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On-Demand Transit Service

Burlington Transit Five-Year Business Plan

October 10, 2019

Purpose of this Workshop

- Define dynamic on-demand transit services

- Understand potential applications in Burlington

- Request Council approval on a preferred service model to pilot a service

- Seek Council input on other applications to focus on following the pilot

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Agenda

- **About On-Demand Transit and Service Characteristics**
- **Peer Examples and Common Characteristics**
  - **Discussion**
- **Guiding Principles**
  - **Discussion**
- **Objectives of On-Demand Transit**
- **Where to Use On-Demand Transit**
- **Future of On-Demand Transit in Burlington**
- **Recommendations**
  - **Discussion**
- **Next Steps**

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What is Dynamic On-Demand Transit?

Four distinguishing components:

- Flexible routing or scheduling based on customer demand

- Use of mobile apps to connect supply and demand

- Use of smaller, more flexible vehicles

- Connecting multiple transportation services to complete a trip

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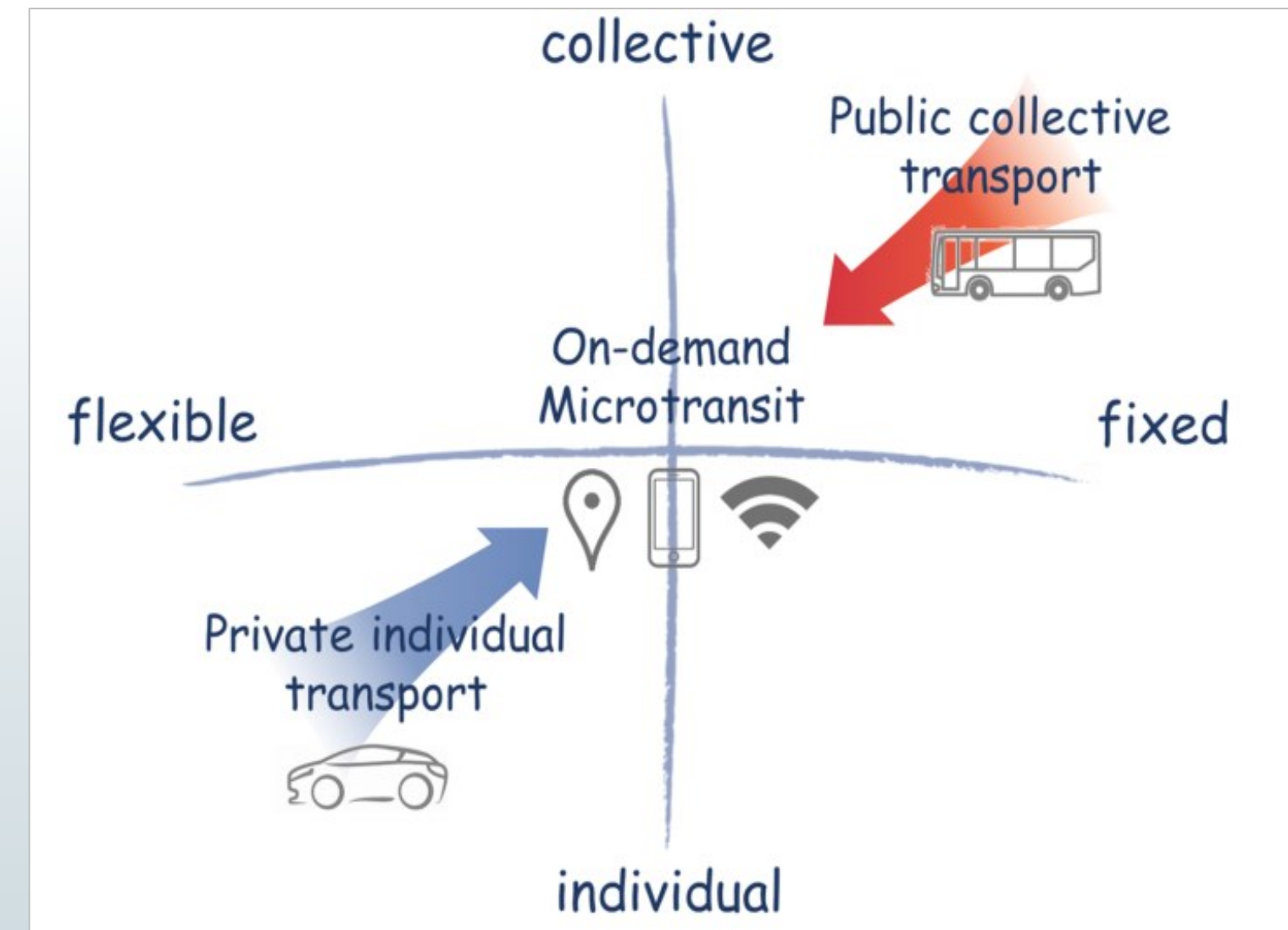
The Customer Experience

TRACK YOUR RIDE

AT YOUR FINGER TIPS

BOOK YOUR RIDE

PAY FOR YOUR RIDE

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How does it differ from fixed-route transit?

Customers adapt to the service offered

Transit service adapts to the customer

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Characteristics: Service Delivery Model
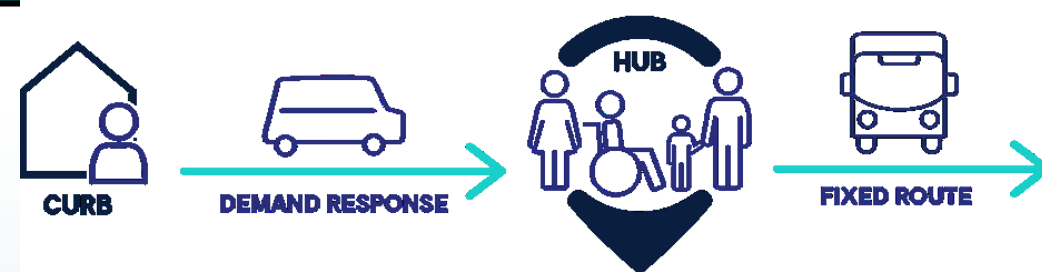
Origin-to-Hub (First Mile/Last Mile)
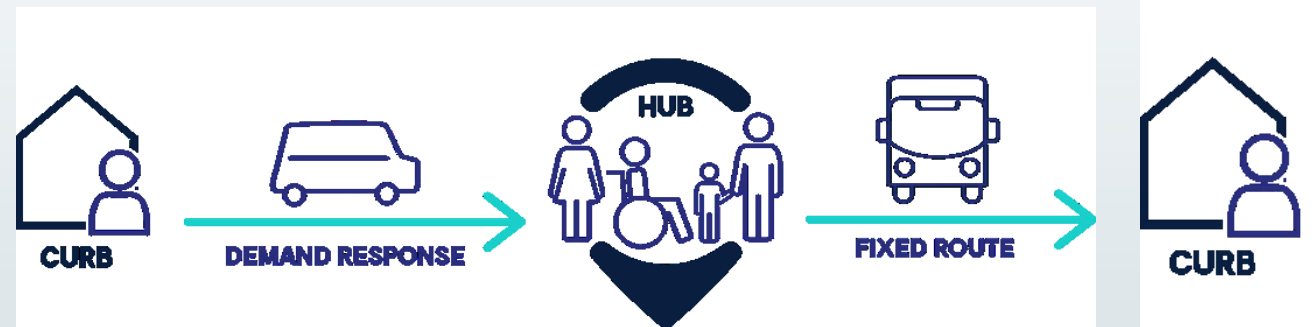
Origin-to-Destination

Origin-to-Hub-to-Destination

Flex Route

Ridesharing Partnership

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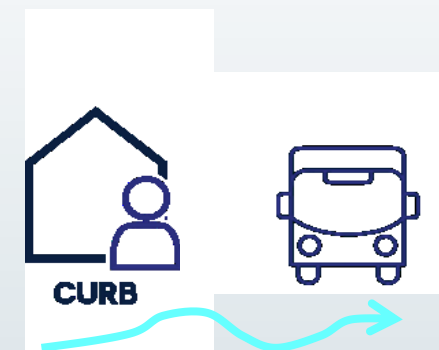
Characteristics: Fleet and Booking

A two-axis diagram. The vertical axis is labeled **FLEET** ranging from **Non-Dedicated Private Vehicles** (top) to **Dedicated Transit Vehicles** (bottom). The horizontal axis is labeled **INTERFACE**, ranging from **Phone Reservation / Limited Tracking / Pay Driver** (left) to **Mobile App Based (On-demand Tracking / Mobile Payment)** (right).
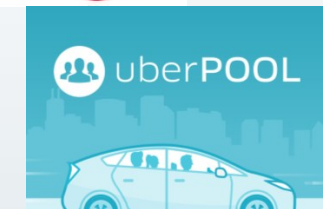
Logos positioned on the chart include: Welland Trans-Cab, Durham Region Transit FLEX, LT london transit, GRT Grand River Transit busPLUS, airdrie transit, Innisfil, UBER, Caltrain, Metro, uberPOOL, York Region Transit, Milton Transit, Belleville on the Bay of Quinte.

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Characteristics: Trip Booking, Accessibility and Costing

Trip Booking

- **On-Demand**
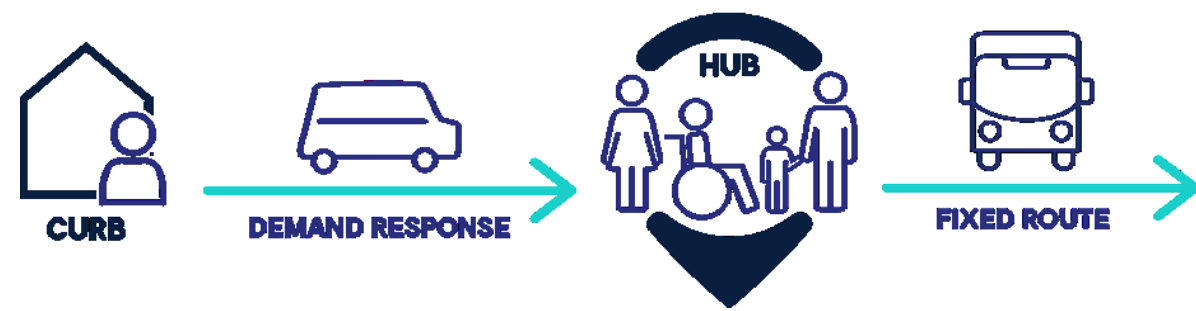- **Scheduled On-Demand**
- **Scheduled**
- **Subscription**

Accessibility

- **Integrated**
- **Separated**

Costing Model

- **Per Hour**
- **Per Kilometer**
- **Per Trip**
- **Per Vehicle**

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Peer Example: Milton Transit

Characteristics

- Service to and from GO station
- Shared rides, dynamic routing
- Surcharge for at-home pick-up/drop-off
- Trips booked through app
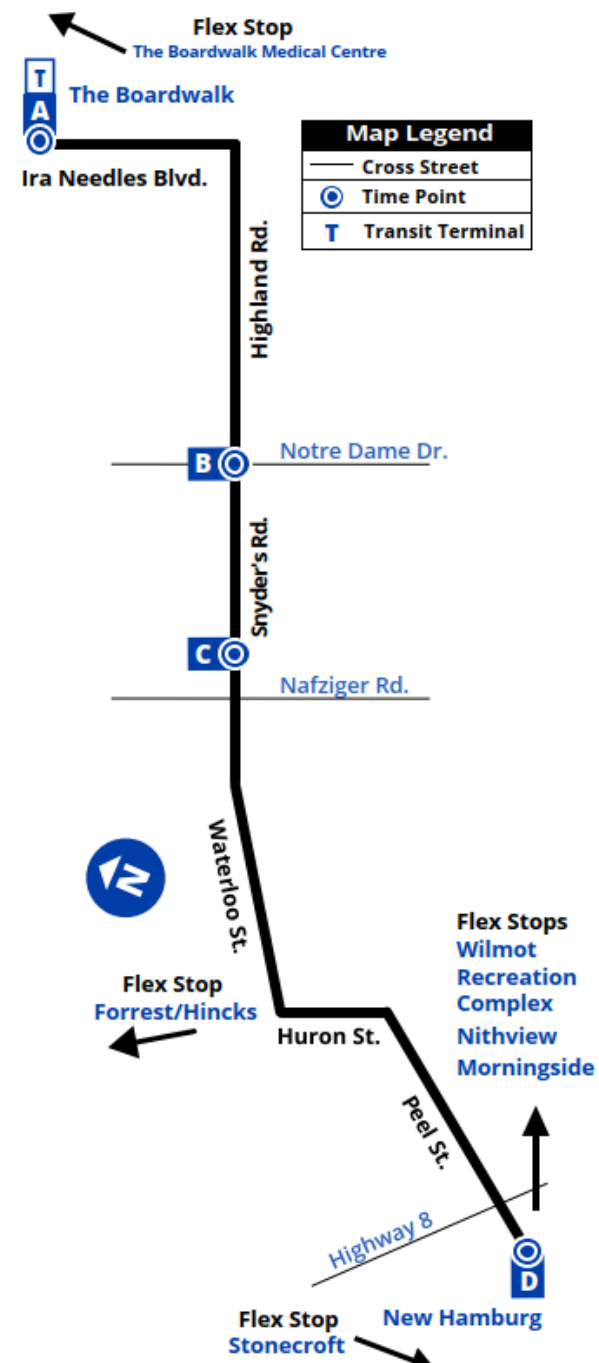- Service provided via taxis and transit (Arbocs)

Results

- Pilot successful but discontinued

# Peer Example: Grand River Transit Flex Routes

- **GRT is piloting several on-demand models**

- **Includes two "flex routes" that have a fixed origin and destination, but only visits certain stops on request**

- **Model helps stretch service by flexing into areas that have limited demand only on request**

# Peer Example: Belleville Transit

- **Launched September 2018**

- **Uses mobile app powered by Pantonium to replace two-fixed-route evening services with on-demand service**

- **Used on 40ft conventional bus**

- **Ridership grew from 900 – 1,200 to 3,500 – 4,000 monthly trips**

- **Increased fleet from 2 to 5 buses**

- **Operating full bus loads on certain trips, average 10 b/rvh**

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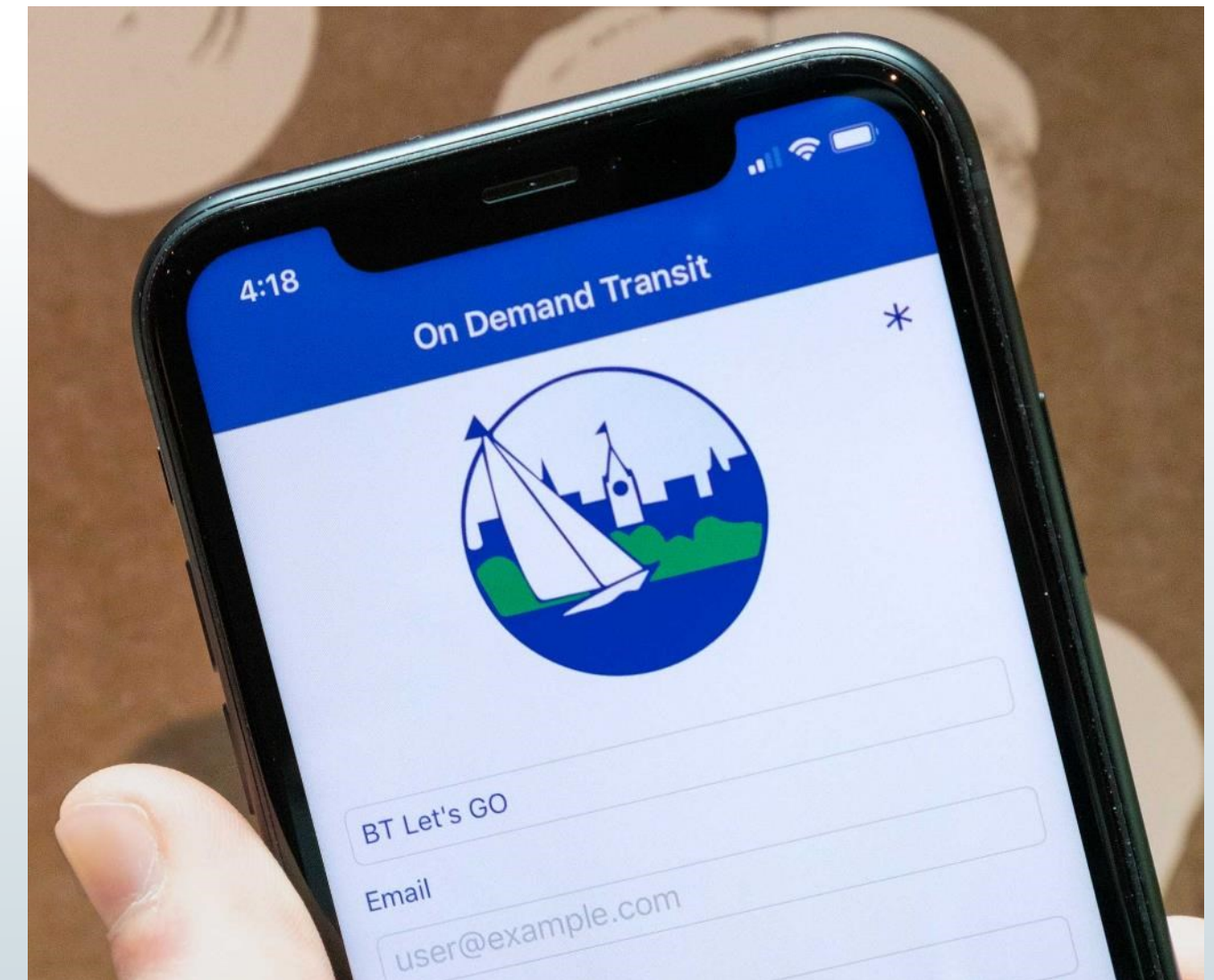
Peer Example: Innisfil Transit

- Launched May 2017

- $4 - $6 fare to select locations; $4 off Uber fare for any other trip

- Accessible taxis contracted to provide accessible service

- Town provides iPads at rec centre and town hall for bookings

- Subsidy
  - 2017: $150,000
  - 2018: $640,000
  - 2019: $900,000 (budget)
  - 2019: $1,200,000 (anticipated cost without fare changes)

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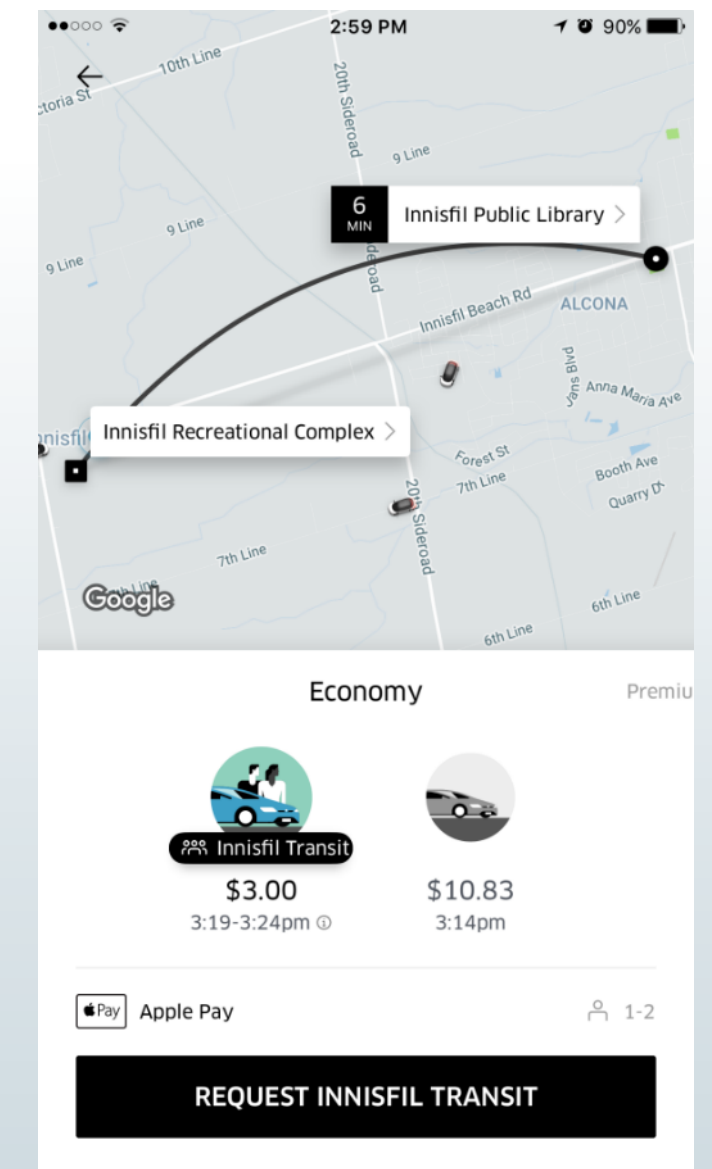
Peer Example: Innisfil Transit
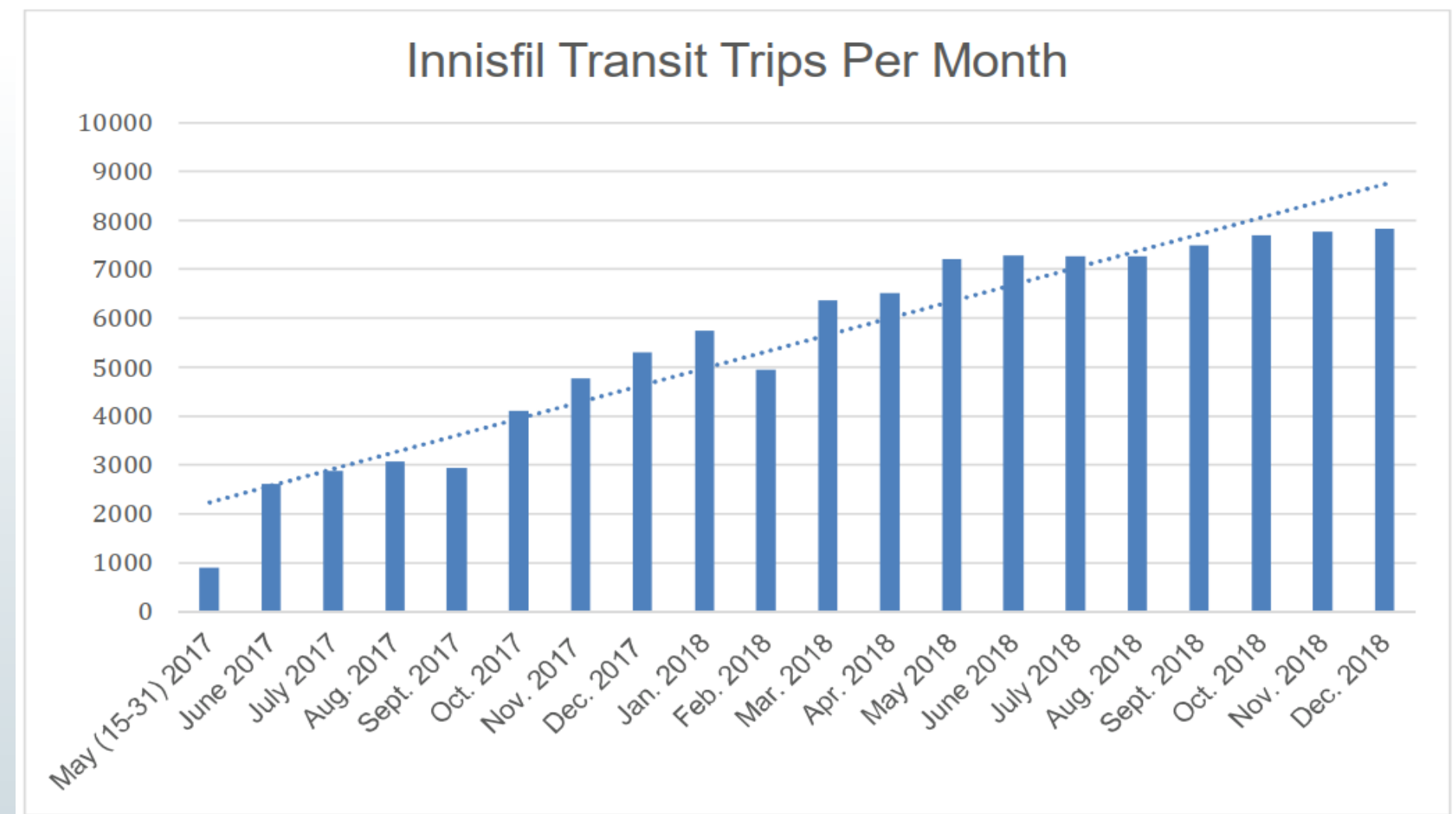
Fare Changes

- **Increase fares to reduce subsidy**

- **Limit subsidy to 30 trips per month**

- **Customers can request up to 50 trips per month based on application process**

Results

- **Successful in attracting ridership**
  - **Ridership: 2017 - 27,000**
  - **Ridership 2018 - 86,000**
- **Challenge with cost control**

Innisfil Transit Trips Per Month

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Peer Example: York Region Transit

Phase 1

- **Servicing 15 separate markets**

- **Integrated with Mobility Plus service**

- **Rides booked by phone at least 60 minutes in advance of trip**

- **Replace existing low-performing fixed routes - connects riders to any two stops within the On-Request area or to a fixed route**

- **35,000 annual boardings; 2-4 boardings/rvh**

- **Some ridership loss where replaced with fixed route**

DIAL A RIDE
North

DIAL A RIDE
Regular Routing

DIAL A RIDE
Aurora and Oak Ridges

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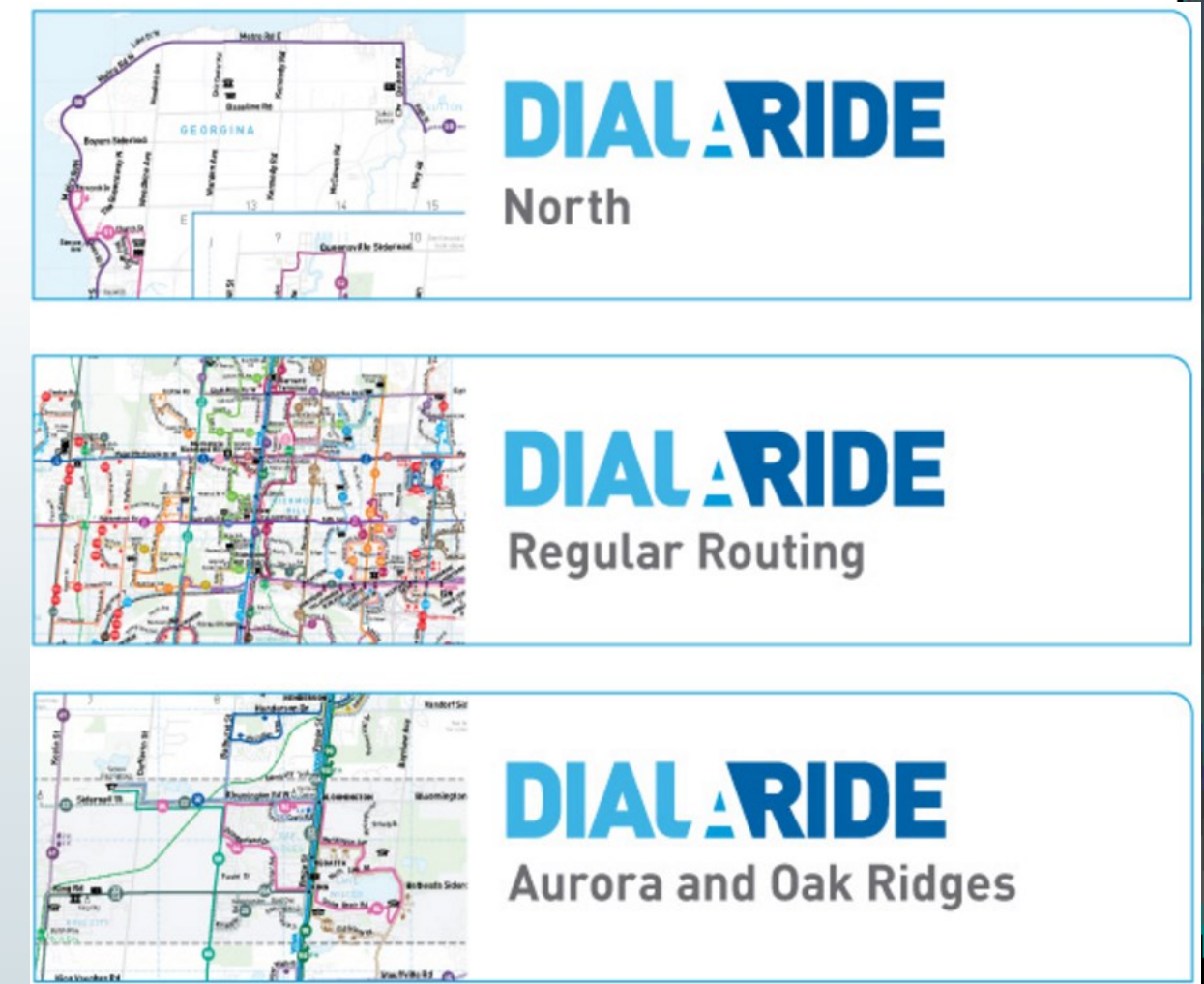
Peer Example: York Region Transit

Phase 2 (Fall 2019)

- **Piloting mobile app at Aurora GO Station (integrated with full trip planner)**

- **Will convert other DAR areas to On-Request platform (use of mobile app)**

- **Changing brand - rebranding Dial-a-Ride and Mobility Plus to "Mobility On Request"**

- **Anticipated increase in productivity and ridership with switch**

Common Characteristics

- **Technology** – Use mobile apps for booking (along with another option for those without access to a mobile app)

- **Integration with fixed routes** – Provide first-mile/last mile service to fixed-routes (origin-to-hub)

- **Productivity** – Implemented to achieve cost savings compared to conventional fixed-route transit often in the form of after-hours service, or to meet coverage targets in low-demand areas

- **Limited accessibility integration** – Provided separately from specialized transit operations

- **Implementation:** Start as a pilot to test effectiveness and customer feedback

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Industry Scan

1. **Milton Transit**

2. **Grand River Transit**

3. **Belleville Transit**

4. **Innisfil Transit**

5. **York Region Transit**

Discuss: Do you have any questions about how each model operates?

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Guiding Principles for On-Demand Transit in Burlington

1. **Convenience:** emphasizes customer convenience and reduction in travel time to encourage ridership growth

2. **Adaptable and Scalable:** can meet future needs as technology evolves and new applications are found

3. **Accessible:** for all ages and abilities, includes having a dial-in option and accessible vehicles

4. **Safety and Security:** for customers and operators through training, vehicles, etc.

5. **Environmental Footprint:** reflective of current environmental efforts

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Guiding Principles for On-Demand Transit in Burlington

6. **Congestion Reduction:** decrease vehicle kilometres traveled by emphasizing shared trips

7. **Branding:** part of the larger Burlington Transit system

8. **Financial Sustainability:** implemented in areas/times leading to improved service at a lower cost

9. **Fare Integration:** integrated with Presto with the same fare structure

10. **Reliability:** reliable in terms of on-time performance and vehicle availability

11. **Ease of Use:** easy to use and simple to understand

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Guiding Principles for On-Demand Transit in Burlington

1. Convenience
2. Adaptable and Scalable
3. Accessible
4. Safety and Security
5. Environmental Footprint
6. Congestion Reduction

7. Branding
8. Financial Sustainability
9. Fare Integration
10. Reliability
11. Ease of Use

Discuss: Is there anything missing from these guiding principles?

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Where to Use On-Demand Service

	Fixed-Route	Dynamic On-Demand
Proximity to Service (400 m)	High proximity to transit stops	Low proximity to transit stops
Route Structure (deviations)	Route is relatively direct with minimal deviations	Route is fairly circuitous or has large one-way loops
Headway	20 minutes or better	30 minutes or greater
Key Origins and Destinations	High demand between few origins and destinations (ridership focused)	Few origin / destination pairs with high demand (ridership scattered)
Productivity*	Above 15 boardings per revenue vehicle hours	Below 12 boardings per revenue vehicle hour

*These are not strict rules, but guidelines that may vary based on the goals of the on-demand service

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Objectives of On-Demand Transit in Burlington

1. Replace Poor Performing Routes (or Route Segments)

2. Introduce to Areas far from Fixed-Route Service

3. Introduce Service to Growing or New Neighbourhoods

4. Improve Connections to Rapid Transit Stations

5. Provide a Premium Level of Service

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1. Replace Poor Performing Routes (or Route Segments)

- **Areas with less than 12 boardings per revenue vehicle hour can be served more efficiently and cost-effectively with on-demand service**

- **Can be used to take large route deviations off of fixed-routes, while maintaining coverage**

- **Possibility to replace existing routes during low demand periods such as at evenings**

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2. Introduce to Areas far from Fixed Route Service

- Connect residents that are over 400 metres away from a bus stop to transit

- Improve mobility for seniors that have difficulty walking to a bus stop

- Focus on low density neighbourhoods as fixed-route service has evolved to focus on travel time reductions by operating on arterial roads

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3. Introduce Service to Growing or New Neighbourhoods

- **Growing areas without the current population and employment to support fixed routes can benefit from on-demand service**

- **Potential to introduce transit ea then transition to fixed-route if ridership grows**

4. Improve Connections to Rapid Transit Stations

- **Misaligned schedules between Burlington Transit and GO Transit can result in long wait times**

- **Reduce parking demand, as well as congestion near GO Station**

- **Improve frequency of connections as Regional Express Rail is introduced**

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5. Provide a Premium Level of Service

- **Can be applied network wide**

- **Potential to explore higher fare for premium service (must watch for social equity)**

- **Attract new customers that are not frequent users of Burlington Transit**

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Options: Service Delivery Model

Purpose	Poor Performance Routes	Limited Proximity Areas	Early Service Introduction	Rapid Transit Connectivity	Premium Transit Service
Origin-to-Destination	✓	✓			
Origin-to-Hub	✓	✓	✓	✓	✓
Origin-to-Hub-to-Destination	✓	✓	✓	✓	✓
Flex Route	✓	✓	✓		
Ridesharing Partnership	✓	✓		✓	✓
Recommended	✓	✓	✓	✓	✗

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Options: Operating Model

Operating Model	Dedicated (Municipal)	Dedicated (Contract)	Non-Dedicated (Contracted)
Model	Vehicles and drivers procured by Burlington	Vehicles and drivers procured by contractor	Vehicles and drivers procured and coordinated by contractor
Cost Effectiveness	More cost effective as ridership grows (vehicle supply fixed; goal to fill up capacity through ridesharing)		Cost effective for low demand areas (only pay when a trip is complete)
Cost Control	Certainty of cost based on hourly operating rate and fixed supply of drivers		Less cost control if Burlington does not dispatch vehicles (supply is added to accommodate demand)
Collective Agreement	Few collective agreement concerns	Potential collective agreement concerns	
Suitability	Late night or off-peak service where specialized transit vehicles are available	All-day operation options (limits capital expense during pilot)	Low-usage areas that don't warrant dedicated vehicles
Recommended	✓	✓	✗

Recommended Model - Pilot

1. **Pilot evening dynamic on-demand service for a period of one-year**

    - Replace poor-performing fixed-routes with origin-to-hub service and origin-to-destination where a fixed-route connection is not suitable

    - Issue an RFP to procure an on-demand mobile app provider

    - Use existing fixed-route stops as pick-up/drop-off points to maintain effectiveness

    - Used dedicated, municipally operated specialized transit vehicles to operate service

    - Do not integrate specialized transit trips during pilot, but mobile app should be scalable to accommodate this in the future

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Recommendations

2. **Assess success of dynamic on-demand pilot using quantitative and qualitative measuring tools**

3. **Explore other applications of dynamic on-demand transit if pilot is successful** (note: selection of on-demand mobility app should take future opportunities into account)

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Next Steps

1. **Produce a business case for on-demand transit evening pilot using preferred on-demand service model (confirm service area, hours of service, anticipated ridership and net costs)**

2. **Identify call-in option for persons without access to mobile phones**

3. **Identify key requirements to be included in an RFP for a mobile-app provider (short- and long-term)**

4. **Issue RFP for an on-demand mobile-app provider**

5. **Target pilot launch in Fall 2020**

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Discussion

What other applications of dynamic on-demand services should Burlington Transit explore and prioritize after the completion of the pilot?

1. **Replace Poor Performing Routes (or Route Segments)**

2. **Introduce to Areas far from Fixed-Route Service**

3. **Introduce Service to Growing or New Neighbourhoods**

4. **Improve Connections to Rapid Transit Stations**

5. **Provide a Premium Level of Service**

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Thank You

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