

V I R T U A L



TRANSIT
WORKING
GROUP

M E E T I N G

Boston Region Metropolitan Planning Organization Transit Working Group

September 20, 2022

V I R T U A L



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WORKING
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Notice of Nondiscrimination

You are invited to participate in our transportation planning process, regardless of your race, color, national origin (including limited English proficiency), religion, creed, gender, ancestry, ethnicity, disability, age, sex, sexual orientation, gender identity or expression, veteran's status, or background.

简体中文 (Simplified Chinese)

如果需要使用其它语言了解信息，请联系波士顿大都会规划组织 (Boston Region MPO) 《民权法案》第六章专员，电话 857.702.3700。

繁體中文 (Traditional Chinese)

如果需要使用其他語言瞭解資訊，請聯繫波士頓大都會規劃組織 (Boston Region MPO) 《民權法案》第六章專員，電話 857.702.3700。

Kreyòl Ayisyen (Haitian Creole)

Si yon moun vle genyen enfòmasyon sa yo nan yon lòt lang, tanpri kontakte Espesyalis Boston Region MPO Title VI la nan nimewo 857.702.3700.

Español (Spanish)

Si necesita esta información en otro idioma, por favor contacte la Boston Region MPO al 857.702.3700.

Português (Portuguese)

Caso estas informações sejam necessárias em outro idioma, por favor, contate o MPO da Região de Boston pelo telefone 857.702.3700.

Tiếng Việt (Vietnamese)

Nếu quý vị cần thông tin này bằng một ngôn ngữ khác, vui lòng liên lạc Boston Region MPO theo số 857.702.3700.

Read the full notice of your rights and protections at www.bostonmpo.org/mpo_non_discrimination.

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Accessibility Statement

This meeting is accessible to people with disabilities. Zoom products are compliant, with exceptions, with the following standards: Web Content Accessibility Guidelines 2.1 Level AA Standards and Revised Section 508 Standards.

If you require any additional accommodations in order to participate fully in this meeting, please contact Logan Casey, MPO staff, at lcasey@ctps.org or 857.702.3706.

AGENDA

1. **Introductions**
2. MPO Activities Update
3. Transit Provider Items
4. Improving Rider Experience Through Open-Source Software
5. Learning from Regional Fare Integration in Montreal
6. Public Comments
7. Closing and Next Steps

Introductions

- Name
- Affiliation
- Location or transit service area
- Pronouns, if desired

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Guidelines

1. All participants will join the meeting with muted microphones.
2. Please rename yourself to include your first name, last name and affiliation.
3. To participate in the discussion, please select the “raise hand” function. Find this by clicking either on the “Participants” button at the bottom of the screen, and a window will pop up with a “Raise Hand” button at the bottom, or the “Reactions” button in the toolbar. Staff will then call on participants.
4. If you are on the phone, you can use *9 to raise your hand.
5. If you have any technical difficulties, please contact Logan Casey via the chat box, lcasey@ctps.org or 857.702.3706.

September 20, 2022

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Today's Meeting

1. Introductions
2. MPO Activities Update
3. Transit Provider Items
4. Improving Rider Experience Through Open-Source Software
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MPO Activities Update

Federal MPO Certification Review Update

September 20, 2022

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Certification Review: Key Questions

What are your views on the planning process?

- What are some challenges?
- What are some strengths?

Do you feel you understand how the planning process works and how to get involved?

Do you feel like you have adequate opportunities to participate and be heard?

September 20, 2022

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Certification Review: Opportunities for Public Input

FEDERAL CERTIFICATION REVIEW Public Meetings

Meeting 1: During a regularly
scheduled RTAC meeting
Wednesday, 9/14/2022 - 2:30 PM

Meeting 2: During a regularly
scheduled MPO meeting
Thursday, 10/6/2022 - 10:00 AM

September 20, 2022

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Certification Review: Federal Contacts

Written comments can be submitted by October 14, 2022 to:

FHWA: Cassie Ostrander, Program Development Team Leader cassandra.ostrander@dot.gov or 55 Broadway, 10th Floor; Cambridge, MA 02142

FTA: Leah Sirmin, Community Planner leah.sirmin@dot.gov or 55 Broadway, Suite 920; Cambridge, MA 02142

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Destination 2050 Long-Range Transportation Plan

September 20, 2022

Sandy Johnston, MPO Staff

Boston Region Metropolitan Planning Organization

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Long-Range Transportation Plan (LRTP) Overview

What is the LRTP?

- Long-range plan that provides a vision and goals for the Boston region's transportation system over the next 25+ years
- Prioritizes major projects and programs to meet the vision
- Shapes annual Metropolitan Planning Organization (MPO) decisions about projects and studies to fund
- Updated every four years
- Current LRTP: *Destination 2040* (adopted 2019)

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Destination 2050 Schedule

Activity	Timeframe
Identify regional transportation needs	Fall 2022 – Winter 2023
Refresh the MPO’s vision and goals	Fall 2022 – Winter 2023
Identify and/or update investment programs and candidate projects	Fall 2022 – Winter 2023
Allocate funds to investment programs and select projects	Spring 2023 – Summer 2023
Adopt the final <i>Destination 2050</i> plan	Summer 2023

Technical difficulties?
Call Logan Casey at 857.702.3706 or
email lcasey@ctps.org.



September 20, 2022

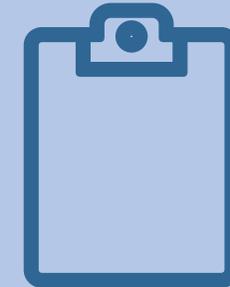
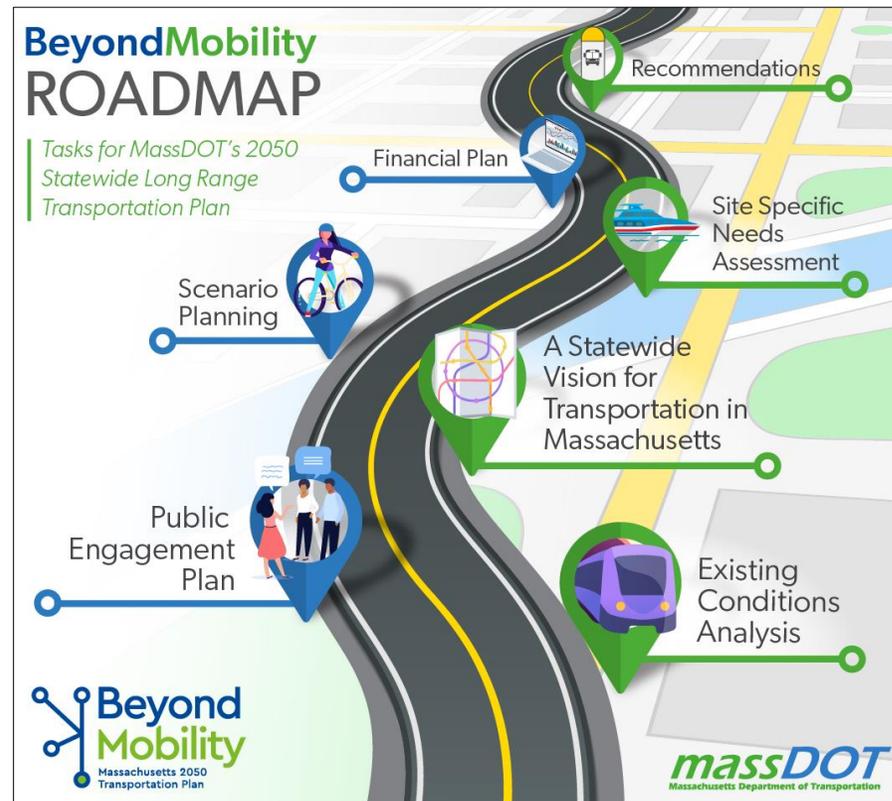
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Parallel Process: *Beyond Mobility*

Statewide Long-Range Transportation Plan

www.mass.gov/beyond-mobility



Current survey
Beyond Mobility
open through
November 4



Technical difficulties?
Call Logan Casey at 857.702.3706 or
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Unified Planning Work Program (UPWP) Update

September 20, 2022

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About the Federal Fiscal Year (FFY) 2023 UPWP

- Released for public comment on July 21, 2022
- Endorsed by MPO on August 18, 2022
- Programs approximately \$8 million dollars across MPO's core certification requirements, technical analyses and corridor studies, and discrete studies

Technical difficulties?
Call Logan Casey at 857.702.3706 or
email lcasey@ctps.org.



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FFY 2023 UPWP Discrete Studies

Table ES-2
New Discrete Funded Studies in FFY 2023

Universe ID	Project ID	Study or Program	Proposed FFY 2023 CTPS Budget
N/A	2823	Multimodal Mobility Infrastructure Program	\$323,000
A-3	13803	Update Bicycle/Pedestrian Count Database	\$80,000
T-1	13804	Flexible Fixed-Route Bus Service	\$20,000
T-2	13805	Transit Modernization Program	\$37,500
M-1	13806	Lab and Municipal Parking Study	\$80,000
TE-1	13807	Learning from Roadway Pricing Experiences	\$45,000
TE-4	13808	Sustainability and Decarbonization in the Freight and Logistics Sector in the North Suffolk Area	\$67,500
Total for New Discrete and Recurring Studies			\$653,000

Technical difficulties?
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FFY 2024 UPWP Development

- Looking to next year:
 - Subregional outreach will begin in October
 - Guidelines for study idea submissions will be disseminated in the coming months
 - Contact: Srilekha Murthy, UPWP Manager
 - smurthy@ctps.org
 - 857.702.3705

Technical difficulties?
Call Logan Casey at 857.702.3706 or
email lcasey@ctps.org.



Transit Provider Items

Improving Rider Experience Through Open-Source Software

TransitOPS



TransitOPS **MANIFESTO**

TransitOPS aims to build and support an open-source transit technology stack that will get public transit riders the information they deserve while unlocking the potential for agencies to achieve modernization, equity, and affordability.



MODERNIZE PUBLIC TRANSIT. REDUCE INEQUALITY.

We helped build & sustain one of the most effective gov-tech startups in the public sector, at the MBTA in Boston.



CEO
Siobhan Cunningham



CTO
Paul Swartz

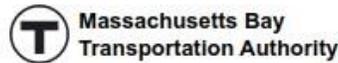
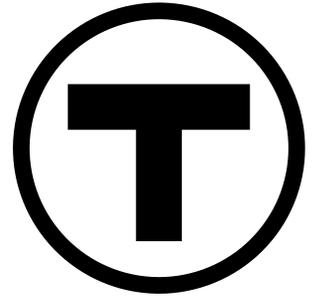


COO
Ryan Mahoney

Siobhan built CTD's operating model and led key initiatives and partnerships, getting CTD to 15M in annual funding.

Paul architected the data pipeline and many other open-source transit applications, which process over 1 billion data transactions each month.

Ryan manages a team of 29 software and infrastructure engineers, delivering results to riders using an iterative and agile approach.



Apply now

Home > Customer Technology Department

Customer Technology Department

CTD applies design thinking and agile methodologies to develop products. Making steady progress in improving the rider experience unifies our diverse team.

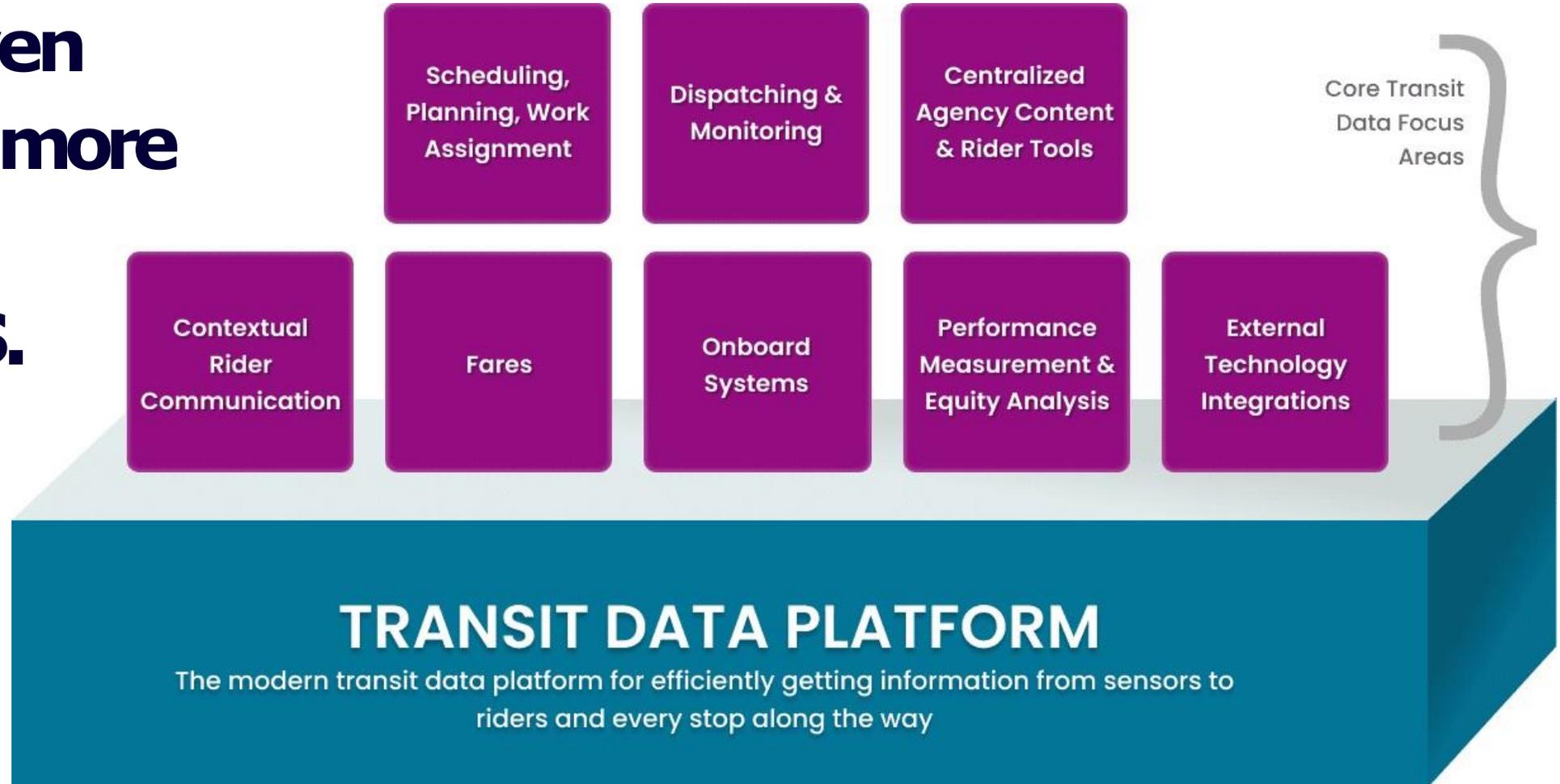
See job openings



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**Now we are bringing
the same open-
source driven
impacts to more
riders as
TransitOPS.**



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TransitOPS is not a profit-driven vendor, we are a mission-focused non-profit organization.

- We build and support open source technology.
- We can help agencies achieve and deploy funding on high-impact, rider-focused technology projects.
- We do offer services, however we also collaborate with and/or co-manage technology vendors.
- We create new opportunities for open-source oriented vendors to compete in the public transit sector.



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Proven track record in the cloud.

- We have deployed a comprehensive data-pipeline along with various rider and operator tools at MBTA.

All tools have successfully responded to various security audits and penetration tests with results that are at or ahead of security standards.

These modern applications run at a surprisingly low cost on the AWS platform.

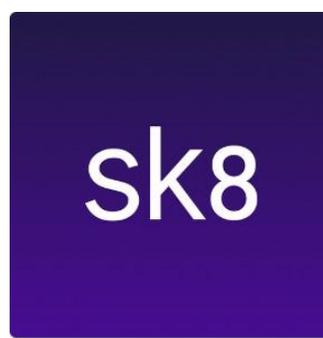
- We are cloud agnostic, however, we have worked directly with AWS on the security and architecture of our current production applications.



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Supported Apps

- All open-source
- (almost) all currently in production at MBTA



Skate

A secure web based dispatch and notification tool for field dispatchers using



Screens

Rich visuals presentation of transit data for screens of all shapes and sizes.



Lightweight Application for Measuring Performance (LAMP)

Modern data analytics approach to on-time performance monitoring of historical transit



Alerts Concierge

Send notifications to riders about unplanned disruptions that will impact their travel plan.



API

Provide a easily-queried interface to an agency's static and real-time data.



Concentrate

Combines all of an agency's real-time data into a single, consistent output without



Delta

Create long-term data backups for later data analysis



Tablespoon

Provide signal priority for transit vehicles, helping them stay on schedule



Elevator Hotline

Using cloud-based text-to-speech technology, Elevator Hotline reads the



TheTransitClock

Generate accurate arrival time predictions by processing realtime vehicle positions

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Skate

Let's look at Skate, one of the open-source applications that has a more visual experience.

Skate backstory: The MBTA was unsuccessful in convincing a vendor to change/improve an existing bus dispatching app and was paying \$5K for each Toughbook that the application ran on.

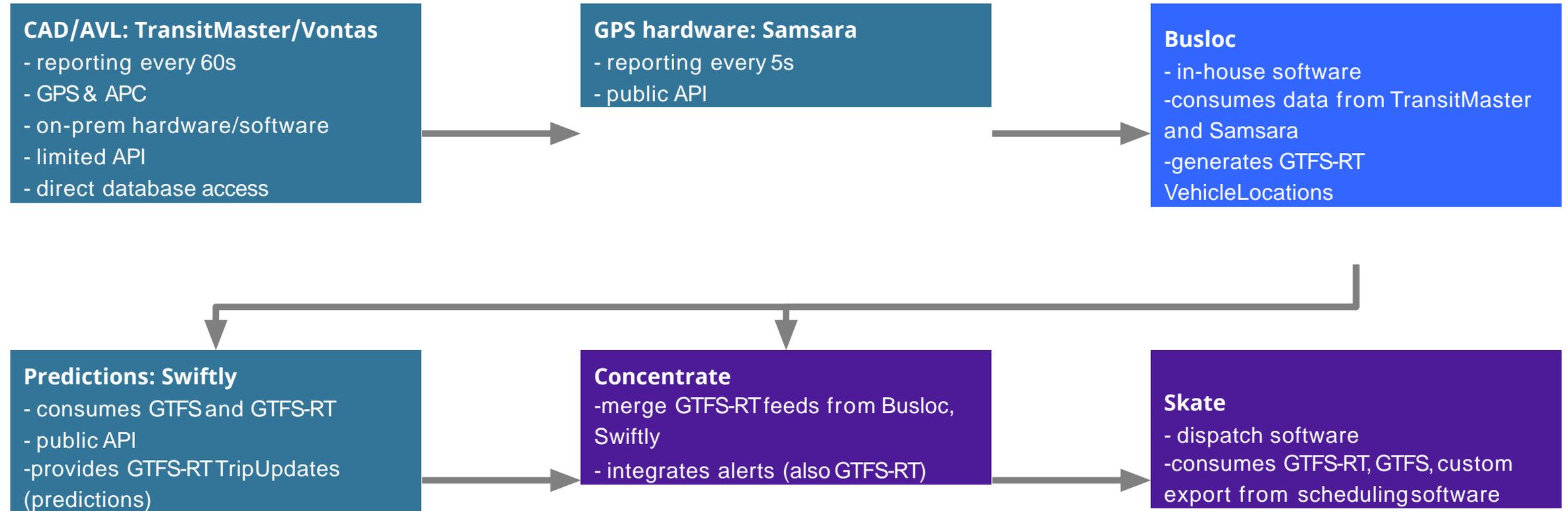
CTD is spending ~\$1M building Skate, with the original application's functionality, plus many critical capabilities not on their roadmap at all. It runs on commodity Android tablets that cost \$300, or in a web browser.



Review Bus Data Pipeline

Total pipeline latency: ~15s, Buses: ~1000

After the Busloc step, nearly everything is vendor-agnostic and using standardized protocols.



We're Open

- How /where could we partner?
- What questions do you have for us?
- What are potential obstacles and opportunities?



TransitOPS

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Thank You



TransitOPS

Learning from Regional Fare Integration in Montreal

Marco Chitti



Fare integration in Montreal *A Verkehrsverbund* à la Québécoise

Marco Chitti



- 1. Quick facts about transit in Montreal**
- 2. Fare integration at a glance**
- 3. How did fare integration come about?**
- 4. Governance**
- 5. Limits and challenges**

Quick facts about transit in Montreal

Quick facts about Montreal's transit

ARTM
Autorité régionale
de transport métropolitain



4.3 million inhabitants

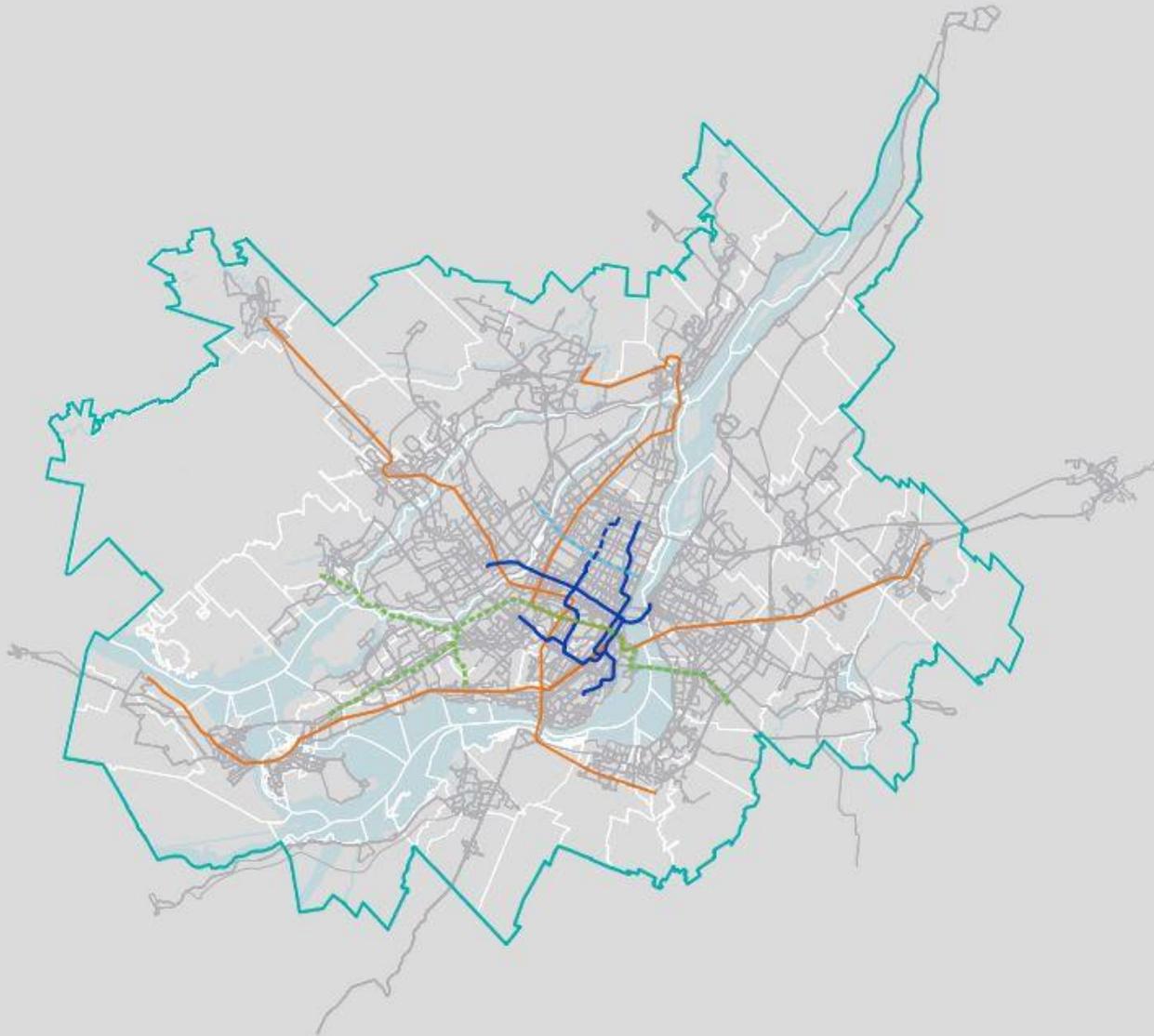
Transit to work share: 22.5%
(2016 census)

570 million trips/year
(2019)

140 trips/inhabitant*year
(2019)

6 transit operators

Quick facts about Montreal's transit network



- ▶ Territoire de l'ARTM
- ▶ Limites municipales
- ▶ Métro
- ▶ Train de banlieue
- ▶ Autobus
- ▶ Prolongement ligne bleue
- ▶ REM
- ▶ SRB Pie-IX

0 5 10 km

Métro

4 lines

68 km, 67 stations

1.4 million/weekday

(2019)

Commuter Trains

5 lines

235 km, 52 stations

83,000/weekday

(2016)

REM

4 lines

67 km, 28 stations

170,000/weekday

(forecast)

BUS

600 lines

Source: ARTM

Fare integration at a glance

The first fully integrated fare system in a large metro area in North America

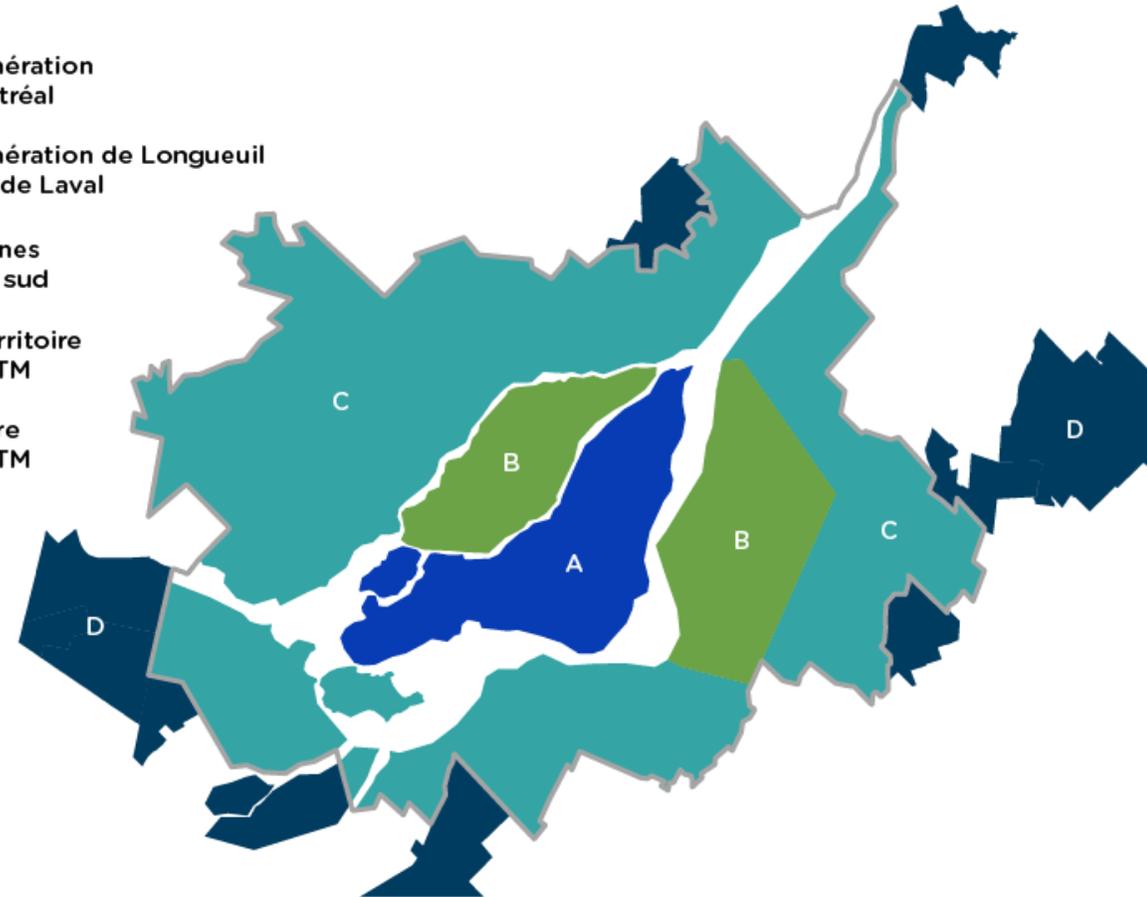
Starting July 2022, a new **zone-based, mode and operator-neutral** fare system has been implemented throughout Greater Montréal (CMM) and adjacent areas

		TOUS MODES				BUS PARTOUT					
		Zone de destination				Zone de destination					
		↶	1	2	3	4	↶	1	2	3	4
Zone d'origine	1		90 \$	144 \$	176 \$	245 \$	110 \$				
	2		144 \$	100 \$	144 \$	176 \$					
	3		176 \$	144 \$	100 \$	144 \$					
	4		245 \$	176 \$	144 \$	100 \$					

Zones tarifaires pour les services du transport collectif

À compter du 1er juillet 2021

- A** · Agglomération de Montréal
- B** · Agglomération de Longueuil et Ville de Laval
- C** · Couronnes nord et sud
- D** · Hors territoire de l'ARTM
- · Territoire de l'ARTM



The two main characteristics of the new fare model

Mode-neutral and operator-neutral: zonal fares are valid for **unlimited* transfer** between **any mode and operator** (bus, metro, commuter trains, REM) within a given area(s) for a given period of time (f.ex. 120 minutes for single ticket, 24h for daily, etc.)

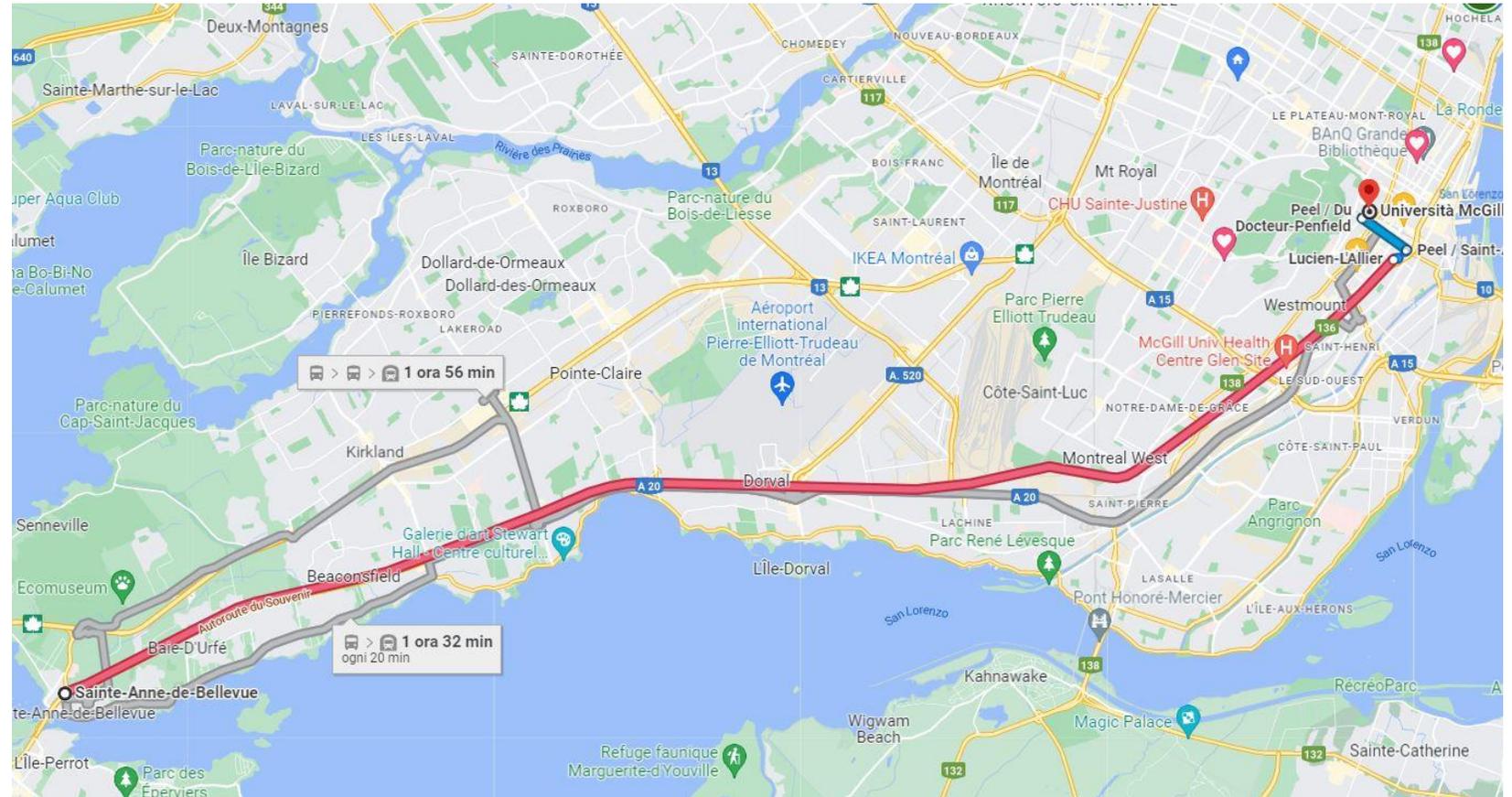
BEFORE:

Bus/Métro STM **\$3.25**
Exo Train **\$9.00**

AFTER:

All modes zone A **\$3.50**

Tous modes



How did fare integration came about?

Background: the pre-existing situation

3 local main municipally*-owned transit agencies operating busses (and metro for the STM) in their own area.



1 regional provincially-owned authority operating the commuter rail service, and local and commuter busses* in the Northern Shore and CMM-adjacent territories



+ several local transit agencies under its coordination

Each agency set its own fare. Ad hoc fare-integrated passes for specific needs. No systematic integration across agencies and modes.

Background: a two decades-long metropolitan governance reform



Communauté métropolitaine
de Montréal

2001 – Establishment of the **Communauté Métropolitaine de Montréal (CMM)**. *Main tasks: Regional planning and transport*

2016 – provincial law A-33.3 establishes the **Autorité Régionale de Transport Métropolitain (ARTM)** with four main missions:



Autorité régionale
de transport métropolitain

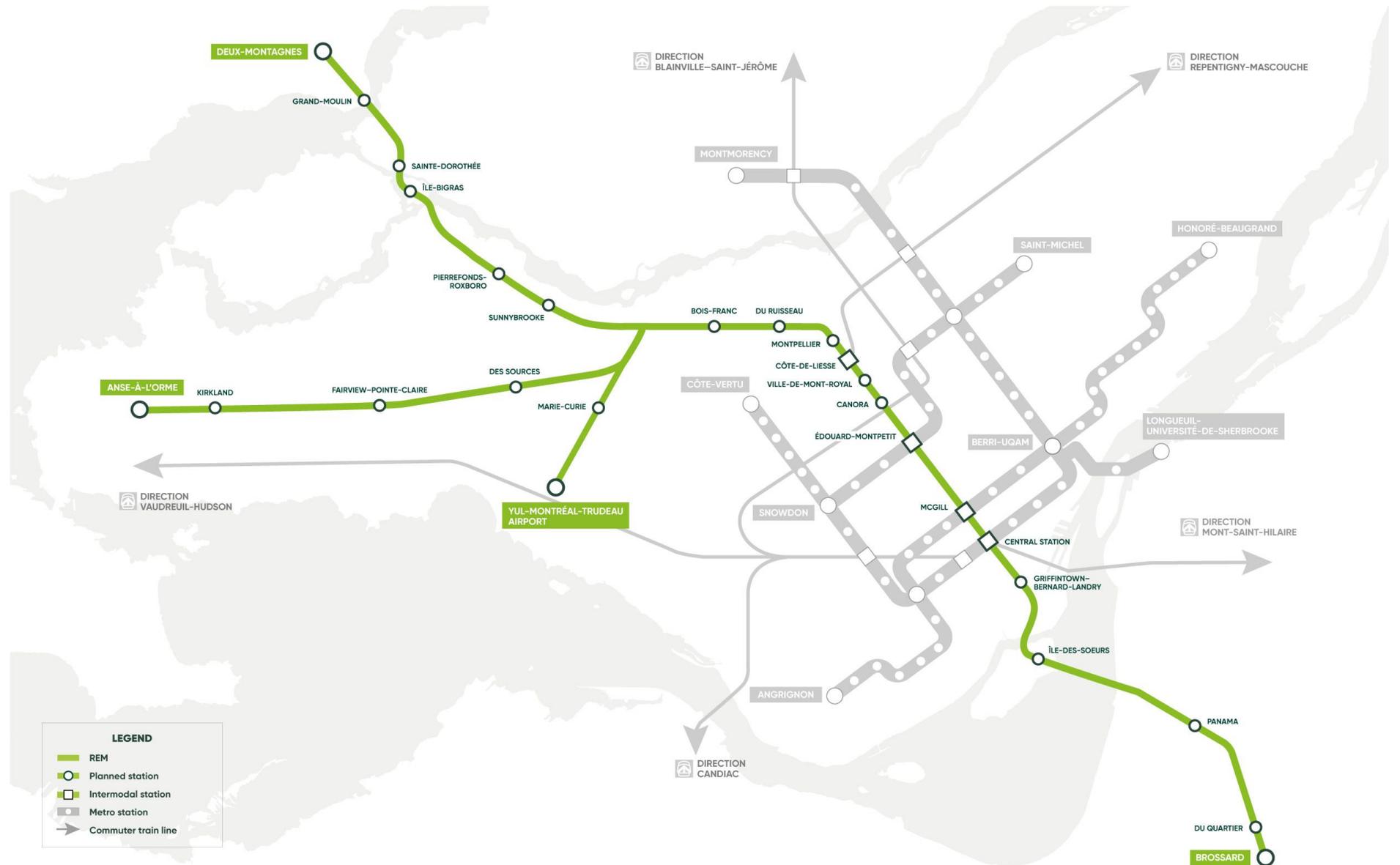
1. *Strategic long-term planning for transit development;*
2. *Separation of service planning from operations (e.g. AMT->Exo);*
3. *Centralization of revenues and contract-based allocation of operations to transit providers (STM, RTL, STL, Exo, REM);*
4. **Fare reform.**

Réseau
express
métropolitain



2016 – The development of the REM (Réseau Express Métropolitain) is announced by the CDPQ Infra and the Provincial Government.

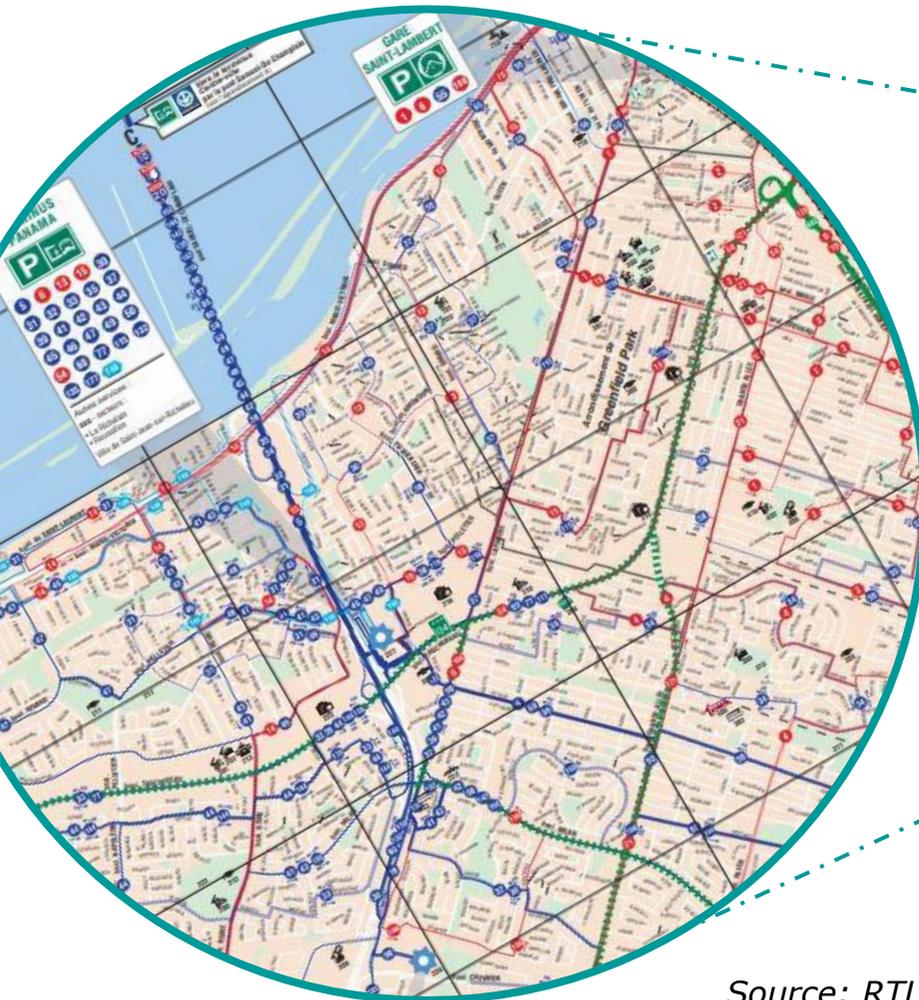
Background: a newcomer forces to rethink fares



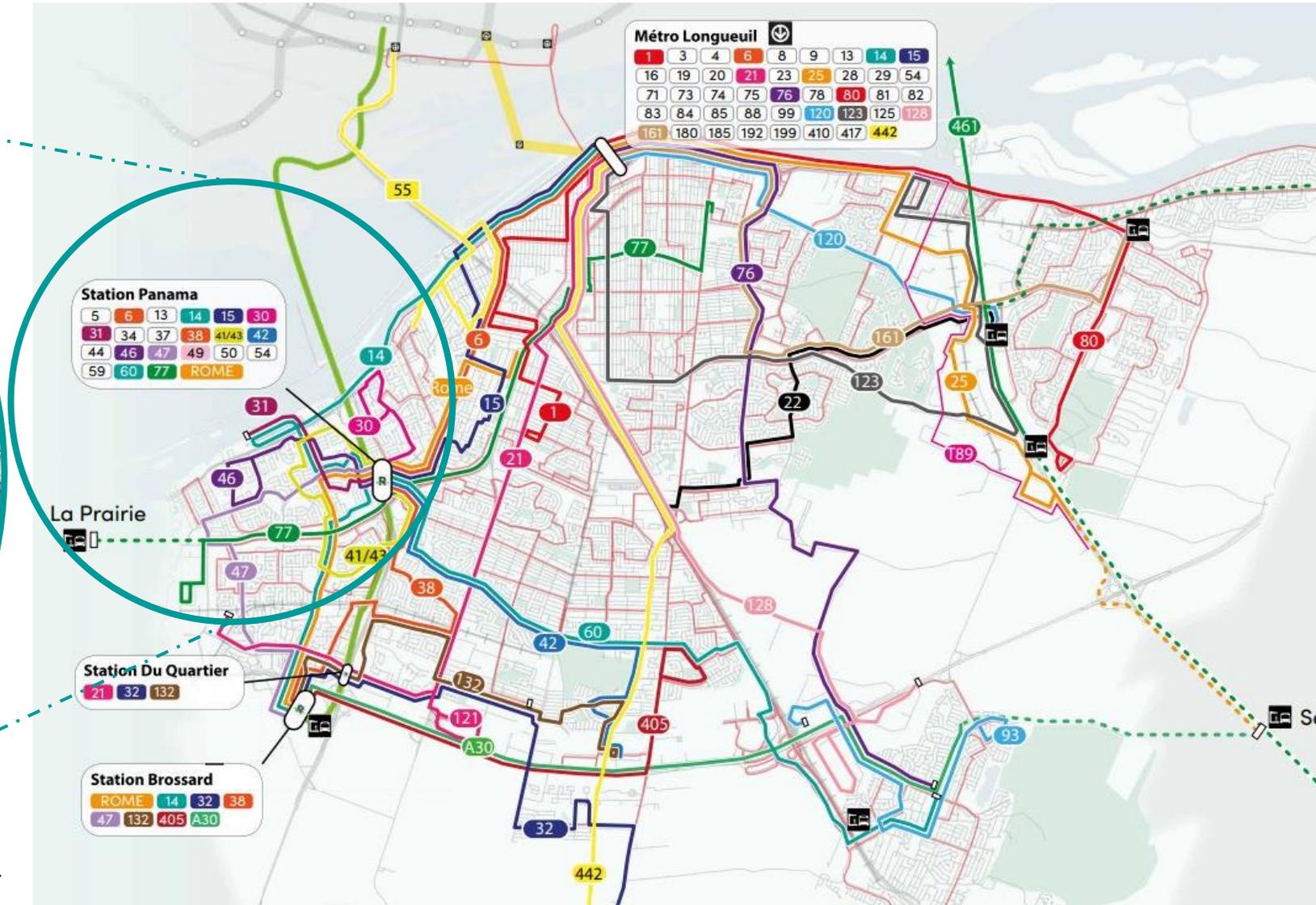
Source: REM

Background: from one-seat bus rides to feeder lines for the REM

Rive-Sud bus network before the REM...



after the REM



Source: RTL

Governance

How does it work? The governance framework

Structure



Provincial Gouvernement

Legal framework and strategic orientations

CMM

Political orientation and control of the ARTM

ARTM

Plan, fund, organize and promotes transit

Transit Agencies

Operations, maintenance

How does it work?

The overall institutional architecture is similar to “Regional Transit Districts” that can be found in some European countries (*Verkehrsverbund, Île-de-France Mobilités, Autorità di Bacino, etc.*)

- 1. Centralized revenue collection:** The ARTM collects revenues (approx. **\$2.7Bn/year**) from several sources: fares (\$900m indirectly through operators), municipal and provincial direct and indirect subsidies, others (e.g. value capture schemes around REM stations).
- 2. Overall service planning:** the ARTM plans the overall level of service to be provided in coordination with operators and elected officials and **set fares.**
- 3. Service agreements:** The ARTM has multi-year “service agreements” with the four main operators (excluding REM) which are compensated on a per ***\$revenueKM** base (so-called **gross costs contract model**).
- 4. Operation planning:** Transit Agencies are in charge of planning and organizing day-by-day operations and manage some capital projects.

Shortcomings and challenges

Shortcomings: zone designed by politics and path dependency

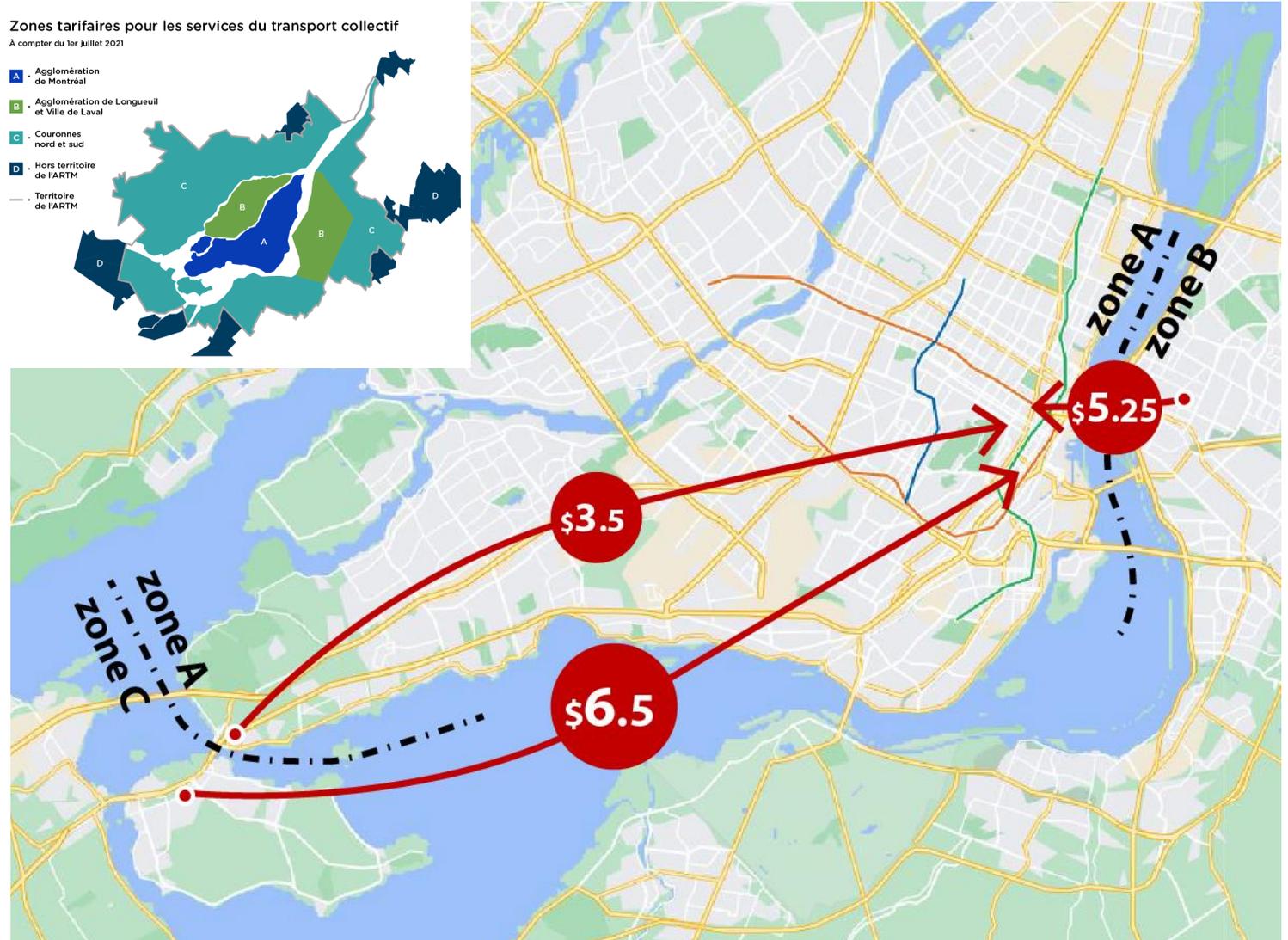
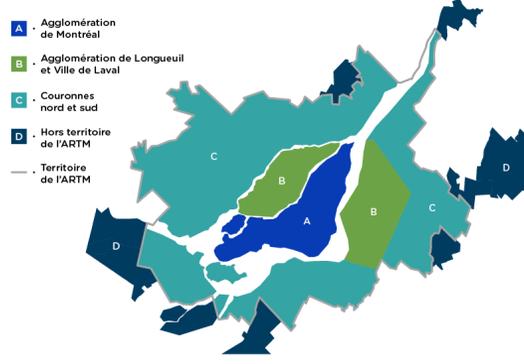
Zones are too big and fares increase abruptly between zones.

Single ticket	Monthly
<u>A</u> \$3.50	\$94
<u>AB</u> \$5.25	\$150
<u>ABC</u> \$6.50	\$184

Path dependency has resulted in an unfair “geography-shaped” fare system with odd glitches

The 4 zones essentially duplicate the boundaries of pre-existing operators, that mostly worked on a flat-fare base within their boundaries with special fares for trains and downtown-bound and subway feeder commuter buses.

Zones tarifaires pour les services du transport collectif
À compter du 1er juillet 2021



Limits: zone designed by politics and path dependency

As a comparison: Milan zone-based integrated fare system has more, smaller zones and a less abrupt fare increase between zones.

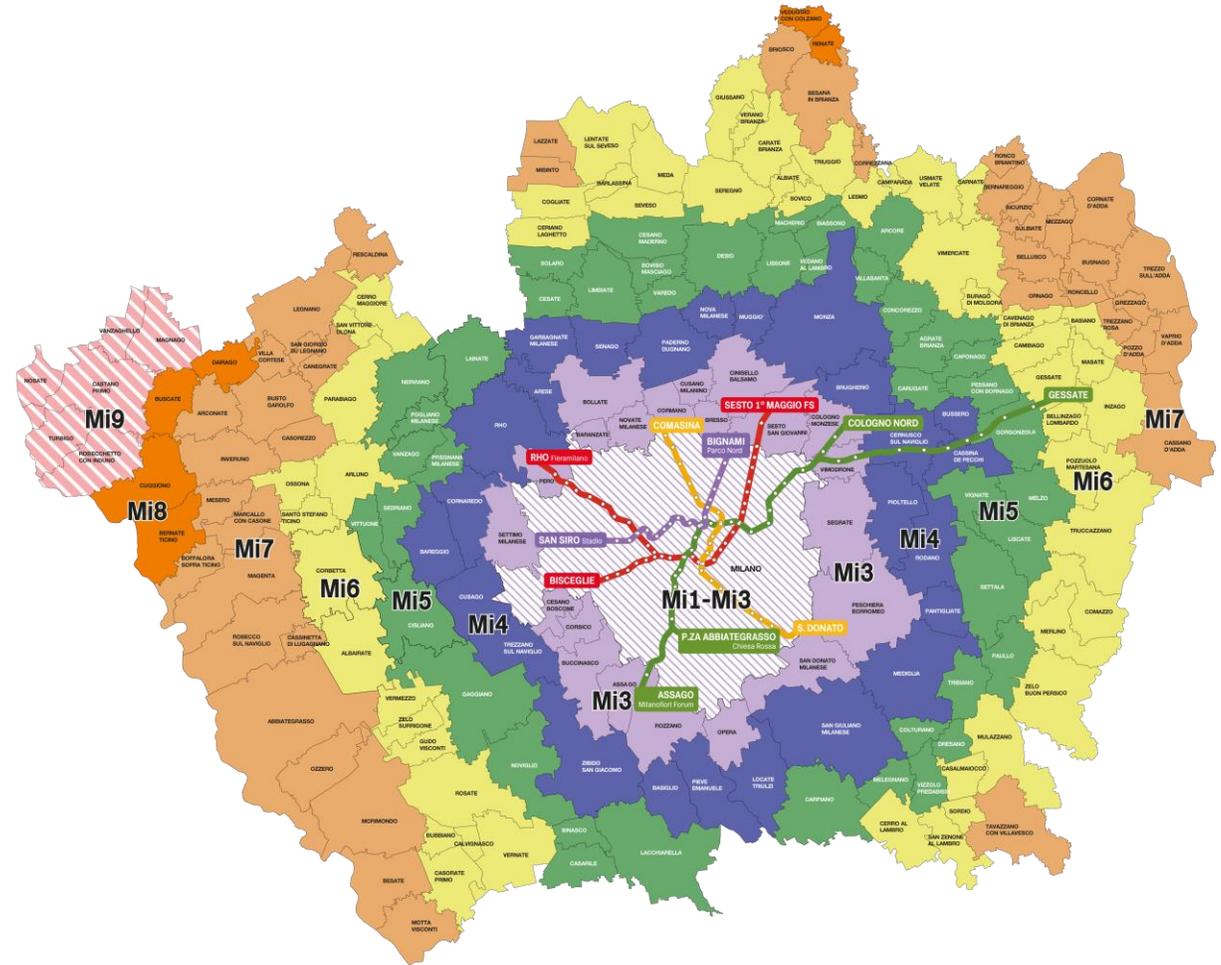
Base ticket valid for 2 zones

€ 1.60

+

€ 0.40

for each additional zone
crossed in the trip



Winners and losers

Any major reshuffle of transit fare is a tricky political issue. There are winners and losers

Example:

BEFORE fare reform

1. Rider parking at the P&R of Longueuil and taking the metro: **special \$3.75** out of Island subway STM fare
2. Rider arriving by bus: **full RTL bus fare + STM fare \$6.50**

AFTER fare reform

1. Both will pay a **ZONE AB fare of \$5.25**

Goes without saying, P&R commuters are not very happy...



Multiple challenges in the future

1. Because of Covid-19 WFH policies, **fare revenues have dropped** from \$940 million in 2019 to \$447m in 2020 and \$446m in 2021. Despite Federal and Provincial support, recovery will be long (**75-85% of pre-covid ridership** expected at the end of 2022).
2. Unlike with the other public agencies, the contract with CDPQ Infra for the **REM regional metro** is based on a contribution of \$0.72 per passenger*km, with an estimated yearly cost based on ridership projection of **\$430-592 million per year for the ARTM** (85% covered by the provincial govt, 15% by the ARTM).
3. Unclear who will **bear the cost of the planned expansion of service** (new rail transit projects, increased bus frequencies, etc).

Conclusions

Conclusions

Overall, it's a **major improvement** for riders, that will be able to seamless transfer between modes **with no premium for faster rail mode**.

Fare integration in Montreal required a **major restructuring of transit governance, uploading planning, funding and fare setting powers from the municipal to the metropolitan** level.

It requires a **strong governance at the metropolitan level** (the CMM, in Montreal case) and legislative reform at the provincial level.

The **role of Transit agencies** is "narrowed" to one of pure service providers and third-party fare collectors under a gross-cost contract arrangement.

The way **zones are designed** is important! Smaller zones with smaller increases is better than wider zones. This is possibly the biggest flaw of Montreal's fare reform

Questions?

Marco.chitti@umontreal.ca
mc9508@nyu.edu

Public Comments

To participate in the discussion, please select the “raise hand” function. Find this by clicking on the “Participants” button at the bottom of the screen, and a window will pop up with a “Raise Hand” button at the bottom. If you are on the phone, you can use *9 to raise your hand.

Closing and Next Steps

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Closing and Next Steps: Upcoming Coffee Chats

- **November 1, 2022, 4:00 PM:**
Launching and Marketing the Berkshire Flyer, with special guest Eddie Sporn.
 - Register: <https://bit.ly/3UI0KQI>
- **November 16, 2022, 4:00 PM:**
The MPO's Long-Range Transportation Plan and Coordinated Public Transit-Human Services Transportation Plan.
 - Register:
<https://bit.ly/3RXbgMu>



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Meeting Follow-Up

- Post-meeting email with links
- Recording posted on the Boston Region MPO YouTube page
- Notices about future meetings



September 20, 2022

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1. Introductions
2. MPO Activities Update
3. Transit Provider Items
4. Improving Rider Experience Through Open-Source Software
5. Learning from Regional Fare Integration in Montreal
6. Public Comments
7. Closing and Next Steps

Meeting Follow-Up

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