Access Calgary

Performance Audit/Lean Operational Review

Converge Consulting Group
People • Process • Performance

Converge Consulting Group Inc. strives to use clear, concise language in reports. We favor shorter sentences, the active voice, and familiar words. Our objective is clearly presenting the evidence supporting conclusions and recommendations.

Data are presented using graphical analysis tools designed to preserve context and emphasize variation in comparisons and contrasts. This includes the elimination of junk charts and chart junk that misleads analysis. Text and graphics are integrated where ever possible.

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Councillor Shane Keating
Chair, Audit Sub-Committee on Access Calgary Performance Audit
City of Calgary, Office of the Councillors
P.O. Box 2100, Station M (#8001A)
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Dear Councillor Keating

Converge Consulting Group Inc. is pleased to present this Performance Audit.

We promised a different approach to conducting this audit, specifically, conducting a Lean/Systems Operational Review. This approach places less emphasis on examining policy, financial, and practice compliance than traditional audits.

Instead, the focus is on performance. The objective is understanding performance issues and identifying potential solutions that can help improve cost effectiveness, customer satisfaction, process efficiency, and system capacity.

We would like to thank Karim Rayani, Manager of Access Calgary, and his staff, who provided us with their time and effort.

A special acknowledgement as well is owed to Cal Schuler for helping us organize customer meetings, providing us with ongoing feedback and suggestions, and helping us better appreciate customer needs and requirements.

Thank you.

Robert Gerst

Partner, Converge Consulting Group Inc.

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Executive Summary

What's critical to know in 5 pages

Access Calgary is part of Calgary Transit. It has a staff of about 75 people with an operating budget of about $30 million and is responsible for delivering specialized public transit services to Calgarians.

Specialized public transit serves people that cannot use or navigate fixed route public transit (buses, trains, roads, sidewalks) because of functional limitations owing to a disability or condition. This includes people who:

- are non-ambulatory, using wheelchairs or similar devices,
- are ambulatory but with limited physical mobility such as an inability to climb stairs or requiring a walker,
- have specific physical limitations making navigation difficult, such as blindness,
- have cognitive difficulties, and/or
- have specific health issues such as seizures.

Because of the nature of its client or customer group, Access Calgary provides door-to-door transit. It delivered over 1.2 million such trips last year at an average cost of $25 per trip, roughly 20% cheaper than similar sized cities in Canada.

Context: specialized public transit

Specialized public transit is expensive, and providing it, was originally seen as a public transit service level issue. Not every municipality offered specialized public transit and where the service was offered, special fares applied to help cover the cost.

The new realities of specialized public transit

This changed in 1990 with the passage of the Americans with Disabilities Act (ADA) in the United States. The ADA legislated that services offered to the general public must be made available to those with disabilities. This included public transit services. The ADA essentially reframed the provision of specialized public transit from a service level issue to an issue of human rights.

The ADA was American legislation. It's impact, however, has been global. It has empowered those with functional limitations to demand public transit service. It also provided an ethical stimulus, moving public transit providers, including those in Canada, to match the specialized public transit services provided to people in the United States.

The challenge facing municipalities

Public transit organizations have often struggled to provide specialized public transit services. These services are expensive. Providing the capacity (mandated by the ADA) while controlling costs is the challenge. Three broad themes characterize this challenge and the response public transit service providers.

1. Rising demand. The numbers of elderly and others finding it difficult to use standard, fixed route public transit are growing. This growth will continue and so will the demand for specialized public transit.

In response, public transit organizations are engaging in a number of strategies to reduce this demand by making existing fixed route transit more accessible and partnering with community organizations in providing specialized transit service delivery.

2. Existing transit system performance, There are no magical 'silver bullet' solutions that will make specialized public transit more cost effective. The industry is constrained by the physical realities that someone must be taken to where they want to go. At a minimum, this requires some form of vehicle and an operator.

In response, specialized public transit organizations have pursued strategies focused on the physical system such as route design, vehicle types and sizes, and outsourcing service providers to reduce labour costs.

3. Urban planning & design. Urban planning has tended to assume access to an automobile. Large pockets of residential development separated from other large pockets of commercial development discourage simple, effective and cheap forms of travel, such as walking.

Building accessible, walkable cities is becoming part of the new urban design. This applies to large scale urban planning, but also on smaller scale redevelopments such as building seniors housing near facilities seniors tend to use.

Access Calgary

Specialized Public Transit in Calgary

Access Calgary is the organization largely mandated to meet the challenge by providing specialized public transit to people in Calgary. How well are they doing?

1. Access Calgary is an efficient, well managed organization.

Access Calgary is delivering service effectively, roughly at 20% less cost than comparable jurisdictions in Canada and with comparable levels of service quality. The organization design supports a smooth and efficient workflow, and the organization's position, as part of Calgary Transit, supports the promotion of system integration efforts that will be required for making fixed route systems more accessible in the future.

2. The service delivery model is working well. It should not be modified.

Access Calgary contracts out the service delivery component of its business to Calgary Handi-Bus, Southland Transportation, Checker Cabs, and Associated Cabs. This has allowed the organization to reduce the business interruption risk associated with any one provider. It has also allowed Access Calgary to mix and match service provision reducing overall costs of providing the service. This service delivery model works and should be retained.

3. Customer satisfaction is good, but not as good as reported. A customer experience management program is needed.

Customer satisfaction/engagement with Access Calgary is good. Expressed overall satisfaction with service runs about 75%.

In contrast, previous surveys reported satisfaction levels in excess of 90%. These surveys used a methodology known to produce overly positive results. This includes using 5-point scales, combining top two box scores (4 or 5) to define a satisfied customer, and failing to define what constitutes a materially significant finding. This has hurt the credibility of Access Calgary who has quoted survey results to the disbelief of customers.

Access Calgary needs to adopt a solid customer experience management program consistent with best practices in industry as opposed to government. This includes ongoing sampling of customers with a recent trip experience by an independent customer research firm, monthly reporting of service levels by control chart, and publication on service dashboard.

4. Cracks are beginning to show under the stress of balancing demand and budget. Trip prioritization shouldn't happen.

While Access Calgary has been successful at balancing budget constraints with meeting the demand, the stress is beginning to produce cracks in the quality of service. Access Calgary has less than a 1% failure rate in accommodating trip requests. But with 1.2 million trips being delivered annually, that translates to 12,000 requests that could not be accommodated.

In response, Access Calgary has begun prioritizing trips on the basis of trip purpose, placing casual trips at the end of the queue. This is not permitted under the ADA, is seen as a violation of civil rights by Access Calgary customers, and is likely inconsistent with values and expectations of Calgarians. It also invites higher level government intervention.

Access Calgary should be given the budget to ensure that prioritization by trip purpose is not required.

5. Access Calgary does an excellent job in managing eligibility. The customer base has been reduced, but demand will continue to grow.

Because of the cost of providing specialized public transit, not everyone wanting to use the service, can. Customers must be eligible. Access Calgary introduced a more rigorous process to determining eligibility based on the functional limitations of individuals in using existing fixed route systems. This is consistent with best practice and has shown results. After its introduction, the size of Access Calgary's customer base declined. It has begun growing again, but at a much more modest pace consistent with general demographic trends.

6. Service area definition is consistent with best practice. Changes will require funding.

Specialized public transit is an extension of fixed route public transit. To control costs, best practice has encouraged specialized public transit to restrict services to within a certain distance of fixed route transit. At Access Calgary, services are provided within 1.0 km. of a fixed route. This strategy is consistent with the provisions of the ADA.

With a city growing as fast and as spread out as Calgary the costs of providing specialized public transit services to outlying areas would be large. Access Calgary could simply not afford it. At the same time, the City wants to encourage take up and development in these areas.

This makes the decision one of service level. If Access Calgary is to extend service to outlying areas, it must be given the additional budget required to do so. This might be moderated by charging a service premium to those areas beyond 1.0 km from a fixed route stop.

7. On-time arrival should be the strategic priority for Access Calgary over the medium term.

On time arrival is what customers complain about most, where customer satisfaction numbers fall, and where service performance level metrics are lowest. Access Calgary's on-time arrival performance runs at about 90%. That is not out of keeping with performance of other jurisdictions but it is borderline and it's having an impact on customers' perception of the reliability of the service being delivered. This is especially true where customers rely on Access Calgary to go to work or medical appointments.

Making this a key strategic priority in the delivery of service should have flow through performance impacts (i.e.; on-time arrivals). We recommend that management prepare an analysis of the cost of bringing Access Calgary up to an on-time arrival rate of 95%.

8. Access Calgary's core technology isn't doing the job. New software with clear performance responsibility is required.

The nature of specialized public transit requires the use of specialized software (often called paratransit software) to support trip booking, scheduling and dispatch as well as day of service operations. Without this software, specialized public transit agencies such as Access Calgary can't function.

Access Calgary's uses Trapeze 8, an older product that is experiencing reliability issues. It also has limited functionality and doesn't support web functions such as trip booking, schedule look-up, and cancellations, essential to more efficient operations and improved customer service.

A process is in place for obtaining a replacement. Of concern is the environment in which this new software will operate. Someone must be responsible for performance of the product. Shared responsibility is no responsibility and Access Calgary cannot afford to have performance issues tossed back and forth between supplier and corporate IT. As important as replacing the software is, therefore, we recommend responsibility for the performance of the software be made clear.

9. Access Calgary should continue to expand its role in building a more accessible city.

Increasingly, Access Calgary is being called upon to provide advice to the balance of Calgary Transit in making existing fixed route systems more accessible. This trend should continue.

Improving accessibility of fixed route services is more than low floor buses, sidewalk ramps, or large print signs. It requires expertise in the limitations and barriers created by design. Access Calgary has this expertise.

More broadly, the strategy of The City of Calgary in building a more accessible, walkable, city needs to be examined. The nature of the task demands expertise from a variety of Business Units and the perspectives of many groups. Do we have all the people and Business Units in the room that we need to have? Do all Business Units have a consistent strategy or are we working at cross-purposes?

Introduction: A Lean/Systems Operational Review

Project Scope, Methodology and Disclaimers

This performance audit takes a Lean/Systems approach. This a different approach than has been conducted through Audit Committee in the past. For this reason, a brief overview of purpose, methodology and scope is warranted.

Purpose

Audits typically compare management actions and practices against policies, procedures and standards. The objective is determining whether management actions comply with policies.

In contrast, a Lean/Systems review is less concerned with compliance and more with performance. Specifically, analyzing and improving organizational and operational performance with the objective of improving capacity, improving customer service and reducing cost.

The purpose of this review then was to analyze the performance of Access Calgary, to identify areas where performance can be improved, and to identify how this might be done.

Methodology

The focus on performance has a number of important implications. This review;

- Conducted extensive analysis of operational data often using advanced statistical tools to properly identify trends, patterns and areas of material significance to the performance of the system.
- Took operational data directly from Access Calgary databases. Data quality assurance was limited to brief examinations of internal consistency. No auditing of data was conducted.
- Considered corporate policies and practices in scope for this review where they impacted system performance. Typically, audits test activity against these standards meaning the standards themselves are out of scope. That means some recommendations may not be consistent with existing City of Calgary practices.
- Emphasized working with Access Calgary management and staff in a cooperative effort. This took place through extensive interviews with management and staff, facility tours and observing operations directly.

- Gathered feedback directly from Access Calgary's customers. We conducted a focus group with customers and a confidential customer survey to ensure the voice of Access Calgary's customers was captured and reflected in this report.
- Gathered comparative data from 4 other jurisdictions across Canada--Saskatoon, Winnipeg, Edmonton and Toronto--to better understand how different jurisdictions approached specialized public transit.
- Researched best practice data from the literature and from other studies conducted across North America and to a lesser extent, Europe. The criteria for inclusion as best practice was not what is agreed upon by public transit agencies but rather what has been demonstrated to be effective at supporting cost-effective service.

Scope

The scope is defined by the six components of the Lean Systems Analytic Model.

1. Purpose of the System

The basic function of the system from the customer's perspective. What is the system supposed to do and how does it provide value to the customer? Does it do this in a cost effective manner?

2. What Matters to Customers

Define the customers of the system, what services are demanded, in what volume and frequency. How services are delivered in terms of service quality, delivery and cost. What do customers like, not like and how satisfied are they with the service they are receiving.

3. Demand Response Capability

The ability of the system to meet customer requirements. Can it meet demand? Can it do so meeting service quality expectations?

4. Process Effectiveness, Efficiency and Flexibility

How the work is organized to meet customer demand and requirements. How flexible are these processes to different types of service demand. How efficient are they? This analysis is presented in detail in Comprehensive (Lean) Operations Review.

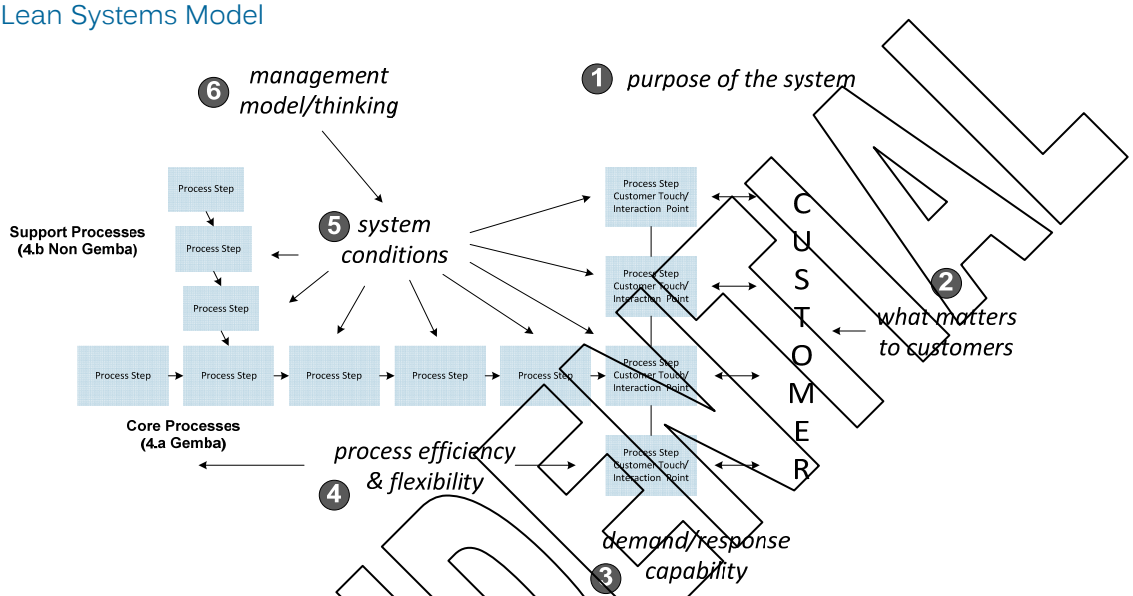
5. System Conditions

System conditions encompasses the organizational structure, performance measures, roles and responsibilities, information and policies. Do existing system conditions help or hinder organizational performance?

6. Management Model/Thinking

The predominant management model in use and the assumptions serving as a foundation for management decision making. How does management measure, manage and improve performance?

Lean Systems Model



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Organization of Report

Outside of the Executive Summary and this Introduction, the report is presented in three parts:

Part 1: Introduction to Access Calgary and Specialized Transportation Services. This presents some historical background as well as an overview of the challenges faced by the specialized public transit industry and how it is responding to those challenges.

Part 2: Access Calgary Lean System Analysis. A systems analysis of Access Calgary based on the six components of the Lean Systems Model. This is the section that will be of greatest interest to policy makers presenting broad system findings and recommendations.

Part 3: Lean Operational Review of Access Calgary. This presents the operational detail of Access Calgary, its practices, processes and performance, how these compare to best practices and where issues and improvements are recommended.


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Part 1: Introduction to Access Calgary and Specialized Transportation Services

Historical Background to Access Calgary

How did we get here?

Calgary began providing door-to-door shared ride transportation services to the "handicapped and elderly" through the Calgary Handi-Bus Association in 1972. A not-for-profit association, Calgary Handi-Bus acquired buses through charitable donations. Starting with 6 buses, by 1984 it had 90 vehicles.

At about the same time, in 1974, Special Needs Taxi service began operating in Calgary. It provided transportation services to senior citizens experiencing deteriorating health and unable to afford regular taxi transportation. Local taxi companies provided the service but administrative oversight was provided directly through the City of Calgary.

This reflected the basic structure of service delivery until a Review of Transportation Services was completed in 1998. It highlighted a fragmented system with inconsistent eligibility criteria, duplication of effort, customer confusion and inequity. In the background, there was no clear method or approach to controlling and managing costs.

Three key recommendations came out of this review:

- Adopt an integrated/coordinated model of specialized public transit service delivery.
- Revise and standardize the eligibility criteria and process for specialized transportation services.
- Pursue new service options (accessible fixed-route transit) to provide public transportation for Calgarians with disabilities.

The intent was providing an integrated, efficient system to meet the demand for specialized public transit service. Access Calgary was created in 2001 with the purpose of operationalizing these objectives.

A lot has changed since then. Ridership has skyrocketed and Access Calgary has grown from a fledgling start up to a sophisticated broker connecting customers for specialized public transit services with service providers. It manages the eligibility of over 15,000 customers and books well over 1.0 million trips every year.

In 2012, Calgary City Council decided it was time to conduct a Performance Audit of Access Calgary. This report marks the completion of this initiative.

Americans with Disabilities Act

It's impossible to understand the business context for specialized public transit without an appreciation for Americans with Disabilities Act (ADA) of 1990. The ADA applies to the United States, not Canada, and doesn't deal specifically with public transit. It nevertheless, was game changing legislation that significantly influenced the way in which specialized public transit is delivered here and across much of the world.

It did this by reframing the issue of transit services for the disabled from an operational issue of service design to a human rights issue. The ADA was human rights legislation. Among its provisions, it requires every public entity operating a fixed-route transit system in the U.S. to provide "complementary . . . specialized public transit" to individuals with disabilities comparable to service levels provided to individuals without disabilities.

Further, the ADA set the following guidelines.

No capacity constraints, trip requests by eligible riders cannot be denied as long as they are made within the specified reservations hours, service area and service hours. It is illegal to establish any priorities based on trip purpose or establish caps on the number of trips provided.

Fares, must not be higher than twice the adult single-ride fare for a similar fixed-route trip. Companions may be charged the same fare as the eligible rider, but personal care attendants must ride free.

Reservations, trips can be scheduled up to 14 days in advance and up to the close of business of the day prior for the trip.

Service Area, is defined as the area extending three-quarters of a mile around bus routes and rail stations. Smaller areas inside the service area must also be served.

Eligibility, is based upon functional abilities rather than medical diagnoses. Individuals are certified as eligible if there is any part of the fixed-route system they cannot use or navigate.

- A condition or disability must prevent a person from getting on or off a regular fixed-route bus.
- A condition or disability must prevent a person from waiting at a regular fixed-route bus stop.
- A condition or disability must prevent a person from being able to ride the fixed-route buses or to understand and follow transit instructions.

Some individuals are eligible for service under specific conditions, permitting transit organizations to determine eligibility on a trip-by-trip basis.

Much of the inspiration behind the 1997 Review of Transportation Services in Calgary was driven by the ADA as were many of the recommendations.

Impact on Canada

In reframing public transit service delivery as a human rights issue, the ADA changed the conversation and expectations of people with disabilities around the world. This has had three major effects on the industry in Canada:

- People with disabilities, including Access Calgary's current customers, tend to see public transportation service issues as a human rights issue. This is also true of the various agencies and service organizations providing help and programming to disabled individuals and relying on Access Calgary to provide transportation services.
- The ADA is the de facto standard defining the services and service levels. The ADA may not apply to Canada, but it has changed the demands and expectations of Access Calgary's customers.
- Specialized public transit organizations in Canada have tended to mirror the organizational designs, services, and service levels of similar organizations in the United States. Some of this is due to changing expectations described above, and some due to the realities of operating in an industry where the American market dominates. To this last point, specialized scheduling software and vehicle design and manufacture, are both made for the American market, and both reflect and embody the requirements of the ADA.

Further, some Canadian jurisdictions, specifically Quebec and Ontario, have mandated service levels using legislation not dissimilar from the ADA, at least in so far as it concerns specialized public transportation services. Ontario's legislation comes into effect January, 2014.

While stopping short of mandating service levels, the Canadian Human Rights Act prohibits discrimination against people with disabilities. Additionally, the equality rights section of the Canadian Charter of Rights and Freedoms (1982) guarantees people with disabilities equal benefit and protection before and under the law. These haven't been applied directly to public transit issues, but the trend in Canada has been to use these in support of following the basic guidelines as set out in the ADA.

Industry Challenges: Capacity & Sustainability

The fundamental challenge in specialized public transportation services is building sustainable capacity. Capacity can always be added—just add money. Sustainable capacity means building capacity in a cost effective manner. Costs in specialized public transit are driven by three broad factors:

1. Rising Demand. Increasing demand is driven by:

- growing numbers of older adults, especially older adults with disabilities living in community settings rather than long term residential care facilities,
- the increasing ability of people with disabilities to live, work and engage in social, civic and spiritual activities within their own communities,
- shifting of trips once performed by human service agencies for clients but are increasingly performed by specialized public transit,
- increasing number of adult day programs and the number of individuals attending these programs,
- health care system restructuring including increased centralization of services and earlier discharges requiring temporary transportation to hospitals as out-patients or follow up visits,
- growing demand for transportation to and from kidney dialysis, and
- continued population growth combined with limited public transportation.

2. System performance. There are no miracle cures or secrets to achieving more with less. Benefits accruing though increased use of technology, route and scheduling design, and so forth, are simply constrained by the fact that someone must drive someone else to where they are going. This is why driver wages and benefits account for most of the cost of specialized public transit.

The performance of fixed route systems in accommodating those with functional limitations is also a cost driver. Fixed route systems that aren't accessible drive people to use specialized services.

3. Urban design. Urban design has been driven, in large measure, by the need to accommodate private vehicles. Cities tend not to be walkable. As a result, the design of the urban space itself drives the need for private vehicles, fixed route and specialized public transit services.

Responding to the Challenge: Integration is the key

Evidenced-Based Approaches to Increasing Capacity & Sustainability

The overwhelming theme emerging from the experience of specialized public transit providers is that system integration with conventional bus and rail services is the key to building a more sustainable specialized public transit system. This will allow both systems to serve more people at lower cost.

Interestingly, integration was a major theme of the 1998 Transportation Services Review conducted in Calgary. However, there are some new realities that will shape the provision of specialized public transit now and in the foreseeable future.

- Paratransit is now an issue that transcends public transportation; it carries significant social implications and raises issues requiring solutions that cut across traditional organizational boundaries.
- Specialized public transit requires partnering with other entities of government as well as not-for-profit social service organizations, businesses and community and neighbourhood groups.
- There is no game-changing technology or breakthrough organizational or operational strategy that significantly changes the ability of transit agencies to redefine how they provide mobility services to the elderly or people with functional limitations that restrict ability to use fixed route systems.
- Improvements in the delivery of specialized public transit services are likely to be found at the margins, in relatively small-scale initiatives that, when aggregated, generate significant enhancements with moderated additional cost.
- The majority of specialized public transit customers are not ready customers for fixed-route service. Similarly, fixed-route services are not ready for them.
- The expectations of consumers of specialized public transit services are outpacing the service quality capability of specialized public transit providers.
- Specialized public transit services is and will remain the most heavily subsidized public transit service on a per-ride, per-passenger basis. Expansion of the specialized public transit service always increases the cost, even when per-ride, per-passenger expense decreases.
- Transit agencies are often the least expensive transportation option increasing demand for specialized public transit services.
- The better a specialized public transit service meets the expectations of public transit customers, the greater the costs of providing the service because of the resulting effect on demand.

- The demand for specialized public transit is increasing because of an aging population, advances in medicine that help people live longer often at the cost of various disabilities, and increasingly strong legal protections for mobility rights.
- Moving more specialized public transit customers to fixed route service are complicated by the attractiveness of specialized public transit. versus fixed-route service inadequacies as well as the community infrastructure on which it relies.
- Factors beyond the control of a transit agency, such as climate, encourage the use of specialized public transit.
- System and equipment difficulties also deter specialized public transit users from moving to fixed-route services. Fixed route travel often involves transfers, while specialized public transit is point-to-point travel. Likewise, fixed route equipment requires education and may also be cumbersome or burdensome to use.
- Transit agencies are not responsible for many of the elements that affect the quality of specialized public transit and fixed-route services, including condition of streets and sidewalks and the accessibility of buildings.

1. Demand Management

Specialized public transit is expensive. Fares don't cover costs. Demand management improves sustainability by limiting or reducing the level of demand for specialized public transit.

Eligibility processes

Eligibility assessment determines who has the right to access specialized public transit. Introducing more rigorous eligibility processes has proved effective at reducing demand.

In the past, eligibility processes were based on paper applications. Today, most specialized public transit systems require written applications combined with in-person assessments. This may include in-person interviews and evaluation of functional mobility by trained professionals. The added rigor slows customer growth and ensures only those requiring specialized public transit become eligible for the service.

Increasing the rigor in eligibility assessment carry's a risk. A new assessment practice may reduce the number of people eligible for specialized public transit, but reduction in costs may be offset by denial of service to those that need it as well as negative public reaction.

Implementing conditional eligibility.

Conditional eligibility finds that some applicants can use fixed-route service for at least some of their trips and specifies the particular conditions that prevent use of fixed-route service. An example is providing conditional eligibility when snow and ice are present.

Use of conditional and trip-by-trip eligibility avoids specialized public transit costs for those trips that eligible riders take on fixed-route service.

Specialized transit feeder to fixed-route service.

Some specialized public transit customers' eligibility is based solely on the inability to get to and from transit stops. Feeders provide specialized transit services between the destination and the transit stop. This reduces the cost of providing the trip and reduces demand for specialized public transit service. In essence, this is a form of conditional eligibility with customer eligible for specialized public transit service only between an existing transit stop and the destination.

Removing barriers on the fixed route system.

Specialized public transit is intended to be a complement to the fixed route service. It enables persons with disabilities to make use of public transit where the barriers of fixed route transit are too great to overcome. Because of this, the starting point for enhancing public transit services is removing the barriers presented by fixed route systems.

Stops must be made safe, secure, and accessible. For wheelchair bound patrons, concrete pads and/or sidewalks to and from bus stops is important. Lighting and amenities such as benches and shelters can assist patrons with special needs.

Physical changes to the fixed route transit infrastructure is only part of the solution. Providing accessible information through a web compliant format enables customers to view information in a manner that is suitable for them. Regular automated announcements can provide sight impaired individuals' assistance in understanding the whereabouts of the vehicle along the fixed-route and so forth.

Reducing barriers to fixed route systems is effective at reducing demand but is more difficult to implement than it might appear and more costly than might be expected. This is because of the integrated nature of any transit system. Loading platforms to trains may be wheelchair accessible but the uneven sidewalk outside the stop may prevent use by those in wheelchairs.

Calgary Transit is currently engaged in removing the barriers to fixed route services. While a worthwhile endeavor, the experience described above suggests this may be more expensive and less productive than people expect.

Travel training.

Increasingly, transit agencies are teaching people with disabilities how to use fixed-route transit. These include mobility orientation sessions, which are one-time sessions where transit service is introduced and transit skills taught, and one-on-one individualized training often on the system itself. An individual successfully completing the training and

using fixed-route transit can travel more spontaneously and at less cost than on specialized public transit.

Access Calgary is currently engaged in delivering travel training.

Fare Incentives to use fixed-route service.

Fare incentives provide for reduced or free use of fixed-route transit service. This encourages the use of fixed route transit reducing the demand for specialized services.

Calgary Transit provides low income seniors passes to fixed route customers but not to users of specialized public transit. This is an example of a fare incentive to use fixed route services.

Premium charges

Premium charges apply where transit agencies provide specialized public transit service that goes beyond their traditional service provision. These fares manage demand and raise revenue. For example, charging a premium for service beyond the typical service area (1km in the case of Access Calgary).

Partner with community agencies.

Transit agencies are partnering with community agencies in transporting clients to and from agency or program locations. The partnerships can take different forms such as:

- providing vehicles to the community agency as well as maintenance services, fuel and driver training, and
- direct contract arrangements where the transit agency provides operating funds to the community agency to support a specified level of service or defined number of trips.

Since the per-passenger trip costs for the community providers are generally significantly less than that of specialized public transit service, the transit agency saves the difference between its full costs to operate specialized public transit trips and its support to the community providers for their trips. Further, matching specific vehicles to drop-off locations may improve route design and encourage agency program redesign.

2. Improving Specialized Transit System Efficiency

Alternative Service Models

The increasing demand for specialized public transit services is making the search for operating cost efficiencies increasingly more important.

The result of this emphasis on cost is that publicly operated systems are exploring the potential of privatizing service, while privately operated systems are seeking contractors

who can do more for less. Downward price pressure is creating an environment in which agencies are being more innovative with their approach to delivering service. This is means more agencies and firms are willing to deploy alternative service models and technology firms to reduce cost.

No Show & Cancellation Policies

An effective no-show/late cancellation policy can reduce the waste of specialized public transit resources that results from vehicles that are dispatched for riders who do not take the trip they had booked. Adoption and enforcement of an effective no show/late cancellation policy, with penalties for riders who excessively no-show and cancel trips late, can reduce the amount of service that is wasted when riders fail to show up or cancel at the last minute. If that unused capacity can then be used to provide passenger trips, the strategy will improve productivity.

Reservation / Scheduling / Dispatch Process

Agencies that have a well-coordinated reservation/scheduling/dispatch process and a good communications system are better able to control the costs of providing specialized public transit services. Integrated call intake, operational scheduling, dispatch, and day of service processes where operators have direct communication with control centre staff are better able to control and manage cancellations, no shows, operational problems and the like that can cause disruption in a daily schedule and negatively impact the efficiency of the service.

Reservation Process. Reservation windows are created to ensure riders get to their destinations on time. When calling for a pick-up time, it is important for the reservationist and patron to discuss actual pick-up time versus appointment times. Most agencies now establish 30-minute or greater pick-up windows which gives the agency some degree of flexibility while still providing the passenger with reasonable expectations. Access Calgary has a 20 minute pick-up window. It's important for the patron to understand pick-up and drop-off windows policies. Rider guides that go step-by-step through the process of reserving and using specialized public transit services are considered best practice and have been implemented by Access Calgary.

Subscription Trips. In addition to a call in-take system for specialized public transit trip reservations, many agencies have subscription service trips, including Access Calgary. Subscription trips are trips that a customer makes on a regular basis, with a specific origin and destination that does not change. Most often these are for employment, medical, and/or educational purposes. Subscription trips greatly reduce the reservation/scheduling burden on specialized public transit agencies.

Scheduling. Scheduling the daily itineraries is a logistical challenge because of new trip requests and integrating these with standing subscription orders. Automated scheduling systems are a requirement, however, experience with these systems suggests that daily

schedules must still be reviewed by employees to verify the process. This confirms the experience at Access Calgary where daily schedules are reviewed for logic and cost minimization.

Driver manifests are produced from the schedule. For systems without mobile data terminals (MDTs), the manifests are typically printed or faxed to operators. This limits the ability of day-of-service operators to adjust service delivery to changing circumstances, negatively affecting productivity.

With MDTs, the manifests are kept in an electronic form, with only the next or the next few trips displayed on the terminal. This allows day-of-service operators to immediately adjust and communicate the manifest to operators. However, the limited route information provided on MDT's constrains operators from using local, real time knowledge to adjust and adapt to changing circumstances and conditions.

Day of operations. Dispatchers must be available to deal with changes or disruptions. Knowing where vehicles and the operators are, should it be necessary to re-route or change a run, is critical. Some agencies use systems where the vehicle operator checks in with dispatchers at each pick-up and drop-off location. This provides an open line of communication and alerts the dispatch centre to any abnormalities (running late, arrived too early, customer no-show), allowing the dispatcher to make schedule adjustments as necessary. In larger systems, this type of driver check-in may not be possible due to the number of vehicles operating at one time. In these cases an exception reporting system is used in which vehicle operators contact the dispatch centre only in the event of a problem (running late, no-show).

Automated vehicle location equipment allows dispatchers to know the precise location of all vehicles at all times. This allows for tweaks in the schedule to occur often before issues arise. For example, if dispatchers can see that an operator is running late, they may be able to reassign trips to other drivers.

Increased use of technologies

Technology is playing an ever greater role in the delivery of specialized public transit. Larger transit systems rely on online trip reservations, scheduling and dispatch systems (as described above). IVR systems notify riders of scheduled pick-up times. Other technologies include vehicle locators, and smart card technology for payment of fares. These tools are not solely about customer service, nor are they only available for larger systems. Rather, they are proving robust enough to improve system productivity.

Mobile Data Terminals (MDTs), and Interactive Voice Response (IVR).

AVL and MDTs can improve productivity by allowing dispatchers to better manage trips in real time and by providing detailed operational data that can then be used to schedule more efficient service. The ability to track operations in real-time improves dispatchers' ability to modify schedules in response to actual conditions on the day of travel and to

make the most productive possible changes in response to delays, no-shows, vehicle breakdowns, and other events that cannot be predicted. AVL's also permit collecting better information and management of slack time. AVL is also useful in enforcing a no-show policy by allowing determination of whether the vehicle was actually at the pick-up location, and arrived within the promised on-time window.

IVR is used to allow riders to check on their scheduled rides and cancel rides without taking up staff time or outside of service hours. IVR can also make automated reminder calls to riders and calls that alert riders when their vehicle is on the way. In principle, these features have the potential to reduce no-shows and increase passenger readiness for pickups.

Effective Use of Taxis and Other Non-Dedicated Vehicles.

Taxis can also be used directly as an integrated component of specialized public transit operations. This can reduce costs. For example, taxis can be used as overflow providers, serving trips during peak periods that cannot be scheduled on the dedicated vehicles. This will help eliminate the need for the transit agency to acquire additional dedicated vehicles that may only be needed during specific peak periods and save capital expenses. Even more, it can save the need to schedule additional driver runs that may only be needed for a few hours out of the day.

Taxis can also be used to provide "dedicated service" (that is, a taxi vehicle performs a sequence of specialized public transit trips, not mixed with regular taxi business), particularly during specific time periods, such as late night hours or weekend hours when demand is lower. Use of taxis for dedicated service will reduce operating costs for the transit agency given the lower cost structure of taxis compared to traditional transportation contractors.

Taxi Subsidies.

Some transit operators have user-side subsidy taxi programs that operate as an adjunct to specialized public transit. These programs provide discounts for participants to use taxicabs. These programs may reduce the overall cost of providing specialized public transit by providing a very attractive alternative for customers, one that provides an exclusive ride and does not require an advance reservation, but which is less expensive to provide than specialized public transit.

The ACE program operated by Access Calgary is such a program.

Vehicle sharing.

As part of a mobility management strategy, some operators are experimenting with mutual sharing of capacity with human service transportation providers. This strategy holds the promise of making productive use of vehicles, reducing operating cost by using less expensive providers, and reducing trip shifting from human service providers.

Vehicle mix.

Large vehicles are not only more expensive to operate than smaller ones; they may be slower, both in traffic and in boarding and unloading passengers. However, too many small vehicles, or vehicles of the wrong design, could limit the ability to group trips. Insufficient wheelchair accessible vehicles will also limit productivity and could result in unacceptable problems in serving passengers who use wheelchairs. Achieving the right vehicle mix requires finding an optimal balance among grouping trips, availability of accessible vehicles, and speed of operation. Some operators are experimenting with hybrid and alternative fuel vehicles. Assuming that capital funds are available for these vehicles, the reduced cost of fuel can save considerably on operating cost.

Alternative and Hybrid Services. In some areas it is more cost effective to serve all of the public, including people with disabilities, with a single service rather than with separate fixed-route and specialized public transit services. Depending on the area, general public dial-a-ride or route deviation (also known as flex-route) services may be appropriate.

Smaller vehicles

In the past, specialized public transit services utilized large vans and minibuses, but currently more agencies are turning to smaller vehicles such as taxicabs, sedans and minivans, while using larger vans and minibuses only as trip demand for specific locations warrants. Evidence of this trend is the increasing emphasis on taxicabs and the launch of the MV-1—a smaller accessible vehicle designed to operate in either taxi or specialized public transit fleets.

Volunteer Driver Programs.

Volunteers may provide door-to-door and often door-through-door service, usually as a single ride as opposed to a shared ride. Individuals using a volunteer service would usually, but not always, be eligible for specialized public transit service. In some cases, volunteers provide only a portion of the rides, while paid drivers provide others. A volunteer driver program is not operated by a transit agency.

Volunteer driver programs are usually managed by community organizations. These organizations are usually responsible for recruitment and training of drivers, providing supplemental insurance, conducting background checks, and providing overall coordination of the program. Volunteer drivers may use their own vehicles or vehicles provided by the program. Some volunteer driver programs supplement service with paid drivers.

Mobility Management.

In the context of specialized transportation, mobility management involves facilitating transportation improvements for seniors, persons with disabilities and individuals with

lower incomes and connecting people with appropriate services that work for them through a single point of contact. Interest in mobility management in the U.S. has grown since it has been promoted by the United We Ride initiative of FTA and other U.S. federal agencies, and since mobility management activities were identified as eligible to be considered as capital expenses with 80% Federal funding under the New Freedom and Job Access / Reverse Commute programs. Among various services and programs, mobility management can include:

- "one-stop" information centres that coordinate information on all transportation options,
- call-centres with trip planning and scheduling,
- travel training,
- transportation brokerages that coordinate providers, funding agencies, and persons needing trips, and planning and implementation of coordinated services.

Targeted Transit Promotion to Seniors.

Targeted marketing to encourage seniors to use fixed route transit service may include promotions based on a limited period (a week or a month) when transit is free for seniors, distributing targeted marketing materials through senior housing and senior centres, and helping older people learn to use transit by providing training or group trips. To the extent that older adults can be encouraged to try transit and then use it before they can no longer drive and look for alternatives, they will become more comfortable with transit and may use it as a reasonable option for local trip-making, potentially delaying the time when they apply for specialized public transit. Importantly, use of transit will also give the seniors more independence and mobility, boosting transit ridership as well as increasing the constituency for transit.

Shuttles and Community Buses.

Senior-friendly shuttles, "community buses," or circulators are generally designed to serve short trips within communities or neighbourhoods with an emphasis on seniors and destinations they frequent. They connect senior housing and areas with concentrations of seniors with local shopping, medical offices and other destinations, typically operating on smaller streets and with smaller vehicles. These services may also include fixed route services that deviate on request for seniors and people with disabilities. In some cases, shopper routes are operated as an adjunct to the specialized public transit program.

There are numerous examples around the country of these flexible, senior-oriented services, operated by transit agencies as well as local jurisdictions, sometimes with funding support from private organizations such as grocery store chains. The ability of these services to substitute for specialized public transit in meeting the trip demand of seniors and others with specialized needs for frequent local trips results in avoided costs from the transit agency's more costly specialized public transit trips.

3. Urban Design

Walkable Communities.

Walkable communities are pedestrian friendly, with sidewalks and pathways connecting residential areas with activity centers. Retail and shopping areas are close by or interspersed with residential areas, encouraging walking trips for shopping and other purposes feasible.

The idea is one of many similar concepts such as smart streets, context-sensitive design, livable communities, and neo-traditional town planning. All of these refer to designs and developments of higher density, mixed-use community environments that facilitate trips by foot, bike, wheelchair, scooters and transit. These efforts make fixed-route transit more effective and attractive. This requires pedestrian enhancements that are fully accessible, with curb cuts and sidewalks without obstructions from utility poles or vendor boxes. Among other things, walkable communities will have complete streets designed with all users in mind - including bicyclists, public transportation vehicles, and pedestrians of various ages and abilities. Improving walkability of a community is a more holistic approach to addressing specialized public transit sustainability.

Enhancements to the pedestrian environment focusing on improving accessibility of bus stops and pathways increase the potential for individuals to use fixed-route transit. More walkable communities, then, increases the role that fixed-route transit can serve in meeting the transportation needs of persons with disabilities and helps eliminate trips and costs for specialized public transit.

Land Use Planning with the Needs of Seniors and Persons with Disabilities in Mind.

Land use and community planning efforts can influence transportation and mobility options and contribute to the sustainability of specialized public transit. It does this by facilitating alternative transportation options, especially pedestrian and fixed route transit trips. More compact, mixed-use communities with effective pedestrian facilities encourage walking and improve both the choice and effectiveness of transit.

Planning efforts should ensure that seniors housing and related facilities are sited in locations that are close to activity centres featuring shopping, medical and other services. Senior facilities should also be located close to fixed-route services. Much of the development patterns in recent decades separated land uses, resulting in greater distances between homes and activity centres, discouraging pedestrian trips, and making fixed route transit less convenient.

Part 2: Access Calgary Lean System Analysis

What is Access Calgary and what does it do?

Access Calgary is a Division of Calgary Transit responsible for managing specialized public transit. Specialized public transit serves those who cannot use or navigate fixed route public transit because of functional limitations owing to a disability or condition. People unable to use fixed route public transit include those who:

- are non-ambulatory, restricted to wheelchairs or similar devices,
- are ambulatory but with limited physical mobility such as an inability to climb stairs or requiring a walker,
- have specific physical limitations making navigation difficult, such as blindness,
- have cognitive difficulties, or
- have specific health issues such as seizures.

Two approaches are used by municipalities to increase the level of system access.

1. Removing barriers preventing people from using the fixed route system. This includes ramps on buses, low floor buses, accessible station design, curb modifications, and audible station announcements. This is not a specific responsibility of Access Calgary directly although Access Calgary is becoming increasingly involved in Transit Calgary and other City of Calgary initiatives to improve accessibility.

2. Augmenting the fixed route transit system with a specialized public transit services. Delivering specialized public transit services is Access Calgary's bread and butter. This includes services delivered through sedan cabs, accessible taxis, vans and small buses. Like fixed route public transit, these are shared ride services. Unlike fixed route systems, the service is usually delivered door to door. This requires customers to book rides in advance and demands that Access Calgary develop and schedule these trips. Because of this, extensive booking and scheduling systems are required. No two days have precisely the same customers, destinations, or routes.

Providing specialized public transit is expensive relative to fixed route services. For this reason, municipalities are increasingly pursuing an 'integrated approach' encompassing both strategies. The idea is that by making the fixed route system as accessible as possible, the need and demand for specialized public transit will diminish, and along with it, the overall cost of providing public transit.

Calgary Transit, with Access Calgary, actively pursue this strategy as well.

System Purpose

How well Access Calgary pursues its mandate

The purpose of any system is serving customers in an efficient and effective manner. For Access Calgary, this essentially means efficient and effective delivery of specialized public transportation services to Calgarians.

Basic Operational Characteristics

Some basic comparative data provides a reasonable context as to how well Access Calgary accomplishes its purpose relative to other jurisdictions across Canada. Basic comparative data was gathered for Toronto, Winnipeg, Saskatoon and Edmonton[1]. These jurisdictions were selected because they were Canadian jurisdictions with similar climatic conditions with substantial levels of snow and ice during winter. Snow and ice have significant impact on transit operations and cost, and this is particularly true with specialized public transit.

Edmonton is most similar to Calgary in terms of population and geographical area served. Toronto has a much larger population than Calgary located in a geographical area smaller than either Edmonton or Calgary. Winnipeg and Saskatoon are both smaller than Calgary in terms of both population and geographical area.

basic comparative jurisdictions data

Organization	Calgary Access Calgary	Toronto TTC Wheel Trans	Winnipeg Handi-Transit	Saskatoon Access Transit	Edmonton DATS
Population	1,100,000	2,791,100	660,000	260,000	817,498
City Geographical Area (sq. km.)	848	630	464	210	685
Population Density (people/sq.km.)	1,297	4,430	1,422	1,238	1,193
Annual Trips ('000)	1,200	2,900	500	130	900
Annual Operating Budget (M)	$30	$95	$9.7	$4	$29
Cost per Population	$27	$34	$15	$15	$35

Source: Self-reported data provided by comparative jurisdictions.

Access Calgary's operating cost is $27 per Calgarian. This places it in the middle of the comparative jurisdictions. Toronto pays $34 for every citizen to operate TTC Wheel Trans. while Winnipeg and Saskatoon both pay $15 per citizen to operate Handi-Transit and

[1] Our thanks to these organizations for taking the time to provide us with the information requested.

Access Transit respectively. Edmontonians pay $35 each to operate DATS. That's 30% more per person than Calgarians pay to operate Access Calgary.

Service Cost Drivers

What explains these differences in cost? Both Saskatoon and Winnipeg deliver specialized public transit services at 44% less cost per person than Calgary. Why?

basic comparative jurisdictions operating data

Organization	Calgary Access Calgary	Toronto TTC Wheel Trans	Winnipeg Handi Transit	Saskatoon Access Transit	Edmonton DATS – Disabled Adult Transit Service
Trips per population	1.09	1.04	0.76	0.50	1.1
Cost per trip	$25	$33	$19	$31	$32
Service Delivery Model	Contract Out / Hybrid	Internally Operated	Contracted Out	Internally Operated	Hybrid

Source: Self-reported data provided by organization.

In Saskatoon's case, the answer lies in the number of trips delivered, 0.5 trips per population versus 1.09 in Calgary. Simply put, demand volume is lower. On a cost per trip basis, Saskatoon is comparable to Edmonton at $31 and $32 respectively and significantly higher than Calgary's $25 per trip cost.

A similar shift occurs in Winnipeg. Here, the volume of trips relative to population is 0.75—higher than Saskatoon's 0.50, but also lower than Calgary's 1.09. This makes Winnipeg's cost per trip $19, still 24% less expensive to operate than Calgary. Part of this may also be due to differences in size of the two cities. Winnipeg has roughly half the geographic area of Calgary (although a similar population density).

If Winnipeg and Calgary appear to be more cost effective than other systems, what accounts for the difference? We believe it is largely attributable to the service delivery model in use by the various systems. Costs per trip tend to be lower with greater levels of contracting out of service delivery. This pattern holds across our comparative jurisdictions and is largely the experience of other specialized public transit providers across North America.

Winnipeg, for example, has a service delivery model in which all vans and accessible buses are operated by third party contractors. This is in contrast to Saskatoon where buses and vans are operated internally by municipal transit administration. Edmonton operates on a hybrid model, mixing contracting out and internally operating services.

Access Calgary is unique. Technically, it operates a fully contracted out service delivery model. But Calgary Handi-Bus has unique legacy relationship with the City of Calgary.

Although never part of the City of Calgary per se, Calgary Handi-Bus was once funded by Community and Social Development Department. It still shares the same union as Calgary Transit, albeit with different conditions. Further, the nature of the contractual operating and funding arrangements are different between Handi-Bus and the other providers such as Southland Transportation. This makes for a largely contracting out model and why we have described it as Contract Out/Hybrid.

Delivering trips efficiently

Access Calgary is delivering on this mandate of delivering trips efficiently.

Last year, Access Calgary delivered 1.25 million trips.

Projections indicate the number of trips will come to close to 1.3 million in 2013.

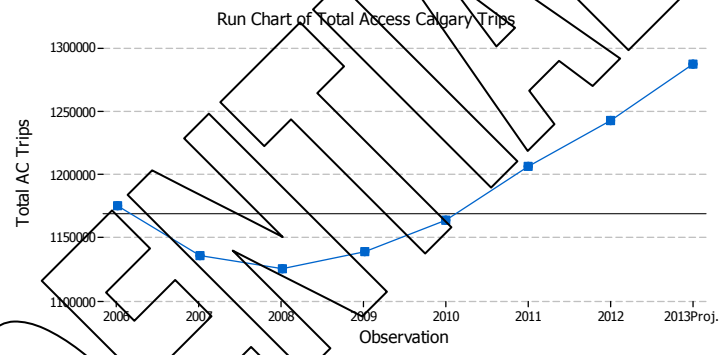
Further, the demand for trips on specialized public transit is increasing. From a low in 2008, to 2012, the number of trips delivered by Access Calgary has increased over 10%. This trend is expected to continue in the years ahead.

Access Calgary has also clearly demonstrated its ability to deliver specialized public transit efficiently.

Analysis of costs per trip since 2006 indicates growth of about 2.8% annually.

Effective management of the per trip costs, can only do so much. With significant growth in the number of trips demanded,

Trips Delivered



Number of runs about median:	3	Number of runs up or down:	2
Expected number of runs:	5.0	Expected number of runs:	5.0
Longest run about median:	4	Longest run up or down:	5
Approx P-Value for Clustering:	0.063	Approx P-Value for Trends:	0.002
Approx P-Value for Mixtures:	0.937	Approx P-Value for Oscillation:	0.998

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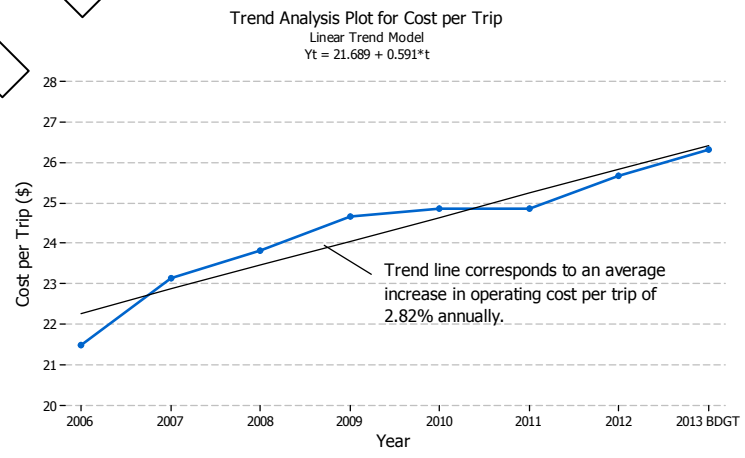
Cost per Trip Trend Analysis



Converge Consulting Group Inc.

Access Calgary's budget will need to rise in response to increasing demand or the level of service provided will decline.

Conclusions/Recommendations. An efficient specialized public transit model.

Access Calgary operates an efficient specialized public transit system. It delivers trips at a cost equal to, or below, comparative jurisdictions examined.

A major reason for this cost effectiveness is the effective management of a contracted-out service delivery model. This model is proving itself here and elsewhere and is now recognized as a best practice in specialized public transit delivery. This should not change.

Critical Differences: specialized versus fixed route systems

Specialized public transit is not like fixed route service and can't be managed the same way. Some specific differences impacting service efficiency include:

Improving the quality of service in fixed route systems has positive financial benefits. Not so for Access Calgary. With fixed route systems, improving the quality of service will yield greater ridership. This has significant benefits including increasing revenue and reducing the number of private vehicles on the road. Improving the quality of specialized public transit also increases ridership but the benefits are either non-existent or much less pronounced. Revenue streams are much lower, relative to the cost, than in fixed route transit. So is the potential for reducing private vehicle use. For most of Access Calgary's customers, its specialized public transit or nothing.

Fixed route transit has fixed costs relative to demand. Access Calgary's costs are variable relative to demand. Fixed routes run whether people are on them or not. Costs are incurred whether the train is full or empty. Increasing ridership on fixed route systems translates into increased load factors (number of riders on a specific bus or train)--revenue increases but costs do not. It is therefore desirable to maximize ridership and load factors on fixed route systems.

With specialized public transit, costs are variable. Increasing ridership means adding an additional segment onto a route or providing an additional vehicle (and driver) to meet the demand. Increasing Access Calgary ridership means increasing costs and that translates to increasing budget requirements from the City of Calgary.

The key to reducing costs in fixed route systems is standardization. For specialized public transit, it's flexibility. Fixed route systems respond well to standardization. Standard bus or train sizes on specific routes matched to meet the demand for that route. But with specialized public transit, there are no routes, no standardized schedules, and no easily predicted demand levels. Some element of standardization exists with regularly booked passengers, but even so, these can and do change daily. Add in all the 'on demand' passengers and flexibility in response to demand variation becomes paramount in the delivery of efficient and effective service.

In fixed route systems, inability to meet demand is a service quality issue. With Access Calgary, it's increasingly a human rights issue. A full bus that can't take any additional

riders is seen by customers as a service quality issue. It may bring complaints of poor service or a few angry phone calls to Aldermen. Management has the ability to make trade-offs between:

- increasing the level of service (and cost) and increasing customer satisfaction, or
- maintaining the level of service (and cost) and enduring customer complaints and concerns regarding the service.

Failure to meet specialized public transit trip requests, however, is increasingly seen as a human rights as opposed to a service level issue—a consequence, in part, of the ADA. Failure to meet demand can bring legislation, as it has in the United States and recently, in Ontario and Quebec. This means management of specialized public transit has much less flexibility in responding to demands for service.

Restricting Trips: The cracks are beginning to show

The stress between budget and purpose of Access Calgary are beginning show, specifically in setting priorities based on the purpose of the requested trip. Recently, Access Calgary began setting these priorities, placing work or medical trips ahead of trips taken for personal reasons. In essence this means that some trip requests are simply not met.

This may seem like a reasonable response to the conflicting pressures of meeting demand within budget constraints. However, there are dangers with this approach.

It should be noted that this practice is not permitted by the ADA in the United States. It could produce heavy fines and civil suits against the transit operator for human rights violations. While the ADA doesn't apply to Canada, as noted previously, it has had a significant impact on our thinking concerning the delivery of specialized public transit. Specifically, thinking that everyone should have mobility access. It is difficult to imagine, for example, a bus driver demanding to know the purpose of someone's trip before allowing them on a crowded bus.

The practice is also producing friction with those providing programs and related services to Access Calgary customers. For example, are recreational programs designed to improve conditioning of the elderly part of recommended therapy (in which case it is a higher priority medical trip) or simply a recreational activity (in which case it is a personal trip and a lower priority)? Some program administrators report Access Calgary denying trips to people with counseling appointments in public areas because the location didn't seem to be appropriate for a medical or related purpose.

This tension was reflected by one program administrator who asked; "What business is it of Access Calgary why someone wants to take a trip anyway?"

Conclusion/Recommendation: Policy needed on trip prioritization

The tension between increasing demand for service and budget constraints must be acknowledged by City Council and a policy stating the position of the City of Calgary should be formulated related to the practice of prioritizing or restricting trips on specialized public transit. Without such a policy, Access Calgary is placed in the position of denying access to eligible customers inviting both a customer and citizen backlash as well as provincial involvement.

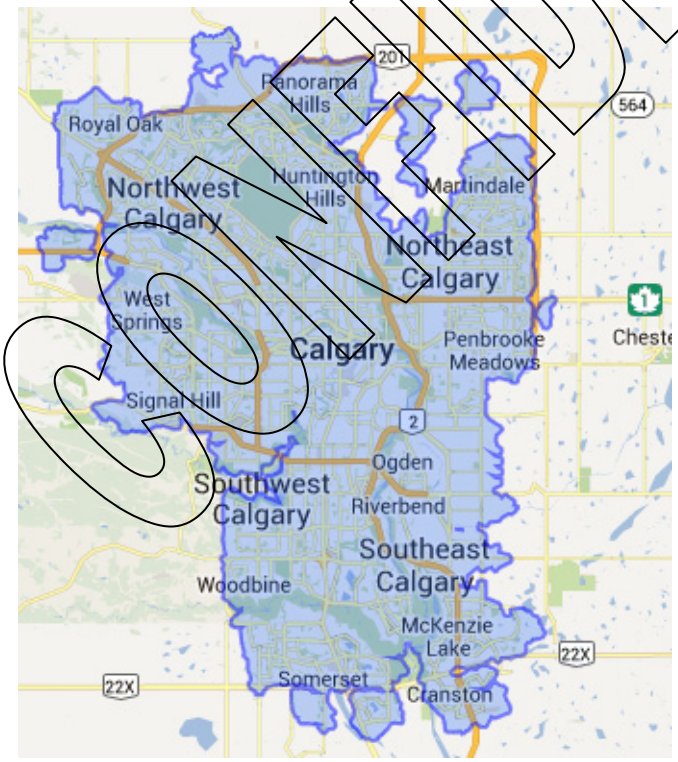
Service Area Definition: How far does Access Calgary go?

Should Access Calgary offer service that aligns geographically with existing Calgary Transit services or should it go beyond to serve customers regardless of location?

As Calgary grows, new outlying areas are added to the administrative jurisdiction of the City of Calgary. With this expansion, comes the demand for services, including services provided by Access Calgary.

Access Calgary regards itself as an extension of existing public transit services, limiting its services to within 1.0 kilometers of an existing fixed route transit stop. This produces a service area corresponding to the area below.

Access Calgary Service Area



Source: City of Calgary, Calgary Transit

Not all comparative jurisdictions operate this way. Toronto, Saskatoon and Edmonton define the service area as anywhere within city limits.

Service Area Definitions: Comparative Jurisdictions

	Calgary	Toronto	Winnipeg	Saskatoon	Edmonton
Service Area Definition	Within 1.0 km. of a fixed route transit stop.	Within city limits.	Within 0.5 km of a fixed route transit stop	Within city limits	Within city limits.
City Geographical Area	726 sq. km.	630 sq. km.	464 sq. km	210 sq. km.	685 sq. km

Source: Data provided by jurisdictions

To the extent that it has essentially set the ground rules for specialized public transit, it should be noted that the ADA considers specialized public transit is an extension of fixed route public transit. Therefore, defining the service area to within fixed distances of existing transit stops or locations is seen as justified. In the United States, distances of between 0.25 and 1.0 miles (roughly 0.4 and 1.6 km.) are common. Further, this approach is generally seen as a best practice in controlling costs of specialized public transit south of the border.

How the service area is defined, therefore, is less an issue of human rights and more a practical issue of just how much service a municipality can afford to provide. This in turn is driven by similarly practical considerations such as geographic area, population density, and rate of growth.

Conclusions/Recommendations: Service Area

(i) Access Calgary has reached an effective compromise in defining the service area as within 1.0 km of a transit location. The size, geographical characteristics, and growth of Calgary, make it difficult and costly to provide service beyond the existing service area.

(ii) If decisions are made to extend Access Calgary's service area these should be accompanied by:

- options to charge premium rates for services delivered beyond the existing service area, or
- increase in operating budget to cover the added costs of extending service.

Otherwise, Access Calgary will continue to feel the pressure between customer demand and budget constraints.

Customer Demand and Access Calgary Response

"The most fundamental law of business is . . . without customers, there is no business." --Peter Drucker

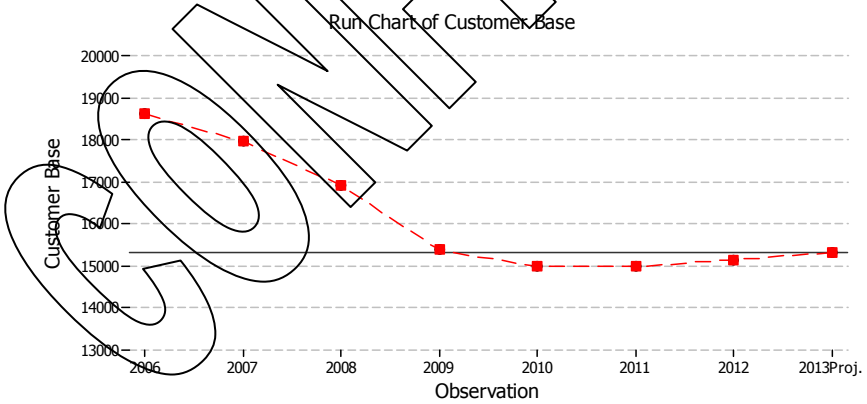
The demand for Access Calgary services are strong and getting stronger. To effectively respond to this demand, Access Calgary needs to know, understand and manage the drivers of this demand.

The Customer Base

Customer demand tends to increase with the number of customers. Unlike fixed route public transit, specialized public transit must first qualify for service; specifically, they must meet eligibility requirements before becoming a customer. Effective eligibility management is critical and effective way of managing the costs of service.

Over the past few years, Access Calgary has enhanced its eligibility management, removing non-active customers from its customer base and improving its capability to assess individual ability to use existing fixed route services. The result has been a significant decline in the customer base from 2006--from about 19,000 customer to just over 15,000 today.

Size of the Customer Base 2006 to 2013



Number of runs about median:	2	Number of runs up or down:	2
Expected number of runs:	5.0	Expected number of runs:	5.0
Longest run about median:	4	Longest run up or down:	4
Approx P-Value for Clustering:	0.011	Approx P-Value for Trends:	0.002
Approx P-Value for Mixtures:	0.989	Approx P-Value for Oscillation:	0.998

Converge Consulting Group Inc.

Source: Data provided by Access Calgary, Analysis by Converge Consulting Group Inc.

The number of customers has been relatively stable since 2010, hovering at, or slightly above the 15,000 mark and displaying only a very small level of growth.

Access Calgary's success at managing eligibility is evidenced in part by examination of eligibility ratios (active customers per 1000 population). The lower the number, the lower the cost. Across comparative jurisdictions, Access Calgary has the lowest eligibility ratio with 8.6 active customers per 1,000 population.

Comparing Active Customers and Populations

	Calgary	Toronto	Winnipeg	Saskatoon	Edmonton
	Access Calgary	TTC Wheel Trans	Handi-Transit	Access Transit	DATS – Disabled Adult Transit Service
Population	1,100,000	2,791,100	660,800	260,000	817,498
Eligible & active customers	9,500	33,000	7,800	4,400	10,750
Customers per '000 population	8.6	11.8	11.8	16.9	13.1

Source: Self-reported data provided by participating organizations

An eligibility approach that is too rigorous, could restrict access to specialized public transit to those that need it. However, the relatively low rate of rejected applications by Access Calgary (1.4%) indicates that the low eligibility ratio is attributable to clear communications concerning eligibility rather than restrictive eligibility assessments. This is further supported by a low appeals rate. Only 20% of rejected applications are appealed.

Conclusions/Recommendations: A successful eligibility approach

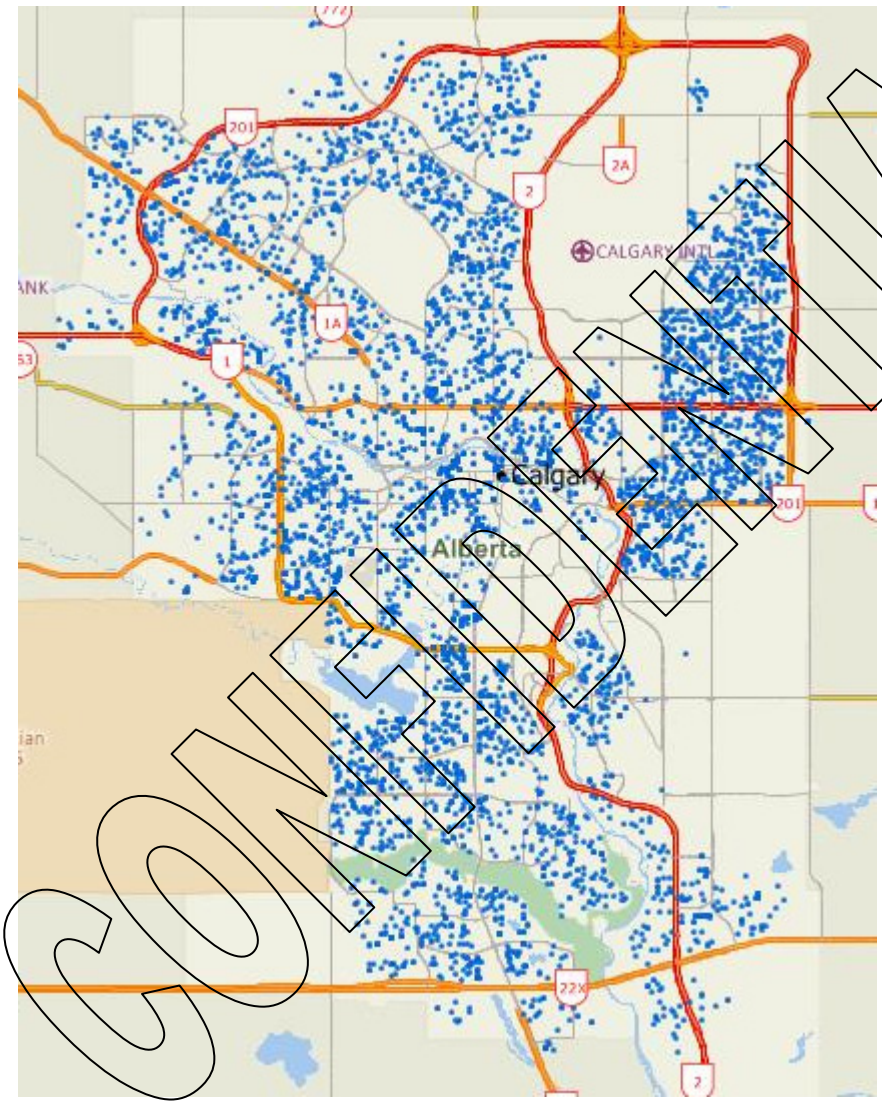
Access Calgary has successfully managed its customer base through application of a sound eligibility program. This has resulted in significant cost savings to operations and successfully reduced demand.

There is a downside to this success. Access Calgary has done as much as it can in this regard. Demand volume can now be expected to climb and there is little Access Calgary can do in using eligibility process to help curb this demand.

Distribution of Customers

Access Calgary customers are distributed across Calgary, but, as detailed in the map below, tend to be concentrated in Calgary's north-east.

location of Access Calgary customers



Source: Data Access Calgary. Analysis and mapping, Converge consulting Group.

Despite the concentration in the north-east, the broad distribution reinforces the impact of geography on specialized transit operations. Every customer is entitled to a ride. Every day, Access Calgary must define a set of routes and a schedule that can take anyone of these customers to their required destination.

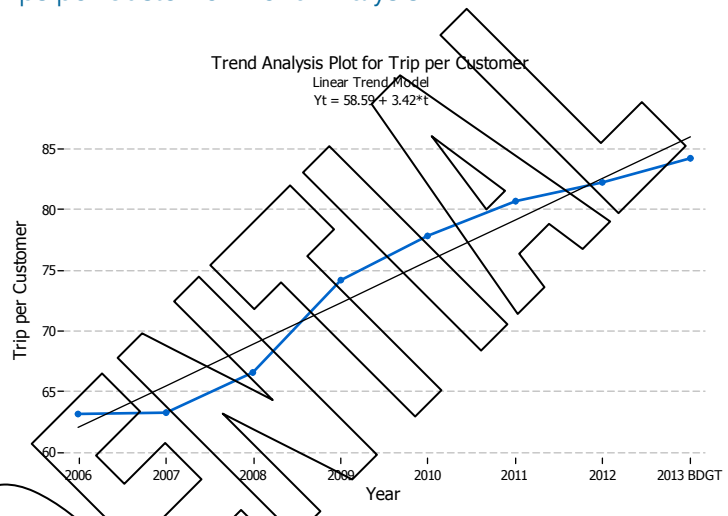
Customer Demand

With a slow growing customer base, why the strong increase in the number of trips demanded? The answer lies, in part, in the structure of demand.

The number of trips taken per customer is increasing.

Customers are making more frequent use of specialized public transit services offered by Access Calgary. In 2006, the number of trips averaged about 63 per customer. By 2010, this figure had risen to 78 trips per customer. In 2012, customers averaged close to 83 trips each and the projected levels for this year are just shy of 85 trips per customer. Equally important, this growth has been consistent year to year.

Trips per Customer Trend Analysis

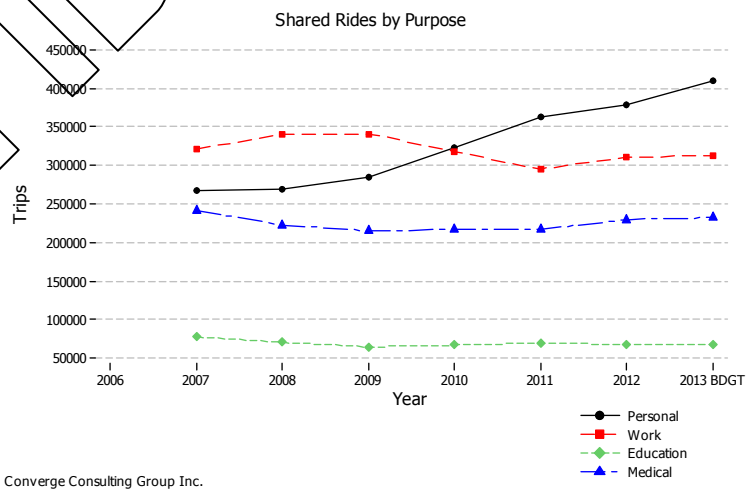


Customers are taking more trips because they want to.

The analysis of shared ride demand indicates that increases in demand for trips is driven largely by personal trips. Since 2007, demand for personal reasons has increased by over 40%.

Meanwhile, demand for work and education related trips are essentially stable and only the most moderate of upward trends has been experienced for medical trips since 2009.

Shared Rides by Purpose of Trip



Source: Data provided by Access Calgary. Analysis by Converge Consulting Group Inc.

The analysis indicates that demand growth for Access Calgary services is driven largely by discretionary, personal trips, as opposed to trips required for employment or medical

purposes. The implication, is that customer demand is growing because Access Calgary is offering a service that works.

Response to Customer Demand

Response to customer demand is measured through four key performance metrics: (i) percentage of trips accommodated, (ii) on-time arrivals, (iii) on-time drop offs and (iv) on-board time.

Percentage of Trips Accommodated

Percentage of trips accommodated measures the number of trips delivered relative to the number of trips requested. This is a critical metric measuring the ability of Access Calgary to meet the volume of demand and the expectations of customers. This metric is critical as well for measuring the ability of specialized public transit organizations to meet their obligations under the ADA.

Percentage of trips accommodated.

	Calgary Access Calgary	Toronto TTC Wheel Trans	Winnipeg Handi-Transit	Saskatoon Access Transit	Edmonton DATS – Disabled Adult Transit Service
Percentage of requested trips accommodated	99%	96%	99%	90.2%	99%*

Source: Self-reported data provided by participating organizations

Access Calgary is able to accommodate approximately 99% of trip requests. This is a strong level of performance. But percentages can bury important numbers. A 1% failure rate (rate at which performance fails to meet service level performance) still means that of the 1.2 million trips provided last year, about 12, 000 trip requests could not accommodated by Access Calgary.

Some of this was achieved with the customers consent. But it also represents a major area of risk for Access Calgary.

On-Time Arrivals

On time arrivals measures the ability of Access Calgary to have transportation show up within the arrival time window promised the customer.

Of importance is the size of the arrival window. Access Calgary works to a twenty minute window (promised time + 20 minutes). Access Calgary's performance is in line with other service providers.

On time arrivals

	Calgary Access Calgary	Toronto TTC Wheel Trans	Winnipeg Handi-Transit	Saskatoon Access Transit	Edmonton DATS – Disabled Adult Transit Service
Arrival Window	20 minutes	20 minutes	10 minutes	20 minutes	30 minutes
On time arrival performance.	90%	85%	N/A	N/A	93%*

Source: Self-reported data provided by participating organizations

The importance of on-time arrival rates concerns two areas:

Passenger anxiety and perceptions of service. The longer the passenger is waiting for their ride, the greater the level of anxiety. Will I get to work on-time? Will I be late for my medical appointment? Is my ride coming at all? This will affect customer perceptions of the service even when the ride arrives within the arrival window. This likely why late arrivals represents the largest source of customer complaints.

The level of same day service demand. The longer the wait, and the larger the failure rate, the greater the level of demand on same day of service operations. This takes the form of phone calls from customers enquiring about their ride which in turn, drives up costs. There are no data available on the proportion of same day of service phone call requests attributable to late arrival enquiries. But the scale of the issue can at least be approximated. If 20% of those whose rides did not arrive within the arrival window call in to same day of service, that would translate to about 24,000 phone call enquiries a year or over 60 a day. That's a significant volume that must be managed.

Conclusions/Recommendations: On-time arrivals must be a strategic priority.

Improving on-time arrival performance represents a significant improvement opportunity for Access Calgary in terms of both customer satisfaction and reducing cost and demand on call centre operations. Access Calgary has undertaken efforts at improving its performance on this metric.

We recommend that Access Calgary make improvement in on-time arrival performance a strategic priority for operations over the next two years.

Access Calgary management should develop plans and budgets to reflect this priority.

On Time Drop Offs

On time arrivals are important but what determines whether a person gets to his or her destination on time is measured by on-time drop off performance. Here, Access Calgary's performance improves slightly to 93%, reflecting a pattern demonstrated by other service providers as well.

On time drop offs

	Calgary Access Calgary	Toronto TTC Wheel Trans	Winnipeg Handi-Transit	Saskatoon Access Transit	Edmonton DATS – Disabled Adult Transit Service
On time drop off performance.	93%	85%	N/A	93.6%	99%*

Source: Self-reported data provided by participating organizations

The importance of on-time drop off's to the customer varies by the purpose of the trip. Dropping off passengers 10 minutes late may be a minor inconvenience for those travelling for personal reasons—doing some shopping or visiting friends. It is of critical importance to those using specialized public transit to get to work. In these cases, the ability of Access Calgary to deliver a passenger to their destination on time affects the passengers' employability.

On-board Time Performance

On-board time performance measures the length of time passengers are actually on the transit vehicle. Shorter times are preferred. All comparative jurisdictions set maximum on-board time objectives and 90 minutes is largely consistent across the industry. The exception is our comparison group was Saskatoon, the smallest city among the comparative jurisdictions with a 60 minute maximum in board time objective.

On board time performance

	Calgary Access Calgary	Toronto TTC Wheel Trans	Winnipeg Handi-Transit	Saskatoon Access Transit	Edmonton DATS – Disabled Adult Transit Service
On board time objective (max.)	90 minutes	90 minutes	90 Minutes	60 minutes	90 minutes
On board time performance.	98%	99%	N/A	N/A	99%*

Source: Self-reported data provided by participating organizations

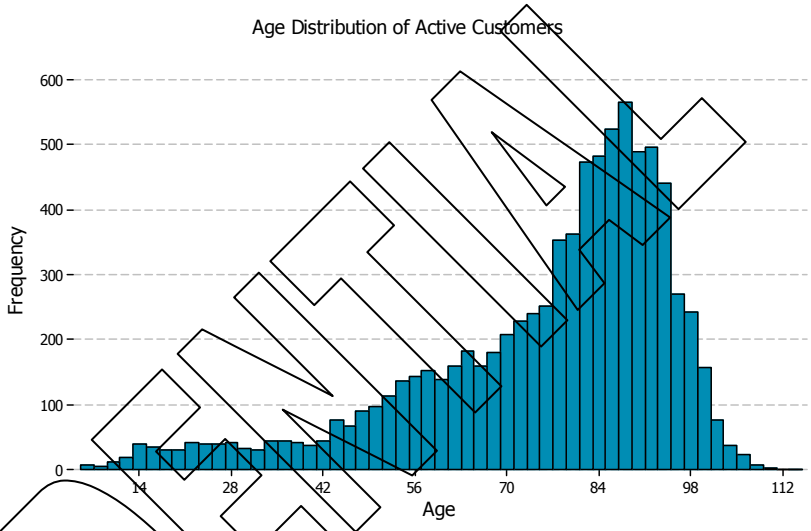
The Seniors Issue: Demand impact of an aging population.

The seniors issue is an important one because seniors are increasingly the major source of demand on specialized public transit. Changing demographics have changed the nature of the customer base for specialized public transit and of Access Calgary.

The average age of Access Calgary's customers is 75. Just over 75% of all customers are seniors, age 65 or older. Almost 25% of customers are in their 90's.

The typical Access Calgary customer is not the 45 year using a wheelchair. It's the ambulatory 80 year old that cannot use existing fixed route public transit because of the barriers that make the system difficult to use. Ambulatory clients make up 67% of the customer base.

These data makes it clear why system integration, including the elimination of barriers on fixed route systems, is such an interest to public transit systems in pursuit of sustainable, cost effective solutions. Such solutions, fully implemented, could reduce the cost of specialized public transit by 50% or more. (Although as we have pointed out, the difficulty implementing such systems is far greater than might appear upon first inspection. So is the cost.)



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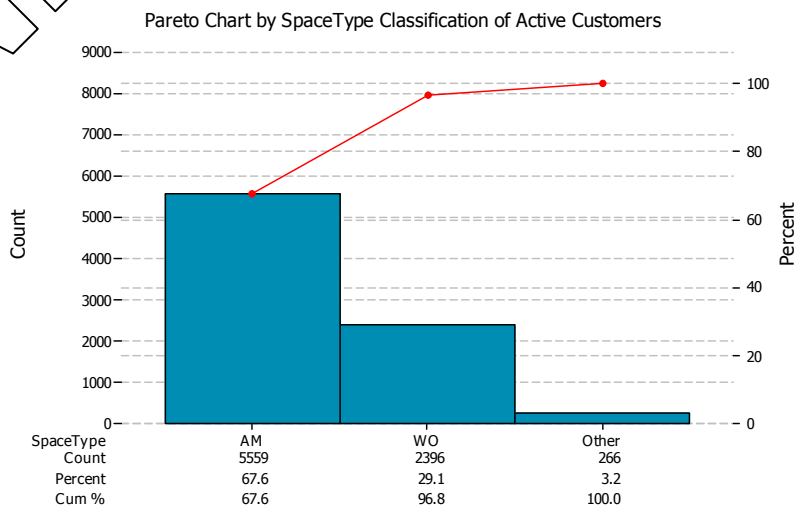
Variable	Mean	St. Dev	Q1	Median	Q3
Age	75.4	19.5	66.0	81.0	89.0

Source: Data provided by Access Calgary



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The demand impact is moderated to some extent by the characteristics of seniors demand:

- the older the customer, the less frequently trips are taken,
- the ambulatory senior tends to use less expensive sedan transportation, as opposed to accessible vehicles, and
- the length of trips tends to be shorter.

The net impact is that seniors currently account for 1/3 of trips provided by Access Calgary. These moderating influences, however, will not in and of themselves, be sufficient to moderate costs in the face of two critical demographic trends:

- The absolute number and proportion of seniors is increasing. As society ages, the demand on public transit, including specialized public transit, will increase accordingly.
- Not only are the numbers of seniors increasing but they are living better, longer, and with greater levels of activity. That means more personal casual trips and more demand on public transit.

Conclusions/Recommendations: Addressing the seniors tsunami.

There is a seniors tsunami coming. A number of solutions need to be investigated and pursued. These would include:

(i) Investigate and pursue the innovative urban design specifically in support of walkable cities that emphasize the mix of residential, commercial and recreational space.

(ii) Investigate the development of seniors focused communities that similarly emphasize walkable concepts.

(iii) Experiment partnering with extended care facilities providing programs and/or equipment that would allow residents to be served by the facility rather than Access Calgary.

(iv) Experiment with community specialized bus transit designed to take seniors to the local mall or community centres.

(v) Examine existing fixed route systems for seniors frequency of use and proceed with barrier free, accessible conversions, on a route by route basis.

(vi) Use specialized public transit feeder service to those routes converted under (v) above.

Customer Satisfaction

Access Calgary is successfully responding to the challenge of meeting customer demand levels, the quantity of demand, but what of quality of service? What is the level of customer satisfaction?

Access Calgary conducts satisfaction surveys every two/three years of its customer base. The last customer satisfaction survey for which data was gathered was 2010. No overall satisfaction metrics are gathered but satisfaction with various components of the system are, allowing for a broad, generalized index of satisfaction to be calculated.

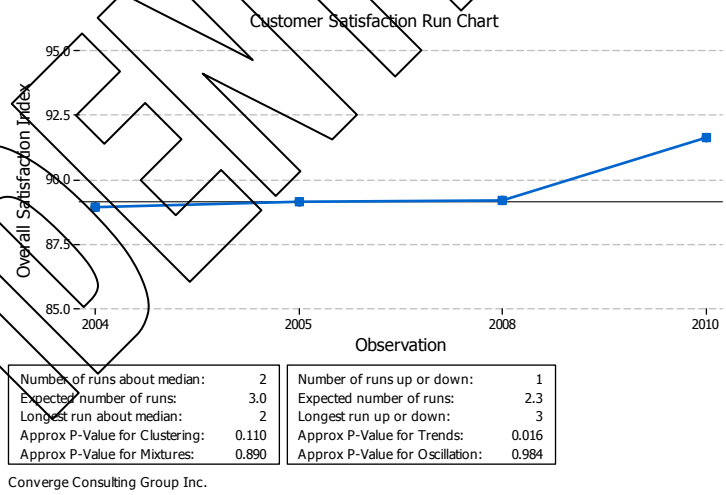
This general index of satisfaction was then used to generate a run chart of satisfaction to highlight any trends or patterns in overall customer satisfaction.

As the results indicate, although there was a slight 'bump' in 2010 overall customer satisfaction, these were not materially significant. Nor was there any evidence of a trend in customer satisfaction levels—for better or worse.

For the time period for which data was available, we have no evidence of any improvements to customer satisfaction.

Nevertheless, the numbers in and of themselves, look good. Overall satisfaction runs close to 90%.

customer satisfaction index 2004-2010



Depending on the specific metric, satisfaction rates vary from 98% to 80% (see table below)--respectable numbers.

customer satisfaction metrics 2004 - 2010

Statements	2004 (%)	2005 (%)	2008 (%)	2010 (%)
Booking agents are friendly	98	98	98	98
Access Calgary treats me like I am important	94	91	93	96
Feel safe getting on/off buses/taxis	95	96	94	96
Able to get the trips I need	93	91	90	96
The service provided meets my needs	92	92	93	94
Easy to book a trip	87	88	88	92

Statements	2004 (%)	2005 (%)	2008 (%)	2010 (%)
Able to get through on booking lines	80	85	83	91
Travel time is reasonable	n/a*	87	90	87
Drop offs are on time	82	83	85	86
Pick-ups are on time	83	84	84	85
Operator Satisfaction	85	86	83	86
Index (Average across indicators)	89	89	89	92

Source: Data provided by Access Calgary.

There is, however, a problem with how customer satisfaction is measured at Access Calgary. Five point satisfaction scales are used, a scale known to produce unreliable and overly positive results. Both these problems are amplified when the top two box scores (5 or 4) are combined to produce a percentage satisfied measure, as is done with the Access Calgary data.

In short, an inaccurate, unreliable and excessively positive picture of customer satisfaction is presented. As a result, Access Calgary operates under a set of false assumptions that may misguide decision making.

Further, such analysis may be harming the credibility of Access Calgary. At a focus group of customer agencies, strong, widespread disbelief was expressed at the level of customer satisfaction claimed by Access Calgary. People don't trust the numbers being reported and that reflects back on the organization.

Voice of the Customer Analysis

To address this situation, Converge conducted a small Voice of the Customer Survey of Access Calgary customers. The survey had a smaller sample size of about 200 and was slightly weighted toward those using the system to attend adult day programs and health/medical visits. More reliable 9 point scales were used in the questionnaire.

The results, while still positive, were very different. General satisfaction levels dropped from the 90% reported by Access Calgary to about 75%. As was the case with previous customer satisfaction surveys, results varied depending upon the specific area of customer satisfaction examined. (Detailed results are located in the Appendix.)

Satisfaction with various components of Access Calgary service are provided below. Satisfaction ranges from a high of 89.5% (Booking agents are friendly and helpful) to a low of 65% (my pick-ups are on time). A positive score is recorded with a response of (9,8, or7).

Voice of the Customer Analytic Table

Questions	Mean	Median	Category Percentages 0 20 40 60 80 100	Agree	Neutral	Disagree
1. Booking agents are friendly and helpful.	7.57	7.0		89.5%	6.1%	4.4%
2. I feel safe when getting on and off the buses or taxis.	7.55	8.0		87.7%	7.3%	5.0%
3. I am able to get the trips I need	7.21	7.0		81.8%	7.2%	11.0%
4. My pick-ups are on time	6.32	7.0		65.0%	17.8%	17.2%
5. My drop offs are on time	6.39	7.0		67.4%	16.0%	16.6%
6. My travel time on the trip is reasonable	6.48	7.0		67.2%	18.9%	13.9%
7. Buses are comfortable to ride in.	6.75	7.0		73.0%	16.9%	10.1%
8. If asked by a friend, relative or co-worker, I would recommend using Access Calgary.	6.96	7.0		78.3%	11.1%	10.6%
9. Overall, I am satisfied with the services provided by Access Calgary	6.85	7.0		76.1%	13.9%	10.0%
Overall Averages	6.90	7.11		76.2%	12.8%	11.0%

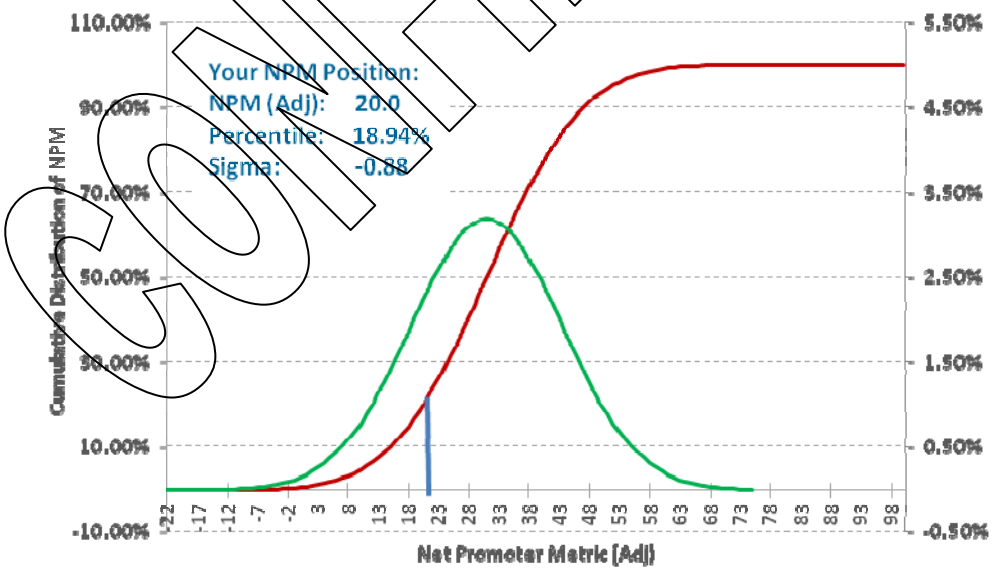
Source: Converge Consulting Group Inc.

Net Promoter Metric

The Net Promoter Metric (NPM) provides a rigorous stress test of customer satisfaction. Is it is comprised of one question; *If asked by a friend, relative, or co-worker, I would recommend using Access Calgary.* Responses of 9 or 8 as regarded as promoters, 7 or 6 as passives and 5 through 1 as detractors. The proportion of detractors is subtracted from the proportion of promoters to arrive at our Net Promoter Metric.

net promoter analysis

Questions	Mean	Median	Category Percentages 0 20 40 60 80 100	Promoters	Passives	Detractors
8. If asked by a friend, relative or co-worker, I would recommend using Access Calgary.	6.96	7.0		40.0%	40.0%	20.0%



Source: Converge Consulting Group Inc.

Access Calgary's Net Promoter Metric scored 20.0. That means Access Calgary has 20% more customers speaking for you than against you. As a basis of comparison, Apple Computer's maximum Net Promoter Metric was 71.

The Net Promoter Metric score of 20.0 translates to a sigma score of -0.88. This means Access Calgary lies at the 19th percentile of leading organizations.

Conclusion/Recommendation: Improved customer satisfaction feedback and measurement is required.

Access Calgary provides a good level of customer service. But it isn't as good as reported by the existing customer satisfaction measurement. The current approach generates overly positive results that may be misleading management.

Access Calgary needs to adopt a more modern approach to customer satisfaction measurement. This includes measurement that occurs on regular intervals (i.e.; every two years) and uses feedback tools that reduce the bias inherent in the current system including using nine point scales for numerical feedback.

Better, adopt a customer experience management approach with an independent research firm regularly sampling customers that have taken a recent trip and reporting results monthly through control or run charts to identify trends and other patterns in the customer satisfaction performance of the systems.

Service Delivery Functions and Processes

Examining the organizational, functional and operating performance

Access Calgary's core business is managing the specialized public transit service. Specialized public transit services, as delivered by municipalities across North America, including Access Calgary, are comprised of three core functions.

Determining eligibility, determining who can, and cannot, receive specialized public transit services. These services are expensive. Effort is expended to decide who is eligible to use the service and who can make use of existing fixed route services. Those requiring specialized public transit are Access Calgary's customers and eligible to book trips. Access Calgary receives 6000 eligibility and renewal applications per year.

Booking, scheduling & dispatching trips. Roughly 60% of Access Calgary's trips are regularly scheduled, such as using the service to get to work. That leaves 40% of trip bookings made in response to customer needs as they arise day to day; a visit to the mall, the park, or to visit the doctor. Trip requests are taken over the phone on a daily basis and booked using automated paratransit booking and scheduling software.

The software takes the trip requests, builds routes and matches these routes to the available fleet. These are then assigned to specific drivers either by fax or by automated data terminals in vehicles. This process is repeated daily in response to trip requests from customers. The use of sophisticated software is required to match the thousands of trip requests with fleet capacity and design routes that minimize cost.

Delivering the Transit Service, having a vehicle pick up a customer and taking them to where they want to go. Access Calgary doesn't deliver specialized public transit directly. Rather, it contracts out the provision of service to various private contractors such as Calgary Handi-Bus, Southland Transportation and Checker Cabs. Unlike fixed route systems, the City of Calgary, doesn't own or operate any of the vehicles that provide these services.

While Access Calgary does not directly deliver transit service, it manages day of service operations. This includes fielding calls or concerns from customers about late arrivals, missed pick-ups, as well as operational issues with service providers that arise during the day in which service is delivered.

In addition to these four core functions, Access Calgary also has three other support functions:

Customer Service, largely focused on capturing, investigating and resolving complaints within the system. These are largely customer complaints, but also includes complaints from service providers. This function is responsible for developing systemic strategies to reduce overall number of complaints.

Field Service, a quality assurance function on service delivery. This includes conducting ride a long's, site and vehicle inspections, customer and operator training, and related activities designed to ensure service quality.

Management & Administration, processing financial transactions, maintaining operational information and statistics, and related management reporting functions.

Each of these functions are discussed in detail

Organizational Structure and Alignment

Does Access Calgary's organizational structure align with the functions that must be performed to effectively manage specialized public transit? Is this organization structure aligned to the flow of work? The answer to both questions is yes.

A *system map* detailing the flow of work and overlaying the Access Calgary organization structure presents a picture of an organization:

With well-defined organizational units aligned with work functions. Each organizational unit has responsibility for specific and rational components of the work that needs to be done.

With clearly defined hand-off points between departments. These are defined rationally, by the nature of the function performed.

Supporting a smooth workflow. Opportunities for delays and disruptions are minimized by:

(i) providing appropriate levels of decision making within the organizational hierarchy with 'no waiting' for operating decisions,

(ii) ensuring a logical, sequential process flow with no re-work or backtracking, sending work on in the process only to have it come back to be done again.

One Large Issue: Responsibility for Integration

Building an integrated transit system minimizing the barriers to regular fixed route transit, linking specialized and fixed route systems, developing service provision partnerships with third party organizations (such as seniors extended care facilities), and developing more walkable urban designs, is the key to reducing or limiting the demand on specialized public transit services and the long run costs. There is no assigned responsibility for this nor any resources within Access Calgary allocated to perform this task nor any component of it.

By its nature, system integration crosses organizational boundaries and responsibilities. At the time it was established, Access Calgary was mandated to provide specialized public transit services. Its structure reflects this objective. Removing barriers was, and is, seen as more a task for management of fixed route transit design including modes from trains to

sidewalks. Building more accessible communities is a role taken on by social services and urban planning functions within The City of Calgary. Over the past few years these various groups have cooperated in trying to build a coordinated approach. Progress has been made, but it has been ad hoc.

Access Calgary has increasingly been called upon to provide its advice and expertise in this regard. This task has largely fallen to the Manager of Access Calgary with support from the Field Services function for inspections of existing facilities. However, the time and resources required to contribute are not what they should be.

Conclusions/Recommendations: Access Calgary involvement in building a more accessible city needs to be increased.

Although arguably beyond the scope of this review, the importance of building an integrated transit system as a fundamental means of reducing the costs of urban transit cannot be ignored. This requires a well organized and coordinated approach across organizational boundaries of the City.

Access Calgary needs to be involved and needs the resources to effectively contribute. This may include support from other areas of the organization to support:

- strategy development,
- fixed route operator training,
- increased urban and facility design input.

Service Delivery Model

Access Calgary uses a sub-contracting model of service provision, acting as a brokerage between sub-contractors and people qualifying for specialized transit services. Service providers are:

Calgary Handi-Bus, a not-for-profit organization that purchases vehicles from public charitable donations and operates their fleet of 100 buses under contract to Access Calgary,

Southland Transportation, a for-profit organization that provides 40 accessible buses augmenting the Calgary Handi-Bus fleet,

Checker Cabs, a for-profit organization providing a mixed fleet of accessible vans and sedans,

Associated Cabs, a for-profit organization providing a fleet of 15 accessible vans, and

Mayfair Cabs, providing limited sedan service, along with Checked and Associated Cabs, to the ACE program. The ACE program by-passes Access Calgary's booking and scheduling functions for last minute requirements.

Access Calgary Fleet

	Total Vehicles	Large Access. Bus	Mid Access. Bus	Accessible Vans	Passenger Vans	Sedans
Capacity Wheel Chair		8	6	1	0	0
Capacity Ambulatory		14	8	4	6	
Handi-Bus	95	40	55			
Southland Transportation	40	8	32			
Checker Cabs	115			15	26	74
Associated Cabs	15			15		

Source: Converge Consulting Group Inc.

Characteristics of the Access Calgary model

The model of specialized public transit at the City of Calgary is unique because of the combination of three characteristics:

- Access Calgary doesn't own any of the vehicles (cabs, vans or buses) delivering services to customers. Comparative systems usually rely on taxi companies to provide sedan service, but tend to be less inclined to rely on independent third party contractors to provide accessible vans and buses. This is a trend that is changing

however. To an increasing degree, specialized public transit providers are looking to third party contractors to provide accessible services.

- Access Calgary has multiple organizations providing the same types of vehicles. For example, Southland and Calgary Handi-Bus both provide accessible buses to the system. Likewise, both Checker and Associated provide accessible vans. Edmonton has its internal fleet augmented with external resources producing a similar arrangement (Hybrid Model). Only Access Calgary, however, has different contractors providing the same vehicle types.

- One of the third party contractors, Calgary Handi-Bus, is a not-for-profit agency and a legacy organization of the City of Calgary. Not only are different organizations providing the same service within the model, but different organizational types as well.

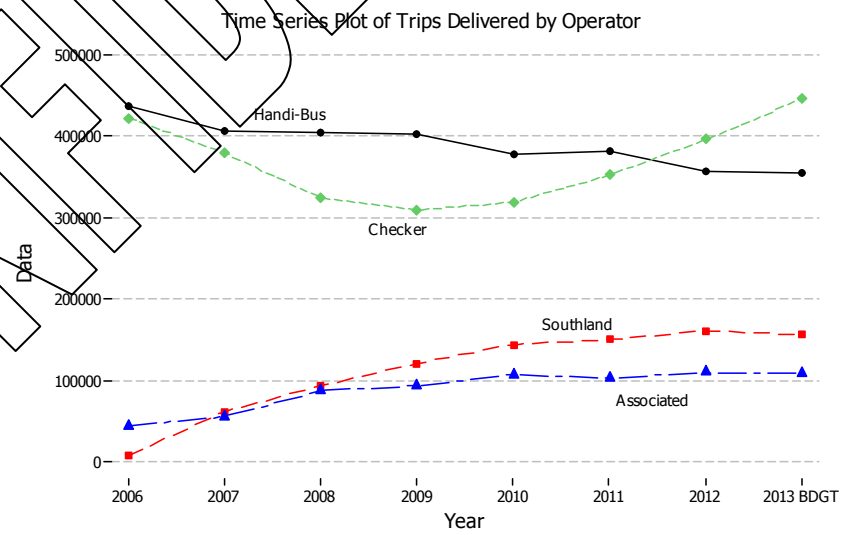
The unique features are a function of how the system has evolved over time.

Changing share of work

Over the past few years, the amount of work delivered by Calgary Handi-Bus has been declining. The workload has largely been picked up by Southland Transportation.

The period from 2006 to 2011 has seen Southland's trip volume rise from about 7000 trips per year to 150,000. At the same time, Handi-Bus trip volume declined from 436,000 trips to 382,000—a drop of about 12%.

At this time, Checker's demand also fell with much of the volume picked up by Associated.



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Clearly this period was a time of significant transition, driven by:

- falling trips that reached a low point in 2008, driven in part for Access Calgary efforts to clean up its customer base through improved eligibility management,

- deliberate restructuring of the service delivery model to incorporate multiple service providers.

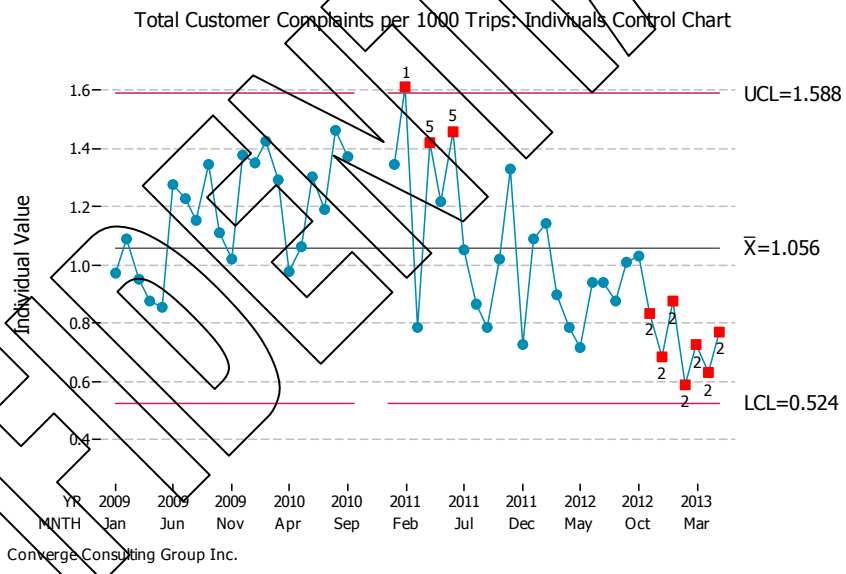
Conclusions/Recommendations:

The period from 2006 to 2011 has been one of significant transition for Access Calgary's service delivery model--moving to a contracting-out service provision, introducing multiple and introducing multiple service providers.

Managing the transition

Not surprisingly, the transition was accompanied by a rise in the number of customer complaints. Some of these concerned the change in eligibility requirements.

However, most of the rise in complaints were attributable to the new service providers, specifically Southland, whose drivers lacked the experience and training of those working for Handi-bus. The significance of this rise in complaints is highlighted in the control chart of customer complaints per thousand trips.



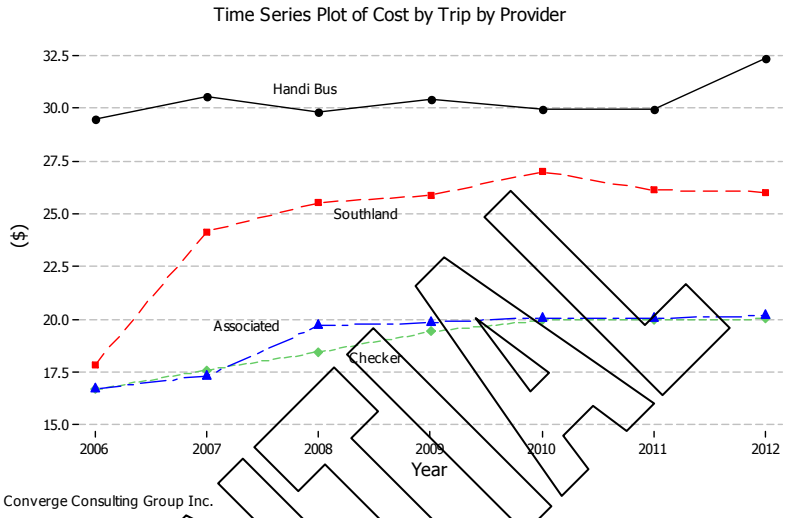
However, since then, Access Calgary and Southland have worked to manage the transition and reduce the number of complaints. These efforts have also been successful as evidenced on the control chart.

Changing the cost structure

The transition has also successfully changed the cost structure of service delivery, specifically with buses. Calgary Handi-Bus has been delivering trips at an average cost of about $30 for the past five years. Last year, the cost per trip jumped to almost $32.5 or an 8% increase.

As Southland increased its volume with Access Calgary so did it's cost per trip, rising from about $18 to $27 in 2010. As Southland's experience grew, so did its ability to manage its specialized transit operations. Since 2010 cost per trip at Southland has run about $26, more than 10% below that of that of Handi-Bus.

These differences have allowed Access Calgary to more effectively manage costs associated with service delivery. For example, schedulers amend the schedules produced by Trapeze to reflect different costs by each of the providers to minimize the daily operating cost of Access Calgary operations. More strategically, Access Calgary has also responded by providing increasing volumes of work (trips) to lower cost providers.



Conclusions/Recommendations: Maintain the contracting-out model of service delivery.

The contracting-out model has been successful at controlling costs. Using multiple suppliers has contributed to this success, allowing Access Calgary to manage costs more effectively than would otherwise be the case.

Concerns about redundancy inherent in the model, multiple operators providing the same service, are simply not borne out by the evidence.

Having multiple service providers also allows Access Calgary to better manage business interruption risk with any one of the operators. The entire system is not 'down' should any one provider experience operating difficulties.

Access Calgary should encourage continuation of the existing model emphasizing contracting out as the foundation of the model and continuing to emphasize a mix of service providers.

System Conditions and Circumstances

Critical Operating Constraints Affecting Performance

Systems conditions and circumstances describe the environment within which Access Calgary operates and that has direct impact on performance, but usually lie out of scope to Performance Audits or similar reviews. For Access Calgary, the overriding environmental characteristic is that it operates within the corporate structure of The City of Calgary.

Organization Structure: The Need for Access Calgary

The critical differences between how fixed route public transit and specialized public transit mean that at the very least, a separate organization structure, such as Access Calgary, is appropriate and necessary.

History has seen management of this function moved around. At one time, management of specialized public transit was essentially the domain of Handi-Bus. Later, it was moved to the social services function within the City of Calgary before becoming its own operating entity within Calgary Transit.

In conducting this Performance Audit, various organizational options for Access Calgary were offered. These ranged from rolling the function into Calgary Transit (distributing various component function), to creating a separate partner agency, outside of the City of Calgary, with its own Board of Directors. These options have their own advantages and disadvantages. However, the hypothetical advantages do not come close to outweighing the level of success demonstrated by the current organizational arrangement.

Conclusion/Recommendation: Access Calgary should remain part of Calgary Transit.

The current organizational arrangement of Access Calgary, as an operating entity with its own clear mandate, and operating as part of Calgary Transit, is an effective and efficient arrangement in delivering services and value to the citizens of Calgary. It provides Access Calgary with a clear operating mandate while encouraging a close working relationship with the balance of Calgary Transit that promotes development of accessible fixed route systems. No change to this organizational design should be pursued.

Information Technology

Automated booking, scheduling and dispatch software is a foundation for Access Calgary's operations as it is for all specialized public transit service organizations in any major centre. Without Trapeze and supporting software, Access Calgary can't:

- accept bookings,
- schedule rides,
- design routes,
- dispatch vehicles to pick passengers, or
- know who is scheduled for a ride and when.

System failure paralyzes operations and may leave passengers stranded.

Small Fish in a Big Ocean

Despite its critical importance to Access Calgary and its customers, Trapeze and supporting software is a very small fish in a very big ocean of the City of Calgary Corporate IT Department. This has some implications:

- Specialized paratransit software may not be reliable on existing, standardized IT infrastructure. There are indications that such an incompatibility may be currently impacting Access Calgary's Trapeze reliability. Corporate IT is not likely going to reconfigure existing corporate standards to accommodate such a small part of the existing infrastructure. Standardized IT infrastructures assume one size will fit all. This simply isn't true.

- IT problems within Access Calgary are destined to be a low priority. It can hardly be otherwise. A small reliability problem with Trapeze may have major implications for Access Calgary that amount to insignificant hiccups against the broader IT environment.

- Internal expertise in the software is bound to be limited. Even if a high priority, internal IT resources would likely not have the expertise in the particular software to address problems that typically require a level of expertise on both sides of the 'specialized software'/'supporting infrastructure equation'.

Solution Strategies

IT departments are increasingly responding to these types of challenges in one of two ways:

- Managing corporate IT functions (such as email and financial transaction processing) and allowing operating units to manage their own specialized software. This may include taking responsibility and managing the hardware platform upon

which the software resides. This avoids the 'he said'/'she said' scenario with the specialized software supplier blaming the internal corporate infrastructure for problems while internal IT resources blame the software supplier, inevitable leaving organizations like Access Calgary in the middle. Interestingly, in these scenarios, the longer the problems persist, the less interest each side has in finding a solution.

By allowing independent operating entities to take responsibility for their own IT platform, at least in so far as specialized software is concerned, one person becomes responsible for the operation and reliability of the system—hardware, software, and network.

- Allowing specialized software to operate as a service or in the cloud. In essence, the software supplier runs the software on their own IT infrastructure designed and configured to support their own product. This places all the responsibility for system reliability and functionality on the software provider that is simultaneously, providing access to other users. Operating organizations like Access Calgary typically access the software through a web browser. This model is often favored by corporate IT departments where the ability of an operating organization like Access Calgary to maintain a hardware/software infrastructure is a concern.

  The net effect is the same as for that above. One person, one organization, becomes responsible for the performance of the system in its entirety. He said/she said scenarios are eliminated. The City of Calgary has already introduced and number of computing in the cloud applications.

Conclusions and Recommendations: Core operating software needs clear lines of responsibility and accountability.

Access Calgary is currently engaged in reviewing software alternatives to its existing version of Trapeze. An old version, Trapeze has been experiencing reliability issues and lacks much of the functionality of newer products. It is hoped, and expected, that more up to date software will (i) resolve current reliability issues with Trapeze, and (ii) provide additional functionality.

Neither of these benefits will accrue to the organization if the software doesn't work reliably. We therefore suggest:

- Software as a service/computing in the cloud options be given priority in Access Calgary's current search for replacement paratransit scheduling software.

- If these options are not available, then an alternative strategy placing clear lines of responsibility for system performance be developed prior to acquisition of any replacement for Trapeze 8.

311 Service

311 represents the City of Calgary's effort to build a one stop shop, or point of access, to all City of Calgary departments. Increasingly, 311 is becoming a default solution for any system with an alternative phone number, such as Access Calgary.

In conducting this review, suggestions of moving Access Calgary's number to 311 were heard. However, such a transition would reduce the service capability of Access Calgary without any corresponding benefit.

Conclusions /Recommendations: Call centre operations should remain distinct from 311

Access Calgary should retain its own call centre operations. No transfer to 311 operations should take place.

Performance Measurement, Management and Reporting

The City of Calgary has a number of standards (templates, formats) for business performance measurement, management and reporting. Access Calgary's systems correspond to these standards. While these reflect best practice as defined by government, they are at odds with management best practice and Lean/Quality Management practices specifically.

Specific characteristics of existing practices include:

- Using two number at a time comparisons (i.e.; this year's data with last year's data) to draw performance related conclusions.
- Using summary statistics (i.e.; averages) to represent process or system performance.
- Using distributional positions (i.e.; bottom three, top five, above average, below average, upper quartile) to draw conclusions about important differences in performance levels.
- use of performance targets (i.e.; 90% or more of all pick-ups will be done within the pick-up window.

While these are accepted practices at the City of Calgary, and used by Access Calgary, they are all discredited practices from a technical/statistical and a Lean/Quality Management perspective.

Conclusions/Recommendations: Modern performance measurement methods are required.

At least for its internal use, Access Calgary be given the opportunity to engage in modern performance measurement, management and reporting techniques, including the provision of supporting software.

Management

Organizational culture and supporting processes

The management model and orientation at Access Calgary can be described as focused on balancing operational/financial control with customer needs and requirements. As discussed, this can be a fine line.

Nevertheless, management strives to maintain a customer orientation and that ethic permeates the organization. Some key components of this include:

- a detailed customer complaint tracking system that is acted upon,
- staff ride along's,
- customer travel training,
- customer agency outreach and partnering efforts,
- staff sensitivity training, and
- a strong set of organizational values focused on the customer.

The focus on budget control and ensuring the City of Calgary receives value for the dollar it spends on operator and other services are also strong. Examples of this include:

- detailed reconciliations between Trapeze records and operator billing,
- route by route daily manual adjustments of the daily schedule assigning lower cost operators to appropriate routes,
- service agreements with operators that detail expected performance levels with penalties for failing to meet them that are enforced,
- a high degree of cooperation and information sharing with other specialized public transit agencies in searching for best practice.

The net result is a soundly managed organization. It's also an organization under stress between these competing priorities.

Conclusion/Recommendations: Reconsider current funding levels

Numerous recommendations in this report call for increases to Access Calgary's budget to allow for service level increases. These must be considered individually. They nonetheless speak of an organization that generally needs additional funding to maintain quality of service.

Supporting management/administrative processes.

In the tension between budget and customer service, customer service has tended to win out over internal administrative tools and mechanisms. This is as it should be. But at this point, many administrative and recordkeeping tools are kludgy, labour intensive, and prone to error. Some examples include:

- Reconciliation processes require extensive data extraction routines, cut and pasting among various software programs and extensive use of Excel. This is a misplaced decimal point waiting to happen.
- Customer complaints coming into Access Calgary are logged using the 311 system. Records from 311 are then download back to Access Calgary in Excel to be sorted, organized and manipulated to create reports. There is no connection to customer complaints and the Trapeze data base that manages customer records.
- Eligibility submissions require extensive paper based work and entry of data into two different systems that don't 'talk' to one another. Again, labour intensive processes for basic functions (such as mailing customer letters) are the result.

Conclusions/Recommendations: Software enhancements are required

This report also identifies a number of administrative process improvements in a variety locations of the organization. Once the new paratransit software package is implemented, Access Calgary needs to pursue other software, including a Customer Relationship Management solution, Statistical Analysis/Data Visualization tool, and an improved tool for financial and operational reconciliations.

Direction and Strategy

Access Calgary has been an organization focused on delivering specialized public transit. While this remains the organization's bread and butter, it is increasingly being called upon to support integration of transit systems in working toward a more accessible city. This direction encompasses:

- Increased community and customer agency partnering,
- Improved integration of fixed route and specialized public transit services.
- Greater involvement in planning and more broadly, urban design.

These strategies are demonstrating themselves as the best long-term means of controlling costs in specialized public transit and public transit generally.

Conclusions/Recommendations: Pursue a role of accessibility expertise.

Access Calgary continue to pursue and more clearly define its role as a source of accessibility expertise within Calgary Transit and the City of Calgary generally.

Part 3: Lean Operational Review of Access Calgary

Analysis of Detailed Processes and Practices

This section deals with the details of Access Calgary operations. Access Calgary's core business is managing the specialized public transit service.

Core Functions

Specialized public transit services, as delivered by municipalities across North America, including Access Calgary, are comprised of four core functions.

Determining eligibility, determining who can, and cannot, receive specialized public transit services. These services are expensive. Effort is expended to decide who is eligible to use the service and who can make use of existing fixed route services. Those requiring specialized public transit are Access Calgary's customers and eligible to book trips. Access Calgary receives 6000 eligibility and renewal applications per year.

Booking. Taking calls from customers making trip requests. Roughly 60% of Access Calgary's trips are regularly scheduled, such as using the service to get to work. That leaves 40% of trip bookings made in response to customer needs as they arise day to day. A visit to the mall, the park, or to visit the doctor. Trip requests are taken over the phone on a daily basis and booked using automated paratransit booking and scheduling software.

Scheduling & dispatching trips. Once trips are booked, Trapeze (paratransit software) takes the trip requests, builds routes and matches these routes to the available fleet. These are then assigned to specific drivers either by fax or by automated data terminals in vehicles. This process is repeated daily in response to trip requests from customers. The use of sophisticated software is required to match the thousands of trip requests with fleet capacity and design routes that minimize cost.

Service delivery including Day of Service , having a vehicle pick up a customer and taking them to where they want to go. Access Calgary doesn't deliver specialized public transit directly. Rather, it contracts out the provision of service to various private contractors such as Calgary Handi-Bus, Southland Transportation, Checker Cabs and Associated Cabs. Unlike fixed route systems, the City of Calgary, doesn't own or operate any of the vehicles that provide these services.

While Access Calgary does not directly deliver transit service, it manages day of service operations. This includes fielding calls or concerns from customers about late arrivals,

missed pick-ups, as well as operational issues with service providers that arise during the day in which service is delivered.

In addition to these four core functions, Access Calgary also has three other support functions:

Customer Service, largely focused on capturing, investigating and resolving complaints within the system. These are largely customer complaints, but also includes complaints from service providers. This function is responsible for developing systemic strategies to reduce overall number of complaints. The function also captures commendations and manages a recognition program.

Field Service, a quality assurance function on service delivery. This includes conducting ride a long's, site and vehicle inspections, customer and operator training, and related activities designed to ensure service quality.

Management & Administration, processing financial transactions, maintaining operational information and statistics, and related management reporting functions.

System Map

The overall structure of the Access Calgary organization is mapped onto the basic functions organized by the basic workflow (from left to right).

Organizational Structure and Function

Does Access Calgary's organizational structure align with the functions that must be performed to effectively manage specialized public transit? Is this organization structure aligned to the flow of work? The answer to both questions is yes.

A *system map* detailing the flow of work and overlaying the Access Calgary organization structure presents a picture of an organization:

With well defined organizational units aligned with work functions. Each organizational unit has responsibility for specific and rational components of the work that needs to be done.

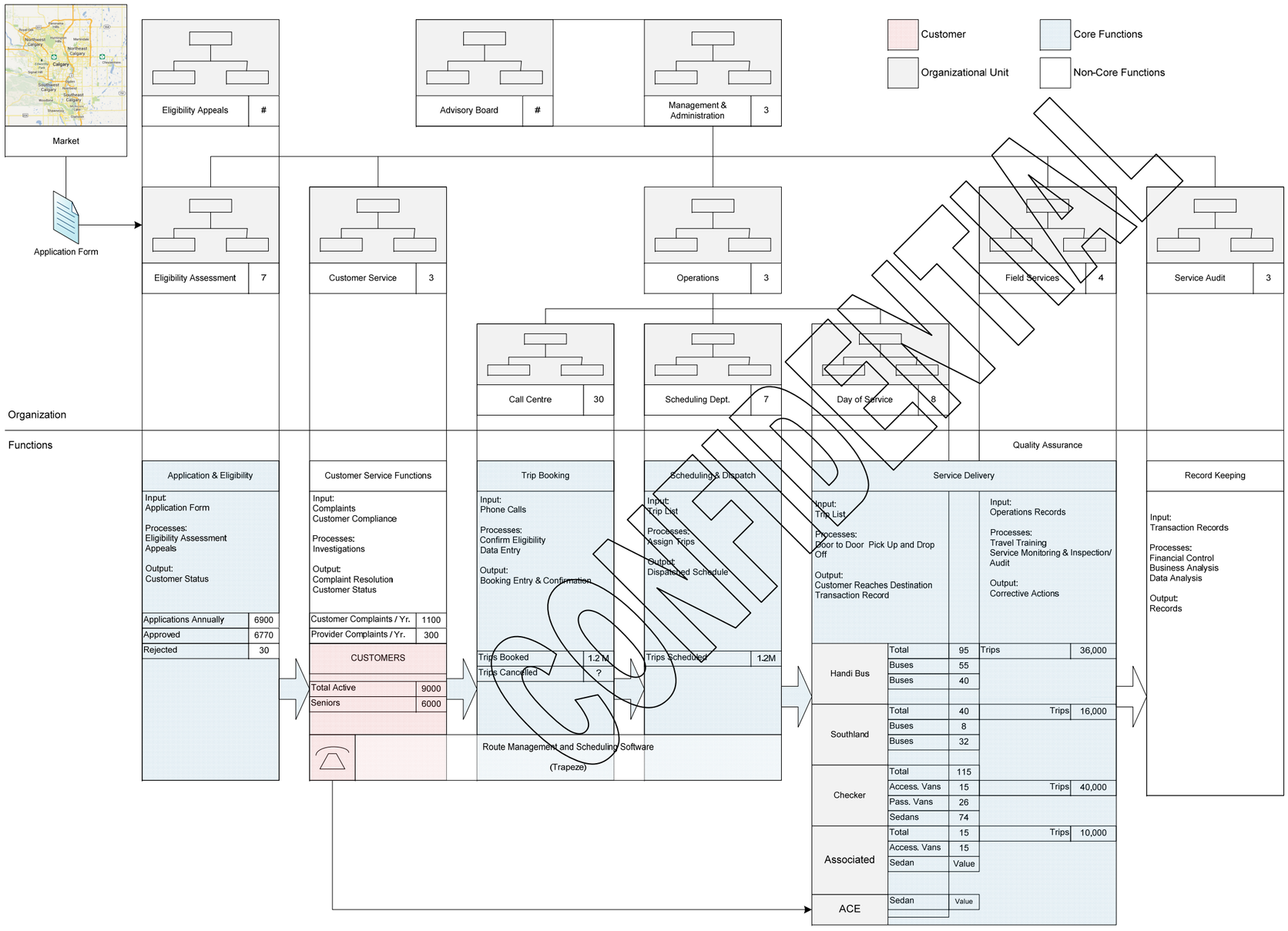
With clearly defined hand-off points between departments. These are defined rationally, by the nature of the function performed.

Supporting a smooth workflow. Opportunities for delays and disruptions are minimized by:

(i) providing appropriate levels of decision making within the organizational hierarchy with 'no waiting' for operating decisions,

(ii) ensuring a logical, sequential process flow with no re-work or backtracking, sending work on in the process only to have it come back to be done again.

Access Calgary System Map



Eligibility

The purpose of the eligibility function is determining who can use specialized public transit and who cannot. The key task is assessing mobility relative to the existing fixed route public transit system. The key purpose in doing so is controlling costs.

The fees paid by customers for specialized public transit are equal to those paid for regular fixed route services. That means the level of subsidy, costs borne by the City of Calgary to fund the specialized public transit service, are substantial.

Research conducted by the Canadian Urban Transit Association concluded that in person eligibility assessments were critical in avoiding increasing system costs.[2] Other best practice research has reached similar conclusions.

Because of this, specialized public transit organizations are spending considerable effort focused on eligibility operations. At the same time, this is often among the most politically sensitive of functions.

Eligibility Comparisons

Toronto uses assessment criteria and a scoring scheme based on a variety of eligibility questions. Applicants scoring 60 points or below out of 140, qualified for specialized transit. This was later increased to 80 or below to make it more inclusive. The change confirms, in part, that using numerical ratings in this manner is bad arithmetic and poor way to make eligibility decisions.

In contrast, the system used by Access Calgary is rational, specifically determining eligibility relative to an individual's ability to use fixed route public transit. Thus, eligibility may change as the fixed route system becomes more accessible. This is why increasing fixed route accessibility is an effective way of reducing the costs of specialized public transit.

Applicants in Toronto used to be charged $25 to cover the costs of the application process but this was over turned by the Ontario Supreme Court (Cannella versus TTC). The ruling demonstrates the impact the ADA has had in Canada in making specialized public transit a human rights concern versus one of service levels.

[2] Canadian Specialized Transit Eligibility Certification Program: Overview of U.S. and Canadian Experience. Canadian Urban Transit Association. p. 1-3.

eligibility overview

Function

Determining who is eligible for specialized public transit.

Input:

(i) Application Forms, mostly from Calgarians but some from visitors to Calgary.

Output:

(i) Customer eligibility decisions.

(ii) Customer database updated

Organization

The administrative organization consists of seven individuals and has an operating budget of approximately $675,000.

It is responsible for conducting all operations (below) except second stage eligibility appeals.

Eligibility Appeals Board. Independent volunteer board.

Operations/Process

Take-in applications forms.

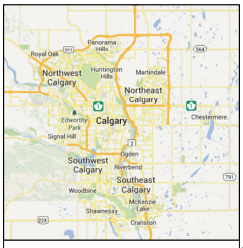
Review application forms and make initial decision.

Conduct in person assessment if required.

Make final decision and communicate to applicant.

First stage appeal if required, review by Eligibility Supervisor.

Second stage appeal if required, review by Eligibility Appeals Board.



Market

Application Form

Organization

Functions

Eligibility Appeals	#

Eligibility Assessment	7

Application & Eligibility
Input: Application Form Processes: Eligibility Assessment Appeals Output: Customer Status

Applications Annually	6900
Approved	6770
Rejected	30

Comparative Eligibility Requirements

Eligibility Organization	Calgary Access Calgary	Toronto TTC Wheel Trans	Winnipeg Handi-Transit	Saskatoon Access Transit	Edmonton DATS – Disabled Adult Transit Service
Currently eligible & active	9,500	33,000	7,800	4,400	10,750
Applications Received Annually	6000 regular 900 'temporary' hospital eligibility	11,000		900	2,187*
Eligibility Basis	Ability to use regular Calgary Transit fixed-route service. Eligibility not based on particular disabilities, general health or income.	Individual's functional mobility at home, in the area, and community. Eligibility not based on particular disabilities, general health or income.	Unable to walk 575 Feet	Ability to use Saskatoon Transit fixed route service. Eligibility not based on particular disabilities, general health or income.	Based on functional ability to use conventional ETS fixed route transit. Eligibility not based on particular disabilities, general health or income.
Cognitive impairment	Eligible, if cannot travel on fixed route	Not eligible	eligible	Eligible if cannot travel on fixed route	Eligible, if cannot travel on fixed route
Sensory Impairment	Eligible, if cannot travel on fixed route	Not eligible	Visual: 20/200 or less	Eligible if cannot travel on fixed route	Eligible, if cannot travel on fixed route
Medical conditions	Eligible, if cannot travel on fixed route	Not eligible Currently we do not offer "conditional" service.	eligible	Eligible if cannot travel on fixed route	Eligible, if cannot travel on fixed route
Other/Conditional Eligibility	Conditional eligibility for snow and ice, cold weather, and hot weather periods	Not eligible Currently we do not offer "conditional" service.	Conditional eligibility for snow and ice, cold weather, short term	Seasonal eligibility granted due to weather	Conditional Eligibility for: specific trips or destinations, winter conditions, dark only, no escort, and mandatory attendant.

Source: Data provided by organizations listed.

Comparative Eligibility Process

Eligibility Organization	Calgary Access Calgary	Toronto TTC Wheel Trans	Winnipeg Handi-Transit	Saskatoon Access Transit	Edmonton DATS – Disabled Adult Transit Service
Responsibility	Access Calgary Eligibility Team Budget $670,000	Initial interviews contracted out. Annual budget $275,000..	Handi-Transit Budget $265,000	Access Transit City of Saskatoon	DATS Registration staff and starting in Fall 2013, Contracted third party health organization for personal interviews
Application	Paper form application required Personal assessment in all but obvious cases	Personal assessment required in all cases.	Paper form application required. Personal assessment with occupational therapists	Over the phone Paper application effective September 1, 2013	Paper application form completed by applicant and health professional; in-person interviews for majority of applicants to initiate fall 2013.
Recertification required / frequency?	Yes 3 years	Not currently except for Deemed "Questionable"	Yes 3 years	No	Not currently but will start in 2014 – likely every 5 years
Appeals Organization	Volunteer Board	Contracted out. Annual budget $550,000	Volunteer Based	Volunteer Board	Appeals board made up of community stakeholders
Appeals Cycle Time Service Standard	2 months 30 days for each cycle	14 days		30 Days	1 month

Source: Data provided by organizations listed.

Virtually all comparative cities based eligibility on ability to use fixed route services rather than on a specific diagnosed condition. This conforms to what is generally regarded as best practice.

Toronto is a partial exception. Eligibility is based on general mobility as opposed to ability to use fixed route services. And unlike other cities, individuals with cognitive and sensory

impairments that prevent use of the existing fixed route system, are not eligible for specialized public transit in Toronto.

Toronto is also the exception in the administration of eligibility, choosing to contract out individual interviews to an external third party health/mobility assessment organization. Edmonton will be following suit with this approach in the fall of 2013.

The advantage of this approach is that it removes (or is intended to remove) the potential conflict of interest of having internal staff determining eligibility when doing so has large cost implications on the organization. In other words, the risk of denying eligibility to individuals who would otherwise deserve it in an effort to control costs.

Other advantages to this approach appear to be administrative simplicity (eliminating application forms) and cost. Compared to Calgary, Toronto handles roughly half the applications at half the cost. Some of these savings are likely due to a more simplified task (cognitive, sensory and conditional assessments are not required). As well, the contracted out appeals process is substantially more expensive.

Eligibility Highlights

Making an application

Access Calgary has recently redesigned its application form. It's currently 14 pages and is available from the Access Calgary website and some doctors' offices. The form will be mailed upon request. Most applicants get the form from the web.

Once completed, the form is mailed or faxed back to the eligibility clerks. The clerks screen it for completeness and no interview criteria. If no interview criteria are met, the clerks can approve and the applicant becomes a customer. The data is then entered into Trapeze.

If an interview is required, it is assigned to one of 3 eligibility services personnel. Clerks have access to a shared drive calendar for Eligibility Specialists and book an appointment depending on the new customer's needs. It takes from between 5-10 days from application to interview.

Eligibility Assessment

Eligibility assessments are conducted at three locations:

- Spring Gardens, 928 32 Avenue NE, 5 days a week
- Transit Customer Service Centre, 135-7th Ave. SW, 2-3 days a week, and
- Nose Hill Library, 1530 Northmount Drive NW on Fridays.

Application forms are organized by time of interview so that the eligibility specialist can review file on the day it is needed and formulate an interview plan. The interview is then conducted, usually taking about 45 minutes.

Information gathered in interview is used to determine eligibility, including mobility restrictions, and the impact in using fixed route services. An interview service guide has guidelines, but there are unique circumstances that come in to play that determine eligibility. Conditionally eligible can be designated, snow and ice, heat, cold.

The interview process also identifies vehicle restrictions. Someone with a fused leg will not be able to get in a cab, so that is noted in file. This will not be done on preference, only on medical need.

Once the Interview complete, the decision is made and the customer file is updated. This includes a brief summary of the decision rationale. The paperwork is scanned once a week and the hard copy is kept for 30 days. A file is named after the client record and stored on a shared drive. If approved, the customer is immediately set up for service. Both successful and unsuccessful eligibility applications are both stored.

Once file is set up, confirmation email or letter goes out. This has a description of each condition and includes a handbook on using the service. Clerks stuff all of this in to an envelope and mail it to client.

Vehicle exclusions.

Each service provider has different vehicles, minivan, taxi cab, bus, lift vans, etc. When a person is set up for eligibility, the default assumption is that any vehicle will work. Further examination will rule out certain vehicles. Must ensure that certain vehicles are an absolute barrier, otherwise it is not excluded.

Conditional eligibility

Weather related eligibility, snow and ice, heat, and cold. Assigned to customer who will have reduced mobility in any of these conditions, and if these conditions occur, they will not be eligible for a ride. Weather is checked and if these conditions are noted over the next 4 days, they won't be able to get picked up. These may include temperatures 20 degrees or above, -15 or below, or snow and ice. Customer cannot make subscription bookings if they have these related eligibility conditions.

Personal care attendant vs. companion.

Customers can travel with a second person or companion. For example, lunch with a neighbour is okay if there is capacity and both customer and companion are expected to pay a regular Calgary transit fare.

Personal Care Attendants, in contrast, are individuals required by the customer for travel. Personal Care Attendants are added to Access Calgary customers file.

Application renewals

Application renewals are required every three years. Customers are sent a personal information update.

Renewals may include new exclusions. This usually requires an interview with an Eligibility Specialist who will assess the situation and make adjustments to the customers file.

Appeal process.

The appeal process consists of two stages.

- Stage One, the customer writes letter from care giver or medical doctor and this goes to the Coordinator of Eligibility Services. The file and information is then reviewed and a decision in made to approve or not.
- Stage Two, if application is denied, the applicant can request an appeal to the Access Calgary Appeal Board. Comprised of community members, the Board meets once a month. Access Calgary and the applicant each present their case to the Board and a final decision is made.

Vehicle exclusions and ACE card eligibility are not appeal able

Low Income seniors bus pass pricing differential

Low income seniors using Access Calgary services pay more for service than low income seniors using regular fixed route services. This is because the low income seniors pass is not available to Access Calgary customers.

This is because the combination of Access Calgary service and low income pass is seen as a double subsidy—the low income subsidy and the Access Calgary subsidy. However, this is true for the low income seniors pass generally, as regular fixed routes are also subsidized, although admittedly, not to the degree of specialized transit services.

Maintaining the differential has the advantage of encouraging lower cost regular fixed route transit over specialized transit. This is seen as an effective mechanism for controlling specialized transit costs in the United States although the extent of savings appear to be undocumented. The logic of using pricing differentials to encourage fixed route system use among the elderly suffers from the fact that eligibility for Access Calgary services is predicated on an inability to use fixed route services. People are incapable of using the service or they are not. Pricing differentials may encourage the use of fixed route transit that for which people are unsuitable.

Ace cards

Ace cards are issued through the eligibility process and only going to customers who are over 16, qualify for unconditional service and are unable to use Calgary Transit for longer than a year. The Ace Card is a taxi discount card with a maximum value of $52 a month. 10% of the taxi fare less $3.50 comes off the ace card. Customers book directly with the cab company to book and arrange trips.

Long term care residents

Long term care residents do not require eligibility assessments and are automatically accepted upon submission of a Care Centre Trip Request form. Long term care centres have handbooks on file. Care centre staff usually arrange the trips. As is the case with regular customers, renewals are done every three years.

Instructions on using Access Calgary services

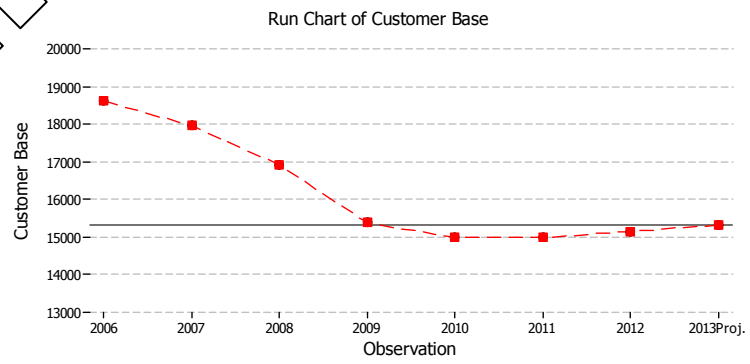
A service summary sheet is provided to all customers. This is basically a cheat sheet on how to book trips with a client registration number and contact info for access Calgary. Confirmation of registration and a handbook is also provided.

Eligibility has gained effective control of the customer base

The primary function of eligibility is determining who is eligible to use the service, that is, who can be an Access Calgary customer. The introduction of more formalized and rigorous eligibility management focused on the ability to ride fixed route services, has been successful at gaining effective control of the customer base, reducing the number of Access Calgary customers from 19,000 in 2006 to about 15,000 today.

Equally important, customer growth has been moderated, with customer growth increasing only mildly since 2010.

This is a sign of an effective eligibility process.



Number of runs about median:	2
Expected number of runs:	5.0
Longest run about median:	4
Approx P-Value for Clustering:	0.011
Approx P-Value for Mixtures:	0.989

Number of runs up or down:	2
Expected number of runs:	5.0
Longest run up or down:	4
Approx P-Value for Trends:	0.002
Approx P-Value for Oscillation:	0.998

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Eligibility Assessment Best Practice

The following outlines a combination of empirically-based eligibility best practices. These are contrasted with current Access Calgary practices.

Empirical Best Practice	Access Calgary
Simple application form that gathers essential information and is available with accessibility options.	Application form is in place but long at 14 pages. Complaints about its complexity
Contact applicants by phone to discuss the information included the application.	In some cases, phone call contact is made when personal interview is not required.
A single staff member works with an applicant through the entire application process.	Applications are received by clerks. If interviews are required they are conducted by a single specialist. From the customer's point of view, this is a single point of contact.
In-person interviews to discuss travel needs and issues with applicants where required.	Yes, Access Calgary recently changed to conducting in person assessments when required. Prior to that, they were required in all cases. The change has increased productivity of the functions and the efficiency of the process.
Supplement information with information from professionals familiar with the applicant -- particularly for applicants with vision disabilities, mental illness and certain other health conditions.	Yes, the application form has space for supplemental information from medical professional where appropriate.
Community engagement actions including workshops and seminars with local agencies to ensure understanding of eligibility criteria and limitations of service.	Seminars are done to ensure agencies understand eligibility requirements and limitations of service.
Manage conditional and temporary eligibility, including: ▲ Identify specific barriers preventing riders from using fixed-route	Access Calgary undertakes to identify the specific barriers preventing people from taking advantage of fixed route systems

Empirical Best Practice	Access Calgary
service during the eligibility determination process. ▲ Conditional eligibility," where riders who are sometimes able to use fixed-route service are designated as such in the system and given a code identifying the types of barriers that prevent fixed-route use.	and currently has a well-defined program of establishing conditional eligibility.
Provide information to medical, social service and caregiver communities so they can in turn assist potential elderly and disabled transit customers on specialized public transit options.	Yes, Access Calgary provides information on specialized public transit options to medical, social service and caregiver communities
Ensure functional assessment in the eligibility process, using face-to-face visits, interviews, and physical evaluations. Provide exceptions to these requirements where the extent of incapacity is clear.	Access Calgary interviews are in-depth, running over 30 minutes focused on the functional assessment
Recertify all specialized public transit customers on a rational basis.	All customers are recertified every three years. This is not strictly speaking recertification on a rational basis. There are opportunities to simplify recertification further.

Eligibility Issues, Concerns & Recommendations

Component	Description of Eligibility Issue or Concern	Observations/Recommendations: Eligibility
Application Form.	The current application form is seen as long and complex by clients. Runs 14 pages. Special sections for medical input and administration comments.	Simplify the application form. Information requested should support the decision that needs to be made prior to in person assessment.
	Application form posted on website is in pdf format with limited accessibility options.	Make the application available in Word with all accessibility options. (This may have already been done in the course of this audit) Automatic linkages to a CRM system (below) should be investigated.
	The original of the application form must be returned to Access Calgary, electronic submissions are not allowed.	Electronic submissions should not only be permitted but encouraged. Again, this may be facilitated by adoption of a CRM system recommended (below).
Eligibility Process Administration	A separate calendar in Excel on a shared drive is used to book Eligibility Specialist appointments. The system works but Excel is not designed for these sorts of applications and the potential for error is high.	Investigate acquisition of a small Customer Relationship Management (CRM) system capable of booking appointments at multiple locations. Must integrate with new scheduling software system.
	Eligibility process administration is currently paper intensive. Customer record management is not well integrated requiring staff to engage in paper sorting and matching duties that are wasteful.	Investigate acquisition of a small Customer Relationship Management (CRM) system capable of booking appointments at multiple locations. Must integrate with new scheduling software system.
	The paperwork is scanned once a week and the hard copy is kept for	Electronic document submission should be

Component	Description of Eligibility Issue or Concern	Observations/Recommendations: Eligibility
	30 days. E file is named after the client record and stored on a shared drive. Both successful and unsuccessful applications are scanned and stored. Application and renewal process are both 'paper intensive'.	encouraged as per recommendations above. Renewals should be conducted over the phone wherever possible,
Eligibility Application Process	Eligibility Specialists have three locations they can conduct eligibility assessments: Spring Gardens, downtown on 7th Ave 2-3 days a week, and Nose Hill library every Friday. A concern is that clients must find accessible transportation to get to a place where they can apply for accessible transit Note, an issue is the upcoming move of Access Calgary. The current Spring Gardens location is near the highest concentration of Access Calgary customers. When the move occurs, consideration must be given to maintaining a Springs Garden eligibility assessment service.	Access Calgary has made progress here by not requiring eligibility assessments in obvious cases. Having Eligibility Specialists going to individual locations would add significant costs to the process and is not a characteristic of any comparative jurisdictions. No change to the process is recommended.
Eligibility Process Organization	Access Calgary maintains its own eligibility function. Others, including Toronto and soon, Edmonton, contract out eligibility assessments to an independent third party. The benefits are a reduction in: ▲ conflict of interest potential and, ▲ cost of operations. The data on the extent of cost savings attributable to contracting out is not conclusive largely because what is, and is not, eligible is different between Calgary and Toronto (where contracting out is in place).	It is recommended that Access Calgary monitor and consult with Edmonton as they move to a contracting out model to better assess the strengths and weaknesses of this approach.
Appeals Process &	The Board hearing final appeals is voluntary comprised of community members. Like many voluntary/community Boards, it can be difficult to	Access Calgary should work to retain the current appeals board structure and process.

Component	Description of Eligibility Issue or Concern	Observations/Recommendations: Eligibility
Organization	recruit and retain membership. Toronto has essentially contracted out Appeals Board functions albeit at significant cost. This eliminates the requirement of constantly recruiting new membership providing an element of stability to the system. At the same time, volunteer/community Boards have a greater attachment and arguably, greater credibility, especially when comprised of members of the community from which appeals are being heard.	It is characterized by high credibility and low cost.

Customer Service

Customer Service is responsible for investigating and resolving customer and service provider complaints as well as taking actions designed to reduce the number of complaints experienced by the system.

Customer Touch Points

Specialized public transit trip has greater degrees of interaction between those delivering the service and customers. These interactions tend to fall into one of two categories. First, there are the interactions between customer and agency representatives involving trip booking, general information enquiries and communicating scheduling information. Second, there is the trip itself, including length of time on the bus, arrival time and driver behavior.

The various points at which these interactions occur are the customer touch points. Customer touch points are where the rubber meets the road in customer service—where customer and corporation interact. Any of these touch points can generate customer complaints (or commendations). It's important to ensure customer complaints are gathered from all touch points so that strengths and weaknesses in the customer service system are assessed and addressed. Some customer touch points at Access Calgary include:

- General phone enquiries
- Making an application/renewal
- Eligibility interview
- Booking a trip
- Confirming, changing or cancelling a trip
- Day of service interaction, and
- Service delivery (driver behavior, vehicle condition and vehicle operation)

Standards of Service

Clear standards at customer touch points are essential for aligning expectations and measuring performance. Clear standards and measures also facilitate speedier identification of operational issues and may even provide data that suggests solutions. Lack of clarity not only causes confusion; it impedes the ability to assess performance and likely delays effective solutions to any problems that might seem to exist.

Customer Service Process Overview

Function

Investigating service complaints made by customers and service providers and taking actions designed to:

(i) reduce the number of complaints,

(ii) increase the level of customer compliance, and

(ii) improve service quality.

Input:

(i) Complaints.

Output:

(i) Complaint resolution

(ii) Changes in customer status.

Organization

The administrative organization consists of three individuals.

Operations/Process

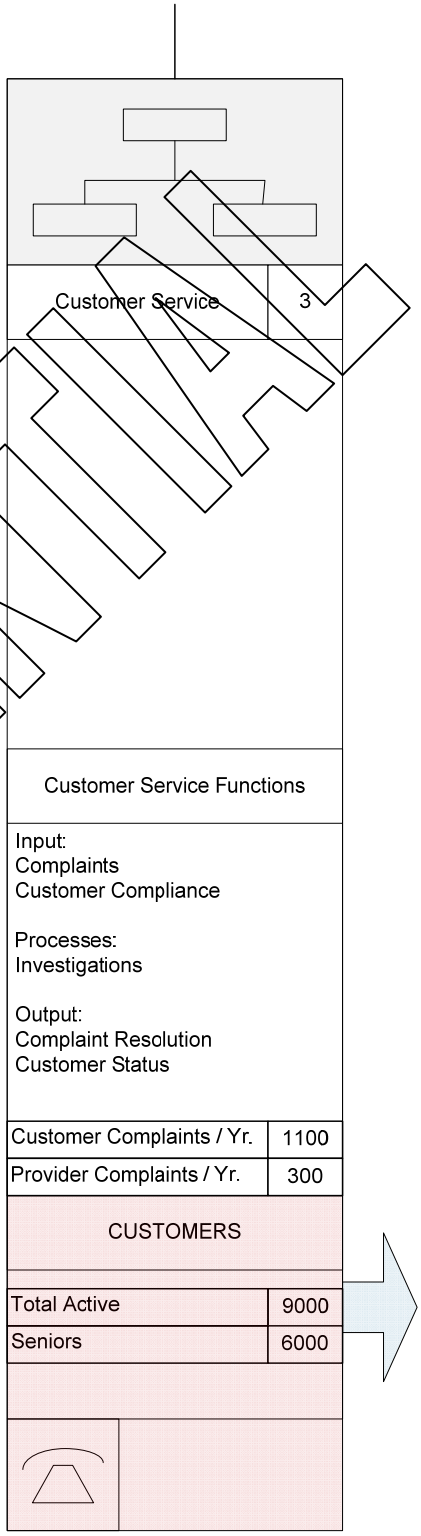
Receive complaints.

Investigate complaints and determine root causes.

Take corrective actions including issuing warnings.

Adjust customer status where required.

Maintain complaint statistics and records.



Access Calgary customers have more demanding service quality requirements than customers for regular fixed route services. This goes beyond the nature of the vehicles used. Service quality failures on specialized public transit include:

- booking pick-up and drop off times,
- missed or late pick-ups,
- drop off's at wrong locations,
- improper hand-offs,
- improper handling of the passenger,
- improper securing of mobility devices,
- assaults and more.

Mitigating service failures requires responsibilities of both customer and service provider.

Customer Responsibilities

Customers also have responsibilities for making the system work. Consumers of fixed route transit services need to learn the basic requirements of using the system. Travel training can help facilitate these efforts while reducing the demand on specialized services.

Consumers of specialized public transit need to:

- adhere to the process for making and cancelling reservations,
- be available when their ride arrives,
- work with the specialized public transit operator to make entering and exiting the vehicle as easy and efficient as possible, and,
- observe the rules for safe operation of the service.

Access Calgary Responsibilities

Transit agencies, including Access Calgary, need to ensure:

- customers receive prompt investigation of their concerns,
- meaningful action is taken to address issues where warranted,
- customers understand their responsibilities, and
- provide customers with the help and information they need to use the service well.

Customer Service Process

Customer Service is in large measure about communication. This includes:

- encouraging complaints from customers and groups representing specialized public transit users, including social and health care organizations,
- following up, investigating and resolving complaints with customers and service providers. In many instances, these come down to communication problems concerning expectations around service and responsibilities of customers,
- ensuring service providers fully understand their obligations,
- ensure customers fully understand their responsibilities and receive the information they need to use the system.

Customer Service Comparisons

Access Calgary, like most other jurisdictions has a formal complaint process and organization. The volume of complaints is slightly, but not significantly higher than the complaint levels experienced in other jurisdictions.

Customer Service Organization	Calgary Access Calgary	Toronto TTC Wheel Trans	Winnipeg Handi-Transit	Saskatoon Access Transit	Edmonton DATS – Disabled Adult Transit Service
Complaint Process	Formal process for concerns & complaints	Formal process for concerns & complaints	Formal process for concerns and complaints	No formal process concerns and complaints	Formal process for concerns & complaints.
Volume of Complaints	1100 concerns / complaints per year	2,500 concerns / complaints per year	N/A	17 complaints last year.	687 concerns / complaints (2012)

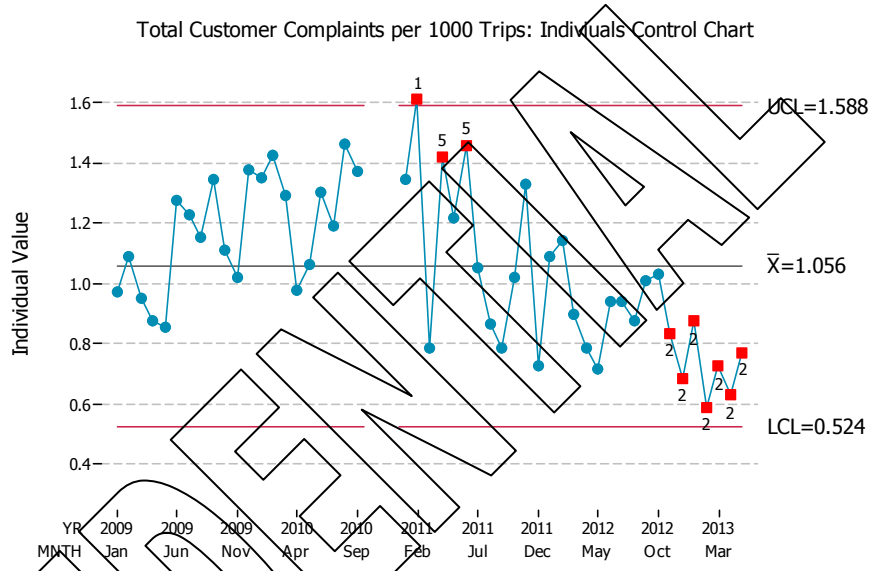
Reducing Customer Complaints

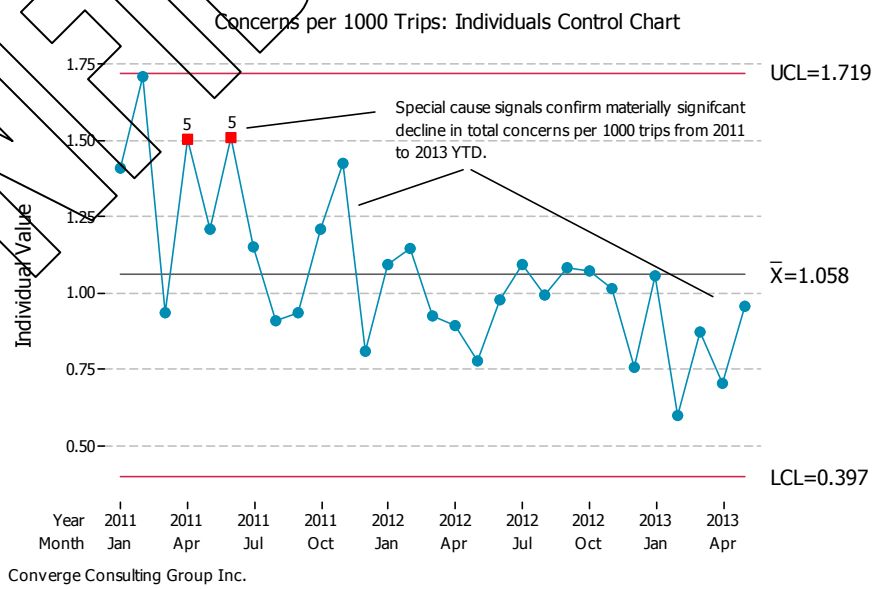
The purpose of gathering customer complaints is to respond and resolve complaints improving the quality of service so that that the total number of complaints is reduced. Access Calgary has been effective at doing so.

Data from 2009 to present show a pattern of initially increasing complaints with Access Calgary service. These were largely driven by changes to the service delivery model that transitioned service to additional suppliers including Southland and Associated.

Arguably, this transition represented the single largest service quality challenge Access Calgary has faced over the past few years.

The control chart analysis indicates that Access Calgary has successfully addressed this challenge, reversing the rising trend present prior to 2011 and bringing complaint levels back to levels more consistent with the industry.





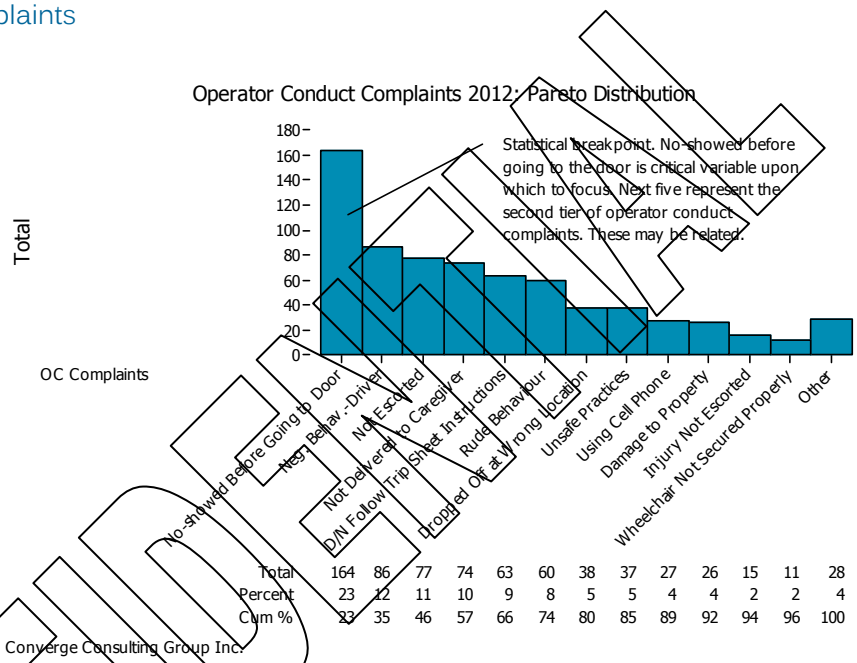
What do customers complain about?

More than anything else, and not surprisingly, the most frequent complaints concern the mechanics of the trip itself. Access Calgary divides these into complaints of operator conduct and vehicle operation.

Operator Conduct Complaints

There are so many touch points and areas of potential service failure that the challenge of complaint resolution can quickly look overwhelming (see list below).

Fortunately, the Pareto Chart analysis of these identifies a structure to these complaints at clear statistical breakpoints.



Operator Conduct Complaints

Complaint	Total	Percentage	Associated	Checker	Handi-Bus	Southland
'No-showed' Before Going to Door	164	23.2%	12.2%	18.5%	32.7%	25.9%
Neg. Behavior Driver	86	12.2%	6.7%	9.1%	18.5%	12.6%
Not Escorted	77	10.9%	13.3%	11.6%	8.8%	11.1%
Not Delivered to Caregiver	74	10.5%	13.3%	10.1%	8.8%	11.9%
D/N Follow Trip Sheet Instructions	63	8.9%	14.4%	11.2%	5.4%	5.9%
Rude Behaviour	60	8.5%	5.6%	9.4%	9.8%	6.7%
Dropped Off at Wrong Location	38	5.4%	4.4%	7.2%	2.0%	7.4%
Unsafe Practices	37	5.2%	7.8%	2.9%	5.4%	8.1%
Using Cell Phone	27	3.8%	8.9%	6.5%	0.5%	0.0%
Damage to Property	26	3.7%	3.3%	5.4%	2.4%	2.2%
Injury Not Escorted	15	2.1%	3.3%	2.2%	2.0%	1.5%
Wheelchair Not Secured Properly	11	1.6%	3.3%	0.4%	1.0%	3.7%

Complaint	Total	Percentage	Associated	Checker	Handi-Bus	Southland
Passenger Refused by Driver	10	1.4%	0.0%	2.5%	0.5%	1.5%
D/N take most direct route	5	0.7%	0.0%	1.1%	0.0%	1.5%
Driver listening to music/radio	5	0.7%	1.1%	0.7%	1.0%	0.0%
Fare Payment Dispute	3	0.4%	1.1%	0.4%	0.5%	0.0%
Left to go to Store Etc.	3	0.4%	1.1%	0.4%	0.5%	0.0%
Neg. Behavior.-Dispatcher	2	0.3%	0.0%	0.4%	0.5%	0.0%
Assault on Passenger	0	0.0%	0.0%	0.0%	0.0%	0.0%
Control of Passenger by driver	0	0.0%	0.0%	0.0%	0.0%	0.0%
Smoking in Vehicle	0	0.0%	0.0%	0.0%	0.0%	0.0%
	706	100.0%	100.0%	100.0%	100.0%	100.0%

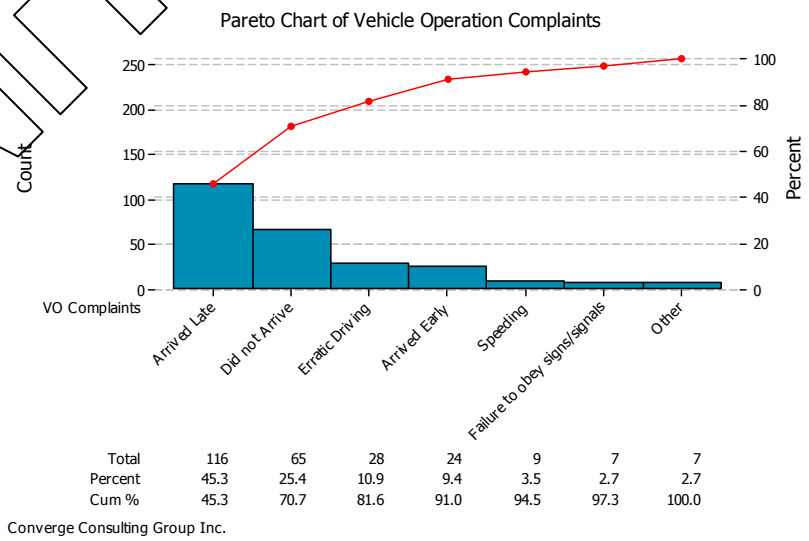
This structure has two parts. First, complaints about no-shows represents close to 25% of all operator conduct complaints. Second, the next five complaint categories represent a statistical cluster than may have an underlying theme of escort/hand-off process.

Vehicle Operation Complaints

Similarly, a structure is easily seen in vehicle operation complaints. While there are fewer complaint categories to deal with here, Pareto analysis makes the concerns of customers apparent.

Fully 45% of all vehicle operation complaints concerned late arrivals. Another 25% concerned the failure to arrive.

The arrival interaction therefore represents the greatest opportunity for improvement and complaint reduction.



Vehicle Operation Complaints

	Total	Percentage	Associated	Checker	Handi-Bus	Southland
Arrived Late	116	45.3%	29.7%	29.7%	67.6%	70.3%
Did not Arrive	65	25.4%	13.5%	42.4%	5.4%	12.5%
Erratic Driving	28	10.9%	32.4%	8.5%	5.4%	6.3%
Arrived Early	24	9.4%	8.1%	12.7%	2.7%	7.8%
Speeding	9	3.5%	5.4%	0.8%	10.8%	3.1%
Failure to obey signs/signals	7	2.7%	2.7%	5.1%	0.0%	0.0%
Vehicle too hot/cold	3	1.2%	2.7%	0.8%	2.7%	0.0%
Improper parking/blocking Traffic	2	0.8%	0.0%	0.0%	5.4%	0.0%
Passenger Injury	2	0.8%	5.4%	0.0%	0.0%	0.0%
Anti-idling Policy	0	0.0%	0.0%	0.0%	0.0%	0.0%
Motorist Cut Off	0	0.0%	0.0%	0.0%	0.0%	0.0%
	256	100.0%	100.0%	100.0%	100.0%	100.0%

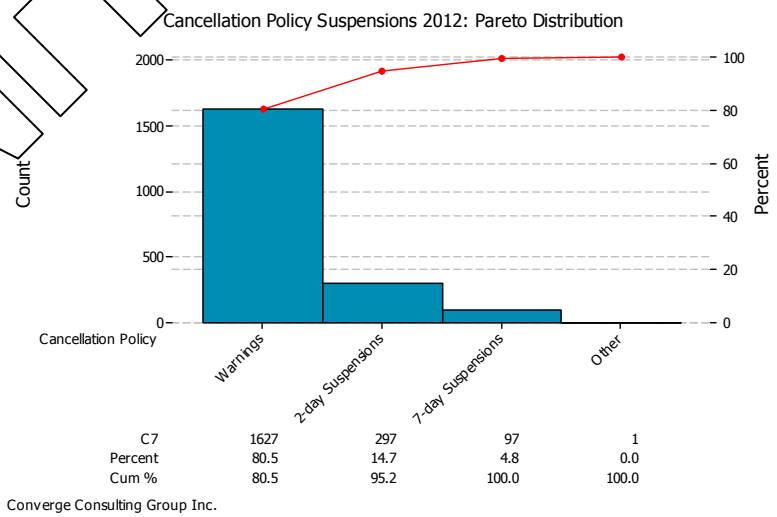
Suspensions of service

In addition to meeting its own responsibilities, Access Calgary must help ensure customers meet their responsibilities as well. When process designed to do that fail, specialized public transit providers will cancel service to the customer.

Clearly, such action must be supported by clear policies and a high level of communication in a process that provides warnings to the customer in advance of any suspensions.

The high ratio of warnings to suspensions indicates that such a process is in place at Access Calgary.

A comparison of suspension of services policies for comparative jurisdictions follows.



customer cancellation/suspension policy

	Calgary	Toronto	Winnipeg	Saskatoon	Edmonton
	Access Calgary	TTC Wheel Trans	Handi-Transit	Access Transit	DATS – Disabled Adult Transit Service
Cancellation/No show rate	2.6%	3.3%	3.6%	9.5%	1.8%
Cancellation policy	If 3 late cancellations occur in 30 day period, a letter of warning is issued. If 6 late cancellations in a 60 day period results in 2 day service suspension. 9 cancellations in a 60 day period result in 7 days service suspension. If 12 or more late cancellations in a 60 day period, service will be reviewed with possible discontinuation of service. Customers may appeal	Policy allows late cancellations and no shows up to a maximum of 4 days each month regardless of the number of advisory trips scheduled for those days. Advisory letter sent for 1st occurrence exceeding the policy, subsequent occurrences results in incremental service suspension from 7 days to 60 days. During service suspension, trips for medical purposes continue to be provided.	Current policy allows cancellations 30 minutes prior to schedule pick up or drop off time. If was not cancelled within this time frame they would be considered a no show and escalates charges will apply. Current policy is under review. No show indicates that a client does not cancel, is not ready for their pick up, or misses their ride. Escalating fees will result with No shows.	Customers who register **three** (3) no-shows in a calendar month will receive written warning and a copy of the policy. If there is a repeat of three no-shows or more in any subsequent month, the customer will receive written notice of the dates intended for a suspension from service. In addition, customers who register more than **twelve** (12) no-shows in a calendar year will receive written warning and a copy of the policy. Should	Starting in Sept, 2013, same day cancellations must be received by DATS at least 2 hours prior to the scheduled pick-up time. Failure to cancel will result in a "no show" which will be applied to the client's record. Persons who have frequent no shows may be subject to a temporary suspension from DATS service.

	Calgary	Toronto	Winnipeg	Saskatoon	Edmonton
	Access Calgary	TTC Wheel Trans	Handi-Transit	Access Transit	DATS – Disabled Adult Transit Service
				the customer reach **fifteen** (15) no-shows in a calendar year, written notice of the dates intended for suspension from service will be given. **Suspension of service may entail:** a) The removal of subscription services for one (1) month b) The removal of service for one (1) week c) The removal of service for one (1) month	

Best Practices Customer Service

Customer Service Best Practice	Access Calgary
Direct Customer Feedback Management	
A system is in place for capturing, investigating and analyzing customer complaints at all customer touch points.	Yes. Customer Service has a strong program of capturing and investigating complaints. The ability to analyze is data to examine for patterns and trends is limited.
A system is in place for capturing complaints made by operators concerning customer issues or problems	Yes. Customer Service has a strong program of capturing and investigating complaints. The ability to analyze is data to examine for patterns and trends is limited.
Statistical analysis of customer complaints identifies clear priorities for improvement and links directly with improvement initiatives.	Partially. Access Calgary follows up on customer complaints giving first priority to the seriousness of the complaint (i.e.; sexual harassment) The ability to conduct statistical analysis of customer complaints to examine systemic structural patterns and tie these to specific programs for correction, is limited. Nevertheless, Access Calgary seems to have an understanding of its customer complaint priorities having recently introduced an improved door card hanger program.
A customer experience management program is in place that regularly obtains confidential feedback of the travel experience of customers expressed by customers.	No. Access Calgary has no customer experience program in place. Confidential feedback is limited to customer satisfaction surveys conducted every other year.
Customer Responsibility Management	
Clear policies and practices on cancellations and no-shows.	Yes, Access Calgary has clear cancellation policies in place on no-shows

Customer Service Best Practice	Access Calgary
Operators complete and fill out a door hanger documenting an attempt to pick up a customer, reminding the customer of his or her responsibilities, and providing a contact telephone number.	New door hangers were recently introduced by Access Calgary. The process is in its early stages but positive results have been reported.
Consistent application of policies requiring attendants for some riders.	Access Calgary has these policies in place.
Where a customer's behaviors place the customer in danger of losing service, provide a series of warnings before any action is taken; where appropriate, also offer ride counseling.	Yes, Access Calgary has a well thought out and sequential process in0line with those in the rest of the country.
Where a customer is denied service because of behavioral issues, provide an appeals process.	There is an appeals process for denial of service, however, not when denial of service involves safety issues.
Information Sharing & Indirect Customer Feedback Best Practice	
Conduct regular information forums where relevant specialized public transit groups are represented for the purpose of obtaining feedback on operational issues.	Yes, this is done although not through the Customer Service function.
Work with social service organizations, charitable and religious entities, businesses, schools and community and neighbourhood groups to provide presentations and "leave behind" materials in specialized public transit services.	Access Calgary provides presentations to various organizations and produces leave-behind supporting materials.
Develop a guide or handbook for specialized public transit customers providing extensive but simple-to understand information on both fixed-route and complementary specialized public transit services for the elderly and disabled.	Access Calgary has recently produced a number of user guides for users of specialized and fixed route systems. This includes the recently introduced bus hailing kit to improve accessibility of Calgary Transit fixed routes services.

Customer Service Best Practice	Access Calgary
Publicize extensively travel information numbers with information and referred assistance on all transportation options.	No. There is no program of providing rider cards or similar devices with phone contacts to assist customers with the range of specialized and fixed route options.
Create a website compatible with text translation programs so that people with vision disabilities can directly access schedule and route information via their home computer.	No. Access Calgary website is part of the Calgary Transit website and this has not been developed with users, and especially vision impaired users in mind.

Customer Service Issues, Concerns & Recommendations

Component	Description of Customer Service Issue or Concern	Observations/Recommendations: Customer Service
Customer Experience Management	Current program is limited to customer survey conducted irregularly but usually every other year. Once a year (or every other year) surveys do not do a good job of providing accurate customer feedback on the quality of service. The customer satisfaction survey is of poor methodological approach producing results that are overly positive—inflating Access Calgary's customer satisfaction results. This has caused some concerns within Access Calgary's customer's base and had a negative impact on credibility.	Access Calgary should adopt a full customer experience management program with the following characteristics: ▲ administered by independent third party for confidential responses, ▲ ongoing sampling of customers drawn from recent trips, ▲ work to sample sizes of approximately 50 completions per month, ▲ integrate with complaint management and manager feedback process, ▲ control chart analysis of data by month and Pareto chart analysis of data by problem type.
Customer Complaint Management	Customer Service currently uses 311 to log customer complaints. Once logged, data can then be downloaded and analyzed using Excel spreadsheets. 311 is an excellent system for capturing and logging complaints, but it is not a complaint or customer management system. Reliance on 311 is impeding effective customer relationship management at Access Calgary.	A small (or cloud based) customer relationship management system should be investigated by Access Calgary capable of supporting customer service/complaint management. A similar recommendation was made under the Eligibility section. Tied into the scheduling system, this would provide a single point of customer information overcoming the use of multiple systems that integrate poorly

Component	Description of Customer Service Issue or Concern	Observations/Recommendations: Customer Service
	Customer complaint gathering and follow up investigations is excellent but analysis of patterns and trends in the data to identify systemic issues is limited. The limitation is driven by both employee time and software to accomplish the task. Excel is an excellent tool for data organization and performing basic computations. It is poor at providing broader the statistical analysis required to identify systemic patterns.	A well defined complaint reporting system needs to be defined highlighting specific metrics and analysis that can reveal systemic trends and patterns in the data. This system needs to publish its report monthly.
Customer Service Improvement	Customer service improvement efforts are dominated by investigating individual complaints and resolving where appropriate. This is necessary, but not sufficient, to improving customer service levels across the organization.	Based on the evidence provided by systemic analysis (above), Customer Service should identify an annual complaint reduction theme, starting with the most frequent or important complaint, and build an improvement initiative around it incorporating other functions within Access Calgary. Based on our review of Access Calgary, we believe this should focus on the customer/driver touch-point.

Booking, Scheduling, and Dispatch

Access Calgary as a broker.

Access Calgary acts as a broker between the customer and the service provider through the booking, scheduling and dispatch. Taking orders from customers, scheduling the trips among the various service providers, and dispatching the trips to drivers is, therefore, a core function of the Access Calgary organizational model.

Overview

Booking, scheduling and dispatch functions show the same degree of organizational and functional alignment as the organization generally—well aligned to the basic workflow.

Booking

Bookings are made over the phone and are taken by the call centre. The call centre staff confirm the eligibility of the customer through Trapeze and then discuss appointment times. Most agencies establish 30-minute pick-up windows (pick-up time +/- 15 minutes). Access Calgary works to a 20 minute window (pick-up time +20 minutes).

Critical to the process is ensuring the customer understands the policies regarding pick-up (and drop-off) windows. Many transit agencies, including Access Calgary, have developed rider guides providing step-by-step booking instructions and service expectations. This are made available to customers to help clarify the process.

Bookings can be made until 1:00 pm of the day previous to when the trip is scheduled. Trips for a Tuesday can be booked as late as 1:00 pm on Monday Call Centre Staff are not looking for the best spot for pickups or the best route. They only see available time slots and fill those slots with the booking request and confirm with the customer. Details concerning the route are worked out by the Schedulers.

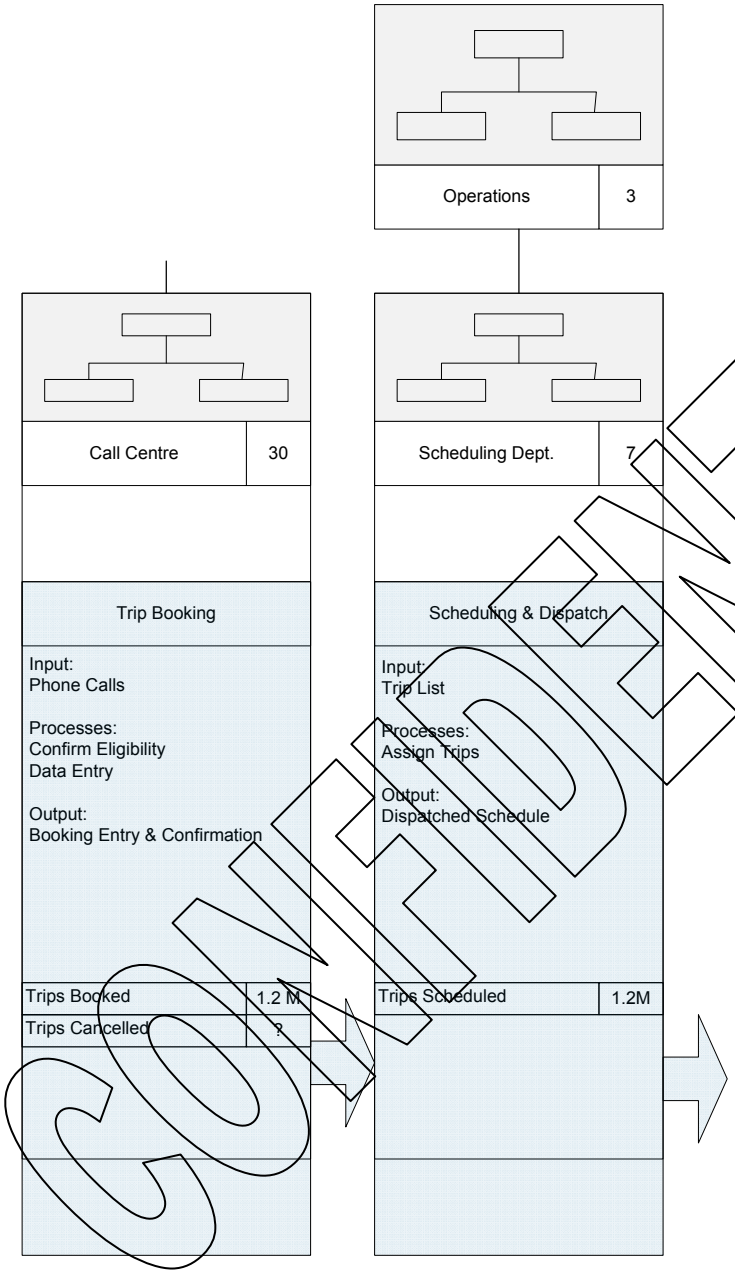
Group bookings must be 4 or more individuals picked up at one location and going to another. These must done 4 days in advance. Call centre runs it by Scheduling to ensure it can be done.

Scheduling.

Scheduling the daily specialized public transit itineraries is a logistical challenge due to the need to accommodate new trip requests within the set of standing subscription orders.

Subscription service trips are those a customer makes multiple times per month, or possibly multiple times per week, with an unchanging origin and destination. Typically, these are trips made for employment, medical, and/or educational purposes. The greater the proportion of subscription trips, the less complex the scheduling task.

booking, scheduling and dispatch overview



Function

Booking requested trips from customers and assigning to a vehicle.

Input:

(i) Phone Calls, from customers making trip requests.

(ii) Scheduled routes as recorded in data base.

Output:

(i) Booking Entry and confirmation.

(ii) Customer trip assignments to specific vehicles.

(iii) Dispatch, relying vehicle routes and customer pick-ups (fax or MDT)

Organization

Call centre organization has approximately 30 people and is responsible for ensuring trip requests are captured and recorded in Trapeze.

Scheduling and dispatch has about 8 people and is responsible for assigning trip requests to specific vehicles capable of delivering the service.

Operations/Process

Take-in phone call requests and book trip in Trapeze.

Assign trips to vehicles (generating routes).

Specialized automated scheduling systems are used throughout the industry to accomplish this task. Access Calgary currently uses an older version of Trapeze, but is currently investigating other options, including a newer version of this software product.

Once the bookings are closed at 1:00 pm, the Scheduling function begins to build the schedule for the next day. The automated system produces a schedule based on a set of the parameters defined by Access Calgary. Because these products were designed to serve the American market, these parameters are aligned with requirements defined under the ADA. In other words, the software works to ensure organizations are compliant with ADA standards. For these and other reasons, there are limits to which any automated specialized public transit scheduling software can produce optimized schedules minimizing sources of waste such as:

- backtracking (driving past a pick up or drop off only to backtrack and return again),
- minimized ride time (the length of time individuals spend on the vehicle),
- slacking (vehicle travel with no passengers),
- redundant routing (one vehicle picks up one passenger while nearby another vehicle picks up another), and
- active vehicle minimization (minimizing the number of vehicles on the road on any given day),

This means that non-subscription trip schedules particularly must be reviewed by Schedulers and modified where appropriate. This is a manual process that tries to eliminate the wasteful activities (identified above).

Additionally, Schedulers will try to incorporate budgeting considerations into the route assignments. Knowing the cost per trip of the different service providers, the scheduler may assign different providers to rides than assigned by Trapeze to minimize the cost.

The scheduling task is completed by 7:00 pm at which point, manifests can be produced. Access Calgary works to 20 minute pick up and drop off windows. Driver has 20 minute window to arrive. Drivers will wait 5 minutes after arrival.

Access Calgary has recently introduced an automated telephone-based system that enables customers to confirm or cancel their scheduled trips. The system is called Acrobat. The customer calls into Acrobat, enters their registration number an d password, and from there, receives an automated voice listing of scheduled trips. The use of automated voice technology has been shown to reduce the number of no-shows experienced in the system. While it is still early in the process, there is some data that Acrobat may be helping to reduce no-shows at Access Calgary. High no-show rates negatively impact productivity.

Dispatch

After the daily schedule is finalized, driver manifests are produced. The manifest shows each individual vehicle operator their daily pick-up and drop-off schedule. Access Calgary currently operates with a mix of vehicles with and without mobile data terminals (MDT's).

- For systems without mobile data terminals (MDTs), the manifests are faxed to service operators. These operators then pass on the assignments to various drivers/vehicles. Faxed schedules cannot be easily changed once issued, a major disadvantage because last minute changes and cancellations cannot be easily relayed to the driver. However, they have their advantages as well. A paper manifest displays all the trips for the day. Drivers can make use of their local knowledge to amend routes 'on the fly' to make for a more efficient schedule.

- For systems with MDT's, the manifests are relayed to the driver electronically. In essence, this bypasses the dispatch system of the service provider. The big advantage to MDT's is that they allow for tweaks in the schedule to occur in real time and often before issues have a chance to compound and impact the schedule.

  The disadvantage is the limited information provided by MDT's. This information is restricted to the current trip or next pick up. Because of this, drivers never know where they are going next, diminishing any ability to apply local knowledge and amend routes on the fly. MDT's currently in test with Access Calgary allow for extended look ahead of 4 hours encompassing about 15 trips. This reduces this disadvantage.

Comparisons with other jurisdiction

Access Calgary's booking, scheduling and dispatch operations compare well with those in other jurisdictions presented below. For the most part, Access Calgary compares well with comparative services and a moderately cancellation/no show rate of 2.6%.

Comparisons with Other Jurisdictions

	Calgary Access Calgary	Toronto TTC Wheel Trans	Winnipeg Handi-Transit	Saskatoon Access Transit	Edmonton DATS
Booking Operations	Phone only (no on-line booking)	Internet trip-booking RideLine (Touch Tone)	Phone only (no online bookings)	Phone and email bookings	Phone and on-line booking
Hours of	9:00 a.m.	24/7	8am-22:00	7 Day Bookings –	Monday to

	Calgary Access Calgary	Toronto TTC Wheel Trans	Winnipeg Handi-Transit	Saskatoon Access Transit	Edmonton DATS
Operation	and 5:00 p.m. daily.		daily	9:00 am to 10:00 pm daily. 6 Day Bookings or Less – M-F; 6:30 am to 10:00 pm, Weekends/Stats; 7:30 am to 10:00 pm.	Friday 7:30am-5pm or Saturday and Sunday 7:30am-noon
Cancelling bookings Process	Phone only, Automated Voice Response system.	Internet RideLine (Touch Tone)	Phone & Automated Voice Response System	Phone and email cancellations	Phone or fax. on IVR Online 24/7.
Cancelling Advance Time	2 hours in advance of trip	N/A	30 minutes in advance of trip	N/A	2 hours in advance of trip
Pick up Window	20 minutes	As requested	5 minutes.	20 minutes	30 minutes
Cancellation/No show rate	2.6%	3.3%	3.6%	9.5%	1.8%

There is one exception. This is in the use of web-technology, providing customers with additional channels of communication and interaction with the system. This essentially extends operational hours for customer tasks such as:

- confirming pick up and drop off times
- cancelling trips,
- booking trips,

to a 24/7 service. The lack of web-based service functions is due in part to outdated and/or unreliable Trapeze 8 software.

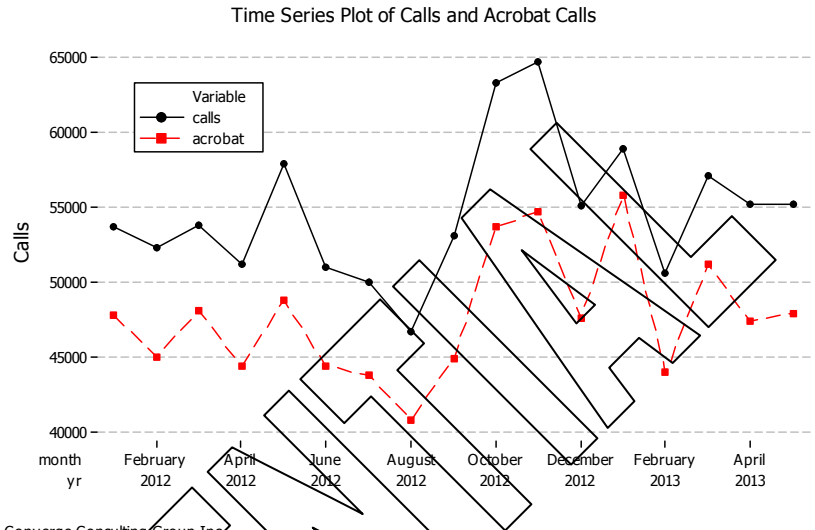
Call Centre Performance

Without web service, Access Calgary is reliant on telephone technology to take customer trip bookings, changes and cancellations. Acrobat, an automated voice response systems provides automated telephone support.

Access Calgary takes in about 55,000 calls per month for all functions (bookings, dispatch, customer service, cancellations) in addition to the 50,000 calls per month handled by Acrobat.

Access Calgary is challenged to handle this level of demand. The average abandoned call rate is almost 15%. This is the rate at which people simply hang-up (give-up) rather than wait for someone to provide some service. That equates to over 8,000 abandoned call each month.

Best practice tends to target a drop call rate of zero.



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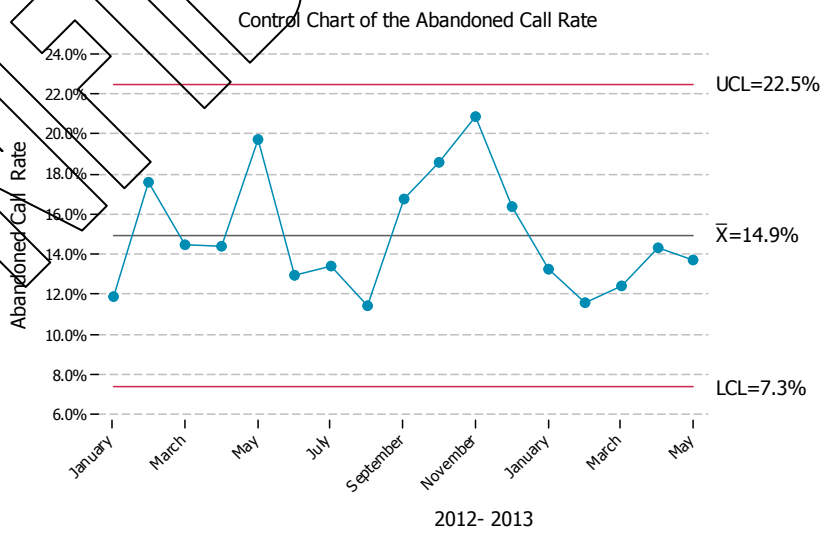
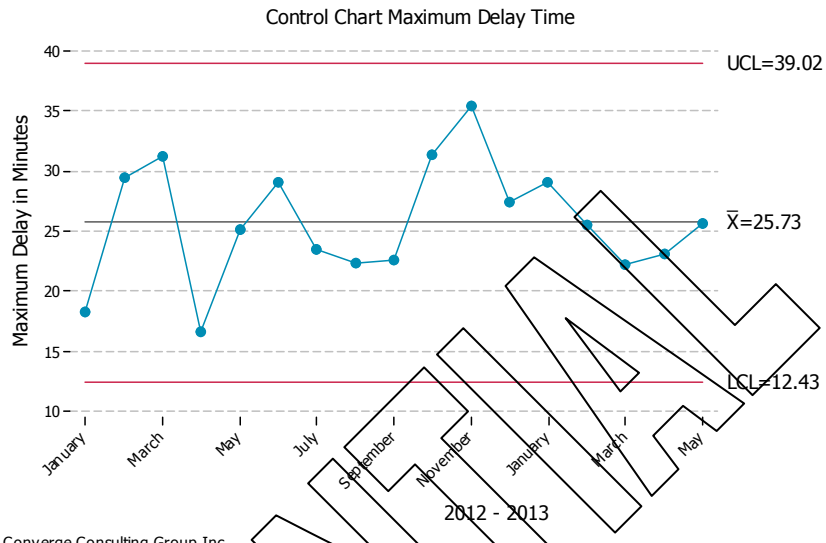


Converge Consulting Group Inc.

A related performance metric is the maximum delay time. This is the maximum recorded time someone holds on the line to obtain service. The average maximum delay time at Access Calgary is almost 26 minutes.

Best practice tends to encourage maximum hold times in the order of two to five minutes.



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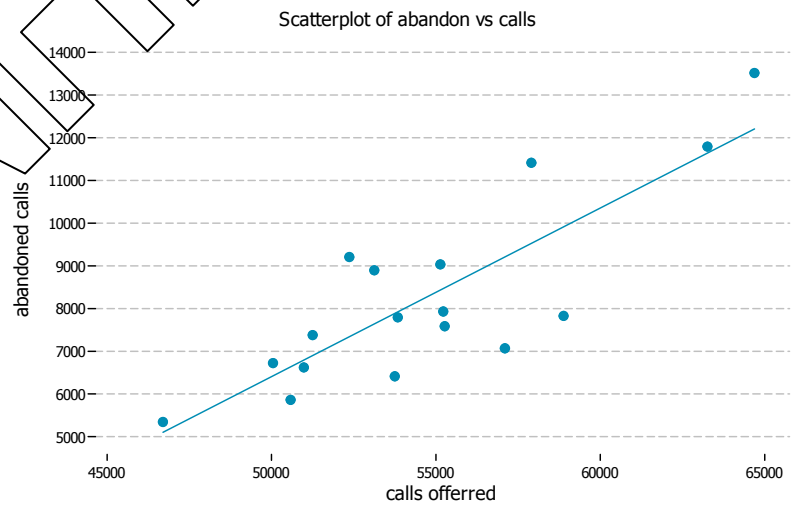
The pattern on the control chart suggest that the Abandoned Call Rate and the Maximum Delay Time are stable. Efforts made in Access Calgary to reduce these times are not working.

Both the abandoned call rate and the maximum answer time are a function of call volume. Simply put, the more calls that come in, the longer the hold times and the more likely call will be abandoned.

This relationship is made clear in the scatter plots detailing the number of incoming calls versus the number of calls abandoned. The analysis uses summarized monthly data but paints a clear picture nevertheless.

This is a pattern displayed when process capacity is not matched to demand.



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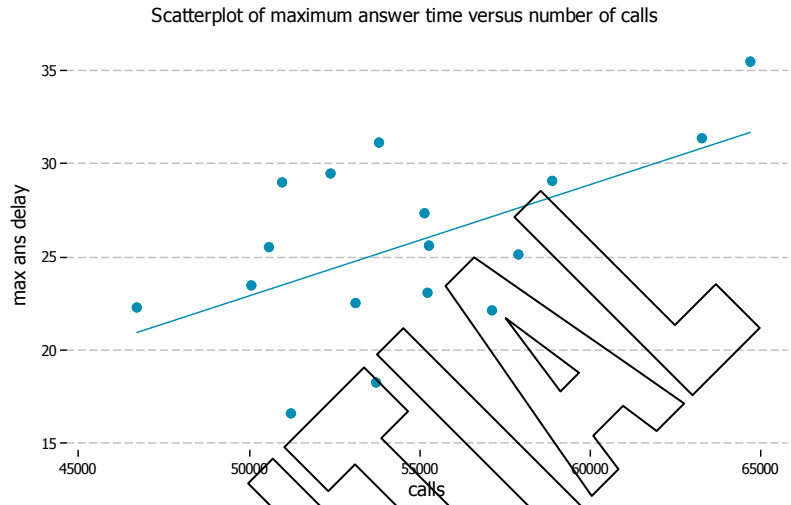
The pattern repeats itself for maximum answer time data. While the fit isn't a strong, the relationship between call volume and hold times is still apparent.

Here again, capacity isn't matched to demand. While specific variation in demand is difficult to predict the data suggest that system capacity isn't close to aligned with demand volume.



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The conclusion is that call centre capacity is not up to the task of handling the existing call volume. More active promotion of Acrobat may help, although the data suggest that further customer use of Acrobat will not occur. Adoption of newer paratransit technology, that can provide web-based booking, scheduling information and trip cancellation may also help reduce the demand volume and thereby, improve telephone-based service quality.

Technology Management

Booking, scheduling and dispatch functions cannot be performed without suitable information technology support in the form of specialized paratransit software.

Access Calgary currently uses Trapeze 8 to provide the level of automation required. This is relatively old software. It is experiencing reliability issues and lacks functionality of newer software products. Access Calgary is currently searching for a replacement.

However, an important issue is how Access Calgary became saddled with critical software that is out of date and unreliable. There appears to be a lack of strategy in the management of information technology at Access Calgary including software upgrade paths and responsibility assignment for the system operating as intended.

A strategy for upgrading the system is now in place. Delays attributable to technology compatibility with MDT's have occurred. However, the new strategy must ensure that:

- an upgrade path is defined, and
- single responsibility assignments are made to assure system reliability.

Capacity Management.

Working within the system of budgeting and financial control at the City of Calgary, Access Calgary has increasingly had to apply system constraints to the reservation, scheduling and dispatch system to control costs and stay within budget. Specifically, setting priorities on the basis of trip purpose.

Trips to go to work are given the highest priority, trips for personal reasons the lowest. From the perspective of public transit delivery, the priority setting process is rational and effective at setting priorities among the various factors driving the demand for service. Nevertheless, in the United States, setting these types of priorities is illegal under the ADA and would earn the City of Calgary significant fines as a violation of basic human rights.

While Access Calgary is not affected by the ADA, this situation does speak to the basic challenge of providing specialized public transit services and the different perspectives brought to the table. Transit organizations may see this as an operational cost control issue. Customers may see it as a human rights issue. As is the case when perspectives differ on matters of principle, there is significant potential for conflict between customers of specialized public transit and the City of Calgary. As one customer put it to us: "What business is it of Access Calgary or anyone why I want to go somewhere?"

It is the purpose of the eligibility process to determine who is eligible for service and who is not. Additional constraints, imposed by setting priorities outside of the eligibility process, may tarnish the image and reputation of Access Calgary and the City of Calgary in how it treats the elderly and disabled in the city.


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Booking, Scheduling and Dispatch Best Practices

Best Practices	Access Calgary
Booking Trips	
On outgoing trips, customers can make reservations driven by using either a requested pickup time or a desired arrival/appointment time.	Yes, Access Calgary supporting software supports reserving trips by pick-up or drop-off times and can backwards calculate to specific pick-up times given a required drop-off time.
If the rider needs to be at the destination at a specific time, the system should calculate a pick-up time, which can then be offered to the rider. Both the negotiated pick-up time and the appointment time should be captured and considered in subsequent scheduling and service delivery.	
If a caller wants to be picked up at a specific time, have the reservationist ask whether there is a set time that the person needs to arrive, so that the reservationist can be sure that the person is leaving enough time to be at his or her destination on time.	This is standard practice with Access Calgary reservation agents.
Use pick-up windows is scheduling pick up times..	Access Calgary uses a 20 minute pick up window.
Constantly educate and inform riders about the pick-up window. Reservationists should make sure that the rider understands the pick-up window by explicitly explaining what it means.	Initial introduction of pick-up windows caused some initial confusion with clients. Access Calgary has been working clear up the confusion and constant communication both verbally and in printed materials is evident.
Where calls are placed on hold, check back with the customer every sixty (60) seconds, if only to confirm that the customer has not been forgotten.	This is not done.
Communication tools	
Use tools like Rider Guides and trip information note pads to encourage customers to write down the information regarding their trip.	While guidebooks and customer handbooks exist, there are no specialized note pads or similar devices in place.

Best Practices	Access Calgary
Use return-trip appointment cards for customers traveling to medical appointments. Upon arrival, the customer can give the card to the receptionist and ask that the agency be informed if the appointment will be running past the scheduled pick-up time.	Currently not done.
Provide customers with a "cheat sheet" that offers clear and simple explanations of the way the agency defines such things as the requested pick-up or drop-off time, the negotiated pick-up time, the scheduled pick-up time, the estimated time of arrival and the actual pick-up time.	Access Calgary publishes a Handbook. However, this does not specifically address pick-up windows and the relationship to driver pick-up and wait times or drop off times. A graphical representation on an easy to read card that could be posted near the phone might assist.
Performance measurement	
Measure telephone/call centre performance and establish minimal acceptable standards.. For example: ▲ Answer all calls within five (5) rings or less; ▲ No calls on hold for more than two (2) minutes; ▲ Zero drop call rate.	Performance measurements are in place and include measures of overall answer delay, answer delay bookings, answer delay dispatch, call length bookings, call length dispatch, % answer delay, max. call wait, call offered and answered, abandoned calls. Actual performance levels are below best practice standards.
Reporting call centre time intervals should be no longer than thirty minutes. Process capacity capability analysis should be used to properly understand call centre response.	Reporting and analysis of data is poor, relying on outdated analysis tools. No process capability analysis conducted.
Operations performance tracking	
Ensure that on-time performance standards are complete and include: ▲ Clear definitions of "on-time" and pick-up windows, ▲ Clear definition of "on-time" arrival/drop off including any drop off	Yes, Access Calgary has clearly defined its pick-up window and on-time definitions..

Best Practices	Access Calgary
windows, ▲ Whether an "on-time" arrival is designated when no appointment is involved.	
Set maximum trip time performance standards and measure against this standard. Consider having different thresholds depending on trip length (e.g., no more than sixty (60) minutes for trips less than ten (10) miles and no more than ninety (90) minutes for trips more than ten (10) miles in length.	Access Calgary works to a single maximum trip time standard of 90 minutes. It meets this standard 98% of the time. It also works to a set of tiered standards as follows: ▲ where Direct Travel Time is less than 8 minutes, the max OBT would be 30 Minutes ▲ where Direct Travel Time is between 8 and 15 minutes, the max OBT would be 45 Minutes ▲ where Direct Travel Time is between 15 and 20 minutes, the max OBT would be 50 Minutes ▲ where Direct Travel Time is between 20 and 25 minutes, the max OBT would be 60 Minutes ▲ where Direct Travel Time is between 25 and 35 minutes, the max OBT would be 75 Minutes ▲ where Direct Travel Time is greater than 35 minutes, the max OBT would be 90 Minutes
Capture and categorize all trip denials to more accurately monitor and assess performance.	Yes, Access Calgary maintains a waitlist for trips that cannot be booked immediately. Waitlist trips are accommodated.
Ensure that critical performance monitoring reports are regularly prepared and published, including reports on telephone call processing, trip denials, on-time performance, trip length, missed trips, accidents and incidents and complaints.	Access Calgary publishes regular management reports on most of the topics listed.

Best Practices	Access Calgary
Review and determine causes of late trips, including the possibility of ▲ Poor reservation and scheduling practices resulting in manifests that include incorrect addresses, times or other information; ▲ Tight scheduling parameters or overbooking runs that result in unrealistic manifests; ▲ Inadequate vehicle or driver backup; or ▲ Poor dispatching practices that create barriers to adjusting runs when in-service problems arise.	Yes, Access Calgary regularly investigates causes of late trips, usually selecting the lowest performing (most late) trips in a given time period.
Establish a reasonable standard for on-time performance of between ninety and ninety-five percent (90-95%). Lean: Performance standard is 100%	Access Calgary is currently performing to just over 90% of on-time arrival.
Establish effective in-office monitoring and secret rider/secret client programs. For secret rider/secret client programs, develop observational checklists to standardize the information collected, including but not necessarily limited to telephone service and hold times, requested versus offered trips (and trip denials), trip dates, origin and destination information, actual pick-up and drop-off times, driver and vehicle identification information, driver assistance and performance, vehicle and equipment operation and condition and general observations and comments.	These are not conducted for in-office monitoring. Secret rider/secret client programs are not without controversy and are increasingly being replaced with customer experience management programs.
Technology	
Implement paratransit software to facilitate the entire process from creating databases of eligible passengers, determining trip eligibility, scheduling the trip, developing the trip manifests, monitoring trips made, producing required financial transaction data and capturing complaints and service	Access Calgary currently uses Trapeze 8, an older version of the Trapeze paratransit software. System functionality is reported as good, although Access Calgary has never been able to take advantage of this functionality. System reliability

Best Practices	Access Calgary
issues.	has been an issue for Access Calgary. Access Calgary is currently investigating replacement options for Trapeze.
Ensure paratransit software permits ease of access to database to facilitate data download, analysis and reporting.	Access to Trapeze 8 data base requires use of report writing software to pull data from data base.
Use multiple communication channels to provide customers with booked trip information. This includes automated telephone voice response, web-based client look up on standard and mobile devices	Access Calgary is limited to automated voice response (phone) service. No web services are available.
Use multiple communication channels to provide customers with opportunities to cancel or amend trips. This includes automated telephone response and web-based options.	Cancellations are restricted to automated voice response (phone) service. No web services are available.
Ensure clients are informed of all trip schedule changes by preferred communication selected such as phone or email.	Access Calgary informs customers of trip changes of 10 minutes or more difference from the original booked time.
Encourage multiple methods of client booking including phone and web-based media.	Access Calgary is limited to phone and fax service. No web services are available.
Schedule Optimization	
Regularly review long runs and identify travel that "doubles back" for elimination in future service.	Access Calgary examines routes and makes adjustments on an ad hoc basis
Run schedule scenarios using paratransit software to test service schedule and route redesign alternatives.	Work is currently done with parameter testing, vehicle utilization, and timing change reductions. .

Booking, Scheduling and Dispatch Issues, Concerns & Recommendations

Component	Description	Observations/Recommendations: Booking, Scheduling, and Dispatch
Automated voice response (Acrobat)	Customers voiced a number of complaints about the Acrobat automated voice response system. Tough to understand the robotic electronic voice. Automated booking system can have long waits. Promo messages can be skipped by pressing a number, but not everyone knows this. Automated callbacks are only done when pick-up times are adjusted by over ten minutes. This has produced confusion. Some clients believe the system doesn't call back for any changes. Questions about who is responsible for what—is the client responsible for checking or is Access Calgary responsible for informing customers of changes.	Access Calgary should use multiple channels of communication with its customers. This should include web-based methods for: ▲ informing customers as to their schedule, and ▲ cancelling unwanted trips Customers should be informed of all scheduling changes regardless of time involved. This information should be conveyed by consumer preference: ▲ phone, ▲ email, or ▲ both.
Call Centre/Telephone Capability	The call centre does not have the capacity to manage the incoming call volume. The extent of the problem is difficult to fully assess because performance measurement and reporting are using outdated tools (Excel). Nevertheless, the abandoned call rate is close to 15%. That's about 8,000 abandoned calls per month. The maximum hold time (a less reliable statistic) in any one month is averaging close to 26 minutes. Both these results are far poorer than recommended best practice.	Once web-based functions are introduced, Access Calgary must conduct a process capability study to properly assess capacity alignment with incoming call demand. Performance objectives need to be established. Performance analysis and reporting must use up to date tools using capability

Component	Description	Observations/Recommendations: Booking, Scheduling, and Dispatch
		analysis to guide decision making.
Priority Setting & Capacity Management	During booking process, customer agents will inform customers of their pick up times and let the customer know when they can expect to be picked up. If this cannot be decided during the booking process, customers go on a wait list. Currently, Access Calgary everyone on the wait list is accommodated. Customers are called back with pick up time. However, mandatory, vocational, and work trips, are given priority over personal trips. Some personal trips on the wait list may be moved to the following day. This has given rise to a number of concerns by customers. They see this as a violation of rights (not as a service issue). Further, some customers report arbitrary changes to trip categorization—from vocational to personal for example.	Capturing the purpose of the trip for planning and scheduling with the customer is desirable. Trip purpose, however, should not be used as a means of priority setting beyond that which can be negotiated over the phone with the customer at the time of booking. Access Calgary needs to amend its budget figures to ensure trips are delivered to customers regardless of purpose.
Information Technology	Current Trapeze 8 software, issues include: ▲ Poor reliability (for critical operational software) combined with an inability to track down and resolve root causes of reliability issues, ▲ Lack of responsibility for Trapeze operational performance (he said/she said problem solving), ▲ Inability of Access Calgary to take advantage of full functionality of the software, ▲ Overwhelmed IT staff cannot provide the level of support required of Trapeze,	Access Calgary must replace its existing Trapeze 8 technology. This should not be done within the existing divided responsibility framework. Implementation of replacement technology, therefore, should be assigned to: ▲ Access Calgary, or ▲ the successful vendor. The latter option implies a software as

Component	Description	Observations/Recommendations: Booking, Scheduling, and Dispatch
	▲ Poor route/scheduling design, and ▲ Dated technology. Access Calgary is currently in the process of replacing Trapeze 8. Three vendors have responded with proposals.	service (SaaS) model, also referred to as cloud computing, where both hardware and software are located with the vendor. This is becoming an increasingly popular option with IT departments generally.
Cancellations	Clarify and cement the group cancellation policy. Customers understand that if one member of a group booking cancels, the whole group is cancelled. This sometimes happens. However, Access Calgary usually maintains the group booking with a single cancellation. Each trip is cancelled separately. A client cancelling a trip in one direction (from home to work) isn't cancelling the return trip (from work to home). This can lead to various no shows on the part of the customer.	Group bookings of 4 should only be cancelled when two or more cancellations are experienced. Group bookings of more than 4 should be cancelled whenever the number of passengers drops below 4. Acrobat and web-based trip cancellation (when implemented) should recognize return trips and advise the customer of the option to cancel return trips.

Transit Operations

Delivering the Ride

Once a daily schedule has been produced and drivers have been provided a daily manifest transit operations can begin. Transit operations consists of two core functions than must work in a highly integrated fashion for safe, effective and efficient delivery of specialized public transit. These functions are:

Service Delivery, where the rubber meets the road—literally. Service delivery encompasses the actual operation of vehicles that pick up, transport and drop off customers to desired locations. Access Calgary does not directly operate this function. Service delivery is through a contracted out model where vehicles and drivers are supplied through independent, third party, providers.

Day of Service (Trip Management), managing short notice variation in service delivery including cancellations, no shows, vehicle breakdowns, same day requests for transit, transit vehicles failing to show or pick up passengers, route adjustments for construction or weather and all the other operational problems that can arise.

In addition, a third auxiliary function is encompassed by transit operations:

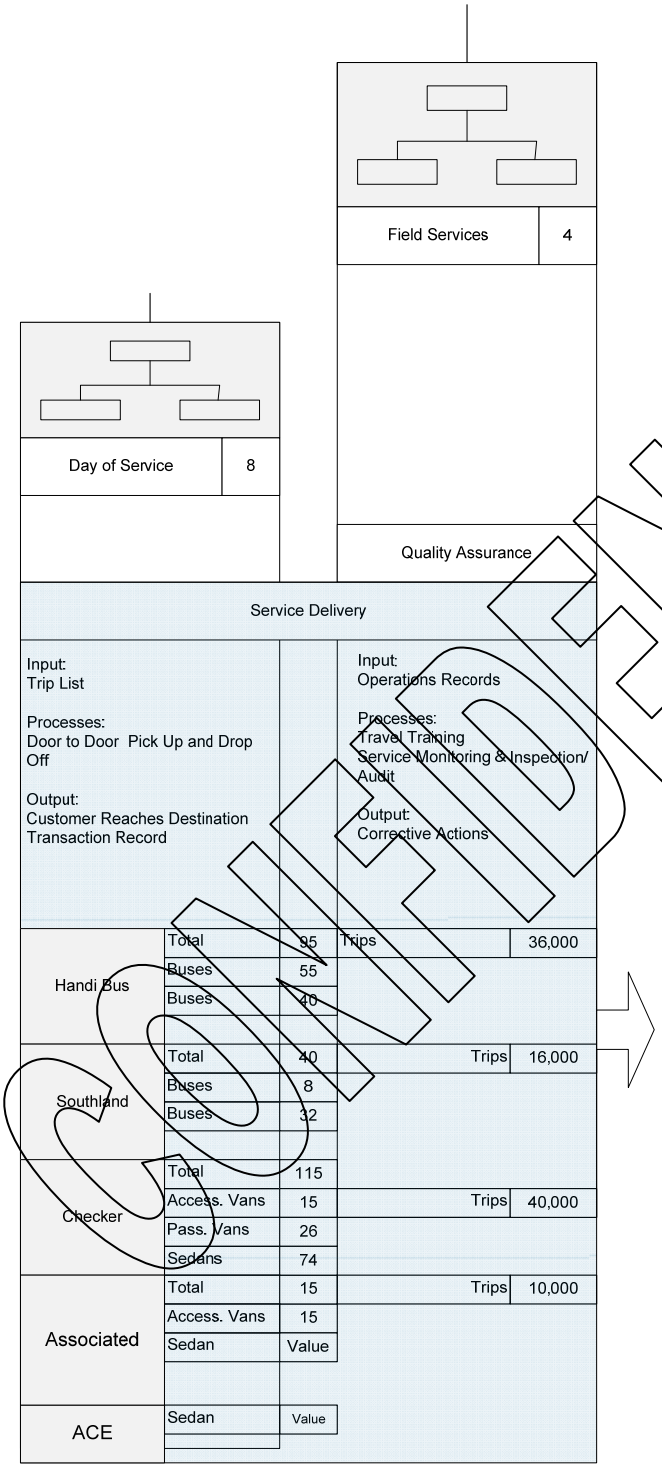
Field Services, providing quality assurance on service delivery. This includes providing travel training and related programs to customers as well as examining operations to ensure service operators are delivering quality standards.

Service Delivery

The core of these operations are vehicles picking up, transporting and dropping of passengers. Like all specialized public transit, Access Calgary service is door to door. When a driver goes to a location, he is expected to go to the customer's door, provide basic assistance to the customer in getting to, and in, the vehicle. Drivers can only provide basic assistance and are not permitted to provide physical assistance or weight support directly to the passenger. This is largely because of liability issues. (hurting themselves, hurting the customer, sexual harassment, etc.). Customers needing physical assistance require an accompanying caregiver. In some cases, the loading of customers with powered wheelchairs for example, requires drivers to follow specific protocols (direction of chair, power up/down, and so forth).

Once in the vehicle, drivers must ensure passengers are properly secured. There are varying types of security devices depending on the type of vehicle and the needs of customers. Highly specialized five point harnesses, for example, are used with some types of wheelchairs. This process repeats itself for each passenger that is picked up along the route.

operations overview



Function

Ensuring trips are delivered as promised.

Input:

(i) manifests

(ii) phone calls from customers and service providers.

(iii) inspections of operation

Output:

(i) completed ride

(ii) inspection reports

Organization

Service delivery uses a contracted out model. Four primary service providers are:

- Calgary Handi-Bus
- Southland Transportation
- Checker Cabs
- Associated Cabs

Day of Service is managed internally by Access Calgary as is the quality assurance function which is managed through field services.

Operations/Process

Drivers deliver trips based on manifests

Day of Service operations adjusts manifests based on short notice variations that must be managed (i.e.; cancellations). These usually come in by telephone from either customers or drivers.

Field Services conducts customer training, ride-along and other field inspections.

Dropping off passengers is also done door to door, that is to specific locations/addresses rather than fixed transit stops. Here again, specific protocols may guide the unloading procedure depending upon the needs of customers. In some cases, particularly when customers are travelling to day programs, specific hand-off procedures are required.

Day of Service Management

Day of service management is critical for ensuring an efficient system. The Operations Centre must be available to deal with any changes or disruptions that the system encounters. A lot can go wrong:

- customer no shows,
- customer cancellations,
- vehicle no shows,
- vehicle running late,
- vehicle breakdowns,
- new day of service trip requests,
- construction,
- vehicle accidents
- customer accidents (i.e.; a fall)
- weather and road conditions, and
- even the occasional flood.

It is the job of the Operations Centre to take in this information (usually through phone calls and electronic messaging from drivers and phone calls from customers) and manage the disruptions.

The flow of timely information makes all this work. Dispatchers must know where the vehicles are should it be necessary to re-route or change a run. Vehicle operators will check in with the dispatcher in the event of a problem (running late, no-show), so that dispatchers can make the necessary adjustments to the schedule. Customers will typically call in when their ride hasn't arrived on schedule.

Where used in Access Calgary, MDTs improves the flow of communication by updating location and trip information back to the Operations Centre. If dispatchers are aware that a vehicle is running late, they may be able to reassign trips so as not to disrupt the rest of the daily schedule.

The Operations Control Centre also does same day booking and handles service enquiries; "Where's my ride?"

service hours

	Calgary Access Calgary	Toronto TTC Wheel Trans	Winnipeg Handi-Transit	Saskatoon Access Transit	Edmonton DATS – Disabled Adult Transit Service
Hours of service	Monday - Sunday 6 a.m. - 12 midnight 365 days a year	24 hours	Monday-Friday - 6am-24:00 Saturday – 7am- 24:00 Sunday- 8am-22:00	6:15 am to 11:45 pm Monday to Friday 8:15 am to 11:45 pm Saturday, Sunday, and Holidays	Monday to Thursday 6am-11pm Friday 6am-midnight Saturday 6:30am-midnight Sunday and Holidays 6:30am-11pm

The Service Fleet

In contrast to fixed route public transit that relies heavily on standardization to deliver effective services, including standardization of vehicle type, specialized public transit public makes use of a variety of vehicle types. These range from large buses capable of holding about 8 wheelchair passengers to regular taxis used for ambulatory and usually older customers.

The nature of specialized public transit fleets has been changing. Twenty years ago, the focus was on larger buses. System efficiencies were thought to be gained from economies of scale. Specifically, large buses required one driver for a larger number of passengers. Smaller buses and individual taxi's, with smaller driver to passenger ratios were assumed to be less productive and therefore, less efficient.

This thinking is changing. Some jurisdictions have been experimenting with smaller vehicle sizes, taking advantage of economies of flow. Early indications are that these efforts are proving themselves at improving quality of service while reducing overall system cost.

Access Calgary Fleet

	Total Vehicles	Large Access. Bus	Mid Access. Bus	Accessible Vans	Passenger Vans	Sedans
Capacity WC		8	6	1	0	0
Capacity Ambulatory		14	8	4	6	
Handi-Bus	95	40	55			
Southland Transportation	40	8	32			
Checker Cabs	115			15	26	74
Associated Cabs	15			15		

Source: Converge Consulting Group Inc.

Economies of flow takes advantage of the diseconomies of scale associated with large buses. The greater the number of passengers, the longer the routes and the longer the average time passengers will spend on the bus for each trip. Further, the impact on schedule and cost resulting from service disruption is greater on larger vehicles.

In other words, big vehicles are more economic 'in theory', when everything works according to the schedule. The more day of service disruptions, the less economic are larger vehicles. This is why specialized transit services spend so much effort at trying to prevent disruptions (such as customer no shows) and manage them when they occur, to maintain the load factor (proportion of seats occupied on any run).

The net effect has seen some organizations moving slowly to reduce the vehicle size of their fleets in an effort to increase flexibility and economies of flow. This must be done carefully to achieve a balance between economies of scale and economies of flow.

Access Calgary has achieved a smaller average vehicle size through the introduction of accessible minivans with Associated and later with Checker. The use of non-accessible minivans and sedans has further reduced average vehicle size.

Average vehicle size was also reduced when Access Calgary contracted with Southland for bus service because the Handi-Bus fleet has a higher proportion of larger buses.

Comparative Operations & Performance

Comparative transit operations characteristics and performance is presented below.

comparative operations and performance metrics

	Calgary Access Calgary	Toronto TTC Wheel Trans	Winnipeg Handi-Transit	Saskatoon Access Transit	Edmonton DATS –
Annual Trips	1.2 M	2.9 M	500 K	130k	900 K*
Fleet Size	Accessible Buses 135 Accessible Vans 15 Vans 30 Sedans 100	Accessible Buses 241 Accessible taxis 162 105 Sedans	Accessible Buses 15 Accessible Vans 20 Cars 30	Accessible Buses 26	Lift vans 98 Accessible Vans/Mini Vans/Accessible taxis 67
Cost per trip	$25	$33	$19	$31	$32
Service Delivery Model	Contract Out / Hybrid	Internally Operated	Contracted Out	Internally Operated	Hybrid
Percentage of requested trips accommodated	99%	96%	99%	90.2%	99%*
On board time objective (maximum minutes.)	90	90	90	60	90
On board time performance.	98%	99%	N/A	N/A	99%*
On time arrival performance	90%	85%	N/A	N/A	93%*
On time drop-off performance.	93%	85%	N/A	94%	99%*
Cost per trip	$25	$33	$19	$31	$32

Source: Data provided by comparative jurisdictions

Percentage of requested trips accommodated

Percentage of requested trips accommodated is a critical metric because it goes to the heart of the requirements laid out by the ADA. The standard is 100% because of the civil rights implications (although there is recognition within the ADA administration that this may be impossible to obtain from a practical standpoint).

Access Calgary reports that it accommodates 99% of the trips requested. This is in line with other jurisdictions with the exception of Saskatoon that reports accommodating approximately 90% of trips requested. Not surprisingly, specialized public transit has become a political issue in Saskatoon (see article in Appendix) and Regina that has a similar denial or failure rate.

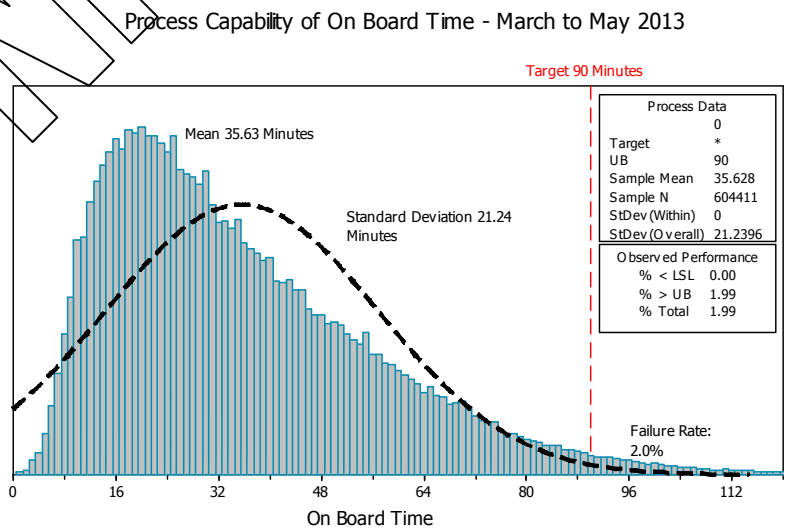
This speaks to the importance of maintaining performance at, or reasonably close to, 100%. As the failure rate increases, so does the potential for negative customer and citizen reaction. Reaction fuelled by perceptions of this as less a service level issue and more of a civil rights issue.

Observation/Recommendation: Trips Accommodated. Access Calgary budgets and operational planning should incorporate the 100% standard in this performance metric. In other words, a 0% failure rate.

On board time

All comparative specialized public transit services have set maximum on-board time service objectives of 90 minutes except again, Saskatoon, which is the smallest of the cities in the comparison group. Unlike percentage of trips accommodated, on-board time performance is much more a service level issue than a human rights issue.

A detailed examination of on-board times for trips taken between March and May of this year confirmed Access Calgary's 98% performance level against the 90 minute service level standard.



Source: Data, Access Calgary. Analysis, Converge Consulting Group

Observation/Recommendation:

Access Calgary budgets and operational planning should incorporate meeting the 90 minute standard in 100% of trips. In other words, a 0% failure rate.

Access Calgary should examine the relationship between trip length, vehicle size and passenger travel time for the purpose of:

- creating tiered travel time standards and,
- providing information useful in determining the economics of vehicle size and route length.

On-time arrival and drop off performance

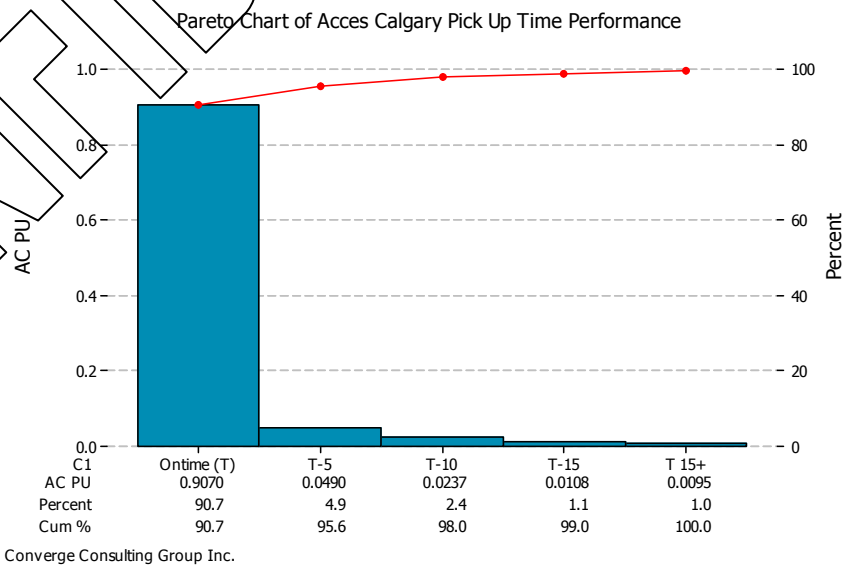
Access Calgary's on-time arrival and drop off performance is largely in line with the other comparative jurisdictions. Both for pick-up's and drop-off's, Access Calgary's on time performance runs about 90%.

While this is in keeping with the on-time performance of other jurisdictions, we believe significant gains can be had in customer satisfaction and system performance generally if specific efforts were made to reduce the failure rate on both arrival and drop off performance.

On-time performance was of material significance to customers in the Voice of the Customer analysis of service elements. These findings are reflected in customer feedback session workshop conducted as part of this review as well.

We believe reducing arrival and drop off time performance can best be accomplished by focusing improvement efforts on arrival times.

On – Time Performance



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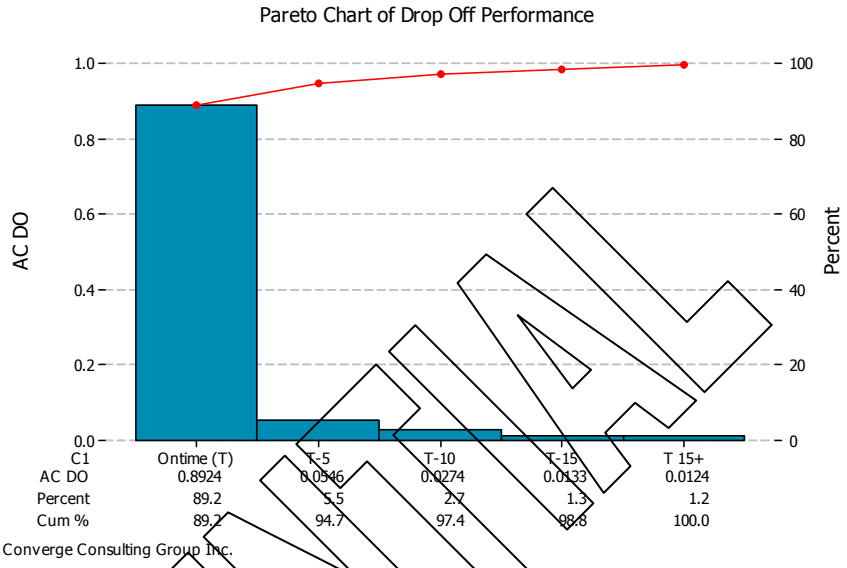
Doing so would:

- provide focus to the improvement effort,
- produce ancillary benefits in terms of improved drop-off performance, and
- reduce the number of incoming enquiry calls for day of service operations.



An arrival-time improvement initiative would have to encompass all of Access Calgary providers if only because there is so little variation among them. This indicates the current failure rate is 'built-in' to the scheduling and planning parameters used by Access Calgary in designing routes.

On Time Performance

	Handi Bus		Checker		Associated		Southland		Access Calgary	
	Pick up	Drop off	Pick up	Drop off	Pick up	Drop off	Pick up	Drop off	Pick up	Drop off
On time (T)	91.19%	87.08%	90.16%	92.89%	90.72%	89.17%	91.10%	83.68%	90.70%	89.24%
T-5	4.80%	6.44%	5.14%	4.04%	4.89%	5.61%	4.41%	7.06%	4.90%	5.46%
T-10	2.26%	3.21%	2.62%	1.69%	2.24%	2.97%	2.21%	4.07%	2.37%	2.74%
T-15	0.97%	1.77%	1.20%	0.76%	0.99%	1.04%	1.19%	2.67%	1.08%	1.33%
T 15+	0.79%	1.50%	0.88%	0.62%	1.16%	1.20%	1.09%	2.53%	0.95%	1.24%

Source: Access Calgary

As such, improving arrival time performance will only be had by a systemic effort involving the redesign of routes.

Observations/Recommendations: Arrival Time Performance

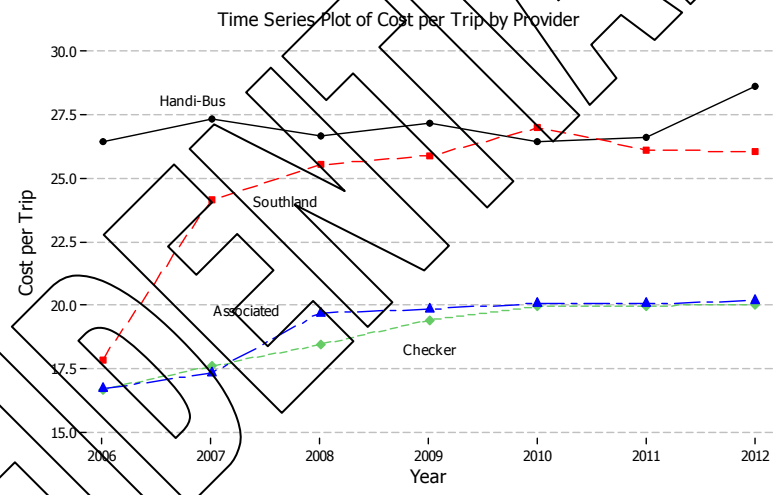
Improving arrival time performance should be a strategic initiative of Access Calgary. The performance objective should be 0.0%. An actual performance level of 95% should be sought within the next 2 years.

Operator Cost of Service

Access Calgary has managed to effectively control operator cost of service. The flexibility of the contracting out/multiple provider model in use has played a big role in that. Access Calgary is able to move rides from one operator to another in response to the cost structure of various providers at:

- a strategic level, assigning projected trip volumes and types to various operators, and
- an operational level in the manual adjustment to routes that occurs in the Scheduling area.

The net effect can be seen in the time series plot of cost per trip by provider.



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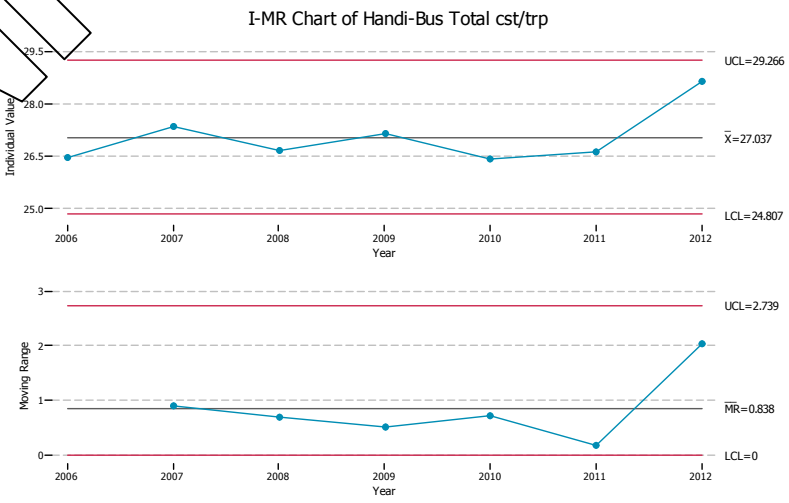
While start up phases seemed to incur high level of growth in per trip costs, these costs have been stable for the past three years. An exception has been the rise in per trip costs at Calgary Handi-Bus in 2012.

This was large enough for us to conduct a control chart analysis of these costs for the period 2006 to 2012.

The purpose was to determine whether the spike in 2012 was sufficient to conclude that it represented a significant change in operating cost at Handi-Bus.

The control chart analysis indicates that it is not. But it was nevertheless sufficient close to serve as a warning indicator.



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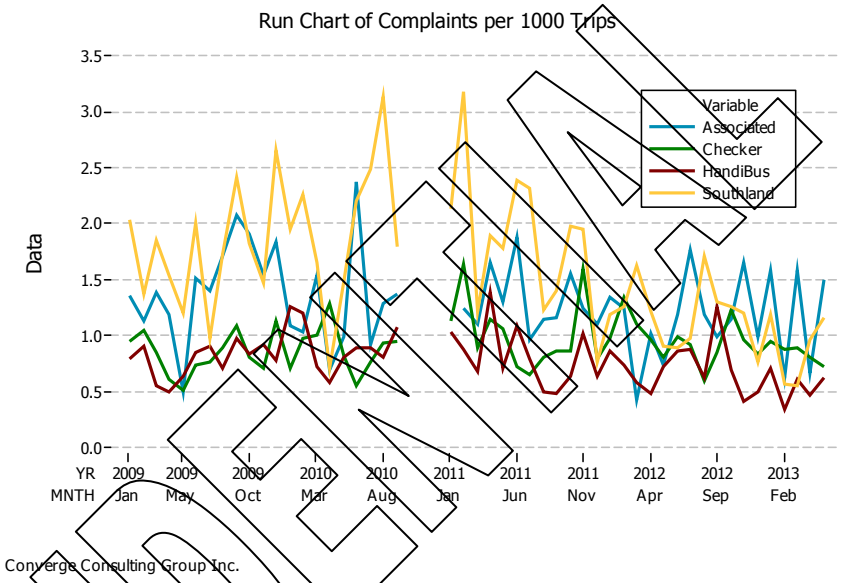
Customer satisfaction with service providers

As Access Calgary transitioned to the new operating model, customer complaints rose significantly. The bulk of these complaints concerned the two new service providers: Southland and Associated.

This can be seen clearly from the data from January 2009 to August 2010. Since that time, however, complaints with both these providers have dropped significantly.

The rate of complaints concerning trips taken on Southland are still higher in volume than Handi-Bus, but not to any significant degree. Likewise, the results for Associated relative to Checker.



These results are confirmed in the Voice of the Customer analysis conducted in support of this review. Materially significant differences would show up as a minimum 2 point difference in the median scores of the various operators. These, however, are not present with all operators scoring medians of 7 (out of a nine point scale).

voice of the customer satisfaction results with operators

Questions	Mean	Median	Category Percentages 0 20 40 60 80 100	Good	Neutral	Poor
11. Please rate the service provided by Calgary Handi-Bus	7.06	7.0		78.5%	16.3%	5.2%
12. Please rate the service provided by Southland Transportation	6.41	7.0		64.3%	28.0%	7.7%
13. Please rate the service provided by Checker Cabs	6.74	7.0		68.8%	26.9%	4.4%
14. Please rate the service provided by Associated Cabs	6.59	7.0		64.8%	29.7%	5.5%
Overall Averages	6.70	7.00		69.1%	25.2%	5.7%

Source: Converge Consulting Group, Voice of the Customer Survey

This doesn't mean that customers can't see a difference. Mean scores and proportion rating the service good do differ among operators. Hand-Bus scores high than Southland and Checker scores higher than Associated. It just means that these differences are not all that important to customers.

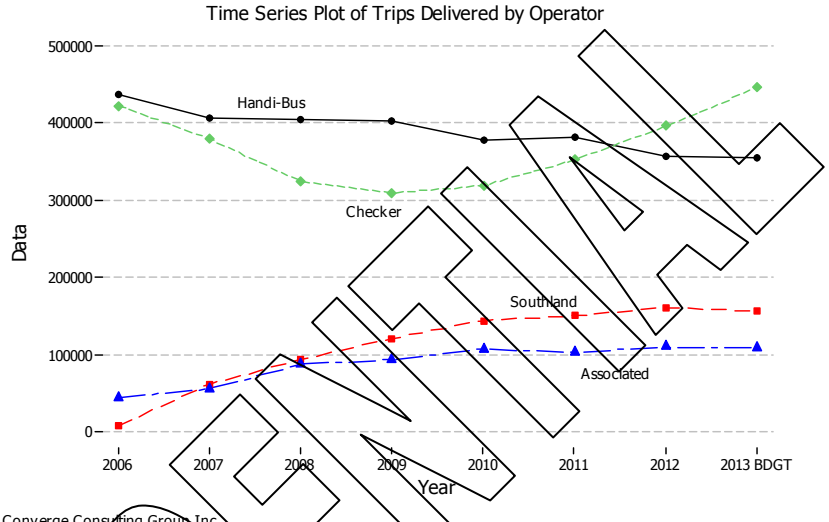
Trip Allocations

Access Calgary has been changing the allocations of trips to various service providers in response to demand and cost.

Many of Access Calgary's customers equate Access Calgary with Handi-Bus. While Handi-Bus does provide a significant portion of the work, Checker now provides more trips.

Similarly, a pattern of Southland and Associated taking on larger shares of the work have also emerged, although this has flattened out of late. This has meant a de facto allocation of trips to providers with smaller vehicles.

It hasn't however, meant a reduction in the proportion of shared rides. This has remained relatively stable at about 80%.



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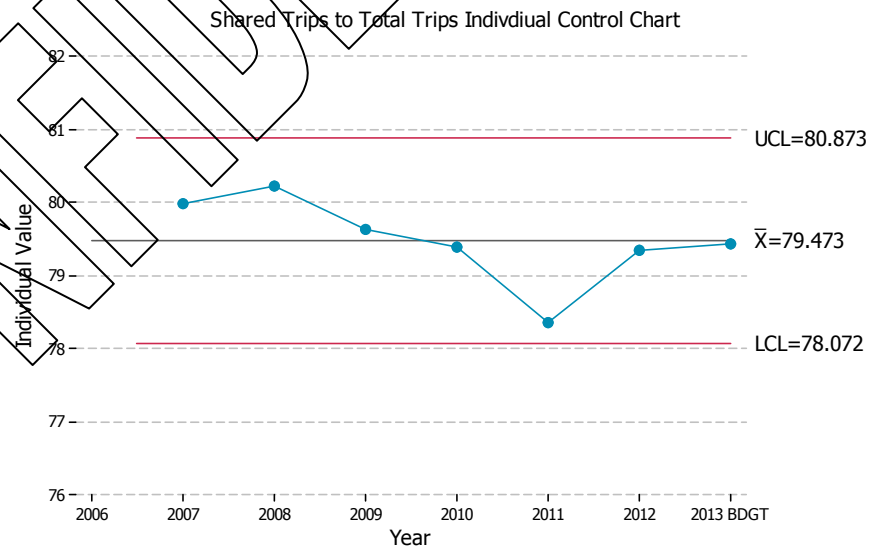

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Transit Operations Best Practice

Best Practice	Access Calgary Observations
Service Delivery Model	
Increasingly, service delivery models are moving to contracted out models where vehicles and drivers are provided by a third party supplier contracted to provide a level of service. This is in contrast to internally service delivery models where the municipality maintains ownership of the vehicles and employs the drivers. Cost is the primary driver behind this transition.	Access Calgary operates under a contracted out model. Bus services are provided by Calgary Handi-Bus and Southland. Lift vans and sedans by Checker and Associated. Consistent with best practice observations, this model has proven itself to be cost effective.
Fleet Characteristics	
Use non-dedicated vehicles to supplement existing system. Experience is demonstrating that use of non-dedicated vehicles, such as taxis, is effective at reducing operating trip costs.	Access Calgary has longed used taxi services to augment and assist with specialized public transit operations. In addition to the use of Checker and Associated cabs, Access Calgary also operates the ACE program that allows customers to book cabs of their choice at a discount. This provides additional flexibility and choice to customers.
Move to smaller vehicles. Larger vehicles have greater cost sensitivity to variation arising from operating disruptions to the planned schedule, including vehicle breakdowns, no-shows, running late, construction on planned routes, traffic volume, etc. In response, operators are beginning to explore moving to smaller vehicles more flexible to and less cost sensitive to variation in the schedule.	When Access Calgary expanded its service delivery model to include Southland, it reduced its average vehicle size in the fleet. The Handi-Bus fleet is weighted toward larger bus sizes, with 42% of the fleet classified as large buses compared with Southland's 20%. A similar reduction took place as Checker and Associated provide lift vans (30 in all) to the fleet.

Best Practice	Access Calgary Observations
Service Design	
Feeder routes using specialized public transit to take passengers from their door to existing fixed route transit stops is emerging as a best practice with some jurisdictions.	Access Calgary has not experimented with nor identified any potential feeder routes.
Seniors/Community routes where specialized public transit service is provided within specific communities. These generally target specific customer groups such as seniors.	Access Calgary has not experimented with nor identified any potential seniors or community routes.
Operators and Operating Techniques	
Establish a policy that, when there is an in-service lift or ramp failure, vehicle operators may not leave the pickup location until they receive instructions from dispatch and inform the waiting rider what to expect. This policy should be included prominently in any public information on accessible buses, so riders know the procedure has not been followed if a driver pulls away without contacting dispatch and then informing the rider about what to expect.	Drivers cannot pull away without instruction from Dispatch function.
Institute a "Defect Card" or similar system that is kept on the vehicle and completed by the driver, if equipment fails in service. The vehicle operator notes the problem and leaves the card with the vehicle at the end of the shift. This alerts maintenance crews to the need for a repair or check.	This is responsibility of operators.
Improvement	
Establish regular in-house, peer and other external reviews of operations to determine opportunities for improvement.	Access Calgary makes use of peer reviews and other Canadian industry initiatives.

Best Practice	Access Calgary Observations
At least once each year, have senior operations staff use wheelchairs to travel the system on both fixed-route and complementary specialized public transit vehicles to better understand the current customer experience and identify opportunities for improvement.	Access Calgary senior staff must participate in ride along's on specialized public transit. There is no requirement to use wheelchairs to travel the fixed route system.
Driver Route/Customer Matching	
Align specific drivers with different customers and customer types. Many drivers have a personal involvement or interest with different customer groups. Aligning the driver, not just the vehicle, with customer needs can also produce a level of consistency and personalization in the quality of service.	Access Calgary tries to match specific drivers to specific routes. However, schedule changes and labour agreements make this difficult to achieve.
Align drivers with subscription routes. Aligning drivers with specific subscription routes can also produce a degree of reliability and personalization of service as perceived by the customer.	Access Calgary tries to match specific drivers to specific routes. However, schedule changes and labour agreements make this difficult to achieve.
Fixed Route System Integration/Accessibility	
Make low-floor buses the standard for all fixed-route fleet purchases.	Access Calgary provides accessibility oversight on fleet purchases. Calgary Transit only purchases low floor buses. Currently 85% of buses are accessible. Target for 100% by 2015
Make sure all fleet purchases include vehicles with a kneeling feature and ensure that operators are making the feature available to customers.	Calgary Transit purchases only low floor buses with kneeling features and ramp standard. Options for LRV to further improve accessibility.
Use larger destination signs that are more easily read and understood.	Access Calgary in consultation with the CNIB developed the signage in use on Calgary Transit buses. Destination signs on LRV vary.

Best Practice	Access Calgary Observations
	Customer information signs at LRT stations are in process of implementing CAD/AVL signs providing announcements on buses.
Adopt "universal design" standards and elements that facilitate accessibility and useful of both fixed-route and complementary transit vehicles.	Yes, standards approved by City Council.
Develop vehicle standards in consultation with the local disability community.	Yes, customer input is increasingly being sought. Input directly impacted accessible taxi selection.
Use efficient and effective wheelchair restraint equipment that ensures customer safety while minimizing transit delays.	Same restraint equipment is in use on fixed route and specialized public transit vehicles. More user friendly restrains are being investigated.
Look for opportunities to provide off-vehicle equipment such as enhanced message boards, more protective bus shelters, seating where a bus shelter is not available and readily accessible ticketing systems that further facilitate ease of use for both fixed-route and complementary specialized public transit services.	Calgary Transit and Access Calgary are investigating the use of electronic fare cards.
Create and implement a Bus Stop Checklist Program, considering issues such as sidewalk presence and condition near the bus stop, roadway crossing treatments near the bus stop (crosswalks, pedestrian signals, pedestrian push-buttons, pedestrian signal timing, audible warning signals), path of access between the sidewalk and bus stop boarding area, readability of bus stop signs, obstructions at bus stop and bus stop shelters and seating.	Field Services have a bus stop inspection program in place.

Field Services

Field Services largely fills a quality assurance function within Access Calgary. Four people, including a travel trainer, are assigned to this function. Field Services is a relatively new unit within Access Calgary. A previous unit with similar functions was eliminated because of budget constraints.

Field Services concern themselves with all the issues that can arise in the field— investigating these, providing mitigation and developing and delivering programs to help reduce the number of problems that occur. This includes conducting; site inspections to ensure pick-up and drop off points are accessible, equipment and vehicle inspections to ensure all vehicles being provided meet Access Calgary (and safety) standards and driver training programs to ensure operators are providing the level of service required.

Field Services also deals with customers and can be in contact any time after eligibility, determining how long it takes a customer to get in or out of a vehicle and how much space the customer needs and so forth. Involvement can also be triggered by driver concerns, passenger concerns, concerns from eligibility specialist, or changing mobility aid.

Field Services will also talk to agencies, observe routes or loading. Information is captured, issues are categorized. Field Services contacts the initiator of any field complaints and informs them of resolution This will often result in a change to the information system such as changes to pick up or drop off locations..

Equipment Inspections

Access Calgary depends upon third party contractors for the provision of equipment and specifically, vehicles. Safeguards are required to ensure the operating is providing the appropriate vehicles that meet the standards for reliability, safety and condition. These same questions apply to ancillary equipment, such as wheelchair restraints.

Equipment inspections are done by all the comparative organizations included in this review with the exception of Saskatoon.

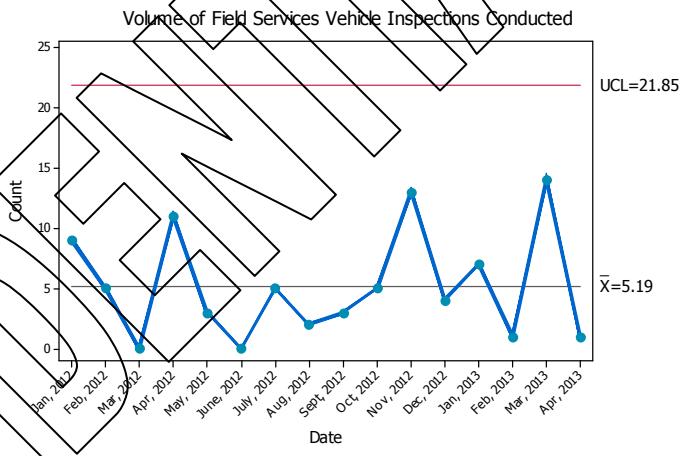
	Calgary Access Calgary	Toronto TTC Wheel Trans	Winnipeg Handi-Transit	Saskatoon Access Transit	Edmonton DATS – Disabled Adult Transit Service
Inspection Program	Formal program of field service inspections/quality assurance in place for;	Audit Operator pre-trip vehicle checks. Provision of retraining when deemed	Field Inspections Drivers and loading procedures	Safe Work Observations Customer contact surveys	Formal program of field service inspections/quality assurance in place for;

	Calgary Access Calgary	Toronto TTC Wheel Trans	Winnipeg Handi-Transit	Saskatoon Access Transit	Edmonton DATS – Disabled Adult Transit Service
	Drivers and loading procedures Equipment condition.	appropriate.	Equipment Conditions Quality Assurance for Trip Bookings		Drivers and loading procedures Equipment condition.

Field Services conducts these inspections regularly.

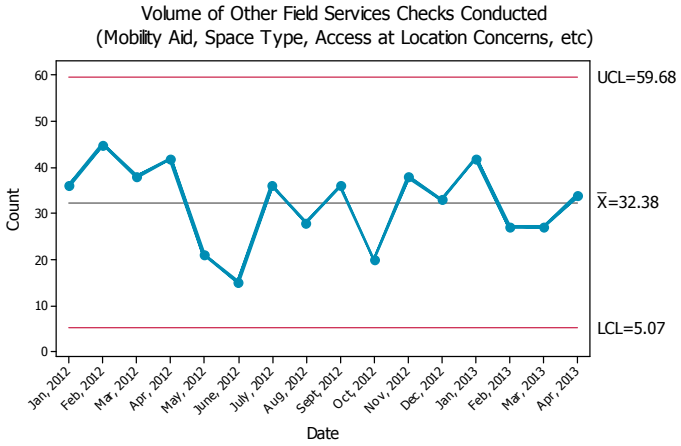
On average, 5 vehicle inspections are conducted each month. Given the size of the fleet, this represents a rational and cost-effective level of inspection.

Moreover, the pattern of vehicle inspections suggest that vehicle inspections are done in response to specific complaints or when time permits. Again, in our opinion, this is appropriate way to proceed.



In addition to vehicle checks, about 32 equipment and site location concerns are investigated monthly. This includes checks related to specialized public transit services as well as assessment of accessibility of fixed route locations across Calgary. Again, this level of inspection is appropriate.

However, Field Services is increasingly being called upon to assess levels of accessibility within the fixed route system. This is appropriate given their level of expertise.



However, organizationally, Field Services does not have the resources to effectively act as accessibility quality assurance for all of Calgary Transit.

Driver Training

Driver training at Access Calgary has recently been revamped with the first roll-outs of the program occurring January 2013. The program is getting positive feedback from drivers and plans are to expand the program to encompass taxi drivers as well.

Drivers don't get information on individual medical conditions, but are trained on physical, hidden and multiple disabilities. The training helps drivers: (i) identify what questions to ask to see if customer misunderstood or didn't hear properly (ii) identify the checks and balances in place to confirm where the customer is going (iii) increase awareness of mobility, sensor, cognitive disabilities (iv) improve communication skills (v) improve driving skills to accommodate customers (i.e.; avoiding potholes, not stopping too quickly).

Improving driver skills has been identified by in-direct customers as an area requiring significant improvement. The driver training program is designed to do just that. It is an appropriate response to meeting the needs and demands of customers.

The shortcoming is that Access Calgary does not have the resources to develop the kind of training program capable of wide-spread deployment. For example, the training is done exclusively 'in-person'. This will limit the effectiveness of the training as well as the penetration rate with drivers. Further, there is no documented level of certification, nor any tracking of recertification requirements.

Access Calgary has the beginnings of an excellent driver training program. It suffers from development on a shoestring budget.

Travel Training

Travel training is increasingly seen as an important strategy in improving the quality of service delivery and increasing use of fixed route services. Travel training can be initiated by Eligibility Specialists or by request of the customer. It usually involves meeting the customer at home and observing and assisting them on a trip.

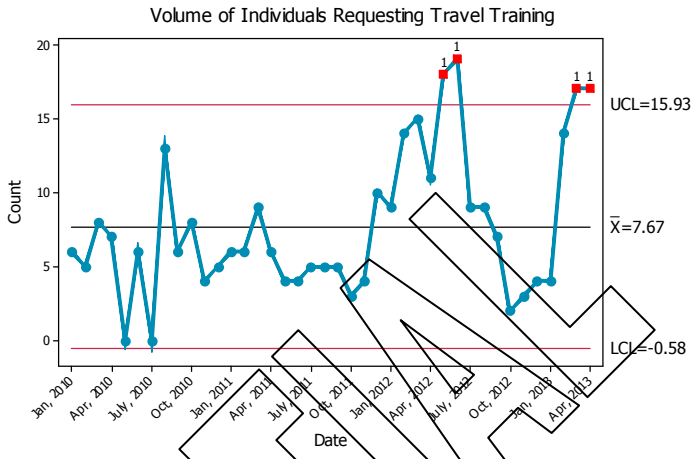
Travel training also fills a community liaison role giving public or agency presentations as well. Other staff can be pulled in if required depending on the needs of the audience.

The training includes summer travel training camp for special needs students who would benefit from training. Opening doors, getting on and off, seating, etc. is followed by route planning, paying fairs, etc. Day three of the training is seeing the control centre (bus and train), protective services officer will talk to kids, show them cameras. Day four is planning a trip and taking it. There will be a follow up if anything else is needed.

Travel training clearly needs a hands-on approach—especially with school children.

However, the ability to reach enough people to be effective, relying exclusively on in-person training, strategy is questionable. The number of individuals requesting travel training is about seven people per month (and rising).

This would imply some consideration must be given to expanding travel training to encompass web-based deployment.



Field Service Best Practice

Customer Responsibility	Access Calgary
Travel Training	
Establish readily available travel training programs offered directly by the transit agency.	Yes, Access Calgary has these programs in place.
Leverage travel-training resources by providing train-the-trainer education to social service, medical and caregiver organization staffs.	Some initial efforts were made but no consistent program is in place
Customize travel training to more effectively meet audience needs – for example, by providing specialized transit training for seniors.	Yes, Access Calgary training is highly customized.
Establish special student-oriented travel training for all students, including the disabled, in public and private schools.	Yes, Access Calgary summer camp.
Establish clear policies and practices on cancellations and no-shows.	Yes, Access Calgary has well defined policies and practices in place.
Driver Training	
Provide regular driver sensitivity and skills training and refreshing for both fixed-route and complementary specialized public transit service operators.	Access Calgary has a strong custom designed driver training program in place.
Provide specialized public transit certification and track	No real certification and tracking system in place.

Transit Operations Issues, Concerns & Recommendations

Component	Description Issues	Conclusions/Recommendations: Operations
Service Delivery Model	Access Calgary operates a unique system model. Unique in that it is contracted out, has two contract operators providing similar vehicle types and has two types of contracting organizations, for profit and not for profit.	The basic operating model works well. Contracting out has successfully helped lower costs. The mix of operators lowers the service interruption risk associated with relying on a single operator. This model should remain in use. No changes are recommended.
Operators/Organizations	Handi Bus represents an operator risk to Access Calgary Cost per trip analysis may be providing early indications of operating cost problems. Unlike Southland, Access Calgary represents Handi-Bus's only source of revenue and is saddled with a fleet with a higher portion of larger, less efficient and cost effective vehicles. Further, with a legacy relationship with the City of Calgary, employee working conditions have tended to be out of step with industry norms. An example is fixed break arrangements that have been a source of customer complaints and that negatively impacts productivity.	Access Calgary needs to work closely with Calgary Handi-Bus in establishing operating arrangements that work for both. This must focus on: ▲ Amending the cost structure, ▲ Eliminating the legacy elements that are negatively impacting productivity and performance.
Driver Training and Development	Access Calgary has customer developed a driver training program that has been well received. Delivery of the training is labour intensive and difficult to schedule.	Access Calgary should build on its existing program and develop a blended learning driver training program. This program should encompass a back end Learning Management System to track

Component	Description Issues	Conclusions/Recommendations: Operations
		certifications and recertification requirements.
Travel Training	Access Calgary is consistent with best practice in developing and deploying a custom travel training program. The program, however, lacks the resources to be effective. Delivering travel training to between 8 to 10 individuals per month is simply insufficient to provide the kind of impact needed.	Like driver training, travel training needs to take a blended approach to expand its reach. This is especially useful in train the trainer programs.
Strategic Performance Priorities	On-Time Performance. On time arrival performance specifically, is the source of greatest number of complaint with customers, a materially significant source of dissatisfaction as measured on the voice of the customer survey and lowest of Access Calgary's key operational performance metrics at 90%. On-Board Time. On Board time performance currently sits a 98%.	On time arrival performance needs to be made the primary strategic priority for Access Calgary over the mid term (2 years). Reworking the system to achieve an on-time arrival performance of 95% should have flow through impacts on maximum on board time and on-time drop off performance.

Component	Description Issues	Conclusions/Recommendations: Operations
Driver Issues	In discussion s with customers and customer agencies a number of driver issues were noted. These included: ▲ Handover issues--improper handover is an issue. This includes not escorting to the proper caregiver or guardian. Emergency contacts should be noted so that there will be a second point of contact. ▲ During winter months, drivers will turn bus off or leave door open when making a pickup. Customers on the bus get cold. Some can't speak for themselves. ▲ Drivers also won't touch harnesses, so this can cause issues. If a customer is wearing a harness and the driver won't touch it on drop off, their attendant or caretaker must be called and drive over to unhook them.	The development and expanded deployment of a driver training program (above) should help address these issues. The inclusion of driver service cards within buses and accessible vans, detailing what drivers can and cannot do, may also assist. Expanded outreach, working with customer agencies (previously recommended) may also assist.

Management and Administration

Access Calgary is led by the Manager, Karim Rayani and his management team (see System Map). Administrative work within each function is largely managed by the organizational unit aligned with that function. The exception is corporate administrative functions. These are managed by the Service Audit group. It is primarily responsible for:

financial management and control

- Managing payments to service providers,
- Monitoring the ACE program,
- Monitoring fare compliance,
- Managing ticket processing,
- Managing the billing of service agencies,
- Monitoring and ensuring fare compliance on taxi charges (shared ride),
- Ensuring fare collection,

performance reporting and analysis

- Measuring and monitoring on time performance, and
- Preparing operating performance reports.

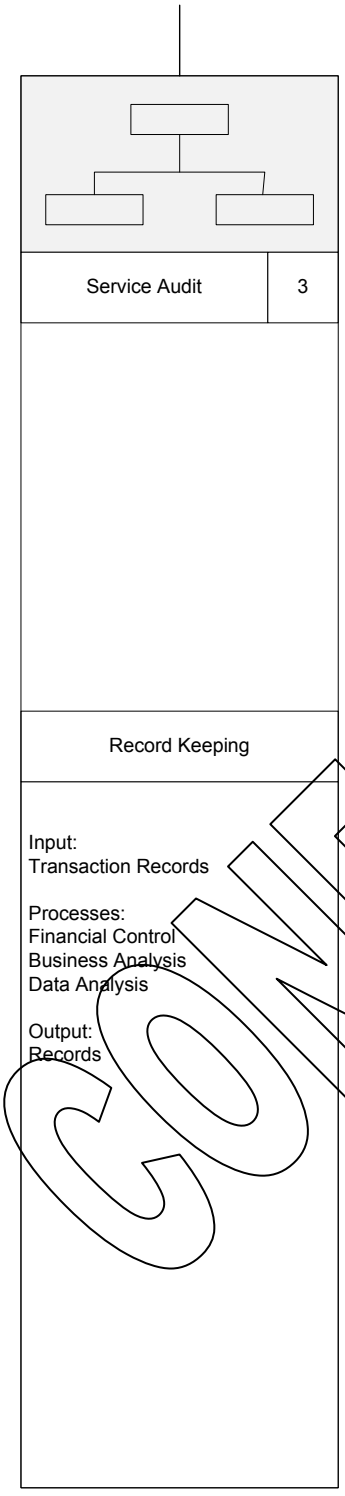
The primary source of information for these tasks is Trapeze, the 'paratransit software' in use by Access Calgary. Payments to service providers, for example, require reconciliation between what the provider has billed Access Calgary and the service provided as recorded by Trapeze. Adjustments are made based service performance (late arrivals, missed stops etc.). Once reconciliations are done, authorizations for payments are issued. Similar processes (reconciliations, audits and checks) are applied throughout Access Calgary and ensure financial responsibility.

The same holds for process and functions less concerned with financial control and more with operational performance reporting. The foundation for both measuring and reporting on performance is Trapeze.

This further emphasizes the central role information technology plays in the management of specialized public transit. Not only does the technology support booking, scheduling, dispatch and monitoring processes without which actual service delivery would be near impossible, but it provides the information necessary for both financial and operational control and management.

Beyond the administration provided through Service Audit, is the overall management provided to the organization. This encompasses the direction, strategy and leadership provided to the organization.

service audit overview



Function

Reconciling and preparing financial and operating information for the system.

Input:

(i) Transaction records from Trapeze

(ii) Information provided by service providers and external agencies.

Output:

(i) Reconciliations of service provided with revenues and payments to service providers.

(ii) Payment authorizations,

(iii) Management reports.

Organization

The administrative organization consists of three individuals.

Operations/Process

Sample Trapeze operational data

Review financial transactions

Organize data for analysis and presentation.

Conduct special reviews where requested

Oversee payments

Ensure operator compliance

Administrative processes don't support a smooth, efficient workflow

As noted, Service Audit is reliant on Trapeze for virtually all the source data against which performance and financial data are reconciled and reported. Getting data out of Trapeze, in a format that facilitates these functions, is, therefore, important to ensuring a smooth workflow.

Generally the processes by which data is currently extracted from trapeze and organized in a manner to support both financial control and operational reporting involves using separate report writing software to extract data (Crystal Reports), which is then organized and analyzed on multiple spreadsheets (Excel), the results of which are cut and paste and/or linked to word processing software (Word) for reporting and distribution. Along the way, data from outside sources (i.e.; service providers) is taken in through a variety of media, transposed to analytical tools such as spreadsheets, and further manipulated to assist in the overall process. The problem with these sorts of processes is that they tend to be:

- open to large sources of error, that are difficult to identify when they occur,
- labour intensive, with skilled people spending an inordinate amount of time cutting, pasting, manipulating and then checking to ensure all went well, and
- limited in functionality constraining the business from engaging in more meaningful and productive analysis.

This is a problem recognized by both the Service Audit function and Access Calgary management. Replacement of Trapeze 8 is seen as a solution here, but it is a partial one. More up to date software tools capable of tapping the data base and conducting reconciliation and data analysis is required to produce a smooth administrative workflow.

Fares and Passes

The basic fare structure at Access Calgary for specialized public transit services is equivalent to that for fixed route public transit. Access Calgary accepts the same forms of payment accepted by regular fixed route transit including; Monthly Adult Pass, Adult Single Ride Tickets, Monthly Youth Pass, Youth Single Ride Tickets, and Low-Income Monthly Pass.

The exception is the Low Income Seniors Pass. This is a heavily discounted pass reduced to $15 from the usual fee of $95 for those seniors earning less than a pre-set maximum income.

Access Calgary does not accept the Low Income Seniors Pass. With two-thirds of its customer base seniors, the potential revenue/cost impact on Access Calgary would be substantial. Further, such a heavily discounted pass may serve as an incentive for using

fixed route services. There is no prohibition for providing these types of incentives or pricing differentials under the ADA.

At the same time, failing to accept the Low Income Seniors Pass, for specialized public transit appears at odds with the intent and spirit of the program approved by City Council. It penalizes those that for no fault of their own, cannot use fixed route services.

Attendants and Companions

Required attendants travel with customers at no charge. Companions and are required to pay the standard transit fares.

Performance Measurement & Management

Performance management is similarly constrained by a lack of analytical technology capable of supporting best practice in performance measurement and analysis. Management of on-time performance is an example. An on-time performance report is pulled from Trapeze. This data is analyzed by sorting drivers by their on-time performance. The bottom three performers (drivers) for the period are identified and singled out for root cause analysis and possible corrective action.

This assumes that the bottom three drivers in the ranking are materially different, that is different in some important way, from those anywhere else in the ranking. This is simply bad data analysis. Ranked data cannot support such conclusions or inferences. As a result, drivers are incorrectly associated with poor performance or labeled as poor performers, effort is expended to find root causes where none exist, and corrective action is taken where none is warranted.

However, the technology or data analysis tools at Service Audit's disposal (Excel) makes proper analysis of performance a practical impossibility. Significant levels of data organization, numerous complex formulae, and labour intensive graphic programming and report preparation, are all involved.

These limitations show-up in other performance management activities at Access Calgary. For example, in examining telephone holding times, summary statistics presented on management reports are reviewed and examined by staff and potential root cause problems identified and corrected. Here again, the ability to properly identify materially significant issues and concerns are constrained by a level of data analysis that is incapable of supporting the types of conclusions that must be made.

Performance Standards & Objectives.

The performance standards in place at Access Calgary mirror those at most specialized public transit organizations and government organizations generally. They are also consistent in basic approach with standardized practices at The City of Calgary.

However, these best practices are not consistent with best practices as defined from a Lean/Systems Thinking or a Quality Management approach. (This is a conclusion that also applies to Performance Management and Measurement above). As this audit takes a Lean perspective, we are obligated to highlight the inconsistencies.

Traditionally, service standards set a specified performance level for the organization. Using on-time performance as an example, specialized public transit best practice typically references between 90% and 95% as an acceptable service standard. Most specialized public transit organizations have set a performance standard somewhere in this range.

From the Lean/Quality perspective, the problem with such performance standards are:

- they tend not be empirical. Why, for example, is the on-time performance standard 95%? Why not 85%? Why not 50%? And where did these service level standards come from? More often than not, the answer is from 'thin air'.
- they are not customer driven. Customers want vehicles to arrive on-time, every time, not 90% or 95% of the time.
- when met, improvement stops. Once a performance standard is met there is no rationale to improve the level of performance provided. Service standards, therefore, are inherently inconsistent with continuous improvement.

In contrast to service performance standards and objectives, Lean organizations tend to follow a customer driven approach with 'near perfection' being the standard. On-time performance is set at 100%. This is often referred to as Eight Zero's (see Appendix) because failure rate objective in service processes are always zero.

Performance measurement within this framework then, measures the distance of actual performance from the ideal.

Marketing & Public Awareness

Access Calgary keeps a low profile. To date, marketing and public awareness have largely been restricted to placing the Access Calgary logo on vehicles. Few Calgarians know what the organization does or how it does it. That includes most of Access Calgary's customers.

It's not a necessity that Access Calgary be widely recognized. There is even a downside. Wider recognition may lead to greater number of customers and increased levels of demand for trips. The problem for specialized public transit is that unlike fixed route public transit, costs are sensitive to the level of demand. Increasing demand for train service for example, has little impact on the cost of running the train and produces some immediate benefits including reducing the number of vehicles on the road. Increasing Access Calgary demand, however, produces an immediate escalation in cost and with a much smaller corresponding benefit.

Despite this, both the organization and the level of service have suffered from a lack of awareness. Access Calgary has, in many ways, been delivering service on a shoestring budget. Because of this, programs that have the potential to deliver solid benefits have lacked the funding required to make them effective—driver and rider training are two examples. A lack of awareness may mean that people unable to use fixed route transit, especially the elderly, may assume that no specialized public transit options are available for them and remain isolated or shut-in.

A balance, therefore, must be struck between active marketing or promotion of Access Calgary's services, which is not advisable, and raising the general level of awareness of the organization and the services it provides, which is advisable. When both direct and indirect customers are not aware of what the organization does and how it does it, the profile is too low.

Integration of Service

As this report has highlighted, integration of service is recognized not just as a best practice but as an important means by which municipalities can manage the costs of delivering specialized public transit. Leading this effort is a strategic function of any specialized public transit organization. It is included here for this reason, although operationalizing the strategy within Access Calgary may fall to Operations and Field Services. Service integration can be achieved through four basic strategies

(i) Partnering with local community agencies and groups. Usually this done by reaching agreement with agencies representing or providing service to specific customer groups. This could include other agencies of government, business, social service organizations, medical institutions, religious and charitable associations, community and neighbourhood groups and families. Partnering among these can successfully reduce demand and cost on specialized public transit. For example, providing a vehicle, with maintenance, to an extended care facility. The extended care organization provides their own driver and any specialized staff required to assist, and agrees to lesson or eliminate demand on the specialized public transit services.

(ii) Reducing barriers on fixed route public transit. Making fixed route public transit more accessible reduces the demand on relatively expensive, specialized public transit service. This has become the primary cost management strategy of municipalities across North America and encompasses everything from making rail stations more accessible to purchasing of low floor/kneeling buses. While such efforts have generally been regarded as successful, it more difficult than it appears and more expensive than might be assumed.

For example, what good is a low floor bus if sidewalk curbs aren't accessible or blocked by snow or ice? Small simple problems can make large costly solutions ineffective.

(iii) Developing community-based transit. This includes developing smaller feeder routes that take passengers to and from fixed route locations and developing entirely community-based specialized public transit such as taking seniors from a senior facility to recreational or other destinations in the neighbourhood.

(iv) Incorporating walkable city concepts into urban planning and design. The public sidewalk or walkway is the most cost effective form of public transit available. Yet much of urban design discourages its use. This includes large blocks of residential development separated from similarly large blocks of commercial or even recreational development that tend to significantly increase walking distances. As walkability goes down, transit costs go up and specialized public transit costs go up even more.

There is a requirement to rethink prevailing concepts in urban design. Concepts that promote density, integration of residential, commercial and recreational development as well as improved integration of high demand customer groups with preferred services (such as placing seniors residences near commercial and recreational facilities) need to be explored and tested.

Best Practice in System Integration

Best practices here are identified practices arising from a literature review and published studies. However, the nature of system integration means that practices will tend to take longer to show results. These system integration practices, unlike best practices identified previously, have not necessarily 'proved' their effectiveness. They more represent ideas and experiments occurring within the industry. No one agency could or should attempt to apply all of these.

Examining all existing best practices inside and outside of Access Calgary itself was not practical in the timelines and budget of this review. They are offered without assessment as to Access Calgary or City of Calgary alignment.

best practices in systems integrations

Partnering

Collaborate with those proving medical care, daycare, meals, and housing to the elderly to encourage them to think about their role in the provision of transportation services – e.g., location, service hours and event scheduling.

Encourage casual carpool programs.

Help establish older driver wellness programs.

Work with social service organizations and others to set up volunteer driver programs.

Determine opportunities for volunteer escorts for elderly specialized public transit

customers.

Partner with community agencies to supplement service as part of a larger strategy to preserve and expand human service transportation.

Work with employers, medical professionals and others to allow for appointments, work hours and other scheduled activities to take place at times other than the traditional hours, thus reducing peak demand.

Explore vehicle sharing among public and not-for-profit agencies each having responsibility for transportation of the elderly and disabled.

Encourage more in-home medical monitoring.

Make sure that people making location decisions properly account for the impacts of their decisions on transit and specialized transit; proactively reach out to social service and other organization to ascertain their growth and expansion plans and ensure adequate account is taken of what will need to be done to enable the transit agency to provide both good general and good specialized public transit service.

Encourage more in-home online purchasing.

Reducing Barriers

Improve timed transfers between regional and local services.

Develop feeder services from complementary specialized public transit to core fixed routes.

Make phone access to transit police readily available, either by fixed phone installations, the effective dissemination of numbers that can readily be called on a cell phone, or both.

Maintain a list of all fixed-route riders who have requested route and schedule information in accessible formats and each time the schedule is changed for a route on which a subscribed rider is interested, send updated route and schedule information, using large print or Braille if requested.

Train operators on how to assist specialized public transit passengers using service animals.

Use a timed-transfer system where all the buses arrive at the main transfer centre at about the same time so that drivers or other transit employees are able to actively assist passengers who need help finding their buses.

Explore the options of shuttles generally, as well as community-based buses, looking for community and social service sponsorships to leverage agency resources.

Ensure that on the fixed-route system there is adequate and useful information for the specialized public transit customer, easy access to and from bus stops, passenger amenities at bus stops encouraging their use, ready accessibility for specialized public transit customers to fixed-route vehicles and effective messaging using an automated system of clear annunciators and electronic messaging boards.

Use unique bus stop signposts to make bus stop signs more easily recognizable by people with vision disabilities.

Enhance the attractiveness of bus stops by using solar-powered lights and integrated bus benches.

Community Based Transit

Coordinate specialized public transit services within the service area and with adjacent communities.

Establish "Shopper Shuttles" that provide transit service from and to certain areas, either on a fixed-route or on-call basis.

Enhance weekend and in particular Sunday service to make it more readily available.

Urban Development

Work with social service and other organizations to ensure that when make facility location decisions ready access to transit -- including the ease with which specialized public transit service can be provided – is adequately accounted for.

Encourage municipal governments and others to promote transit-oriented development.

Encourage passage of rules and incentives that promote development of walkable communities.

Encourage adoption of Complete Streets strategies.

Promote development of a community-based mobility strategy that coordinates connection of individuals with a range of services.

Incorporate specialized transit into smart growth plans.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Administration and Management Issues, Concerns & Recommendations

Component	Description	Recommendations: Administration & Management
Administrative Processes	Extracting information from the Trapeze data base used for account reconciliations, financial and operational control require multiple steps moving information from one software program to another. This is labour intensive, requires multiple checks to ensure accuracy, and has a high potential for risk. Account reconciliation and analysis tends to use Excel spreadsheets to move and organize data. Using Excel for these types of tasks presents a high risk of error.	A streamlined interface between paratransit software and financial software encompassing billing, revenue tracking is required.
Low Income Seniors Pass	Access Calgary accepts the standard forms of payment accepted by Calgary Transit for fixed route service except one, the Low Income Seniors Pass. The depth of the discount and the make-up of Access Calgary's customer base means accepting the pass could have significant revenue and cost implications. Nevertheless, failing to accept this pass, appears at odds with the intent of Council in approving the pass.	This is a policy decision that cannot be undertaken by Access Calgary. Accepting or not accepting the Low Income Seniors Pass amounts to a clarification of Council's original intent. Access Calgary should prepare a revenue/cost implication of accepting the Low Income Seniors Pass. A clear request for Council clarification needs to be made on this issue.
Performance Measurement and Management	Performance measurement and reporting takes place using standard management report formats with numerical summaries. While this is consistent with practices within the City of Calgary, it is not consistent with best practice in performance	Access Calgary needs to create a proper performance measurement and management system that:

Component	Description	Recommendations: Administration & Management
	measurement. Use of Excel limits performance analysis to sorting and summary statistics (i.e.; averages) that provide misleading and in accurate interpretations of performance. Performance management, such as the case with on-time performance, uses ranking (bottom 3 performers) to identify important performance issues.	Identifies key performance indicators, Reports these indicators on run and control charts, Presents the results on a management dashboard, Can support statistical/systemic analysis of root cause (distributional analysis of data).
Performance Standards	Performance standards are consistent with what is accepted as best practice in the industry and City of Calgary performance measurement and service standards. However, they are not consistent with Lean or Quality management best practice. Performance targets are management not customer driven	Consider moving to Lean/Quality based, customer driven performance standards. Because of the inconsistency of the Quality approach with existing City of Calgary practices, Access Calgary could become a test for the Quality approach within the City.
Marketing and Public Awareness	Active promotion of services can have negative cost consequences for specialized public transit. Nevertheless, a level of public awareness is required for the organization to be effective. Many of Access Calgary's own customers are not aware of the services it provides or the role it plays in delivering specialized public transit. This is a sign that awareness levels are too low. Management has prepared an initial branding and awareness strategy.	Access Calgary should proceed with its branding strategy and be given the appropriate budget to see it come to fruition.

Component	Description	Recommendations: Administration & Management
System Integration	Roles and responsibilities for building a more accessible city are distributed across a variety of Business Units within the City of Calgary. The objective is shared across participants but it is not clear as to whether these same participants share a common strategy. Nor is it clear whether everyone that needs to be at the table is there (i.e.; development functions).	Those involved in accessibility may want to evaluate; ▲ progress made to date, what's working and what isn't and the implications for Business Units, ▲ whether the various actions by those involved in building an accessible city reflect a common strategy, ▲ whether everyone that needs to be at the accessibility table is represented.
	A significant driver of specialized public transit demand is the trend to deinstitutionalization. For example, increasingly, seniors are encouraged to live at home rather than move to seniors care facilities. Medical patients too are being released from hospitals earlier as outpatients. They often require specialized public transit to get to and from Two thirds of Access Calgary's customers are seniors. Although this group takes only one-third of the trips, the evidence suggests that much of the growth in demand comes from this group. There is the potential to reduce the level of demand by engaging in partnerships with seniors care organizations. For example, providing vehicles (with maintenance) in return for elimination of demand on specialized public transit.	Access Calgary should develop a clear partnering strategy that explicitly identifies opportunities and priorities driven by potential for demand reduction. As part of this strategy, Access Calgary must be given the flexibility to experiment with these options. The initial focus of these partnering options should focus on seniors and elderly medical care.

Appendix:

Definitions

Capacity Constraints: This is a limit on the amount of specialized transit service that is provided, such as waiting lists, trip limits, and service denials.

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

Disability: A restriction in a person's functional capacity resulting from the impairment.

Eligibility: Refers to the standards which qualify an individual for service.

FACTS: Functional Assessments of Cognitive Transit Skills is a validated test that is used to determine the abilities of applicants with cognitive disabilities.

Handicap: The difficulty or disadvantage an individual may have functioning in an environment.

Impairment: A medical condition, a result of an injury, disease or other disorder that produces a reduction in physical or mental function.

Mobility Coordinators: These are the professionals tasked with assessing the abilities of an applicant to use transit, and knowledgeable about alternative transportation options available in a community. Also known as "evaluators" or "assessors."

Mobility Assessments: These are also known as "functional assessments" or "transit skills assessments", and involve a process in which an applicant participates in an interview followed by a guided walk or roll through a course that simulates the various tasks involved in using transit.

Recertification: This is a process whereby individuals who have been determined eligible to use specialized transit for a reasonable term, such as three years, are required to request recertification, often through a more abbreviated process (Section 64 (3) of the AODA allows for recertification "at reasonable intervals.")

Orientation and Mobility Specialists: These are professionals who have received specialized training to help people with visual impairments to travel independently in the community.

Specialized Transit: Also known as "specialized public transit", "door-to-door", or "demand-response" service. In this report refers to service that is limited to people with disabilities.

Subscription Service: Providing specialized transit or demand-response transportation over an extended period of time for repetitive trips for purposes including but not limited to employment, education, or ongoing medical treatment.

Visitor: A visitor is anyone with a disability who does not reside in the jurisdiction served by the transit system.

Travel Training: Also known as mobility training, this alternative provides potential riders with the skills and information needed to use the conventional transit system independently.

Eligibility Outcomes

There are generally three eligibility categories for specialized transit:

- full;
- conditional; and
- temporary eligibility.

Different names are used for these categories across Canada. An attempt to standardize these categories has been made by the Canadian Urban Transit Association. Their definitions are provided below.

Full Eligibility: When it is not reasonable to use the conventional (fixed-route) service under any circumstance, regardless of weather, distance to the stop, time of day etc. This is also known as unconditional eligibility. Also referred to as unconditional eligibility.

Conditional Eligibility: In this category of eligibility, the individual can be reasonably expected to make some trips on the conventional service. For example, a person may be able to reach bus stops that are no more than three blocks away, and where there is a safe, accessible path of travel, but she may require specialized public transit if distances are greater than three blocks, or if there are path of travel obstacles such as steep hills, deep snow or ice, or other obstacles. Another person may have a variable health condition; on some days conventional transit is possible, and on other days not. In contrast to the former description of conditional eligibility, where the agency makes the determination of whether a particular trip is eligible or not, for those with variable health, the rider himself makes the decision. This category is also known as "good day, bad day" eligibility.

Temporary Eligibility: An individual can be found fully or conditionally eligible, but on a temporary basis. This category applies to individuals whose disabilities prevent them from using specialized transit for a limited period of time.

Source: Canadian Code of Practice for Determining Eligibility for Specialized Transit, Canadian Urban Transit Association

News Paper Reports/Stories

Transit agencies struggling to meet needs of disabled ridership

November 14, 2012 By Jon Hilkevitch, Chicago Tribune reporter

The aging population is helping to spur exponential growth in paratransit use across the Chicago area, and the strong demand for the door-to-door service by people with disabilities is taking millions of dollars away from other bus and train operations, transit officials said.

Paratransit is a civil right under the law. Yet if nothing is done to make the service financially sustainable in the long run, the expanding slice of the public-funding pie that is going to paratransit threatens to cannibalize standard bus and rail service, CTA officials said.

Such a development would hurt daily commuters as well as less-severely disabled riders who are being encouraged to switch from paratransit to traditional fixed-route buses and trains whenever possible to help cut costs to themselves and the system, the officials said.

The paratransit fare is $3 each way, 75 cents higher than the $2.25 base fare to ride a regular CTA bus. But the actual cost of providing that $3 paratransit ride is estimated at $36.07 this year, according to Pace, which manages paratransit in the six-county region.

"Paratransit is a critical service and a lifeline for people in the disabled community. But the math speaks for itself," CTA President Forrest Claypool said.

From 2008 through this year, paratransit expenses have reduced the CTA's share of funding by $239 million and Metra's share by $194 million, according to an analysis of Regional Transportation Authority financial statements by the CTA, which is struggling to cobble together a 2013 budget that avoids fare hikes or service cuts.

"I don't claim to have the answers, but if paratransit growth rates continue, as they are projected to do, (regular) service will be affected" on the CTA, Metra and Pace, Claypool said.

Paratransit expenses for 2012 are projected to total $137.5 million, according to Pace. That figure is up from $128.1 million in 2011 and up from $69 million in 2005, according to Pace and the CTA. The paratransit financial outlook for 2013 and 2014 projects 5 percent increases each year, according to the RTA.

Travel training

Pace officials say the paratransit funding situation is not as severe a drain as the CTA portrays it to be.

As part of reforms that in 2008 provided for a quarter-cent increase in the sales tax collected for public transit in the Chicago region, the General Assembly created two pots of money. The move effectively built a firewall around some sales tax revenue that pays for regular bus and rail service, and created a new pool of money that pays for paratransit as well as other bus and rail service, Pace officials said. In addition, the state provides a partial match to the second pool of sales tax revenue.

"Traditional bus and rail service funding is safeguarded from expense growth on paratransit," Pace spokesman Patrick Wilmot said.

But CTA officials point out that paratransit funding is taken off the top of the 2008 sales tax increase and that paratransit expenses are projected to exceed the amount of money generated by 2028, based on trends.

All transit officials agree that the cost of paratransit in the Chicago region has almost doubled over the past seven years, partly because of the growing elderly population.

This year, 5.4 percent of the $2.54 billion operating budget for the RTA system — made up of the CTA, Metra and Pace — is being spent on paratransit, which under the federal Americans with Disabilities Act must be fully paid for and cannot be reduced or cut to lower expenses. Paratransit services are offered in the same geographic areas as standard fixed-route service and during the same hours of operation.

More than 49,000 people are currently registered in the paratransit program in the Chicago area, according to the RTA. The cost averages more than $2,800 a year for each person. The number of paratransit trips provided has grown from 2.4 million in 2007 to 3.4 million last year, according to Pace.

"On regular transit, you would look like a hero if you generated 40 percent ridership growth," said Rocky Donahue, Pace's deputy executive director.

Donahue and Pace Executive Director T.J. Ross said Pace has introduced numerous efficiencies to lower the cost of delivering paratransit services, including increasing ride-sharing and aggressively marketing the use of standard fixed-route service for disabled people who can use that option instead of the costly paratransit.

Renita Freeman, who has degenerative arthritis and other conditions, is a longtime paratransit customer who gets around mostly in her powered wheelchair that she steers onto the ramp of a paratransit vehicle. But the 60-year-old South Side resident recently started riding buses and trains for the first time since her younger days, thanks to one-on-one travel training provided by a RTA trainer.

"The 'L' and Metra were new for me, and I was terrified to ride the wheelchair on the platform and onto the train," said Freeman, who said she has difficulty walking and breathing. "But once (her trainer) told me what to do, it was a piece of cake. Now I can go visit relatives and friends who live way out in the suburbs and I feel safe."

Frances Thompson, 71, of Evanston, said she uses paratransit and standard bus and train service, depending on the circumstances.

"I call the paratransit when the weather is bad, or when I go to see a friend who lives far away in Chicago," Thompson said last week after attending a travel training session that was presented by an RTA trainer to the Foster Senior Group at the Fleetwood Jourdain Community Center in Evanston. Travel training is designed to familiarize senior citizens and some disabled people with how to use traditional bus and train service.

Budget frustrations

The CTA operated paratransit for more than 20 years in Chicago and got out of the business six years ago when the agency handed off the job to Pace, which previously operated paratransit in the suburbs since 1992. The move saved the CTA about $54 million.

But the financial math of paratransit never added up, and it clearly isn't computing today as the CTA and Metra both may be forced to raise their regular fares in 2013 to pay for service improvements and avoid budget deficits, transit officials said.

RTA Chairman John Gates Jr. sparked controversy recently when he pronounced paratransit "a limousine service." Gates later apologized for the remark, saying he let his frustrations get the better of him in regard to the struggle to balance the increasing need for paratransit with the increasing financial losses associated with it.

The trend is unsustainable, transit experts say, unless new funding sources are developed or the existing program is modified.

Some transit agencies in the U.S. have tightened the paratransit application screening rules. But in the Chicago area, the RTA accepts about 98 percent of applicants to the paratransit program, records show. RTA officials say the acceptance rate is so high because potential participants are pre-screened before a decision is made to send out an application form.

With 2012 almost over, the CTA finds itself in a serious budget predicament. In this year's budget, agency management assumed, incorrectly, that it would achieve labor union work-rule concessions totaling $80 million to help erase a $277 million budget deficit. But the Amalgamated Transit Union, which represents CTA bus drivers, train operators and other workers, has rejected any significant money-saving changes in contract negotiations that have dragged on for months, according to sources on both sides.

In 2013 the CTA must find at least $160 million in savings to help balance its budget, officials have said. Claypool is expected to present the 2013 CTA budget Thursday, and riders are bracing for a possible fare increase.

On the surface, it would appear that disabled and elderly riders who count on paratransit to travel to activities ranging from medical appointments to recreational events are protected from having the federally mandated service withdrawn.

Yet many people still could be left without the transportation. The price-sensitive population that paratransit serves is highly vulnerable to the impact of fare increases, which, if imposed, would likely significantly reduce use of paratransit because fewer people would be able to afford it.

Federal regulations covering ADA paratransit establish a ceiling for paratransit fares that is double the base fixed-route bus fare. It translates to a maximum $4.50 paratransit fare in Chicago (the CTA base fare is $2.25) and $3.50 in the suburbs (the Pace base fare is $1.75).

Other approaches

The Chicago region is hardly alone in feeling the paratransit budget pinch, but some other transit systems are taking creative approaches to deal with it.

In the nation's capital, the Washington Metropolitan Area Transit Authority saved more than $25 million in fiscal 2011 by offering free rides on standard fixed-route bus and rail service to paratransit-eligible riders, officials said. More than 559,000 trips were taken using the free benefit last year, the transit authority reported.

In Cincinnati, all potential paratransit clients seeking service from the Southwestern Ohio Regional Transit Authority are required to attend assessments before certification, and they must be recertified every two years to stay in the program.

In the Chicago area, the RTA typically requires paratransit riders to recertify every four years, and they aren't required to do so at in-person interviews or assessments. A mail-in recertification form is sent to riders whose eligibility is deemed unlikely to change, officials said. They justify the process as being "much less burdensome on riders and much less expensive for the RTA."

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The realities of life if you're disabled in Saskatchewan and depend on Paratransit.

June 24, 2013 Metronews

Imagine being confined to your house in winter — and during the summer.

Months of being able to go out to just a handful of events.

You have to wait hours for a ride to the grocery store and you've missed several appointments this year. You have trouble finding a job because you don't have regular transportation. For the events that you are able to go to, you have to leave early and sometimes you are denied a ride outright. There's a reservation option, but that can only be booked a week in advance.

This is life in Saskatchewan if you're disabled and depend on Paratransit, as described by the Saskatchewan Human Rights Commission's recent report on conditions in Regina.

The report says that even if you are able to use public transit, there are problems — kneeling buses are deployed at random, drivers sometimes refuse to strap in wheelchairs and a person might be unable to board the bus in the first place due to blocked sidewalks. Users are afraid to complain because they are worried they will be blacklisted by the service.

In this country, equal access to public services (including transit) is a human right; denial of service is considered discrimination. Unless accommodation would result in "undue hardship" for the transit system, jurisdictions are required to provide transit for people with disabilities in an "equivalent" fashion.

It's especially troubling to read this report in light of Saskatoon's decision to follow Regina's lead and require a medical practitioner to fill out a form indicating the applicant is eligible for Paratransit. Many doctors bill for this service, and it is not covered by the provincial health plan, although the city is considering refunding up to $60 of the fee.

The system is under stress, and the denial rate is rising. An acceptable denial rate is one to two per cent in Canada; Regina's current denial rate is 9.2 per cent. Seeking to lower the denial rate by questioning eligibility before one is able to request a ride is not fair play.

Paratransit should not be rationed. The current system is already inconvenient, so it is unlikely users with access to other modes are abusing it.

I don't have to tell you that being confined to your immediate area and unable to secure employment, visit with friends or family or attend events is incredibly demoralizing. This approach taken by Saskatoon and Regina will lead to more complaints being filed with the Human Rights Commission, not less. How we treat the differently abled in Saskatchewan — effectively putting them under house arrest — is unworthy of an inclusive society.

Voice of the Customer Research

Connecting with Access Calgary's customers

Purpose

As part of this review, Converge undertook to conduct a survey of Access Calgary's direct and indirect customers. There were three reasons for this:

- The customer satisfaction survey in current use by Access Calgary was dated and of questionable methodology. Specifically, the use of 5 point scales for rating service (producing overly favorable results) and failure to operationally define materially significant findings (leading to post hoc interpretations). Redoing the satisfaction survey would enable the proper establishment of customer satisfaction levels.

- Customers, both direct and indirect, had voiced concerns about the quality of the survey expressing a level of disbelief in the results. Conducting a brief survey, using an improved methodology, was a useful way of confirming past results and providing an independent reporting back to customers.

- Some people had expressed concerns about the willingness of some customers to report serious problems to Access Calgary because it 'might be used against them' later. A confidential survey would provide customers an opportunity to report serious issue directly to an independent third party without fear of retribution.

Methodology

Stratified sampling was applied to Access Calgary's customer base. Questionnaires were administered by both web-survey tool and by telephone. Sample size was approximately 200 people. data gathering and analysis was done by Converge Consulting Group to assure confidentiality in response.

Results

Net Promoter

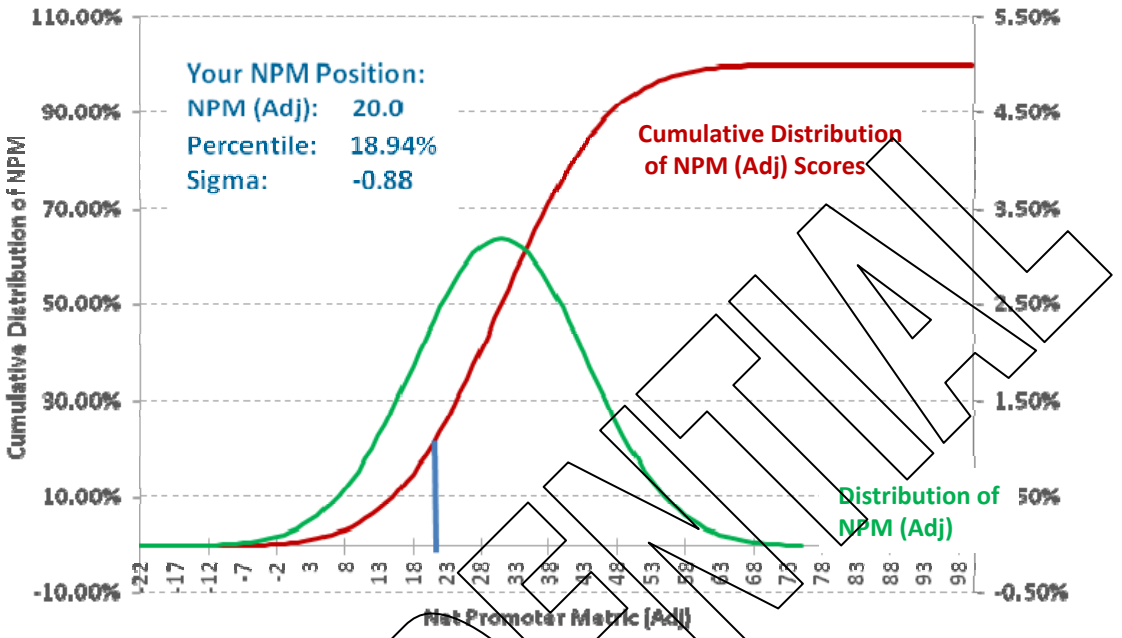
The Net Promoter Metric (NPM) is a rigorous stress test of customer satisfaction. Is it is comprised of one question; *If asked by a friend, relative, or co-worker, I would recommend using Access Calgary.*

Responses of 9 or 8 as regarded as *promoters*, 7 or 6 as *passives* and 5 through 1 as *detractors*. The proportion of detractors is subtracted from the proportion of promoters to arrive at our Net Promoter Metric.

NPM Table

Questions	Mean	Median	Category Percentages 0 20 40 60 80 100	Promoters	Passives	Detractors
8. If asked by a friend, relative or co-worker, I would recommend using Access Calgary.	6.96	7.0		40.0%	40.0%	20.0%

net promoter metric analysis



Your Net Promoter Score is 20.0. That means you have 20% more customers speaking for you than against you.

The 20.0 translates to a sigma score of -0.88. This means that in terms of customer engagement, Access Calgary lies at the 81st percentile of comparative organizations.

Service

The Service section was comprised of 9 questions.

Q1. Booking agents are friendly and helpful, had the highest percentage of agreement at nearly 90%.

The lowest scoring question were in regard to the timing of the pick-ups, drop-offs and trips overall. These low scores were backed up in the comments section as well.

Questions	Mean	Median	Category Percentages 0 20 40 60 80 100	Agree	Neutral	Disagree
1. Booking agents are friendly and helpful.	7.57	7.0		89.5%	6.1%	4.4%
2. I feel safe when getting on and off the buses or taxis.	7.55	8.0		87.7%	7.3%	5.0%
3. I am able to get the trips I need	7.21	7.0		81.8%	7.2%	11.0%
4. My pick-ups are on time	6.32	7.0		65.0%	17.8%	17.2%
5. My drop offs are on time	6.39	7.0		67.4%	16.0%	16.6%
6. My travel time on the trip is reasonable	6.48	7.0		67.2%	18.9%	13.9%
7. Buses are comfortable to ride in.	6.75	7.0		73.0%	16.9%	10.1%
8. If asked by a friend, relative or co-worker, I would recommend using Access Calgary.	6.96	7.0		78.3%	11.1%	10.6%
9. Overall, I am satisfied with the services provided by Access Calgary	6.85	7.0		76.1%	13.9%	10.0%
Overall Averages	6.90	7.11		76.2%	12.8%	11.0%

Service Providers

Respondents were asked to rate each of the service providers that they use on a scale from 1 to 9, with 9 being Excellent and 1 being Very Poor. The results are shown in the chart below.

Calgary Handi-Bus had the highest average score and positive percentage of responses.

overall service

Questions	Mean	Median	Category Percentages 0 20 40 60 80 100	Good	Neutral	Poor
11. Please rate the service provided by Calgary Handi-Bus	7.06	7.0		78.5%	16.3%	5.2%
12. Please rate the service provided by Southland Transportation	6.41	7.0		64.3%	28.0%	7.7%
13. Please rate the service provided by Checker Cabs	6.74	7.0		68.8%	26.9%	4.4%
14. Please rate the service provided by Associated Cabs	6.59	7.0		64.8%	29.7%	5.5%
Overall Averages	6.70	7.00		69.1%	25.2%	5.7%

operator service by trip purpose

Questions	Data Filter	Mean	Median	Category Percentages 0 20 40 60 80 100	Good	Neutral	Poor
11. Please rate the service provided by Calgary Handi-Bus	All Data	7.06	7.0		78.5%	16.3%	5.2%
	Go to Work	7.21	8.0		78.8%	12.1%	9.1%
	Adult Day Program	7.15	8.0		80.0%	10.7%	9.3%
	Health/Medical	7.44	8.0		85.9%	7.7%	6.4%
	Personal	7.00	7.0		75.9%	18.4%	5.7%
12. Please rate the service provided by Southland Transportation	All Data	6.41	7.0		64.3%	28.0%	7.7%
	Go to Work	5.85	6.0		48.1%	37.0%	14.8%
	Adult Day Program	6.46	7.0		61.4%	26.3%	12.3%
	Health/Medical	6.60	7.0		67.2%	23.9%	9.0%
	Personal	6.27	7.0		60.0%	30.7%	9.3%
13. Please rate the service provided by Checker Cabs	All Data	6.74	7.0		68.8%	26.9%	4.4%
	Go to Work	6.77	7.0		63.3%	33.3%	3.3%
	Adult Day Program	6.77	7.0		69.0%	22.5%	8.5%
	Health/Medical	7.10	7.0		77.1%	21.4%	1.4%
	Personal	6.78	7.0		68.8%	27.5%	3.8%
14. Please rate the service provided by Associated Cabs	All Data	6.59	7.0		64.8%	29.7%	5.5%
	Go to Work	6.55	7.0		64.5%	29.0%	6.5%
	Adult Day Program	6.84	7.0		67.1%	27.4%	5.5%
	Health/Medical	6.96	7.0		73.2%	25.4%	1.4%
	Personal	6.70	7.0		67.5%	30.1%	2.4%
Overall Averages	All Data	6.70	7.00		69.1%	25.2%	5.7%
	Go to Work	6.59	7.00		63.7%	27.9%	8.4%
	Adult Day Program	6.80	7.25		69.4%	21.7%	8.9%
	Health/Medical	7.02	7.25		75.9%	19.6%	4.6%
	Personal	6.69	7.00		68.1%	26.7%	5.3%

service by trip purpose

Questions	Data Filter	Mean	Median	Category Percentages 0 20 40 60 80 100	Agree	Neutral	Disagree
1. Booking agents are friendly and helpful.	All Data	7.57	7.0		89.5%	6.1%	4.4%
	Go to Work	7.20	7.0		80.0%	11.4%	8.6%
	Adult Day Program	7.58	8.0		86.4%	6.2%	7.4%
	Health/Medical	7.70	8.0		88.8%	6.3%	5.0%
	Personal	7.44	7.0		86.8%	7.7%	5.5%
2. I feel safe when getting on and off the buses or taxis.	All Data	7.55	8.0		87.7%	7.3%	5.0%
	Go to Work	7.11	7.0		74.3%	17.1%	8.6%
	Adult Day Program	7.58	8.0		83.8%	8.8%	7.5%
	Health/Medical	7.62	8.0		86.1%	7.6%	6.3%
	Personal	7.54	8.0		85.7%	8.8%	5.5%
3. I am able to get the trips I need	All Data	7.21	7.0		81.8%	7.2%	11.0%
	Go to Work	6.51	7.0		68.6%	11.4%	20.0%
	Adult Day Program	7.07	7.0		74.1%	12.3%	13.6%
	Health/Medical	7.25	8.0		82.5%	3.8%	13.8%
	Personal	7.00	7.0		81.3%	3.3%	15.4%
4. My pick-ups are on time	All Data	6.32	7.0		65.0%	17.8%	17.2%
	Go to Work	5.46	5.0		40.0%	31.4%	28.6%
	Adult Day Program	6.22	7.0		64.2%	9.9%	25.9%
	Health/Medical	6.59	7.0		73.8%	10.0%	16.3%
	Personal	6.34	7.0		67.8%	10.0%	22.2%
5. My drop offs are on time	All Data	6.39	7.0		67.4%	16.0%	16.6%
	Go to Work	5.71	7.0		51.4%	20.0%	28.6%
	Adult Day Program	6.26	7.0		66.7%	8.6%	24.7%
	Health/Medical	6.69	7.0		76.3%	8.8%	15.0%
	Personal	6.38	7.0		68.1%	11.0%	20.9%
6. My travel time on the trip is reasonable	All Data	6.48	7.0		67.2%	18.9%	13.9%
	Go to Work	5.86	7.0		54.3%	20.0%	25.7%
	Adult Day Program	6.43	7.0		65.4%	16.0%	18.5%
	Health/Medical	6.86	7.0		75.0%	12.5%	12.5%
	Personal	6.71	7.0		72.2%	13.3%	14.4%
7. Buses are comfortable to ride in.	All Data	6.75	7.0		73.0%	16.9%	10.1%
	Go to Work	6.79	7.0		70.6%	14.7%	14.7%
	Adult Day Program	6.84	7.0		76.3%	10.0%	13.8%
	Health/Medical	6.97	7.0		76.9%	12.8%	10.3%
	Personal	7.01	7.0		79.8%	11.2%	9.0%
8. If asked by a friend, relative or co-worker, I would recommend using Access Calgary.	All Data	6.96	7.0		78.3%	11.1%	10.6%
	Go to Work	6.69	7.0		71.4%	14.3%	14.3%
	Adult Day Program	6.94	7.0		75.3%	9.9%	14.8%
	Health/Medical	7.39	7.5		86.3%	5.0%	8.8%
	Personal	7.00	7.0		78.9%	12.2%	8.9%
9. Overall, I am satisfied with the services provided by Access Calgary	All Data	6.85	7.0		76.1%	13.9%	10.0%
	Go to Work	6.43	7.0		60.0%	25.7%	14.3%
	Adult Day Program	6.72	7.0		70.4%	16.0%	13.6%
	Health/Medical	7.15	7.0		82.3%	7.6%	10.1%
	Personal	6.85	7.0		75.8%	13.2%	11.0%
Overall Averages	All Data	6.90	7.11		76.2%	12.8%	11.0%
	Go to Work	6.42	6.78		63.4%	18.4%	18.2%
	Adult Day Program	6.85	7.22		73.6%	10.9%	15.5%
	Health/Medical	7.14	7.39		80.9%	8.3%	10.9%
	Personal	6.92	7.11		77.4%	10.1%	12.5%

Customer Service Word Cloud

Booking Trips

Pick Up Times

Drivers

Customer Service

Everything else

Eight Zeros

Defining Near Perfection in Process Performance

The ideal assembly or service delivery process is often described in terms of the eight zero's of Just In Time also referred to as the eight zeros of Lean.

- Zero Inventories. The primary goal in manufacturing environments. The ideal process has no inventory, no safety or buffer stocks and no warehouses. Every piece and every part of every piece arrives just in time for it to be incorporated into the production process.
- Zero defects. Zero defects means no defects in incoming parts, no deviation from scheduled arrival or deliver y times, no errors in record keeping, no exceptions.
- Zero (excess) lot size. Excess in this ideal is equal to 1. In manufacturing this means single piece flow of lot size 1. In service it means no batching of work and no excess or empty space.
- Zero setup times. The time required to change from one task to another equals zero. Machine set up times are one example. The time required to open and close a customer's files is another.
- Zero breakdowns. No downtime on systems, no failures in equipment.
- Zero handling. Every part is produced, every service is delivered, precisely when it is required or requested.
- Zero lead time. Whatever is provided is provided is provided instantaneously. Service is delivered precisely when it is requested.
- Zero surging. Work proceeds smoothly without any significant demand peaks and valleys inconsistent with the availability of the organization's response capability. In other words, organizational capability is matched with demand.

That the eight zero's are unattainable is the point of using them as performance standards because this supports a culture of continuous improvement. Lead time for example, will never be zero. But organizations should never stop trying to make it as small as possible.