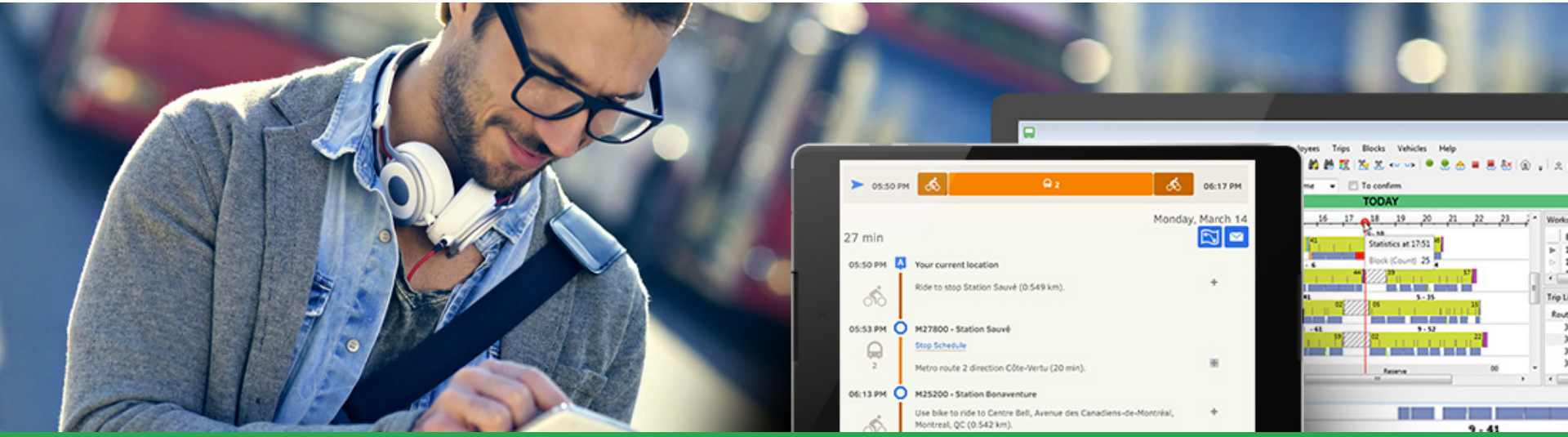


What Comes after Microtransit? Stepping Up from Microtransit to Transformation of the Entire Service

Guilhem Hammel
Senior Project Manager

Introduction

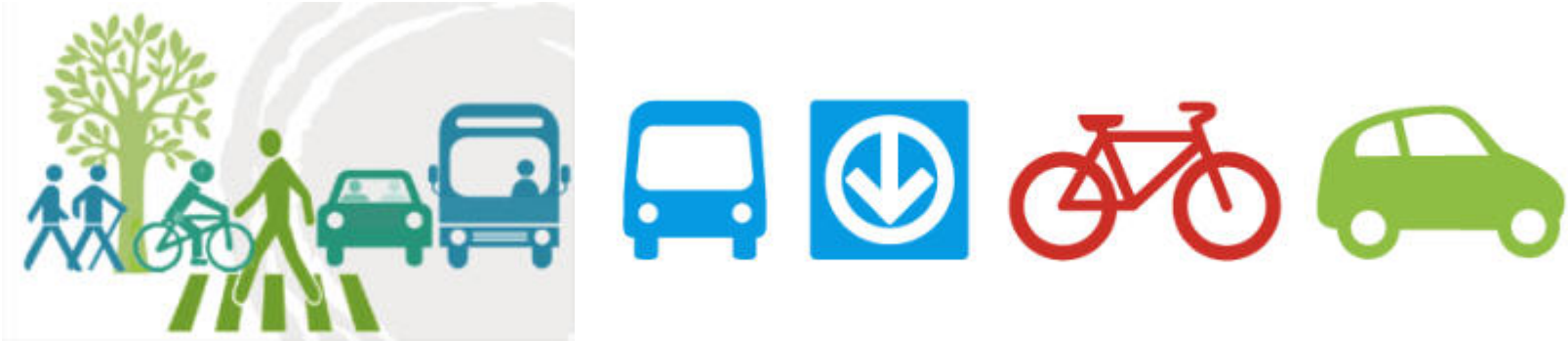
On-Demand

- Integrating services from different mobility providers goes beyond covering first/last-mile rides
- Customers' increasing expectations of convenience require on-demand services to provide a larger share of the public transport offering
- Transit agencies need to determine how and where on-demand services should replace fixed-route services, especially in low-density areas

Integrated mobility

On-Demand

The efficient combination of transportation modes
to improve door-to-door mobility,
with mass transit acting as the backbone



Transit agencies' questions

On-Demand

What is the **impact** of on-demand service?

What would my **ideal fleet** look like?

What are the **costs** of my new services?

What is the impact on my **ridership**?

How can I put in place a fast and **reliable service** offer?

Which companies will I **partner** with?

What will **my role** be in this new environment?

What **resources** and skills do I need?

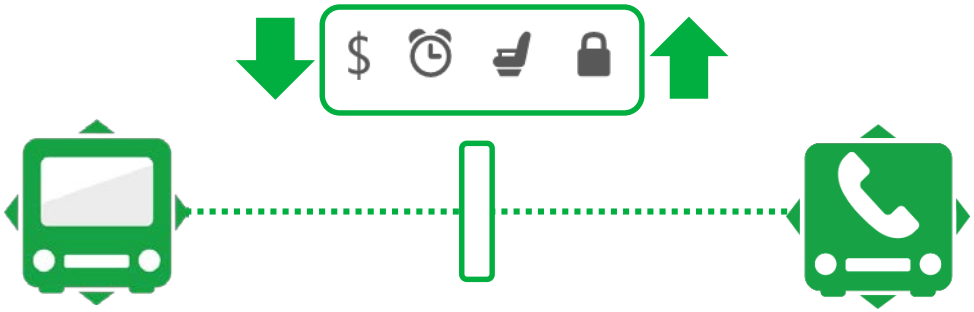
And more…

GIRO

Integrated service planning

On-Demand

- Plan a combined fixed-route and on-demand service offer
  - Network and service levels
- ***NetPlan*** for fixed-route portion
  - Using ***MinBus***/***CrewOpt*** allows for more precise costs
- Scheduling and trip-booking with ***HASTUS-OnDemand*** for on-demand portion
  - To plan volume and cost



GIRO's Mobility Lab approach

On-Demand

Demand analysis

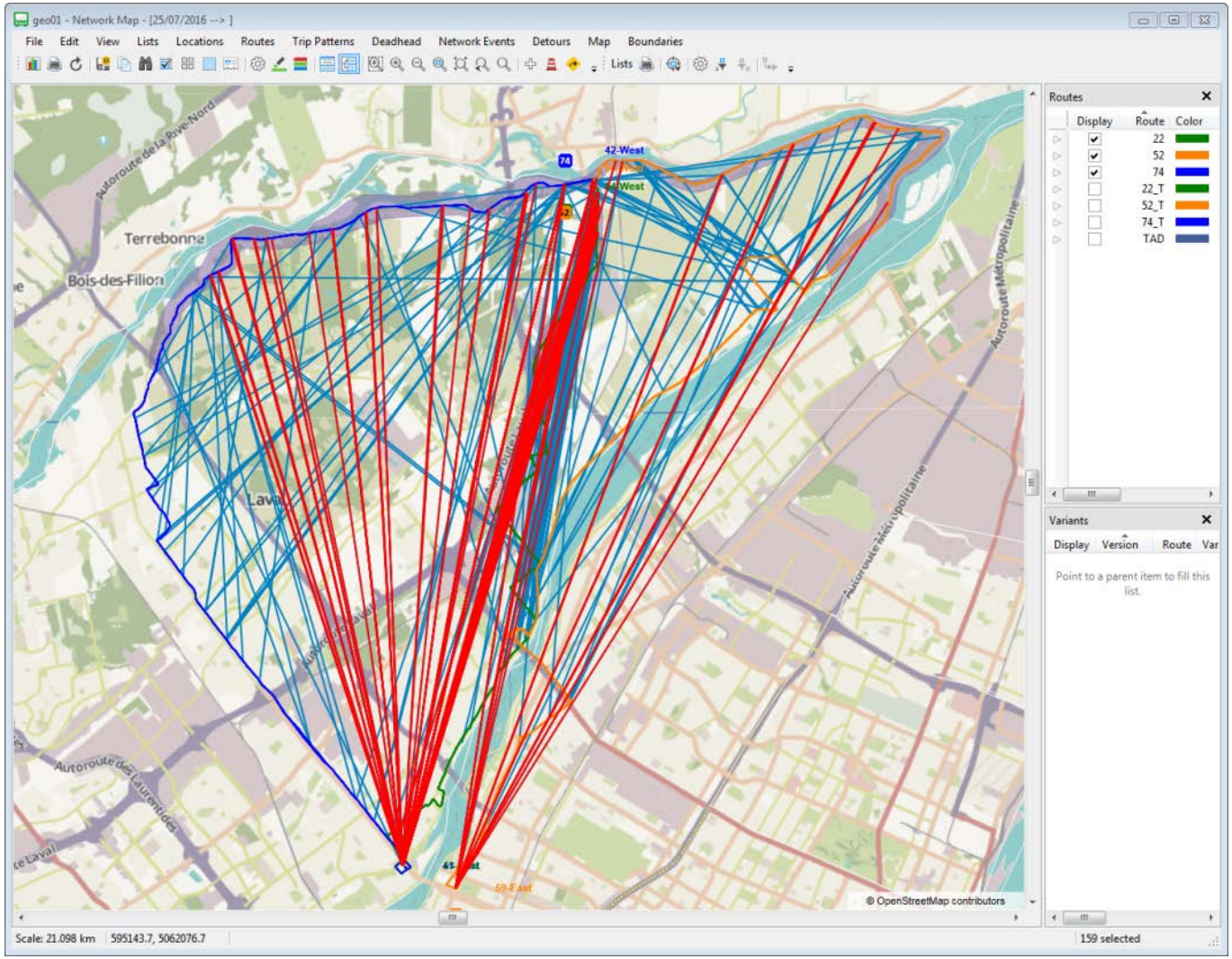
Performance analysis

Scenario creation

Testing and piloting

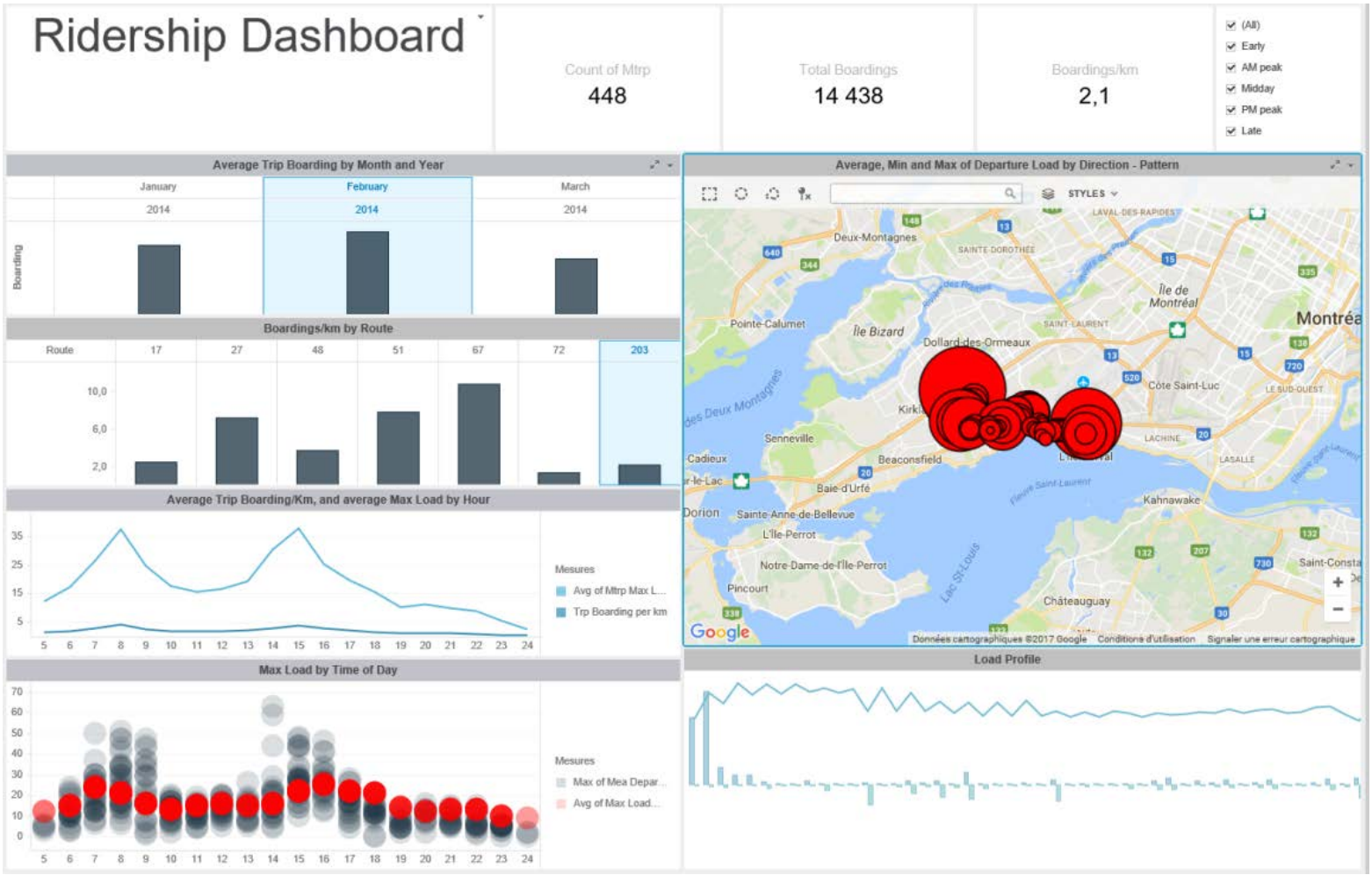
Demand analysis

On-Demand



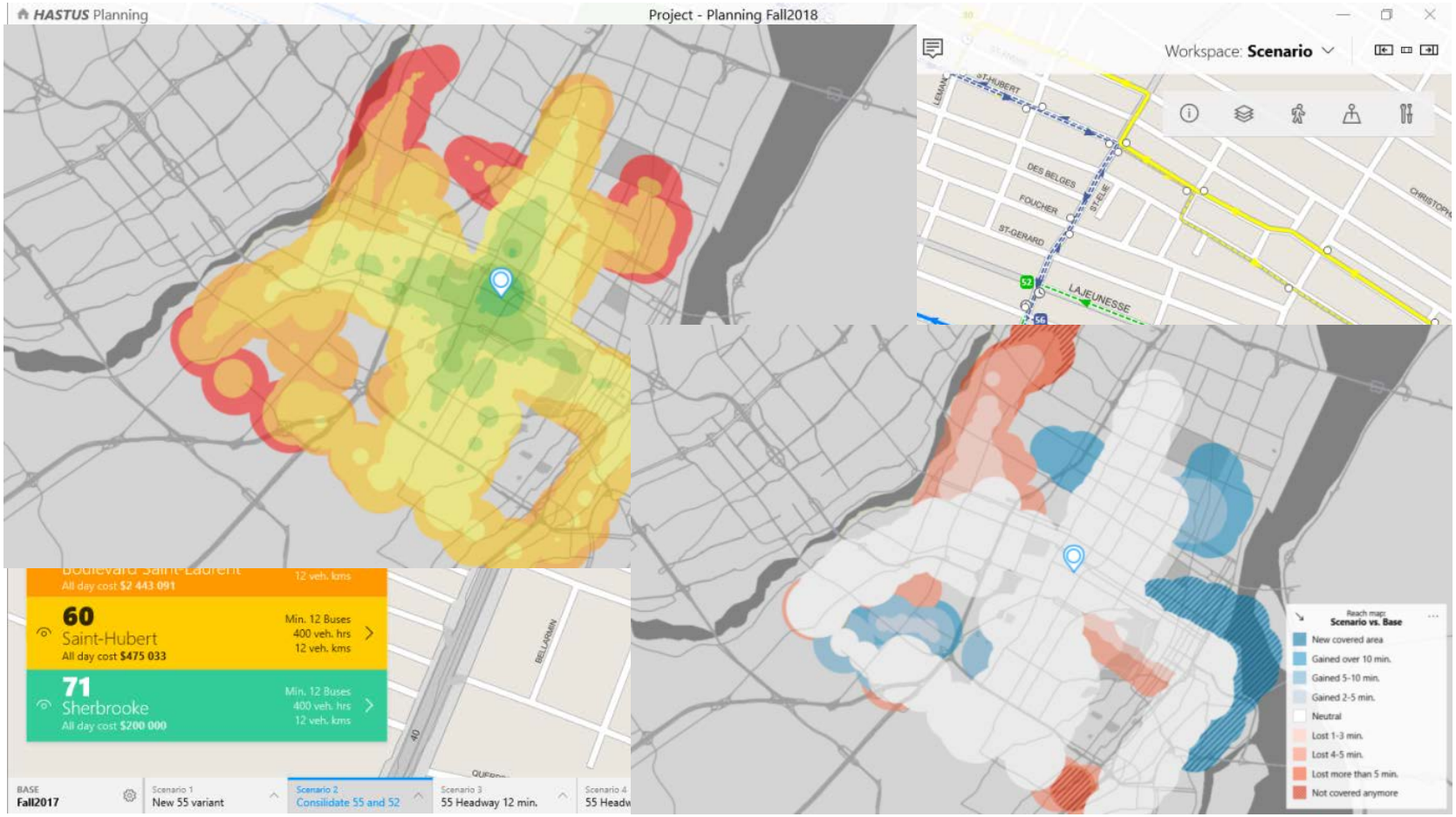
Performance analysis

On-Demand



Scenario creation

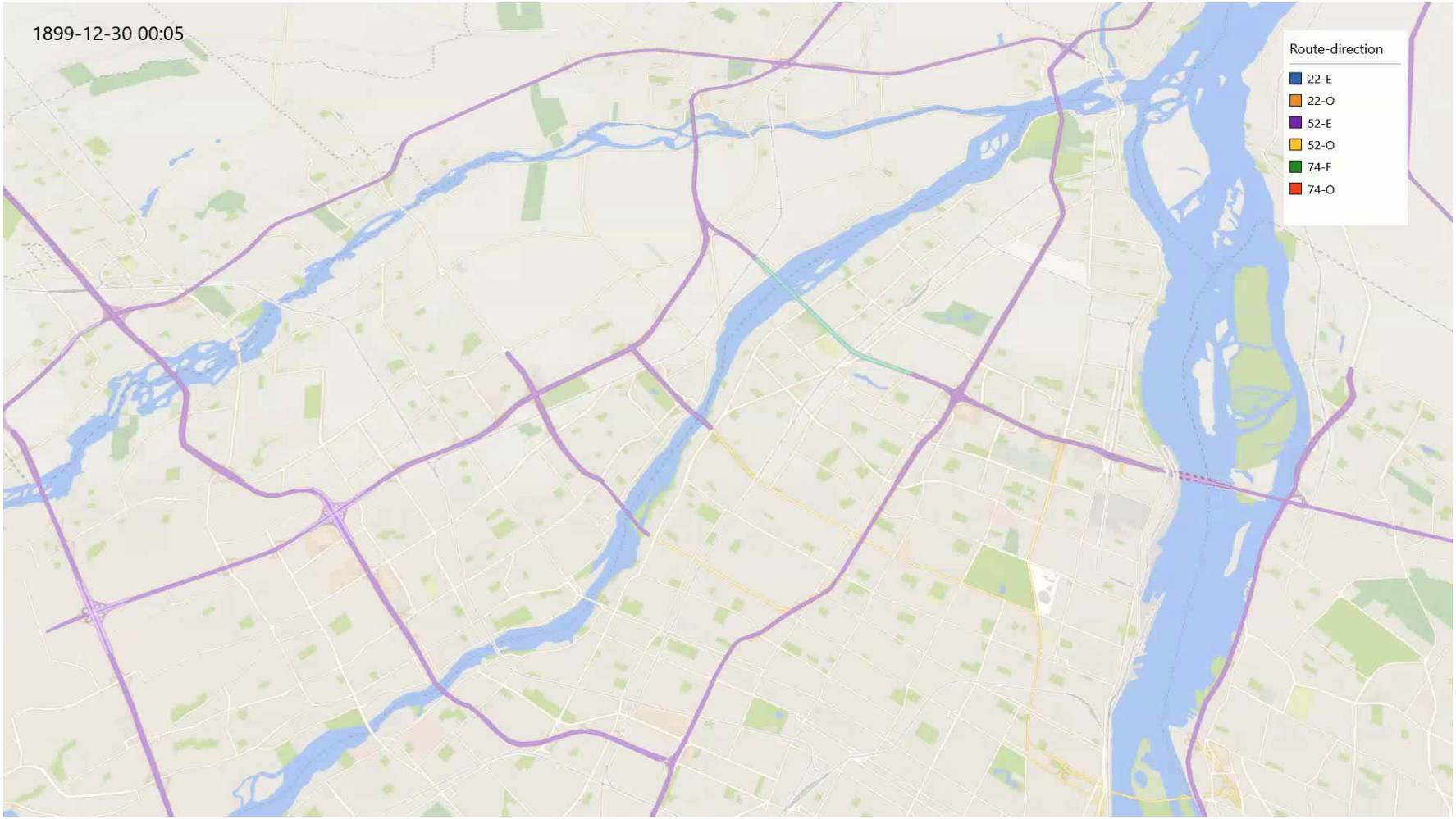
On-Demand



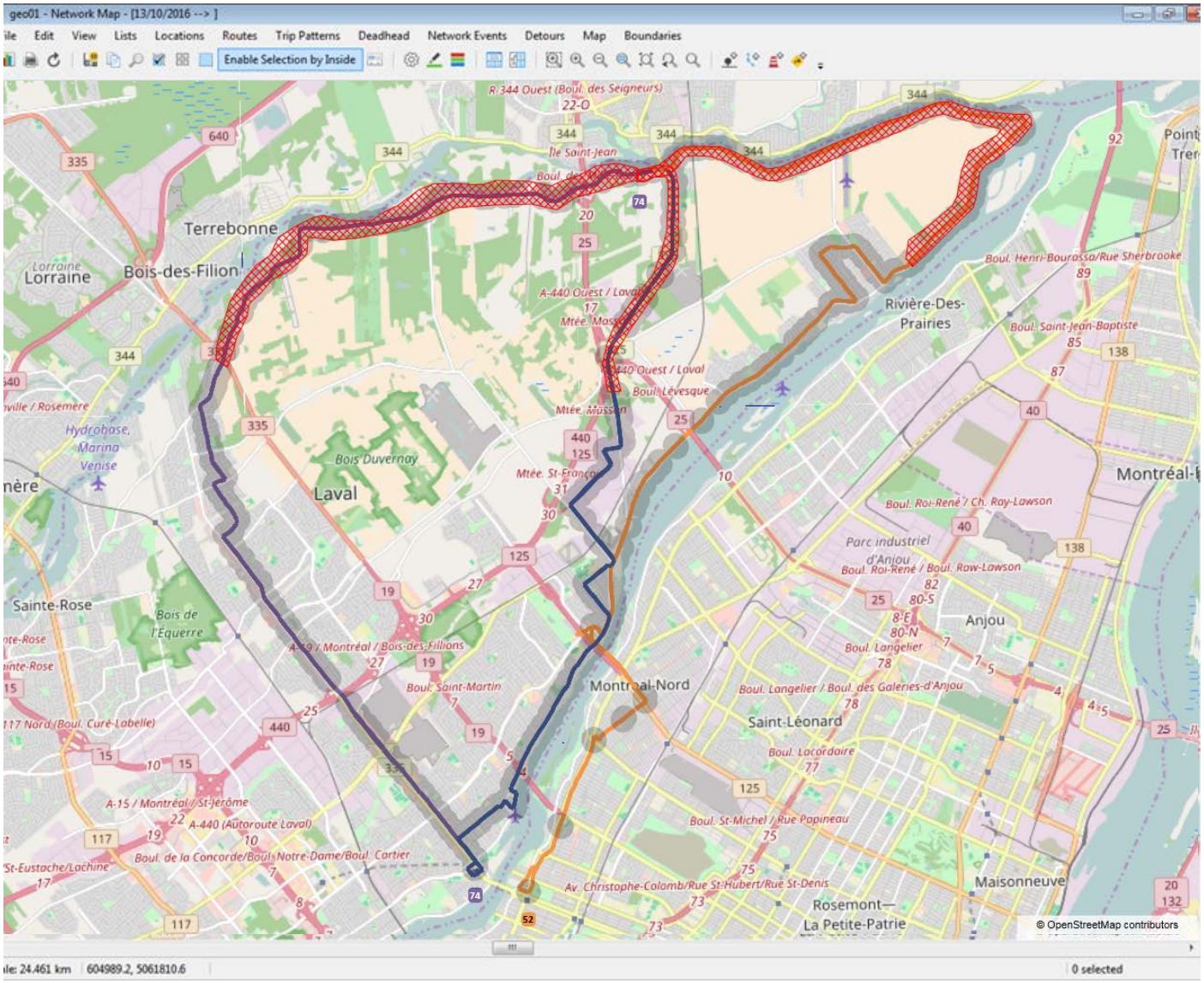
Pilot project – Phase 1

- STL, located on Montreal's north shore
  - 45 fixed routes/555 drivers
  - Up to 500k paratransit trips/year
- STL's objectives
  - Improve service quality in low-density area
  - Identify potential savings from integrated mobility
- Test scenarios with 3 fixed routes shortened
  - October booking used
  - Data sampled for a weekday, Saturday and Sunday

Targeted route segments

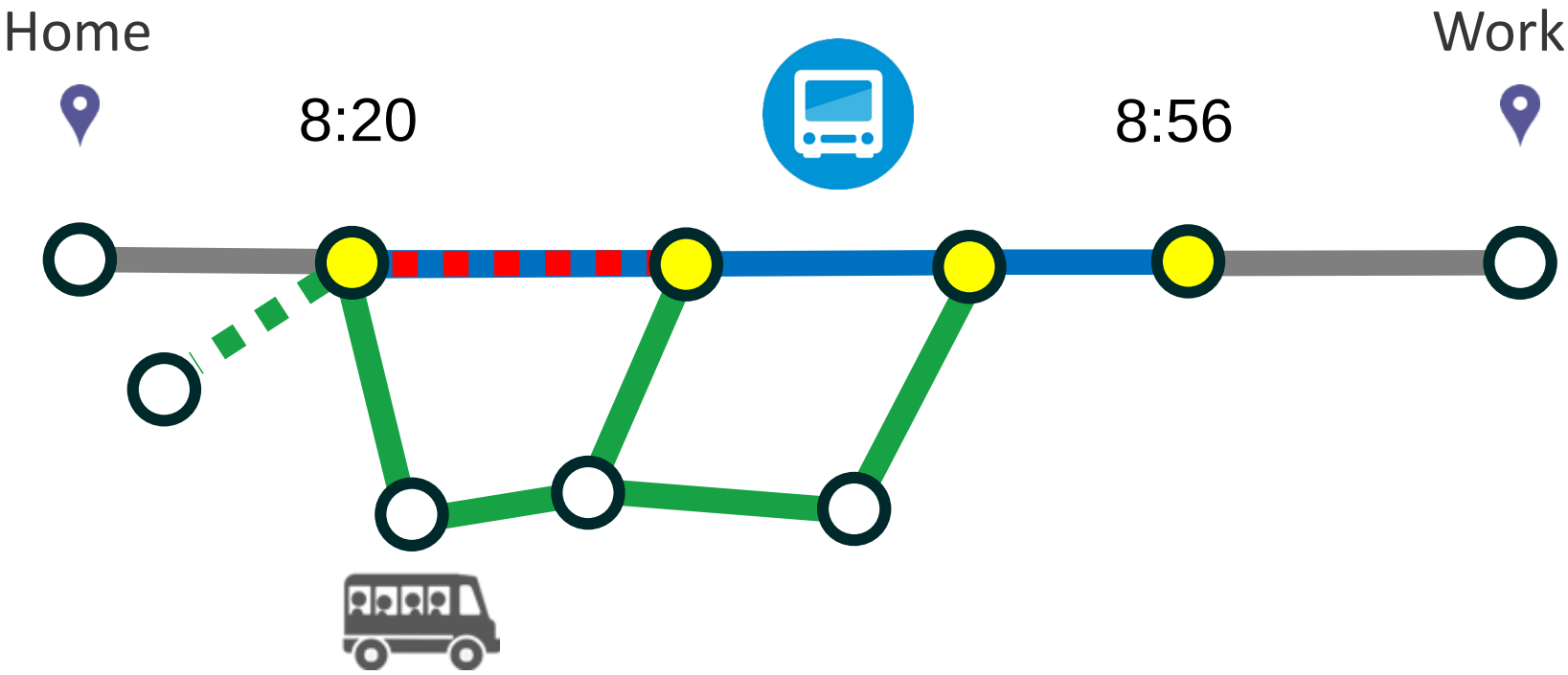


Selected routes/segments



Base scenario

- On-demand services simply fill the “hole” created by shortened fixed-route segments
  - Could instead feed a hub with a higher service frequency



Impacted travelers

- Stop-to-stop travel time considered
- ***HASTUS-OnDemand*** is used to simulate how impacted travelers would be serviced by on-demand vehicles

Schedule	Thursday	Saturday	Sunday
Travel time impact	▲ +1.7%	▲ +1.3%	▼ -0.9%

Preliminary results

- Cost reductions on the 3 shortened fixed routes
  - Estimated at $500k CAD/year using ***MinBus*** and ***CrewOpt***
  - 4 drivers saved
  - 0 bus saved
    - Revisiting the timetable might bring additional savings
- This represents the “maximum” budget for on-demand service
- Cost to provide the on-demand service
  - Estimated at $425k CAD/year using ***HASTUS-OnDemand***
- **Overall savings estimated at $75k CAD/year**

Preliminary results

- Some benefits identified with base assumptions
- Low-density routes/area provide limited opportunities for more efficient on-demand itineraries
- What-if scenarios
  - Pilot area and number of routes to be increased to provide more benefit opportunities
  - Impact on quality of service for travelers under analysis
    - New service may attract more travelers
  - Lower operating cost of self-driving vehicles will significantly improve on-demand economics

Next steps – Pilot project – Phase 2

- Test scenarios with increased number of transfer points between on-demand and fixed-route services
  - Including fixed-route hubs served by several fixed routes (corridors)
  - Revisiting customers' departure and arrival assumptions
  - Evaluate service quality with enhanced KPIs
  - Evaluate impact on on-demand costs

Thank you!

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