

Shared Ride Service Models

Calgary Transit is continuously monitoring the evolution of technology and service paradigms in order to efficiently and effectively deliver safe and accessible public transit. The desire for high-frequency public transit continues to grow across the city, while limited operating budgets and competing demands for resources constrain our ability to address that growth. Calgary Transit has evolved service delivery models in the past where they have demonstrated value for our customers and our business (e.g. Community Shuttle service for lower ridership areas and off-peak periods).

The emergence of ridesharing has prompted questions regarding efficient and effective service delivery. This brief overview seeks to answer the questions: what, where and when is the best fit for shared-ride service models, and how can they complement fixed-route transit service?

Background on the Emergence of Ridesharing

Ridesharing services that divert off of fixed routes have historically been part of the toolbox of public transportation service delivery. In Calgary, Dial-a-bus service was once used as a complement to fixed-route transit service in low-density communities (and still is in off-peak periods in some other cities). Calgary Transit Access currently uses ridesharing as a means of efficiently delivering accessible transportation for people with disabilities who are unable to access other Calgary Transit services.

Major advances in on-demand technology through mobile platforms have facilitated the rapid growth of ridesharing Transportation Network Companies (TNCs) such as uberPOOL, Bridj, and RideCo. These services match users based on their trip origins and destinations, and create an on-demand and dynamically-scheduled route that transports multiple users in one vehicle. The size of the vehicle can range from a 4-passenger sedan to shuttle vans and buses. This type of service provides flexible and convenient trips for users at a relatively low cost, since the trip is shared with multiple users.

The “Fit” with Fixed-Route Public Transit

There will always be a need for a mode progression from rideshare vehicles to larger vehicles with operating characteristics that allow them to carry more people. Mass transit is required whenever travel demand from major trip generators outstrips the ability of other modes to serve that demand (e.g. downtown, special events, major activity centres, high-intensity development areas, main corridors). This is similar to the progression required from regular bus service to bus rapid transit and light rail transit. Higher capacity is often required to address growth in passenger demand on fixed route public transit. There is a potential fit with earlier introduction of services that feed these fixed route services, as discussed below.

Public regulation and oversight of service delivery will always be required to make the most of limited resources and to address societal goals (e.g. accessibility, equity, citizen focus). In some cases, Federal and Provincial funding is predicated on that regulation and oversight, and includes additional requirements (e.g. regional integration).

From a transit perspective, ridesharing is attractive for areas and time periods where fixed-route transit is not feasible today. Transit service is currently not delivered in these situations because of low customer demand (communities with less than 300-400 dwelling units, late night on weeknights, etc.). Ridesharing – coordinated with fixed-route public transit corridors - could provide customers with convenient access to a shared transportation service that reduces dependence on private automobiles, while the on-demand nature of the routing and scheduling would allow for lower operating costs and increased efficiency of service delivery.

There are several opportunities for an integrated approach to shared transportation service between public transit and ridesharing, but the two areas that would be most beneficial to transit agencies and customers are:

- Late night and weekend transportation options
- First/Last Mile problem - Connections between high-frequency transit hubs and:
 - New communities
 - Distant suburban communities and major activity centres
 - Industrial areas with low employment density

These time periods and areas typically have low transit ridership, leading to relatively low efficiency and productivity for traditional service that is provided to maintain service span and coverage goals. Fixed-route transit service is the most efficient mode to move large volumes of people along main corridors, and is the most cost-effective option for longer-distance trips, but the opportunity for integration with shared ride services is high for low ridership routes that are designed to feed into a higher-order transit network.

Implementation

There are several potential forms of coordinated service delivery, including:

- Coordination between Calgary Transit Access and Calgary Transit on service delivery.
- Contracts with TNCs to provide shared transportation services between user-defined origins and destinations.
- Contracts with TNCs to provide shared transportation services between high-frequency transit hubs and user-defined origins/destinations.
- Informal relationship where transit does not provide a traditional fixed-route service for areas and time periods that experience very low ridership, and ridesharing TNCs fill that service gap.

Administration currently contracts service to external providers on a competitive basis when it is more effective and cost-efficient (e.g. providers contracted by Calgary Transit Access), and will explore partnerships with ridesharing TNCs as well under these conditions.

Administration is monitoring pilot projects in other cities. The initial results of these pilot projects, as well as the academic and industry research have indicated some initial successes in improving the efficiency and cost-effectiveness of transit service through partnerships with ridesharing in some areas. Examples include:

- Milton Transit and RideCo: A 12-month pilot between RideCo and Milton Transit was tested in response to parking pressure at train stations. The goal of the pilot was to provide a convenient shared transportation alternative to personal vehicles for travel between stations and customers' homes. Customers were able to book a ride on the app on-demand, and a shared transportation route was dynamically created and optimized based on the desired destinations. The partnership provided a high-quality shared transportation connection between train stations and suburban residential areas that could not be efficiently serviced by high-frequency transit.
- Kitchener-Waterloo and RideCo: In order to provide shared transportation services in areas of Kitchener-Waterloo with gaps in transit service, RideCo launched a ridesharing service that allowed customers to book shared door-to-door trips. Routes were dynamically created for drivers based on the requested trip origins and destinations of users, with the goal of transporting multiple users travelling along the same general corridors. The main focus of the service was during off-peak hours and in areas with poor access to transit service, to provide a more sustainable and competitive option to personal vehicles or single-user ride-hailing services (e.g. taxis, traditional TNCs). Grand River Transit, the local public transit agency, did not have a formal partnership with RideCo to fill their gaps in service coverage and span.
- Airdrie Transit and local taxis/TNCs: Airdrie Transit is planning to introduce an app-based dynamic transit model in 2017. The new model will focus traditional fixed-route transit service along main corridors in the city, while dynamic shared ride routes will be used to connect users outside the main corridors to high-frequency transit. Multiple customers will be picked up at community stops by taxis/TNCs, with the route and schedule dynamically created based on customer demand, and they will be fed into the high-frequency transit corridors to complete their trip. This will allow Airdrie Transit to provide a more cost-effective service and invest their resources into efficient routes on main corridors, while improving service coverage and growth without significant resource commitments.
- Massachusetts Bay Transportation Authority (MBTA) and Bridj: MBTA is evaluating a partnership proposal that would contract late-night transit service to Bridj, an app-based dynamic route microtransit service. Routes would be created and scheduled based on customer requests, and pick-ups and drop-offs would take place using shuttle vans at designated local stops. This would provide flexible, convenient and more efficient routes based on customer demand, with significant savings in operating costs compared to providing a traditional fixed-route late night transit service.
- Other U.S. transit agencies that have recently received federal funding through the Mobility on Demand Sandbox Program to pilot partnerships with ridersharing TNCs include the Regional Transportation Authority of Pima County (Arizona), Tri-County Metropolitan Transportation District (Oregon), Dallas Area Rapid Transit (Texas), and Pierce County Public Transportation Benefit Area Corporation (Washington). The goal of these pilot projects is to address gaps in service coverage and span with more efficient service delivery models, with funding for individual projects ranging from \$200,000-\$1,200,000.

One consideration as part of the 2019 Calgary Transportation Plan Update is that targets for transit service span and coverage could be modified if shared-ride services can fill existing gaps. These targets would have to consider the availability of more general “shared transportation” services, which would include both transit and ridership services. These services are complementary to transit, and have the potential to improve access to more sustainable transportation alternatives and reduce reliance on personal vehicles. Shared goals and outcomes of these services include reduced greenhouse gas emissions, congestion and parking demand. Consideration will also have to be made to ensure equity in ability to access new service models across a full spectrum of incomes, ages, and disabilities.

Administration will investigate further into the ways shared-ride services can efficiently and effectively address geographic service gaps, time-of-day coverage gaps, and other investments associated with fixed-route transit as part of the 2019 Calgary Transportation Plan update.