to allow this to occur); and
- access additional information from A.T.S. regarding customers' conditional eligibility for integrated trips, while ensuring sensitive client information remains confidential.

It is recommended that the Travel Trainer work with the Transit Division, specialized transit services, and Trapeze to better understand the functionality of the existing scheduling program and access components of the platform that allow the specialized transit reservations personnel to see the conditions of eligibility of each client, including where a client has been deemed able to take an integrated trip. The specialized transit booking agent would also need access to H.S.R. routes to determine which trip may be appropriate for an integrated trip.

4.6.3 Conditional Eligibility

It is recommended that integrated trip delivery remain voluntary until:

- additional integrated routes and corridors are identified and implemented (e.g. the introduction of the BLAST network); and
- scheduling software integration between conventional and specialized transit services is complete.

Multiple agencies have taken a slow, methodical approach to introducing this service approach. It is essential that any shifts towards an integrated service model are accompanied by sufficient engagement with the community to ensure understanding of the service and its benefits. As the BLAST and L.R.T. network expands, with high quality infrastructure at transfer points is in place, transitioning to mandatory integrated trips within a customers' abilities would result in the highest reduction in vehicle kilometres travelled on specialized vehicles.

4.6.4 Incident Management

In order for H.S.R. to be responsive to incidents in a timely manner, it is recommended that a portion or all supervisor vehicles be replaced with wheelchair accessible vans when they reach end of life, and that all expansion DARTS supervisor vehicles are similarly accessible. The cost of a wheelchair accessible van is between $65,000 - $75,000 plus tax, so it is recommended that the costs of replacement vehicles be increased between $15,000 - $25,000.

Policies and processes for incident management should also be developed, including how to respond when pass-bys occur, when specialized transit vehicles are late for a

connection, when severe weather conditions exist, when a specialized transit customer needs assistance due to a mobility aid issue, e.t.c.

4.6.5 Travel Training

It is recommended that A.T.S. hire a full-time in-house Travel Trainer, with a title of Accessible Transit Coordinator, to lead the following functions:

1. Develop a comprehensive travel training program using the material already developed as part of the existing Community Access to Transportation (C.A.T.) Travel Training program targeted for persons with developmental disabilities. This would need to be modified and expanded to be applicable for other A.T.S. registrants (e.g. persons that use a mobility aid) and Hamilton residents that are not registered for specialized transit (e.g. seniors, students and newcomers).
2. Update travel training material to consider the production of a short "how to ride" video or visual guide to share online via the "Riding H.S.R." web page. This material should then be shared as a resource with other community organizations, many of whom already provide general orientation on services like transit.
3. Liaise with community organizations to develop and administer a 'Train-the-Trainer' program, where representatives would be certified by A.T.S. to deliver the program one-on-one or in group settings where appropriate. Another branch of the "Train-the-Trainer" program could be the introduction of "Bus Buddies" so that in addition to receiving specialized training on a particular trip, volunteers could be trained to accompany people for their first few integrated trips to ensure a high level of comfort with the network.
4. Help implement the Integrated Trip model noted above, including:
    a. Review and confirm routes and terminals/stations and stops that meet integrated service criteria noted in **Table 11;**
    b. Develop communication materials to promote the change in trip delivery model to new registrants, existing customers, specialized transit booking agents/ schedulers/dispatchers and specialized / conventional transit operators;
    c. Oversee any updates to Trapeze and operating agreements that need to be completed to provide integrated trips; and

d. Work with the Transit Abilities Coordinator to identify potential customers that may be eligible for an integrated trip.

5. Conduct one-on-one Travel Training with individuals identified as having a conditional eligibility based on traveling to an unfamiliar destination.

As noted above, a strong travel training program is critical to the successful implementation of an integrated service delivery model. To this end, it is recommended that all applicants with conditional eligibility be offered Travel Training to increase their comfort and safety in accessing the conventional transit network. It is recommended that this take place in person, where possible.

The delivery of integrated trips will be phased in slowly, focused at first on voluntary trips on one or two conventional transit corridors. This will allow the Travel Trainer to spend the majority of their time early developing the Travel Training program and overseeing the implementation of an integrated trip model.

Developing a comprehensive Travel Training program that serves the needs of specialized, prospective, and integrated trip passengers takes concrete steps towards the vision of transit as a service that prioritizes accessibility for all users and residents of Hamilton. While Travel Training that does not directly target specialized users may not lead to direct cost savings for A.T.S., the quality of life improvements related to independence that conventional transit can bring for seniors, persons with disabilities, newcomers and others with concerns about taking transit are immense. Furthermore, encouraging Hamilton residents who are not eligible for specialized transit and currently use non-transit methods of transportation to shift mode to transit can support the Transit Division's long-term mode shift and ridership goals.

4.7 Potential Cost Savings

The potential cost savings to A.T.S. of expanding travel training and introducing an integrated service model was calculated based on the recommendations noted above. To calculate the potential benefit, the following assumptions were used:

4.7.1 Operating and Capital Costs

1. The Full-time Accessible Transit Coordinator (Travel Trainer) would have an annual salary of $90,000 (salary of $75,000 plus 20% for benefits). In anticipation

of offering an expanded Travel Training program, and in the development of promotional materials for the Train-the-Trainer approach, it is recommended that an additional $10,000 per year is budgeted for materials, training, translation, and where appropriate, the production of educational videos.

2. By 2022, one supervisor vehicle will be replaced with an accessible supervisor vehicle. An additional two replacements are assumed by 2026 and one additional by 2031. The cost difference between a standard and an accessible supervisor vehicle is assumed to be $15,000 to $25,000 depending on the vehicle chosen.
3. All capital costs to upgrade terminals and stops to make them meet the criteria for an integrated trip are assumed to be incorporated in the design and construction of the BLAST network and L.R.T., and therefore are not noted separately.
4. Upgrades to the Trapeze software would be required to allow A.T.S. to configure additional eligibility conditions (one-time training cost of $8,900). Upgrades to the software are also required to allow specialized transit scheduling and dispatch staff to see an integrated trip option ($116,200 one-time cost for licenses and implementation and an ongoing $11,400 for support).
5. No additional staff would be required to book and schedule integrated trips than are currently required to book and schedule door-to-door trips.
6. The $175,000 annual budget the City has allocated for the existing travel training program could be allocated to the above noted costs. This was removed from the costs noted above.

4.7.2 Travel Demand Assumptions

The following assumptions were used to calculate the potential change in travel demand and operating cost for specialized transit as a result of the integrated trip model and travel training.

1. The strongest potential market for an integrated trip is for current subscription specialized transit trips that are 10 kilometers in length or longer, made by ambulatory clients. This represents 23% of all trips made in 2019. This is identified as a conservative estimate to capture longer trips that are made frequently; recognizing there may be recurring reservation or same day trips that are made that would also be suitable for an integrated trip. Reservation and same

day trips over 10 kilometres in length represent an additional 18% of all specialized transit trips.

2. **Table 13** illustrates the reduction in specialized transit trips over 10 kilometres in length. This reduction was applied to existing 2019 trips noted in **Table 14** below. Ambulatory passengers were assumed to have a higher potential to switch to an integrated trip than non-ambulatory passengers. Subscription trips were also a higher potential due to the reoccurring nature of the trip. The full shift to integrated trips would only be realized by the 2031 horizon, when the entire BLAST network and L.R.T. are anticipated to be in place. The system is planned to have strong coverage of most of the City, and is anticipated to include five routes: two L.R.T. lines, and three bus rapid transit (B.R.T.) lines. By 2026, it was assumed that two of the BLAST network B.R.T. routes would be in place, thus the potential for integrated trips was only assumed to be lower.

Table 13: Reduction in Long-Distance Trips (over 10 k.m.) by Year

Registrant	2026	2031
Subscription Ambulatory	5.0%	15.0%
Subscription Non-Ambulatory	2.5%	7.5%
Reservation Ambulatory	3.0%	10.0%
Reservation Non-Ambulatory	1.5%	5.0%
Same-Day Ambulatory	3.0%	10.0%
Same-Day Non-Ambulatory	1.5%	5.0%

3. Every long-distance specialized transit trip that was reduced to accommodate an integrated trip was also replaced by 1.25 short-distance trips (under 2 kilometres). This assumes a specialized transit vehicle was used to take the passenger to/from the conventional transit transfer point on one leg of their journey and for 25% of trips on the second leg of the journey. This assumed that the bus stop was close enough to the origin or destination, and the passenger would not require a connecting specialized transit vehicle 75% of the time).
4. While the number of specialized transit trips increase under the integrated service model (one long distance trip is replaced by 1.25 short-distance trips), the average trip distance is reduced system-wide. **Table 14** below illustrates the 2019 trips made by average length of trip. This translates into an average trip distance of 10.33 kilometres. Applying the long-distance trip reduction factor in **Table 13**, and the increase in short distance trips noted above, the average trip distance is estimated to decrease by 3% (10.05 kilometres) by 2026, while the number of trips would increase by 0.4%. By 2031, the average trip distance is estimated to decrease by 8% (9.46 kilometres), while the number of trips would increase by 1%. This is illustrated below:

Table 14: Change in Trips and Average Trip Length due to Integrated Trips

Trip Kilometres	2019 Trips	2019 K.M.	2026 Trips	2026 K.M.	2031 Trips	2031 K.M.
< 5	233,796	467,592	248,777	497,554	280,354	560,708
<10	222,487	1,668,653	222,487	1,668,653	222,487	1,668,653
<20	237,459	3,561,885	228,625	3,429,378	210,008	3,150,121
<30	65,464	1,636,600	63,007	1,575,176	57,838	1,445,948
<40	15,534	543,690	14,962	523,660	13,747	481,145

Trip Kilometres	2019 Trips	2019 K.M.	2026 Trips	2026 K.M.	2031 Trips	2031 K.M.
<50	2,761	124,245	2,660	119,684	2,443	109,932
>=50	557	33,420	536	32,186	493	29,552
Total*	**778,058**	**8,036,085**	**781,054**	**7,846,292**	**787,370**	**7,446,058**
Increase	**Not applicable**	**Not applicable**	**2,996**	**-189,793**	**6,315**	**-400,233**
Average Trip Length	**Not applicable**	**10.33**	**Not applicable**	**10.05**	**Not applicable**	**9.46**

*Note: Not all 2019 trips were reported by trip distance due to an issue with the software. This does not substantially impact the analysis.

5. The calculation of potential savings from an Integrated trip is based on the following assumptions:
    a. The average trip distance would reduce to the distanced noted in **Table 14** above. This assumed a reduction in the number of long distance trips and an increase in short-distance trips.
    b. To calculate potential reduction in specialized transit trip kilometres, each integrated trip would represent a reduction in one long-distance trip and an increase in 1.25 short-distance trips (assuming a specialized transit vehicle would provide the first-mile and 25% of the last-mile of each integrated trip).
6. Changes to specialized transit trips from an increase in integrated trips were distributed to each of the current specialized transit contractor and subcontractors, using the same distribution that exists in 2019. Potential cost savings were calculated based on the operating cost and cost structure for each provider. This means:
    a. 39% of these rides occurring on a dedicated contracted municipal service at an hourly rate of $72.02.
    b. 59% of these rides occur on a dedicated subcontracted service at a per trip cost of $22.40.
    c. 3% of these rides occurring on a non-dedicated subcontracted taxi service at a per trip cost of $18.16.

7. The integrated model would see an increase in overall trips on specialized transit, but these trips would be much shorter and result in fewer service kilometres. For trips made by specialized transit vehicles, the average number of trips per vehicle would increase from 5,557 in 2019 to 5,713 in 2026 and 6,069 in 2031 due to the decrease in average trip distances.
8. For subcontracted trips, there would be an increase in trips under the integrated trip model, and the reduction in average trip length would not factor into any cost reduction (as the contract model is based on a cost per trip).
9. General Travel Training, to be conservative, results in a 1% reduction in trips made on specialized transit initially, growing to 1.5% by 2031.

Table 15 illustrates the potential cost savings with the implementation of an Integrated Trip Model and Travel Training.

Table 15: Potential Cost Savings to A.T.S. from Integrated Trip and Travel Training

Trip and Costs	2019	2022	2026	2031
Baseline Specialized Transit Trips	940,083	984,100	1,057,000	1,174,900
Reduction in Specialized Transit Trips due to Travel Training	Not applicable	-8,900	-9,600	-16,000
Increase in Specialized Trips (1.25 Short-Distance Trips per 1 Long-Distance Trip)	Not applicable	+700	+3,300	+10,100
Adjusted Specialized Transit Ridership	940,083	975,900	1,050,700	1,169,000
Baseline Operating Cost	$25,420,913	$26,642,300	$28,526,900	$31,575,900
Existing Travel Training	$175,000***	-$175,000	-$175,000	-$175,000
Accessible Transit Coordinator	$0	+$90,000	+$90,000	+$90,000
Software Upgrades Implementation	$0	+$125,100	$0	$0
Ongoing Software License Fees	$0	+$11,400	+$11,400	+$11,400

Trip and Costs	2019	2022	2026	2031
Accessible Supervisor Vehicle Upgrade ($25,000 per unit)	$0	+$25,000	+$50,000	+$25,000
Communications and Marketing	$0	+$5,000	+$5,000	+$5,000
Total Operating Cost with Integrated Service and Travel Training	$25,420,913	$26,456,100	$28,033,500	$30,158,800
Cost Difference	**Not applicable**	**-$186,200**	**-$493,400**	**-$1,417,100**

*Note: Assumes the $175,000 currently dedicated to Travel Training would be removed and replaced with the costs noted above

**Note: Based on Year-One of Implementation and does not account for the impacts of COVID-19

***Included as part of the Baseline Operating Cost

****Note: All forecasts rounded to the nearest 100

The implementation of an Integrated Service model would result in a cost decrease of $493,400 by 2026 and $1,417,000 by 2031.

4.8 Next Steps

Regardless of the potential for cost savings, it is recommended that the Transit Division continue to implement travel training and the integrated service model as described in this report. Introducing specialized transit users to conventional service through integrated trips may increase their familiarity with conventional service offerings and result in a greater ability on these customers' part to utilize them. This would improve overall mobility for seniors and persons with disabilities by increasing the number of travel options available to them.

If a Travel Training model incorporates the use of peer-to-peer training, it can provide meaningful employment opportunities for persons with disabilities.

For additional cost savings to be realized for the integrated service model, A.T.S. will need to integrate the application process recommendations noted in **Section 3.5** of this

report and work with the contractor for specialized transit services to modify the operating model and contract structure used for scheduling trips.

An integrated service model does not reduce the number of trips taken on specialized transit vehicles; rather, it reduces the number of vehicle kilometres travelled on specialized transit. In some cases, it may lead to an increased number of trips overall: a single door-to-door trip may be delivered as by up to two separate trips on either end of a conventional transit journey. A system such as Y.R.T., which accrues specialized transit trip costs based entirely on kilometres travelled, has experienced significant savings based on the reduction of specialized vehicle kilometres travelled after implementing a Family of Services or integrated trip model.

In Hamilton, the specialized services contractor DARTS vehicle costs are charged on an hourly basis, and vehicles subcontracted by DARTS are charged per trip, regardless of length. The scheduling software used by DARTS assigns trips to DARTS vehicles or subcontracted vehicles based on location and the desire to accommodate trip requests and is not optimized to prioritize in-house DARTS service for trips. Thus, the amount of savings related to reducing specialized trip vehicle kilometres travelled may not be optimized if the specialized portions of integrated trips are delivered by vehicles subcontracted by DARTS.

To better optimize the potential for savings, it is recommended that A.T.S. work with the specialized services contractor DARTS to change the fee structure DARTS has with its current subcontractors in order to optimize potential cost savings.

5.0 Community Bus

5.1 Auditor Recommendation

Recommendation #8 of the City Auditor's report directs that the merits of different service options should be explored as a means of achieving cost savings, including the implementation of Community Bus services.

5.2 Background

Community Bus services are typically operated by conventional transit services, but are designed to provide localized transit options that largely cater to seniors and persons with disabilities. These bus routes are designed around key destinations for the targeted demographic, such as assisted living residences, seniors' centres, medical clinics, shopping centres, and hospitals. Community Bus routes typically travel through local streets with short distances between stops to reduce walking/rolling distances and to improve accessibility. Accessible vehicles ranging from lift-equipped vans to low-floor 40-foot buses can be used depending on the level of ridership on the route and the availability of fleet. This service is typically provided on a limited basis, such as between 9:00 a.m. and 5:00 p.m. on weekdays only, or on individual days per week.

Ridership on Community Bus typically ranges from 5 to 15 boardings per revenue vehicle hour. They typically fall below fixed-route ridership standards, and are only considered effective if they are able to draw a high volume of existing specialized transit customers or seniors (who without Community Bus access, may become specialized transit customers).

There are a number of benefits of implementing a Community Bus service in Hamilton:

1. The ability to attract persons with disabilities, potentially shifting their travel mode from specialized transit services. The linking of key destinations in an accessible, low-stress environment may encourage riders to try the service who would otherwise book specialized transit trips and may further encourage usage of conventional transit beyond the Community Bus itself.
2. Provide aging residents who are not yet specialized transit customers with an alternative option, and reduce or postpone their registration for specialized

transit or eliminate the need altogether. If Community Bus service is implemented in an area with minimal or no current conventional service availability, it would also provide wider mobility options for the community as a whole.

5.3 Ability for Transit Division to Implement Service Model

The Transit Division does not currently provide a Community Bus service. There are a number of different opportunities and challenges of implementing a Community Bus in the City of Hamilton. These are described below:

Opportunities

1. **Fleet:** Hamilton has a small fleet of 30-foot buses that may be more suitable to Community Bus services than 40-foot buses. This suggests that the Transit Division has the capability and experience to operate and maintain a mixed fleet.
2. **Coverage:** As the Transit Division continues to evolve its network with a focus on frequent and direct arterial corridor service, it may mean a reduction in coverage in a number of local residential streets. This area outside of a 400-metre walking/rolling distance to a transit stop provides an opportunity for Community Bus to fill the gap and improve proximity to transit in targeted neighbourhoods.
3. **Re(envision):** Transit Division is currently going through a Re(envision) process of its network, so the timing is aligned with the Community Bus opportunity.

Challenges

1. **Operations:** Due to the existing collective agreement with the Transit Division's conventional bus operators, the specialized transit contractor cannot operate a fixed-route service. Therefore, Community Bus would need to be operated by the Transit Division.
2. **Performance:** Community Bus ridership typically falls below most fixed-route transit productivity standards. This may result in little support for the route unless it is viewed as a means to reduce specialized transit trips and costs.
3. **Fleet:** While H.S.R. does have some 30-foot buses, they are currently allocated to Waterdown and Aberdeen routing. This would require the purchase of an expansion bus to pilot a Community Bus route, which would add to the cost of the service option.

4. **Accessibility of Network:** The ability of a Community Bus to reduce specialized transit trip costs and achieve minimum productivity targets for conventional transit relies on the route achieving a certain threshold of ridership. The goal of attracting riders (direct, fast service) can be impeded by the same factors that make Community Bus routes appealing, namely the shorter distance between stops and circuitous routing that minimize the need to transfer, but increases travel time. As well, limited service hours and hourly headways reduces the flexibility of the service and can thus reduce its appeal. These issues are particularly salient when Community Bus routes are duplicated by faster and more direct conventional service.

5.4 Benchmark Review

A benchmark review was completed with a number of peer specialized transit agencies to determine best practices and lessons learned. The following section summarizes the key highlights from interviews conducted with agencies that operate a Community Bus.

5.4.1 Overview and Role of Community Bus

Community Bus services are not very common, but there are certain agencies that continue to offer this service. This includes the Toronto Transit Commission (T.T.C.), Durham Region Transit (D.R.T.), and the London Transit Commission (L.T.C.). The service can take a number of different forms based on the context of the area, including historical service provision, targeted demographics for ridership, and local government priorities.

The T.T.C.'s Community Bus routes are designed to serve specific neighbourhoods with a particular emphasis on access for seniors and persons with disabilities. Each route targets different neighbourhoods that have limited proximity to fixed-route conventional service, with a focus on senior's residences and places of interest to seniors. Results of a 2018 survey of T.T.C. Community Bus passengers indicated that approximately 40% of riders are registered specialized transit users. These specialized transit users are not the primary target demographic for the service. Similarly, the LTC's Community Bus routes are intended to serve highly specific and targeted neighbourhoods based on interest and demand in the community. While there is anecdotal evidence of some registered specialized transit customers using the

Community Bus, they are not the targeted demographic for this service. D.R.T. noted a distinction in the ridership demographics of Community Bus services and specialized transit services, with minimal overlap in customers who are both specialized transit users and Community Bus riders. Their long-term strategy includes modifying Community Bus routes to become more useful for the wider population, moving away from the Community Bus designation.

5.4.2 Routing/Service Hours

The T.T.C. and D.R.T. operate fixed-route Community Bus routes, while L.T.C. provides a flex-route model, with some flexibility for customers to call in and request a stop that deviates from the scheduled route within a specified area, or allowing customers to wave down the bus along the route, but between formal stops. The T.T.C. and the L.T.C. provide five and six Community Bus routes respectively, each of which operates from Monday to Friday between the hours of approximately 9:00 a.m. and 5:00 p.m. with service approximately every 1.5 hours. The T.T.C.'s five Community Bus routes each operate daily, while L.T.C.'s routes each operate on one dedicated day per week. While D.R.T. does not operate bus routes that are publicly designated as Community Bus, one route currently in service operates under a similar model, with service between 10:00 a.m. and 5:00 p.m. every 120 minutes, Monday to Saturday.

Community Bus routing is designed around major destinations that seniors and users with higher levels of accessibility needs may find useful such as retirement homes, assisted living facilities, shopping centers, and medical facilities. A unique approach implemented by London Transit involved heavily including local residents as part of the design process. This co-creation process facilitated the design of a highly successful Community Bus route that effectively met the needs of residents and has resulted in sustained high ridership, with vehicles regularly reaching seated capacity.

Community Bus routes can operate in areas that do not otherwise offer transit service or with routes that overlap with conventional service. Both the London Transit and T.T.C.'s Community Bus routes overlap with conventional bus stops that offer relatively frequent service (15 minutes or less during peak hours) in some areas, but deviate from major corridors to provide direct service to senior's residences and long-term care facilities. This overlap has not reduced ridership on the conventional transit network in London. In contrast, the T.T.C. has noted that its highest-performing route has less

duplication of service compared to lower-ridership routes, suggesting that potential Community Bus riders instead opt for the higher-frequency conventional service available to them.

5.4.3 Vehicle Type

The type of vehicle used on Community Bus routes can vary depending on the level of ridership and specific needs of customers in the communities they serve. The T.T.C. operates their Community Bus service using Wheel Trans lift-equipped buses that have a capacity of eight seated customers, five customers with mobility devices or a combination thereof. This smaller vehicle has more flexibility as it is better able to navigate more narrow residential roads and can potentially stop closer to the door of destinations. The T.T.C.'s usage of Wheel-Trans vehicles on Community Bus routes may increase the attractiveness of the service to registered specialized transit users due to a higher level of familiarity with the vehicle. The T.T.C.'s Community Bus vehicles are operated by Wheel-Trans drivers and are not connected to the conventional tracking and incident management software, which limits a rider's ability to track real-time performance.

London Transit and D.R.T. utilize conventional 40 foot low-floor buses for their Community Bus routes. These vehicles have a seated capacity of 36 and are operated by conventional drivers. This higher capacity can increase the viability of the service for the wider community beyond the targeted demographic of seniors and specialized transit users; however, the availability of only two mobility-device accessible spots per vehicle may limit the effectiveness of the service in shifting trips from specialized service to the Community Bus. Larger buses are also more difficult to access local streets or private property (e.g. parking lots), which may make Community Bus less effective in reducing walking distance.

5.4.4 Performance

The performance of Community Bus routes varied across systems assessed as part of the Benchmarking review. The T.T.C. set a target ridership of 8-10 boardings per revenue vehicle hour (B/R.V.H.) across all Community Bus routes; in 2019, the average B/R.V.H. was 5.05. London Transit has achieved high levels of success with their Community Bus service, with vehicles reaching full seated capacity regularly. D.R.T.

indicated a shift in direction away from the Community Bus designation, instead implementing changes to make local bus service more useful and convenient to the wider population.

While not part of the peer review, Cornwall Transit was also contacted as they operate a Community Bus route on weekdays and Saturdays between 9:15 a.m. and 1:45 p.m. Prior to the COVID-19 pandemic, the service averaged 5.4 and 6.4 boardings per revenue vehicle hour on weekdays and Saturdays respectively. Of these, approximately 95% were seniors and 20% were registered specialized transit customers.

Multiple agencies have historically provided Community Bus services that have since been cancelled. Removal of this service was typically related to low ridership and strategic shifts towards improving accessibility of conventional bus routes.

The trends observed in the benchmarking review suggest an overall shift away from typical Community Bus routing in order to improve efficiency, focusing conventional service on high-frequency corridor routes. In some cases, service to low-density residential neighbourhoods typically served by Community Bus routes is being provided through alternative service delivery models such as On Demand systems, as is the case in York Region and Durham Region.

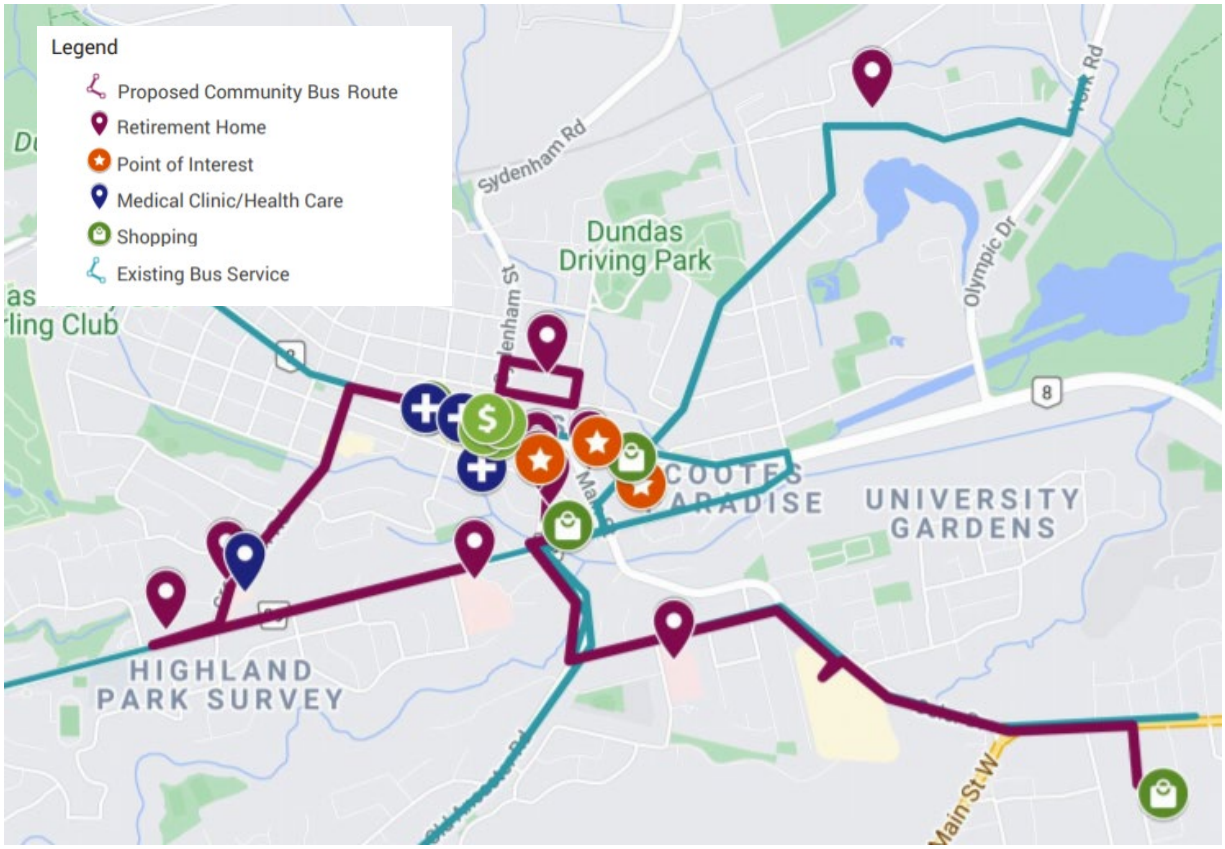
5.5 Conceptual Community Bus Design

A conceptual Community Bus route in Dundas was developed to illustrate the potential design and effectiveness of this service concept. The community was chosen based on discussions with Transit Division staff and a review of existing specialized transit ridership data and existing land uses. Dundas is a smaller hamlet area with a high population of seniors, including 12 seniors' homes. While there is existing transit service near many of these residences and amenities, a number of them require a longer walking distance or need to transfer, which may be outside the abilities or comfort levels of seniors.

Figure 2 illustrates a conceptual route that connects ten seniors' homes and retirement residences in Dundas to medical clinics, two grocery stores, banks, and a shopping plaza. The conceptual route also provides a connection to University Plaza for connections to Routes 1 and 10 to other destinations within Hamilton.

The conceptual route has a 30 - 40-minute run time and headway, operating on weekdays between 9:00 a.m. and 5:00 p.m. For this design, stops should be located as close to the entrance of buildings as possible, which may require cooperation between H.S.R. and individual property owners to facilitate. Any new bus stops installed as part of the service should meet H.S.R.'s Bus Stop Accessibility Guidelines, and existing bus stops along the route that are not yet accessible should be prioritized for upgrades to meet the minimum standard.

Figure 2: Conceptual Community Bus Design in Dundas



5.6 Potential Cost Savings

The potential cost savings to A.T.S. of introducing a Community Bus to offset specialized transit trip costs was calculated based on the introduction of a single route in the City of Hamilton (based on the Dundas example above). To calculate the potential benefit, the following assumptions were used:

5.6.1 Community Bus Costs

1. The Community Bus route operates eight hours a day, five days a week.
2. The service is operated by H.S.R., based on an hourly operating cost of $107.93; which translates into $215,000 operating cost annually.
3. The service would require the purchase of an additional 30-foot conventional bus at a capital cost of $550,000, to be amortized over 12 years.

To offset these costs and create savings for A.T.S., a sufficient number of specialized transit trips would need to be taken on Community Bus instead of the standard door-to-door service.

A survey of T.T.C. Community Bus riders suggests that approximately 40% of riders are registered specialized transit users, and of them, 75% of their trips would otherwise have been taken via specialized transit. This totals approximately 30% of total Community Bus trips that would otherwise have been taken on specialized transit service. On Cornwall Transit, it was noted that 20% of its Community Bus riders are specialized transit users. No data was available from London Transit or Durham Region Transit on the ridership composition of their Community Bus routes, however, discussions with staff noted that the majority of passengers were ambulatory seniors.

Based on the operating and capital cost of one Community Bus route noted above, the Community Bus service would need to average five boardings per revenue vehicle hour (B/R.V.H.) of trips that would otherwise have been taken on specialized transit to offset these costs and realize a cost savings for A.T.S. Assuming that the ridership makeup and trends are an average of Cornwall Transit and the T.T.C. (25% of trips are made by specialized transit registrants), this would mean that the route would need to average 20 B/R.V.H. to achieve this level of specialized transit trip ridership.

Average daily specialized transit passenger pick-up and drop-off data for 2019 was assessed for the Dundas community. The data shows only 511 pick-ups and drop-offs in Dundas within a two-week period, averaging 36.5 per day and 4.6 per Community Bus service hour. These trips had various destinations both within and outside of Dundas. Even assuming half of these trips would be destined to the Dundas community and use Community Bus, the ridership potential is not high enough to warrant a cost savings to A.T.S. (minimum five specialized transit customer B/R.V.H.).

For the City of Hamilton, it is more realistic that a Community Bus would achieve between 12 and14 B/R.V.H., which would translate into about 3 to 4 diverted specialized transit trips. **Table 16** below illustrates the potential savings of introducing Community Bus assuming that 14 B/R.V.H. would be achieve and 25% of riders were specialized transit customers (3.3 B/R.V.H.).

Table 16: Potential Cost Savings to A.T.S. from Community Bus

Trips and Costs	2019	2022	2026	2031
Baseline Specialized Transit Trips	940,083	984,100	1,057,000	1,174,900
Reduction in Specialized Transit Trips*	Not applicable	-6,600	-7,000	-7,700
Adjusted Specialized Transit Ridership	940,083	977,500	1,050,100	1,167,300
Baseline Operating Cost	$25,420,913	$26,642,300	$28,526,900	$31,575,900
Community Bus Operating Cost	$0	+$216,700	+$216,700	+$216,700
Amortized Community Bus Vehicle Cost**	$0	+$45,800	+$45,800	+$45,800
Change in Specialized Operating Cost	$0	-$168,900	-$174,000	-$255,000
Total Operating Cost with Community Bus	$25,420,913	$26,735,900	$28,615,400	$31,583,400
Cost Difference	**Not applicable**	**+$93,600**	**+$88,500**	**+$7,500**

*Note: Community Bus ridership assumed to grow in proportion to increasing number of registrants due to population growth and aging population.

**Note: Based on Year-One of Implementation and does not account for the impacts of COVID-19.

The introduction of Community Bus would result in a cost increase of $93,600 if introduced in 2022. This would decrease each year due to anticipated ridership growth that would occur with population growth and an aging population.

5.6.2 Recommendation

The ability to attract the minimum number of specialized transit riders onto Community Bus is not considered realistic in Hamilton for a number of reasons:

- There are currently very few trip denials on specialized transit and a high number of same day trip requests that are accommodated. One of the benefits of Community Bus is the ability to travel the same day with limited notice. Since specialized transit can accommodate many of these trips, Community Bus has less advantages; and
- The H.S.R. fixed-route network is continuing to become more accessible for seniors and persons with disabilities. Travel training will enhance the ability and comfort level of persons with mobility challenges in using the fixed-route network.

Therefore, Community Bus is not recommended as a means of achieving immediate cost savings for A.T.S.

5.7 Next Steps

While Community Bus service may not directly lead to cost savings based on a reduction of specialized transit trips, it nonetheless can provide value by improving transit access and equity. This type of service can address a service gap for riders who live too far from a conventional transit stop and may need to transfer to access a local destination. This can serve to improve mobility and allow for a higher degree of autonomy for certain specialized transit customers, as they can rely on consistent service with routing to destinations that meet their daily needs.

According to Statistics Canada (2017), 20% of working age adults (20-64) reported a disability of some kind, while this proportion increased to 38% for adults over the age of 65 and 47% over the age of 75. The proportion of older adults (55+) in Hamilton is also forecasted to increase over time, doubling from 30% to 60% between 2013 and 2033. As the proportion of older adults in Hamilton increases, an associated long-term increase in specialized transit registration and usage is likely to follow. Providing a conventional transit service that is more accessible to seniors and persons with disabilities can postpone or reduce registration to A.T.S., offering a mobility option that connects these individuals with their regular destinations in a manner that reduces walking/rolling

distance, a barrier to many higher frequency, arterial-based transit routes for individuals that do not live or are destined along the corridor. This may also lead to long-term savings for A.T.S. if the increasingly aging population postpones or reduces their specialized transit usage and instead relies on conventional transit for a longer period of time.

Providing transit service that caters to older adults aligns with the City of Hamilton's Plan for an Age-Friendly City (2014), as it supports seniors' ability to age-in-place while improving access to their communities and local amenities. Limited mobility options for seniors who are unable to operate a motorized vehicle can significantly impair quality of life for this population, and providing transit services that are targeted to them can serve to break mobility barriers.

Should H.S.R. seek to implement a Community Bus to improve accessibility and provide further travel options to A.T.S. registrants, two recommendations are provided below:

1. **Design Process:** The success of London Transit's Community Bus routes can be in some part attributed to the design process in which local residents actively co-created the routes intended to serve them. This process ensured residents' wants and needs were taken into consideration while designing the route which may have led to the high ridership the service has attained. To maximize passenger uptake and ridership, it is recommended that a similar approach be taken when considering the implementation of Community Bus routes in H.S.R.'s service area, and that local residents are able to participate in the design process.
2. **On Demand Transit:** A number of other transit agencies that have moved away from Community Bus are turning to On Demand transit to provide some of the same attributes as Community Bus. On Demand transit can provide shared-ride demand-responsive services within a neighbourhood or employment area, with the ability to connect residents to local destinations or a transfer hub/stop, where they can transfer onto a frequent fixed-route service to complete long-distance trips. For registered A.T.S. customers, a different stop standard can be applied (e.g. door-to-door; within 200 metres of a stop, e.t.c.); depending on the customer's ability to access a stop. This can provide seniors and persons with disabilities with another travel option within their local community and a means to transfer to a fixed-route as part of a longer integrated trip. As the Transit Division assesses the effectiveness of the On Demand pilot service in Waterdown,

the organization may consider the use of On Demand transit to provide these neighbourhood connections instead of Community Bus.

6.0 Taxi Scrip

Taxi Scrip is a system of using denominated coupons (like paper money) to pay for taxi rides. The taxi scrip can only be bought and used by registered A.T.S. clients. In Hamilton, Taxi Scrip is sold in booklets of $40, with coupons denominated in $5, $2, and $1 amounts. Clients buy each booklet for $24, a discount of 40% over the face value. Clients can buy a maximum of three booklets each month, with an annual maximum of 36 booklets. There is no expiry date on the taxi scrip and refunds are provided for unused Taxi Scrip when requested.

To redeem Taxi Scrip, a client books a trip directly with Blue Line or Hamilton Cab and specifies they will be paying with scrip as well as whether or not they need an accessible vehicle. The client shows their A.T.S. I.D. when paying, which is done with any combination of Taxi Scrip and cash. Taxi scrip cannot be used for tipping drivers.

Once a Taxi Scrip trip is completed, taxi operators will provide the redeemed-scrips to the City to get paid for the discounted amount (40% of the value of the scrip received).

6.1 Auditor Recommendation

Recommendation #8 of the City Auditor's report directs that the merits of different service options should be explored, including expanding the Taxi Scrip program.

The City Auditor estimates that trips taken through the Taxi Scrip program cost the City 82% less than trips taken on specialized transit services contracted to DARTS. Therefore, it may be advantageous to expand the Taxi Scrip program so that more A.T.S. clients choose to use it for more trips.

The City Auditor's report suggests that "expansion options may include increasing the number of booklets clients may purchase each month, increasing the portion subsidized by the City, or increasing awareness and promotional activities".

6.2 Background

Hamilton has had a taxi scrip program in place since the 1990s. Prior to 2012, eligibility was assessed separately for specialized transit and Taxi Scrip. Starting in 2012, Taxi Scrip was only made available for those that met the eligibility criteria for specialized transit.

Individuals that were only eligible for Taxi Scrip (prior to 2012) were maintained and retained access to this program as a legacy registrant. In 2019, 694 registrants were only eligible for Taxi Scrip. This reduced to 625 registrants in 2020. Many of these registered customers have not reapplied for specialized transit service for fear of losing their Taxi Scrip eligibility.

Taxi Scrip is used by about 30% of specialized transit registrants. A breakdown of the use of Taxi Scrip by eligibility type is illustrated in **Table 17** below.

Table 17: Number of Registrants the use Taxi Scrip

Eligibility	Trips Taken	Number of Registrants	Percent of Registrants
Taxi Scrip Only	Taxi Scrip Only	694	7%
Specialized Transit and Taxi Scrip	Taxi Scrip Only	573	6%
Specialized Transit and Taxi Scrip	Specialized Transit and Taxi Scrip	1,713	17%
Specialized Transit and Taxi Scrip	Specialized Transit Only	6,839	70%

In 2019, there were 83,238 trips plus 12,838 companions/attendant trips made on Taxi Scrip (total of 96,076 passengers). Of these, approximately 91% were by ambulatory registrants.

The total value of coupons redeemed in 2019 was $1,006,781.76, which translates into an average coupon value of $12.12 per trip. Since the City subsidizes 40% of the value of Taxi Scrip, the cost to the City in 2019 was $402,712.70, or $4.84 per trip. The average cost to the Taxi Scrip user was $7.26 per trip.

In 2019, there were 353,484 total booklets available for purchase (3 booklets per month per registrant). Only 26,290 booklets were sold in 2019, representing 7% of booklets available.

Table 18 illustrates the use of Taxi Scrip in 2019. This is broken down into registrants that only use Taxi Scrip (and not specialized transit) and registrants that use both.

Table 18: Taxi Scrip Use in 2019

Use of Taxi Scrip	Taxi Scrips Purchased	Books per Registrant	Registrants that Purchased Maximum Booklets Available	Taxi Scrip Trips
Use Taxi Scrip Only	12,427	8.1	47	43,886
Use Taxi Scrip and DARTS	13,863	9.81	35	39,346
Total	**26,290**	**8.82**	**82**	**83,232**

Of the registrants that purchase Taxi Scrip, there was a slightly higher rate of use for those that only use Taxi Scrip and do not use specialized transit. These individuals represent both persons that were legacy registrants under the Taxi Scrip Only condition (694 in 2019) and persons registered for both. On average, each registrant purchased just under nine of the available 36 booklets per year, with less than 3% purchasing their full allotment of booklets. This suggests that there is little demand for additional Taxi Scrips at the current price.

The average cost per Taxi Scrip trip is as follows:

- $12.10 total cost per trip;
- $7.26 cost for customer; and
- $4.84 cost for A.T.S.

6.3 Assessment of Existing Program

The preparation of this report created an opportunity to undertake an analysis with key HSR staff to help build a critical path forward to implement the recommendations of the Audit. The following Strengths, Challenges (Weaknesses), Opportunities and Threats were identified through an interactive workshop:

Strengths

- **Existing Resources:** The Transit Division has experienced fare sales staff who are familiar with the program;
- **Cost Per Trip:** The current program has a lower cost per trip than a specialized transit trip; and

- **Flexibility:** Program provides flexibility to passengers that want to book independent trips.

Challenges

- **Fraudulent Use:** Once a Taxi Scrip booklet has been sold to a customer, it is difficult to manage how and by whom it is used. There may be instances of Taxi Scrip not truly serving the needs of those for whom it is intended if customers sell or give away Taxi Scrip booklets. Taxi operators are asked to check the Taxi Scrip against the client I.D. to prevent fraud;
- **Impact of Increased Subsidy:** Approximately 47% of people that purchased a Taxi Scrip in 2019 did not use specialized transit for any of their trips. Increasing the number of Taxi Scrips available or increasing the municipal subsidy will not reduce costs to A.T.S. for these individuals, since they do not make specialized transit trips currently;
- **Eligibility:** Some customers were provided legacy status into the program in 2012 and are only eligible for Taxi Scrip. Some of these customers are reluctant to reapply for specialized transit for fear of losing their Taxi Scrip eligibility; and
- **Wheelchair Accessible Taxis:** There are limited wheelchair accessible taxis in the city. Many taxi operators are reluctant to pick up persons using mobility aids due to the longer period of time required to assist passengers into the vehicle.

Opportunities

- **Service Providers:** There are a variety of potential service providers for this kind of service, such as Uber or Lyft. These providers may have a lower cost than existing taxi companies being used for Taxi Scrip.

Threats

- **Peer System Trends:** Some transit agencies are moving away from providing Taxi Scrip. They note that the reasons for having a Taxi Scrip program are no longer as relevant, as many specialized transit agencies have reduced trip denials and increased the availability of same-day booking.

6.4 Benchmark Review

A benchmark review was completed with a number of peer specialized transit agencies to determine best practices and lessons learned. The following section summarizes the key highlights from interviews conducted with agencies that have Taxi Scrip programs in place.

Taxi Scrip is offered by transit agencies mainly in Ontario and British Columbia including Grand River Transit, OC Transpo, Peel Region and TransLink. Calgary Transit also offers a Taxi Scrip program, but only for its unconditional riders. The following is a summary of some of the best practices from each of these systems.

Taxi Scrip Value and Subsidy

The value of taxi scrip offered by each agency is summarized in **Table 19** below.

Table 19: Taxi Scrip Value and Subsidy in Benchmarking Agencies

Agency	Monthly Allowance Per Registrant	Maximum Annual Value per Registrant	Maximum Annual Subsidy per Registrant	Subsidy
Grand River Transit	• 2 Books • Value: $60 each • Customer price: $30	$1,440	$720	50%
Calgary Transit*	• $56 loaded automatically	$672	$672	100%
OC Transpo	• 8 Books • Value: $40 each • Customer price: $18	$3,840	$2,112	55%
TransLink	• 2 Books • Value: $50 each • Customer price: $25	$1,200	$600	50%
Peel Region Transit	• 5 Books • Value: $40 each • Customer price: $25	$2,400	$900	38%

Agency	Monthly Allowance Per Registrant	Maximum Annual Value per Registrant	Maximum Annual Subsidy per Registrant	Subsidy
Hamilton Street Railway	• 3 Books • Value: $40 each • Customer price: $24	$1,440	$576	40%

* Unconditionally eligible registrants only

Most peer agencies offer a 40 to 50% discount on the value of the taxi voucher, making two to five available to registrants each month. The two outliers in the group are Calgary Transit, which provides each unconditional registrant with $56 per month of Taxi Scrip at a 100% subsidy, and OC Transpo, which offers registrants a higher number of Taxi Scrip vouchers (up to eight per month) than any other system, at a 55% discount.

Relationship between Taxi Scrip Use and Specialized Transit Ridership

All agencies noted that an increase in Taxi Scrip availability would be unlikely to reduce specialized transit trips. Data to this effect was not available from any agencies. Most agencies interviewed have not changed their Taxi Scrip program recently and had no data to support any change in specialized transit use.

OC Transpo was the only agency to recently change its Taxi Scrip program. In May 2019, OC Transpo increased the number of books available to clients from a maximum of four a month to a maximum of eight a month. During this same time, it also increased the subsidy from 40% to 55% for a $40 book. **Table 20** below compares the growth in number of registrants that purchased Taxi Scrip per month and average number of books sold for each of these registrants before and after the change in the number of books available and the increased discount. This was calculated for the period between June to December 2018 (prior to increase) and June to December 2019 (after the increase).

Table 20: Change in OC Transpo Taxi Scrip Use

Year	Number of Active Registrants	Registrants that Purchased Taxi Scrip (per month)	Books Sold per Customer
2018 (June to December)	10,231	354	4.66
2019 (June to December)	10,231	397	5.70
Change	**0%**	**12%**	**22%**

The increase in the discount resulted in a 12% increase in the number of registered customers that use Taxi Scrip, however, this only represents 3 to 4% of active registrants that purchase Taxi Scrip per month. The number of books purchased increased by 22% with the increase in the number of books available.

The increase in Taxi Scrip books sold was compared to the number of specialized transit trips requested and accepted by OC Transpo during the same period to determine the potential impact of this increase on specialized transit ridership. This is illustrated in **Table 21**.

Table 21: Change in OC Transpo Specialized Transit Ridership

Year	Active Registrants	Trips Requested	Trips Requested per Registrant	Trips Accepted	Trips Accepted per Registrant
2018 (June to December)	10,231	636,298	62.2	632,127	61.8
2019 (June to December)	10,231	650,604	63.6	648,371	63.4
Change	**0%**	**2.2%**	**2.2%**	**2.6%**	**2.6%**

As noted above, the increase in both the number and discount of Taxi Scrip booklets did not decrease the total number of specialized transit trips both requested and accepted at OC Transpo. As illustrated in **Table 21**, the data shows a small increase in trips requested and accepted between June and December 2019 from the same period in 2018.

Therefore, in OC Transpo's case, there is no evidence that suggests that an increase in Taxi Scrip discounts and booklets led to a decrease in trips on OC Transpo specialized transit service.

Technology

All agencies except Calgary Transit use a paper or coupon-based system for administering the Taxi Scrip program, wherein customers purchase coupons in a variety of denominations to be used like cash towards the payment of a taxi fare. The used coupons are returned to the transit agency by the taxi company to be reimbursed for the value of the Taxi Scrip received. This model raises some level of concern regarding the possibility of fraud; agencies have addressed this concern by implementing and enforcing policy that taxi drivers must check for a card that verifies the passenger's status as eligible for specialized transit and noting some form of identification (e.g. their specialized transit registration number) on the coupon. However, most agencies noted that fraud is minimal and that significant instances of it are successfully dealt with on a case-by-case basis.

Calgary Transit sends an electronic fare payment card to each unconditionally eligible specialized transit passenger which is automatically loaded with $56 per month. This amount cannot be transferred from month to month. While the card is available to all eligible customers, many do not choose to use it. Participating taxi companies must have a point of sale (P.O.S.) machine in the vehicle to swipe the card and receive fare payment.

Trends

Taxi Scrip has been historically provided by a number of transit agencies. Recently, some transit agencies have begun shifting away from providing Taxi Scrip. York Region Transit eliminated the program due to concerns over liability and the increased level of service provided on specialized transit (which reduced the need for the service). TransLink initiated an assessment of the Taxi Scrip program with potential to remove it; however, negative public response resulted in TransLink maintaining the program. Calgary Transit also expressed willingness to assess the continued need for Taxi Scrip as a service offering, analyzing the ability of their door-to-door service to handle an increase in trips equivalent to the number of Taxi Scrip trips currently occurring.

The common perception of agencies interviewed is that the original intention of Taxi Scrip programs, accommodating requests for same-day travel, was not as relevant due to the reduction in trip denials and increase in number of same-day trip requests accommodated by specialized transit.

Specialized trips are now available within an hour or less of notice in Peel TransHelp and York Region MobilityPlus, which meets the need to accommodate last-minute trips that Taxi Scrip can provide.

Furthermore, many felt that the cost of a Taxi Scrip trip, even with the available subsidy, is quite high and may be out of reach of a number of registered customers, many of whom are in low-income brackets.

Use of taxis in delivering specialized transit has been the subject of some research. In the T.C.R.P. 119 Report - Use of Taxis in Public Transportation for People with Disabilities and Older Adults (2016), page 13/14, a study by San Mateo County, California (SanTrans) looked at the most cost-effective way for using taxis: a user-side subsidy (Taxi Scrip) compared with contracting for "managed" taxis service (non-dedicated service). Analysis of the user-side subsidy concluded that it was unlikely to save the agency any money. SanTrans concluded, after reviewing others' experiences as well, that user-side subsidy trips would tend to be short trips, and such trips would erode productivity from the agency's dedicated van and sedan service because these short trips could more easily be grouped on dedicated service to benefit productivity.

6.5 Potential Cost Savings

This section explores the potential cost savings that may occur if the number of Taxi Scrips made available to registered customers was increased and/or the subsidy provided to Taxi Scrip was increased. This assumed that by doing one or both of the above, the number of trips on specialized transit, which would result in overall cost savings to A.T.S.

The cost to the City for each Taxi Scrip trip is $4.84 compared to $29.64 for each trip provided or subcontracted by DARTS (based on 2019 data).

The average cost to the passenger for each Taxi Scrip trip is $12.10. This does not include any tip that may be added to the taxi trip. The average 2019 fare for a

specialized transit trip is $2.17. Since many A.T.S. registrants fall in a lower income bracket, there is a high level of price sensitivity in this group which may not result in a significant shift to Taxi Scrip if more booklets were made available.

Approximately 47% of registrants that purchased Taxi Scrips in 2019 did not use specialized transit. An increase in booklets made available or the subsidy to each Taxi Scrip would increase costs to the City for these individuals, as it would not reduce any trips on specialized transit or any cost to A.T.S.

The potential specialized transit market for new Taxi Scrip trips was assumed to be for:

- Same-day trips that are under 5 kilometres (23,474 trips made in 2019);
- 25% of reservation-based short-distance trips under 5 kilometres (25,500 trips made in 2019); and
- Waiting list trips under 5 kilometres (7,540).

The market for reservation-based trips was reduced to 25% since these trips are pre-planned. Based on the above, approximately 6% of existing trips made on specialized transit in 2019 would have the opportunity to switch to Taxi Scrip should the right conditions be in place. This is considered the high-market potential.

Scenario 1: Increase the Subsidy of Books

This scenario increases the subsidy for each Taxi Scrip from 40 to 60%. This would result in the following cost breakdown:

- $12.10 total cost per trip;
- $4.84 cost to customer (plus 10% tip to the driver = $5.36); and
- $7.26 cost to A.T.S.

To understand the potential impact, **Table 22** first presents a breakdown in registrant rides, including for Taxi Scrip. It should be noted that the majority of Taxi Scrip use is for ambulatory passengers. This is for two reasons:

- Most legacy registrants that are only eligible for Taxi Scrip are ambulatory; and
- There are few accessible taxis in Hamilton, which limits the availability of Taxi Scrip rides for non-ambulatory passengers.

Table 22: Existing Breakdown of Trips by Trip Type

Ridership	No Existing Taxi Scrip Use	Use Taxi Scrip and Specialized Transit	Use Taxi Scrip Only	Total
Registrants	6,939	1,713	1,267	9,819
Existing Specialized Transit Trips (ambulatory)	548,866	137,477	0	686,343
Existing Specialized Transit Trips (non-ambulatory)	126,094	31,584	0	157,678
Existing Taxi Scrip Trips (ambulatory)	0	39,992	35,849	75,841
Taxi Scrip Trips (non-ambulatory)	0	3,901	3,496	7,397
Taxi Scrip Attendants and Companion Trips	0	6,770	6,068	12,838
Total Trips	**674,960**	**219,723**	**45,414**	**940,097**
Taxi Scrip Percent of Total Trips	**0%**	**23%**	**100%**	**10%**

Based on the above information, the following assumptions were used to calculate the potential cost savings of increasing the municipal subsidy of Taxi Scrip from 40 to 60%.

1. The growth in trips on Taxi Scrip was based on a fare elasticity formula.
    a. For existing Taxi Scrip users, this assumes a 50% reduction in average Taxi Scrip fare paid by the customer (from $7.98 to $5.32) (assumes a 10% tip paid by the customer);
    b. For registered specialized transit users that currently do not use Taxi Scrip, this is based on the difference between the current average specialized transit fare ($2.17) and the average Taxi Scrip fare ($7.98 Taxi Scrip Fare) (= $5.81 difference) and the difference between the reduced Taxi Scrip fare ($5.32) and the existing average specialized transit fare ($2.17) (= $3.15 difference).
2. A price elasticity formula was applied to the change in fares noted above and is noted in **Table 23** below. Price elasticity for transit is a measure of the change in trips made in relation to a change in its price (fare). The range for transit is typically between 0.2% and 0.5%, meaning a 10% decrease in fare will lead to a

2% to 5% increase in ridership. For specialized transit, a lower elasticity of 0.04% was used for registrants that currently do not use Taxi Scrip due to the price sensitivity of this group; while a higher 0.2% elasticity was used for persons that only use Taxi Scrip, reflecting this group are already willing to pay a higher fare, and a further price decrease will incentive them to use Taxi Scrip more often.

3. Since only 9% of existing Taxi Scrip users use a mobility aid, this was also reflected in the elasticity for non-ambulatory clients.
4. The use of these price elasticity's result in an overall 20% increase in Taxi Scrip use, which is similar to the rate experienced by OC Transpo.

Table 23: Price Elasticity Assumptions for Taxi Scrip

Ridership Change	No Taxi Scrip Use	Specialized Transit and Taxi Scrip Use	Taxi Scrip Only Use
Change in Price	-84%	-50%	-50%
Ambulatory Elasticity	0.04%	0.10%	0.20%
Non-Ambulatory Elasticity	0.004%	0.01%	0.02%
Ridership Change (%) - Ambulatory	2.5%	4.1%	8.4%
Ridership Change (%) – Non-Ambulatory	0.2%	0.4%	0.7%

5. It was assumed that 50% of every new Taxi Scrip trip by registrants that previously did not use Taxi Scrip and registrants that use both Taxi Scrip and specialized transit would be removed from A.T.S. service. This was used to calculate any potential cost savings. Any increase in Taxi Scrip rides from registrants that only use Taxi Scrip would not result in a reduction in specialized transit rides. This is a conservative estimate since the experience with OC Transpo resulted in no reduction in specialized transit rides (see **Table 21**).
6. The reduction in operating costs for specialized transit trips was based on the following:
    a. 39% of these rides occurring on a dedicated municipal contracted service at an hourly rate of $72.02.
    b. 59% of these rides occur on a dedicated subcontracted service at a per trip cost of $22.40.

c. 3% of these rides occurring on a non-dedicated subcontracted taxi service at a per trip cost of $18.16.

Table 24 illustrates the potential cost savings (based on a reduction in specialized transit trips) of increasing the Taxi Scrip subsidy from 40% to 60% using 2019 data.

Table 24: Potential Cost Savings of Increasing Taxi Scrip Subsidy to 60%*

Ridership	No Existing Taxi Scrip Use	Use Taxi Scrip and Specialized Transit	Use Taxi Scrip Only	Total
Existing Taxi Scrip Passenger Trips	0	50,662	45,414	96,076
Growth in Taxi Scrip Trips	13,878	1,949	3,566	19,393
Total Taxi Scrip Trips	13,878	52,611	48,980	115,469
Reduction in Specialized Transit Trips	6,939	975	0	7,914
Existing Taxi Scrip Cost to City	$0	$212,355	190,358	$402,713
Net Increase in Taxi Scrip Cost to City	$100,716	$120,322	$121,059	$342,096

*Note: Based on 2019 Data

The growth in Taxi Scrip trips presented above is based on 2019 data. **Table 25** illustrates the potential savings that would occur based on the above noted assumptions. The number of Taxi Scrip trips was increased by each horizon year based on the growth in registrants to the year 2031, taking into account a reduction in legacy Taxi Scrip registrants during this same time period by 10% a year.

Table 25: Potential Cost Savings to A.T.S. from Increase Taxi Scrip Subsidy

Ridership and Costs	2019	2022	2026	2031
Baseline Specialized Transit and Taxi Scrip Trips	940,083	984,100	1,057,000	1,174,900
Growth in Taxi Scrip Companion Trips***	N/A	+3,000	+3,100	+3,300
Growth in Taxi Scrip Trips	N/A	+19,200	+19,700	+21,300
Reduction in Specialized Transit Trips	N/A	-7,800	-8,000	-8,700
Adjusted Specialized Transit and Taxi Scrip Trips	940,083	998,500	1,071,800	1,190,800
Baseline Operating Cost	$25,420,913	$26,642,300	$28,526,900	$31,575,900
Increase Taxi Scrip Cost	$0	+$338,600	+$347,400	+$375,900
Change in Specialized Transit Cost	$0	-$185,300	-$187,700	-$268,800
Total Operating Cost with Change in Taxi Scrip Subsidy	$25,420,913	$26,795,600	$28,686,600	$31,683,000
Cost Difference*	**N/A**	**+$153,300**	**+$159,700**	**+$107,100**

*Note: The cost difference is lower in 2031 due to the reduction in legacy Taxi Scrip clients (694 in 2019 to 196 in 2031), who only add cost with every new Taxi Scrip trip, as these clients are not eligible for specialized transit.

**Note: Based on Year-One of Implementation and does not account for the impacts of COVID-19

***Note: Increase in Taxi Scrip Companions does not add to City costs

Scenario #2: Increase Number of Books Available plus Subsidy from 40% to 60%

This scenario adds an increase in the number of Taxi Scrip booklets available per month from 3 to 6 to Scenario #1.

Approximately 7% of registrants that currently use Taxi Scrips purchase the full allotment 10 months of the year (30 or more booklets purchased out of 36 available). However, these 7% of registrants bought 26% of all purchased booklets and made 28% of all Taxi Scrip trips in 2019. The increase in Taxi Scrip booklets available was assumed to only benefit these individuals, and not registrants that purchase significantly less or no Taxi Scrip booklets.

Based on the above information, the following assumptions were used to calculate the potential cost savings of increasing the number of Taxi Scrips available per month from 3 to 6.

1. Maintain the assumptions in Scenario #1 for the increase in subsidy for Taxi Scrip trips.
2. The growth in trips on Taxi Scrip was based on an elasticity formula.
   a. For existing Taxi Scrip users, this assumes a 100% increase in the number of Taxi Scrips available (from 3 to 6 per month).
   b. For registered specialized transit users that currently do not use Taxi Scrip, it was assumed that they would not take advantage of additional Taxi Scrips above what is currently available since they currently do not purchase Taxi Scrip. This would be the same even with a subsidy increase (Scenario #1).
3. A service elasticity formula was applied to the change in Taxi Scrip made available and is noted in **Table 26** below. An elasticity of 0.1% was used for registrants that use both Taxi Scrips and specialized transit; while a higher 0.2% elasticity was used for persons that only use Taxi Scrip, reflecting this group are already willing to pay a higher fare than specialized transit service and they do not use specialized transit for other trips.

Table 26: Ridership and Service Elasticity Assumptions for Customers that Maximize Existing Taxi Scrip Purchases

Books Purchased	Specialized Transit and Taxi Scrip Use	Taxi Scrip Only Use
High Use Registrants (Purchase 3 Taxi Scrip Books for 10+ Months)	94	112
Total Books Purchased by High Use Registrants	3,168	3,789
Books per High Use Registrant	33.7	33.8
Adjusted High Use Registrants (based on increase in subsidy (Scenario #1))	98	121
Change in Books Available	100%	100%
Elasticity	0.10%	0.20%
Ridership Change (%)	7%	15%
Change in Books by High Use Registrant	36.12	38.86

4. It was assumed that 50% of every new Taxi Scrip trip by registrants that use both Taxi Scrip and specialized transit would no longer use specialized transit service. This was used to calculate any potential cost savings. Any increase in Taxi Scrip rides from registrants that only use Taxi Scrip would not result in a reduction in specialized transit rides. This is a conservative estimate since the experience with OC Transpo resulted in no reduction in specialized transit rides (see **Table 21**).
5. The reduction in operating costs for specialized transit trips was based on the hourly costs and per trip rates noted in the assumptions in Scenario #1.

Table 27 illustrates the potential change in ridership and Taxi Scrip cost to the City with Scenario #2 using 2019 data.

Table 27: Potential Cost Savings of Increasing Taxi Scrip Booklets to 6 per Month

Ridership and Costs	No Existing Taxi Scrip Use	Use Taxi Scrip and Specialized Transit	Use Taxi Scrip Only	Total
Existing Taxi Scrip Passenger Trips	0	50,662	45,414	96,076
Growth in Taxi Scrip Trips (due to increased subsidy only)	13,878	2,558	3,566	19,393
Growth in Taxi Scrip (due to increased booklets only)	0	1,217	3,079	4,296
Total Taxi Scrip Trips	13,878	53,828	52,059	119,765
Reduction in Specialized Transit Trips	6,939	1,583	0	8,552
Existing Taxi Scrip Cost to City	$0	$212,355	190,358	$402,713
Net Increase in Taxi Scrip Cost to City	$100,716	$129,151	$143,405	$373,271

*Note: Based on 2019 Data

The growth in Taxi Scrip trips presented above is based on 2019 data. **Table 28** illustrates the potential savings that would occur based on the above noted assumptions. The number of Taxi Scrip trips was increased for by each horizon year

based on the growth in registrants to the year 2031, taking into account a reduction in legacy Taxi Scrip registrants during this same time period.

Table 28: Potential Cost Savings to A.T.S. from Increase Taxi Scrip Subsidy

Ridership and Costs	2019	2022	2026	2031
Baseline Specialized Transit and Taxi Scrip Trips	940,083	984,100	1,057,000	1,174,900
Growth in Taxi Scrip Trips	N/A	+23,400	+24,000	+26,000
Growth in Taxi Scrip Companion Trips***	N/A	+3,600	+3,700	+4,000
Reduction in Specialized Transit Trips	N/A	-8,400	-8,700	-9,400
Adjusted Specialized Transit and Taxi Scrip Trips	940,083	1,002,700	1,076,000	1,195,500
Baseline Operating Cost	$25,420,913	$26,642,300	$28,526,900	$31,575,900
Increase Taxi Scrip Cost	$0	+$369,104	+$378,599	+$410,013
Change in Specialized Transit Cost	$0	-$269,707	-$197,294	-$278,363
Total Operating Cost with Change in Taxi Scrip Subsidy	$25,420,913	$26,741,697	$28,708,204	$31,707,550
Cost Difference*	**N/A**	**+$99,397**	**+$181,304**	**+$131,650**

*Note: The cost difference is lower in 2031 due to the reduction in legacy Taxi Scrip clients (694 in 2019 to 196 in 2031), who only add cost with every new Taxi Scrip trip, as these clients are not eligible for specialized transit.

**Note: Based on Year-One of Implementation and does not account for the impacts of COVID-19

***Note: Increase in Taxi Scrip Companions does not add to City costs

6.6 Recommendations

Based on the above analysis, it is anticipated that there would be no cost savings to A.T.S. if the subsidy to Taxi Scrip was increased (Scenario #1) and the number of booklets made available to registrants was also increased (Scenario #2). This is because:

- Any increase in rides from registrants that currently only use Taxi Scrip would only add cost to the City, and would not reduce the number of rides on Specialized Transit. This represents approximately 43% of Taxi Scrip users and 47% of Taxi Scrip trips in 2019; and,
- Every increase in Taxi Scrip trip (and cost) would not result in a reduction in specialized transit trips. The 50% reduction in specialized transit ridership from new Taxi Scrip trips is a conservative estimate. Evidence from OC Transpo and industry literature does not indicate a reduction in specialized transit trips with an increase in Taxi Scrip trips.

It is therefore recommended that:

1. The City does not increase the subsidy to Taxi Scrip.
2. The City does not increase the number of booklets made available per month for Taxi Scrip.
3. The City consider reassessing existing legacy Taxi Scrip clients as per the recommendation in **Section 3.6.3** of this report.

7.0 Group Trips

Group Trips on specialized transit provide “many to one” and “one to many” trips to key destinations. This involves trips wherein a single vehicle picks up passengers from multiple origins and takes them to a single destination. Multiple passengers are then picked up from that one location and dropped off at various different destinations. When scheduling individual trips, customers who are travelling to the same destination for the same arrival time and live within a reasonable distance of each other will be scheduled to travel together, resulting in an informal group trip. Alternatively, a community agency or organizer of the source of these trips may reach out to the transit agency to book Group Trips. Group Trips are also provided to groups of registrants travelling from one origin to a destination and back for an activity.

As a shared ride service, grouping of riders is standard practice in specialized transit scheduling, particularly for trips to and from adult day programs. These trips are often subscription based, due to the recurring nature of the programming that riders may be travelling to and from.

7.1 Auditor Recommendation

The City Auditor’s report directs that the merits of different service options should be explored, including the implementation of Group Trips, referred to as Shuttles in the report.

Shuttles are used in London to provide dedicated Group Trips with a higher level of service for passengers going to and from a regular location, such as a dialysis clinic. The City Auditor’s report recommends exploring “whether dedicated vehicle use at key locations would provide another service option for clients at a lower cost for the City”.

7.2 Background

DARTS currently books a number of Group Trips. The majority of these are subscription trips, which make up 53% of trips delivered in 2019. Group Trips are not focused on dedicated “shuttles” that have the sole focus of filling up vehicle capacity. Booking agents do not call agencies that operate programs directly to book Group Trips. Rather, scheduling of Group Trips is optimized on all vehicles available, with the goal of

maximizing vehicle occupancy on multiple vehicles rather than one or more dedicated vehicle. Trips are booked on the most effective vehicle that will allow the highest number of trips to be accommodated.

While this is the case, the number of trips per revenue vehicle hour of dedicated service is 2.17, which is lower than the Ontario average of 2.46 of specialized transit systems that have a population greater than 150,000 residents.

From a cost savings perspective, there is no preference given to filling up dedicated DARTS operated vehicles, which charge an hourly rate, versus dedicated contracted vehicles which charge a per trip rate. Grouping trips on non-dedicated vehicles does not reduce operating cost, as each trip is charged the same, whether the ride is shared or not.

In reviewing the literature for this project, the use of non-dedicated vehicles may offer an opportunity to maximize the grouping of trips. Group Trips occur in the peak demand time periods of morning and afternoon rush hours. These are the time periods when agencies need to maximize the number of vehicles and personnel in service. By accessing non-dedicated vehicles (e.g. taxis) for time periods and locations when trip demand is low, agencies can deploy more of their dedicated services into the peak demand periods resulting in improved productivity and therefore cost effectiveness of the service. As noted in T.C.R.P. Report 121 - Toolkit for Integrating Non-Dedicated Vehicles in Paratransit Service (2007), page 6 ‘the main advantage of using a combined service structure that includes both dedicated and non-dedicated services is its cost-effectiveness in dealing with the inherent daily and seasonal fluctuations of demand. By purchasing supplementary non-dedicated services from a third party to cover peak overflow trips or low-demand periods, fewer dedicated vehicles are needed.’

7.3 Ability for A.T.S. to Implement Service Model

The strengths and challenges of the existing approach to Group Trips were assessed, as well as the potential external opportunities and threats that should be considered to increase vehicle occupancy.

Strengths

1. **Subscription Trips:** Fifty-three percent of trips in Hamilton are subscription, which provide a good opportunity to group rides.

Challenges

1. **DARTS Dedicated Subcontract Model:** DARTS delivers 59% of its trips to three dedicated subcontractors and 2.6% of trips to a non-dedicated subcontractor. These subcontractors charge DARTS a flat fee for every trip delivered. There is no adjustment in fee based on the number of rides that are shared in the vehicle or the distance of a trip. Alternatively, trips delivered by dedicated in-house vehicles (39%) are based on hourly rates per vehicle. One of the challenges with this model when delivering Group Trips is that, if these high capacity trips are delivered by the subcontracted service, the high number of passengers within one vehicle will not lead to additional savings. The existing scheduling software maximizes non-ambulatory trips on in-house vehicles; however, non-ambulatory trips are maximized on the contracted service.

Opportunities

1. **Opportunities for Community Collaboration:** A.T.S. is well-positioned to provide Group Trips due to a high number of common destinations for specialized transit users. DARTS currently books group trips and has the capacity to expand this offering. They have a strong relationship with a number of Developmental Services group homes which tend to be located in close proximity to each other, facilitating a smooth potential shuttle service. There are many opportunities to collaborate with local stakeholders such as community agencies, long term care facilities, and retirement homes. Many of these groups hold regularly scheduled events which could be effectively served by a shuttle. Non-profit organizations with existing vehicle fleets or sponsorships with owners of specific destinations (such as a grocery store) may also provide effective partnerships for shuttle service operations.
2. **Vehicle Flexibility:** A benefit of offering Group Trips is that the vehicles required for its operation do not need to be dedicated to that specific service and could be utilized for alternative purposes when Group Trips are not scheduled.

Threats

1. **COVID-19:** There has been an increasing individualization of community programming in the past year due to the COVID-19 pandemic, which has led to a reduction in group activities. It is unclear if and when service offerings will return to in-person group formats and whether demand for these trips will return to pre-pandemic levels. A reduction in demand and associated reduction in group size for shuttle trips would limit the efficiency of this service.

7.4 Benchmark Review

Group Trips are offered by a number of transit agencies including Durham Region Transit, Regina Transit, and the London Transit Commission. No agencies interviewed track Group Trips separately from their overall specialized trips; however, they noted a high number of subscription trips linked to Group Trips. Group Trips are likely to lead to cost savings due to the higher levels of boardings per hour associated with multiple riders sharing a vehicle to the same destination compared to single trips with varying destinations.

Group Trip Structure

Durham Region Transit offers a “Service Agreement” which waives the need for a Personal Care Attendant exclusively on trips to and from an approved Durham Region day program, where that individual would otherwise not be eligible for unsupervised travel. The customer can apply for this service as an optional portion of the specialized transit service application. This can result in cost savings by creating space for additional passengers during high-demand times of the day.

London reports grouping trips together for persons applying for specialized transit to participate in a recurring workshop or day program-type service. A new registrant may be added to the grouping of individuals travelling to a particular day program within their local area. Scheduling of these trips is completed by London Transit as part of their standard practices to optimize the use of vehicles and personnel to maximize productivity and cost efficiency.

Vehicle Types

Regina Transit uses small accessible buses for group trips, which have a capacity of 13-15 ambulatory passengers or 6 wheelchair users. London Transit uses high floor vans equipped with lifts that can seat 10 ambulatory passengers or 6 wheelchair users. Both agencies use these same vehicles for regular on-demand specialized transit service when not in use for group trips.

7.5 Recommendations

This section explores the potential cost savings that may occur with an increase in the number of Group Trips.

Based on the above assessment, the following changes to the application and eligibility determination process are recommended.

7.5.1 Reduce Late Cancellations and No Shows

As indicated in **Section 2.5** above, there were 196,097 Late Cancellations, No Shows and Cancelled at the Door that occurred on specialized transit, representing 16.54% of all trips requested. This amount has grown by 101% between 2015 and 2019. This adds to operating costs as operators are still paid for booked trips, and dedicated trips become less efficient as there is not enough time to fit in and optimize same day trip requests. This also creates challenges in optimizing Group Trips, particularly with a high rate of No Shows and Late Cancellations.

Table 29 illustrates the rate of No Shows, Late Cancellations and Cancelled at the Door of peer systems that were reviewed as part of this report, including an average of all Canadian specialized transit systems that operate in municipalities with a population greater than 150,000. As seen below, the average among these systems is 4.78% of trips requested, while the industry practice is to target less than 1% (as noted in the C.U.T.A.'s *Specialized Transit Services Industry Practices Review (2016)).*

Table 29: Average Rate of Late Cancellations and No Shows

Municipality	Late Cancellations	No Shows	Cancelled at Door	Total
Hamilton	13.01%	2.02%	1.51%	16.54%
Grand River Transit	0.82%	1.16%	0.58%	2.56%
Durham Region Transit	1.00%	1.09%	1.00%	3.09%
Calgary Transit	1.04%	0.76%	0.62%	2.43%
OC Transpo (Ottawa)	10.32%	2.63%	3.53%	16.48%
Toronto Transit Commission	0.00%	2.95%	0.68%	3.62%
TransLink (Metro Vancouver)	2.14%	0.84%	0.93%	3.92%
Regina Transit	3.39%	2.35%	0.00%	5.74%
London Transit	4.99%	1.92%	0.00%	6.91%
Peel Region	1.37%	1.18%	0.91%	3.45%
York Region Transit	1.26%	0.83%	1.10%	3.20%
Population Over >150k	2.17%	1.69%	0.86%	4.72%
Average	**2.11%**	**1.76%**	**0.91%**	**4.78%**

Bringing the rate of Late Cancellations and No Shows closer to the peer average would increase the potential for Group Trips and increase the number of passengers per hour delivered, leading to cost savings.

A.T.S. was in the process of implementing a policy and point system for registrants who accumulate a certain number of Late Cancelations (including Cancel at the Door) and/or No Shows. Based on the points accumulated within defined time periods, individuals would receive notices, warnings and potentially service suspensions for progressively longer periods of time to correct the situation.

A report to Council on this matter was planned, but was delayed due to the COVID-19 pandemic.

It is recommended that A.T.S. prioritize this in the short-term, as a way to improve efficiencies and increase the potential for Group Trips.

An information campaign is also recommended with this point's system to advise riders that it is being implemented and to send messaging of the need to cancel in advance as much as possible and its importance to ensure rides are there for others to access. These campaigns will go a long way to change behaviour and reduce the number of

riders that need to go through this progressive discipline process of warnings and service suspensions.

A.T.S. would also need to ensure that the Trapeze functionality to track these points is enabled in their registrant database. The tool will generate lists of riders that accumulate warnings, including letters to send out on a daily/weekly basis to track and manage the whole process.

7.5.2 Focus Large In-House Dedicated Vehicles during Periods of High Trip Density

As discussed above, DARTS contracts 62% of its trips to dedicated and non-dedicated subcontractors to deliver service (2019 data). Subcontractors charge DARTS a flat fee for every trip delivered, with no adjustment in fee based on the number of rides that are shared in the vehicle. The challenge with this model is that grouping additional trips on subcontracted vehicles will not lead to cost savings. Existing DARTS scheduling practices do not prioritize placing trips on in-house dedicated service, which charges by the hour and would see cost savings with Group Trips.

There are three options that could help increase the potential for cost savings.

1. Change the subcontract pricing model create more cost efficiencies with Group Trips.
2. Schedule more in-house service during periods when trip density is high (trips per square kilometre per hour), focusing subcontracted service when trip density is low.
3. Work with schedulers to prioritize booking of Group Trips on large capacity vehicles.

Table 30 illustrates the percentage of Subscription Trips booked on an average weekday by time of day. The majority of Subscription Trips (83.8%) are made between 8:00 a.m. and 4:00 p.m. Scheduling all active larger in-house dedicated vehicles during this period would maximize the potential for cost savings with Group Trips due to the higher trip density and costing model which reduces the cost per trip with each additional passenger added to the vehicle.

Table 30: Subscription Trips by Time of Day (Weekdays)

Time	Subscription Trips	Percent of Trips
5:00 A.M.	92	0.0%
6:00 A.M.	2,375	0.6%
7:00 A.M.	10,922	2.7%
8:00 A.M.	60,222	14.6%
9:00 A.M.	65,868	16.0%
10:00 A.M.	21,085	5.1%
11:00 A.M.	20,622	5.0%
12:00 P.M.	37,885	9.2%
1:00 P.M.	18,361	4.5%
2:00 P.M.	55,338	13.4%
3:00 P.M.	65,539	15.9%
4:00 P.M.	16,960	4.1%
5:00 P.M.	13,511	3.3%
6:00 P.M.	8,197	2.0%
7:00 P.M.	2,922	0.7%
8:00 P.M.	4,726	1.1%
9:00 P.M.	3,612	0.9%
10:00 P.M.	2,313	0.6%
11:00 P.M.	904	0.2%
12:00 A.M.	12	0.0%

It is recommended that A.T.S. review the potential to increase the use of non-dedicated vehicles where trip density (trips per square kilometre per hour) is low in order to deploy specialized transit service delivered by contracted DARTS operators in the higher demand time periods and locations to maximize productivity and cost effectiveness. The focus would be to schedule and deploy larger capacity vehicles (DARTS buses and Pro Masters) during these periods (weekdays between 8:00 a.m. and 4:00 p.m.), while focusing subcontracted and non-dedicated services during lower demand periods (e.g. early morning, evenings and weekends).

7.5.3 Partnerships with Community Agencies

Booking agents at DARTS do not actively reach out to community agencies to coordinate Group Trips. Part of this is due to the high rate of Late Cancellations and No Shows, which result in minimal opportunities to increase Group Trips.

Working directly with community agencies to book trips to large programs can help to maximize vehicle occupancy on larger capacity vehicles. This practice occurs with London Transit.

It is recommended that A.T.S. work with the DARTS to develop partnerships with community agencies that provide services such as adult day programs to create scheduled Group Trips dedicated to specific destinations using higher capacity vehicles. These vehicles should continue to be used for regular specialized trips outside of scheduled Group Trips.

In cases where Group Trips require the use of a non-ambulatory vehicle, continue prioritizing DARTS operated services.

In cases where Group Trips to the same destination are made up of seven or more ambulatory passengers, optimize these trips to be delivered on DARTS high-capacity vehicles.

It should be noted that there are only two larger capacity vehicles that are used by DARTS, which minimizes the potential for significant savings. These vehicles have larger capacities, but operate at a higher operating cost.

7.6 Potential Cost Savings

The potential cost savings to A.T.S. of increasing the number of Group Trips was calculated based on the recommendations noted above. To calculate the potential benefit, the following assumptions were used:

7.6.1 Operating Costs

1. Assume $5,000 annual to initiate a robust information campaign around Late Cancellation and No Show policy and points system.
2. Assume the need to hire a Clerk position to add to the capacity of Customer Service Representatives to administer the Late Cancellations / No Show Policy, including updating Trapeze, tracking and communicating with registrants, when required. A cost of $75,400 (salary of $60,320 plus 25% for benefits) annually was assumed.

7.6.2 Travel Demand Assumptions

The following assumptions were used to calculate the potential change in travel demand and operating cost for specialized transit as a result of increasing the number of Group Trips.

1. Hamilton delivers 2.18 eligible passenger trips per revenue hour of dedicated service (2019 statistics). This is lower than the peer average of the peer systems interviewed for this project (2.82 eligible passenger trips per revenue hour of dedicated service). To be conservative, it was assumed that the recommendations above would increase the trips per hour by 5% by 2026 and 10% by 2031, which would increase the average trip per hour to 2.30 and 2.41 respectively.
2. Assuming no change in ridership from baseline, increasing the number of trips per vehicle hour would reduce the overall hours of dedicated service and peak vehicle requirements. This would see an increase in average number of trips per peak vehicle, increasing from 5,557 in 2019 to 5,872 in 2026 and 6,151 in 2031.
3. Changes to specialized transit trips from an increase in Group Trips were distributed to each of the current specialized transit contractor and subcontractors, using the same distribution that exists in 2019. Potential cost savings were calculated based on the operating cost and cost structure for each provider. This means:
    a. 39% of these rides occurring on a dedicated municipal contracted service at an hourly rate of $72.02.
    b. 59% of these rides occur on a dedicated subcontracted service at a per trip cost of $22.40.
    c. 3% of these rides occurring on a non-dedicated subcontracted taxi service at a per trip cost of $18.16.
4. For subcontracted trips, the increase in trips per vehicle would not lead to a reduction in costs (as the contract model is based on a cost per trip).

7.6.3 Other Assumptions

- Implementation to occur in 2022; and,
- Due to the uncertainty of COVID-19 recovery, 2019 was used as a base year, with no adjustments made to rides.

Table 15 illustrates the potential cost savings with the implementation increasing the number of Group Trips.

Table 31: Potential Cost Savings to A.T.S. from an Increase in Group Trips

	2019	2022	2026	2031
Baseline Specialized Transit Trips	940,083	984,100	1,057,000	1,174,900
Reduction in Specialized Transit Trips due to increased Group Trips	N/A	N/A	N/A	N/A
Adjusted Specialized Transit Ridership	940,083	984,100	1,057,000	1,174,900
Baseline Hours for Dedicated Service	377,168	397,600	428,100	479,100
Reduction in Hours of Dedicated Service	0	-4,800	-22,300	-47,400
Adjusted Hours of Dedicated Service	377,168	392,800	405,800	431,700
Baseline Operating Cost	$25,420,913	$26,642,300	$28,526,900	$31,575,900
Communications Campaign Cost	$0	+$5,000	+$5,000	+$5,000
Clerk Staff Position	$0	+$75,400	+$75,400	+$75,400
Reduction in Specialized Operating Cost	$0	-$144,000	-$669,700	-$1,418,700
Total Operating Cost with Integrated Service and Travel Training	$25,420,913	$26,578,700	$27,937,600	$30,237,600
Cost Difference	**N/A**	**-$63,600**	**-$589,300**	**-$1,338,300**

* Note: Based on Year-One of Implementation and does not account for the impacts of COVID-19

The implementation of additional Group Trips (an increase in trips per hour) would result in a cost decrease of $589,300 by 2026 and $1,338,300 by 2031 from projected baseline conditions (do-nothing scenario).

7.7 Next Steps

The cost savings noted above are only realized for trips delivered by the dedicated in-house service provided by DARTS.

The scheduling software used by DARTS assigns trips to DARTS vehicles or subcontracted vehicles based on location and the desire to accommodate trip requests and is not optimized to prioritize in-house DARTS service for Group Trips. Thus, the amount of savings related to increasing Group Trips would not be realized for trips delivered by vehicles subcontracted by DARTS.

To better optimize the potential for savings, it is recommended that A.T.S. work with the specialized services contractor to change the fee structure DARTS has with its current Subcontractors in order to optimize potential cost savings.

8.0 Key Performance Indicators

8.1 Auditor Recommendation

Recommendation #13 of the City Auditor's report directs that the Transit Division create performance metrics to measure process efficiencies and community impact, and report on these regularly.

This section of the report identifies a number of Key Performance Indicators (K.P.I.'s) that should be used to monitor the revised application process and eligibility criteria, as well as the various service model recommendations identified in this report.

A.T.S. already collects a significant amount of performance data, and tracks it over time to better understand the effectiveness and efficiency of the service being provided. The K.P.I.'s described in the sections below do not require the collection of any additional data, but when examined together, they can help understand the impact operational changes may have on service efficiency and quality.

8.2 Recommended K.P.I.'s

In 2016, the Canadian Urban Transit Association released a Specialized Transit Services Industry Practices Review, which examined nationwide peer practices for specialized transit programs, to highlight operational topics for the country's providers of specialized transit. The intention of this document was for specialized transit agencies across the country to use this document as a basis for improving operations and setting a baseline for themselves against peer operators across the country. The K.P.I.'s and industry best practice figures noted below largely originate from this publication, and are complemented with other metrics utilized by other specialized transit operators. Recommended metrics are grouped below.

Service Efficiency K.P.I.'s

For the purposes of measuring the impact of the recommendations in this report, A.T.S. should utilize several K.P.I. measures from the Efficiency category in order to better understand the impact of the recommendations outlined in this report. Recommended indicators for measure include:

Cost per Trip: Cost per Trip is the direct cost of providing specialized transit service to one passenger from a passenger's point of origin to destination. Cost per Trip is commonly represented as the average operating and maintenance cost of the service as a ratio to the total ridership of the service. An improved cost per trip is a direct outcome of adopting and adhering to service standards. Additionally, improving scheduling practices and adjusting scheduling parameters in the specialized transit scheduling software can result in increased utilization of the vehicles' capacities, among other things, and will have a positive impact on Cost per Trip. Industry best practice is less than $25 per passenger trip, regardless of agency size. In 2019, A.T.S. had a cost of $27.04 per passenger trip for all services.

Trips per Hour: Trips per Hour are the average number of trips that are provided per vehicle hour of service provided. Trips per Hour are determined using the total trips completed over a specific time period, and the total vehicle hours of service over the same time period. If Trips per Hour is too low, it is likely that trips are not being grouped efficiently, which is likely resulting in high cost per trip and low value for cost. Low Trips per Hour can also be the result of a large, low density service area and/or long trips. On the other hand, if Trips per Hour is too high, it may indicate a lower quality of service and the satisfaction of clients, as it could reflect scheduling optimized to the point that times on board the vehicle for passengers is excessive. Industry best practice is between 2.5 and 5 trips per hour. In 2019, A.T.S. reported an average 2.17 passengers/revenue hour for dedicated service.

Trip Density: The density of trips is a critical factor in determining how best to serve a particular service area by time of day and day of the week. It is determined by calculating the number of trips per square kilometre per hour. Understanding how best to serve out-of-the-way trips and time periods in which few trips are requested, offers agencies an opportunity to group trips for more shared rides, reduce deadheading, and maximize the productivity of vehicles and personnel. Trip Density has been used successfully to deploy non-dedicated vehicles, design shifts for personnel paid hourly operating dedicated vehicles to maximize shared rides. There is no industry best practice for this indicator, however, it is recommended that this be used to ensure optimal productivity of staff and vehicles.

No Shows: No Shows occur when a passenger does not appear to be picked up at the scheduled time/location or when a passenger does not call to cancel a scheduled pickup

within the required time period to cancel a trip. No Shows represent a significant loss in efficiency, increase in per trip cost, and often impacts the ability of a service provider to meet the industry best practice of 0% Trip Denials. A high rate of No Shows may be reduced by establishing and enforcing No Show policies where, for example, clients are penalized for excessive numbers of No Shows. Alternately, some agencies prefer to use public education campaigns which highlight the importance of providing advance notice for trips that are no longer required. Industry best practice is less than 1% No Shows.

In 2019, 196,097 trips were cancelled late, No Shows, or cancelled at the door, which makes up 16.5% of all trips requested (1,185,506). The current A.T.S. No Show and Cancellation Policy defines late cancellation as cancellation after 4:30 p.m. the day prior to the trip occurrence.

Registrants per Capita: Generally, transit agencies that have a more thorough eligibility determination process have a lower rate of registrants. For example, Edmonton had a population of 899,000 in 2019 had 6,523 registrants (plus 2,055 attendants/ companions) for a ratio of 0.0095 registrants per capita. By contrast, Hamilton has a population of 540,000 and 9,819 registrants or 0.018 registrants per capita (approximately twice the rate of Edmonton). Similarly, York Region and Peel Region have much larger populations and fewer registrants than Hamilton. While other factors do affect the client rate significantly, including average age, household income, and the capacity of the non-profit sector to provide transportation services, it also reflects the openness of the eligibility process. While there is no benchmark or industry best practice for this figure, it will be important to track in the coming years in order to better understand the impact of any changes to eligibility requirements and application process.

Customer Service K.P.I.'s

Recognizing that A.T.S. is a customer-centred service, it is also recommended that several customer service metrics are also monitored to ensure that passenger service standards are met and exceeded as the A.T.S. delivery model is revised. The following are several K.P.I.'s for consideration:

Trip Denial: Trip Denial is the inability for an agency to provide a trip within the agency's pick-up window when a request is made within the agency's booking window. Trip Denials are defined as the difference between the number of trips requested and the

number of accessible trips actually provided. The C.U.T.A. report notes that it's very important for accessible service providers to aim for 0% Trip Denials when inside the booking window. However, the report goes on to note, the complete elimination of Trip Denials could be detrimental because it could imply inefficient scheduling - and the upside of servicing 100% of trip requests may not outweigh the downside of inconveniencing the already-accommodated ridership base. Overall, as of 2016, the Canadian specialized transit industry is doing a good job of minimizing trip denials. Systems on average are currently denying 1.68% of all trip requests, with a median of only 0.81% trips denied. Industry best practice is 0% Trip Denials, regardless of agency size. The 2019 trip denial rate for A.T.S. was 1.6%, slightly below the average. This industry metric is particularly salient as specialized transit trip denials may be seen as both a human rights violation and a contravention of the Accessibility for Ontarians with Disabilities Act (A.O.D.A.).

Average Trip Length: The trip length is a measure of the length of a trip provided by specialized transit in kilometres, minutes or hours. Trip Length is represented by the average length of one trip, determined by the total revenue kilometres or vehicle hours and the total number of trips. When appropriate, this might be expressed as trip length as a percentage of the time or distance the same trip would take on conventional transit. Some transit agencies also use a policy that the Trip Length on specialized transit and/or integrated trips cannot be longer than the same trip on conventional transit, and it allows for comparison of the adequacy of specialized services. Some systems may find value in going one step further by defining a policy surrounding the maximum allowable trip duration. As average Trip Length is heavily context sensitive, it is very difficult to suggest industry best practice value. In 2019, A.T.S. recorded a revenue vehicle kilometer of 9.75 kilometres/passenger, an increase of nearly 1 kilometre over 2018 values (of 8.83 kilometres/passenger). It is recommended that A.T.S. monitor average trip time for specialized service as a percentage of the time or distance the same trip would take by conventional transit over a minimum of one year. Once a baseline has been established, it's recommended that a target trip length be established, specific to the unique characteristics of Hamilton.

On-Time Performance: On-time performance is the percentage of trips arriving on-time for pick-up at both the origin and destination points within the allowed window for pickups. If on-time performance is too low, it is detrimental to service quality and client

satisfaction. While achieving high on-time performance is very important, if it is too high (>99%), then it is possible that scheduling processes, pick-up windows, wait time or policies should be re-evaluated. Industry best practice is 90%-99% On-Time performance in a mid-sized city.

Missed Trips: A Missed Trip occurs when an operator/driver does not pick up a passenger as scheduled due to incorrect information about destination or human error, e.t.c. It is important to minimize these occurrences to ensure good customer service, and to reduce the need for incident management required to redeploy resources. Industry best practice is 0%.

8.3 Customer Satisfaction Survey

Although not a K.P.I., one additional qualitative indicator for success is a comprehensive Customer Satisfaction Survey. This tool provides the opportunity to better understand the needs of clients, and the impact that any changes may have on their experience with the service. If undertaken biannually, or at a similar frequency as on conventional transit service, it is a strong indicator of the success of any changes to the A.T.S. service model, and the success that any change management activities may have on the roll out of larger changes, such as the implementation of Integrated Trips. While several approaches to the survey could be considered, a telephone survey of a representative sample of active registrants (including caregivers for those not able to participate directly) has been used to great effect by other specialized transit agencies in Canada.

8.4 Benchmarking for Improved Eligibility Assessment

The development and implementation of improved application process and eligibility assessment is only effective if the results can be measurable. In order to meet the direction provided by the Auditor General in recommendations #2, #3, #5, and #13, it is recommended that the following benchmarks be collected through the roll out of any program to improve the efficiency and effectiveness of A.T.S. service as described in the report.

1. **Number of Applicants by Period.** This should be tracked quarterly and annually and show a decrease in new applications per capita from baseline as a result of the additional clarity in the revised application process.

2. **Registrants per Capita**. This is an indicator of the effectiveness of the specialized transit application and eligibility determination process and is noted above. The number of registrants per capita should decrease to industry standards with the revised application process.
3. **Conditional Eligibility.** This should record the change in relative percentage of candidates receiving conditional approval versus unconditional approval for A.T.S. service. Success should show an increase in conditional approval over current applications.
4. **In-Person Assessments:** The number of in-person assessments should be tracked by period (quarterly and annually) once the revised application process is in place. A high rate of applicants and a low number of in-person assessments may mean that the functional ability of potential clients is not well understood, and they may be provided an inappropriate classification of service requirement (e.g. conditional versus unconditional).

8.5 Summary

The following table summarizes the measures described above, and notes how A.T.S. currently measures (if applicable).

Table 32: Summary of Existing Key Performance Indicators

KPI	Description	Industry Standard	Current (2019 data)
Cost per Trip	The cost of providing specialized transit service to one passenger for one trip.	<$25.00	$27.04
Trips per Hour	The average number of trips that are provided per vehicle hour of service.	2.5 - 5.0	2.17
Trip Density	The number of trips provided per square kilometre per hour.	N/A	N/A
No Shows	The number of booked trips that a customer cancels late or does not arrive at the pickup location within 5 minutes of the pickup time.	0%	16.5%

KPI	Description	Industry Standard	Current (2019 data)
Registrants per Capita	The rate of specialized transit registrants per capita.	N/A	0.018 registrants per capita
Trip Denial	Trip denials occur when an agency is unable to provide a specialized trip within an acceptable time window.	0%	1.6%
Average Trip Length	The average length of a trip provided by specialized transit in kilometres, minutes or hours.	N/A	9.75 k.m.
On-Time Performance	The percentage of trips arriving on-time for pickup at origin and destination points within the allowed window for pickups.	90%-99%	98.9%
Missed Trips	Incidences when an operator does not pick up a passenger as scheduled.	0%	0.8%

9.0 Other Strategic Recommendations

There are a number of other strategic directions that were identified through this review that did not form part of the City Auditor's report. These are included below for consideration by the City of Hamilton as it looks to improve the level of service and cost effectiveness of its specialized transit service.

1. **Integration with On Demand Transit in Waterdown**

   The Transit Division is set to begin an On Demand pilot service in the community of Waterdown, and this will be the first stage of an implementation strategy. This will be operated using H.S.R. operators and vehicles to provide demand-responsive connections within Waterdown and to the rest of the network with a connection to the Aldershot GO Station.

   There is an opportunity to use this On Demand service for part of the Integrated Trip model identified in Section 4.6.1 of this report. Many On Demand platforms provide the opportunity to allowed registered specialized transit customers to be picked up at their door instead of a stop, and allow full door-to-door service within the Waterdown community, or an Integrated Trip with a connection to the Aldershot GO Station. Adopting this model may require H.S.R. to use smaller accessible vehicles (e.g. cutaways) that would allow operators to access local residential streets that may not be suitable for a 40-foot bus.

   Should the On Demand pilot be successful, it is recommended that the Transit Division explore opportunities to use smaller accessible vehicles for On Demand areas and work with the technology provider to provide allow a separate registration category for specialized transit customers that require pick-up / drop-off at the door within an On Demand zone. This should be expanded to other areas of the City, taking into consideration areas with a high senior's population as a way to provide "Community Bus" style travel within a local community, connected to the larger H.S.R. network.

2. **Full On Demand Transit Integration**

   A trend among many transit agencies is also to use the same technology platform to book and schedule On Demand and specialized transit trips, using the same operators. This is being done by Guelph Transit, St. Catharines Transit, Durham Region Transit, York Region Transit and Milton Transit to name a few. The vision is to move towards a fully integrated conventional fixed-route and demand-responsive service, which includes by On Demand and specialized transit.

   This model will integrate the existing specialized transit and On Demand pilot service using the same scheduling and booking platform and operator. This would also include the same customer service staff booking both On Demand trips for conventional passengers and Specialized Transit trips for A.T.S. passengers. The goal is to provide the same level of customer experience to all customers, regardless of ability.

   Demand-responsive services will provide either door-to-door service or connect to scheduled service at key stations, terminals and hubs to form part of a complete trip. The type of trip will be dependent on the customers' ability to access scheduled service, based on functional ability, geography, time of day and other relevant factors. This model will move away from separate specialized, On Demand and fixed-route transit systems, creating opportunity for seamless travel across the City. This may also involve removal of the DARTS brand from vehicles, create a single H.S.R. brand for all services.

   In the medium-term, it is recommended that A.T.S. further study the full integration of specialized transit service and On Demand transit, so both systems can be operated under the same platform, creating a seamless experience for all customers.

3. **Re-explore Fleet Mix**

   Specialized transit is operated by a mixed fleet in-house and subcontracted of larger accessible buses, accessible Pro Masters and M.V.1.'s, accessible and non-accessible mini-vans and non-accessible sedans. A decision was made a few years ago to move to the use of smaller vehicles as a cost-saving measure. As the recommendations in this report are implemented, particularly with a larger focus on Group Trips during high trip density periods, the fleet mix should be re-

explored to confirm whether the strategy continues to be optimal. Having in-house larger accessible buses provides a number of benefits, particularly when scheduled during high trip density periods (e.g. weekdays between 8:00 a.m. and 4:00 p.m.). The ability to Group additional trips on these vehicles, particularly as the high number of Late Cancellations and No Shows are addressed, could provide additional cost savings to A.T.S., even with the higher hourly operating cost of these vehicles. It is also recommended that the fleet mix and operating strategy of On Demand vehicles be considered as part of this review, particularly if H.S.R. is moving towards a more integrated strategy.