

Bike Surveys to Locate and Analyze Methane Peaks in Downtown Montreal



Presented by Emilie Reid

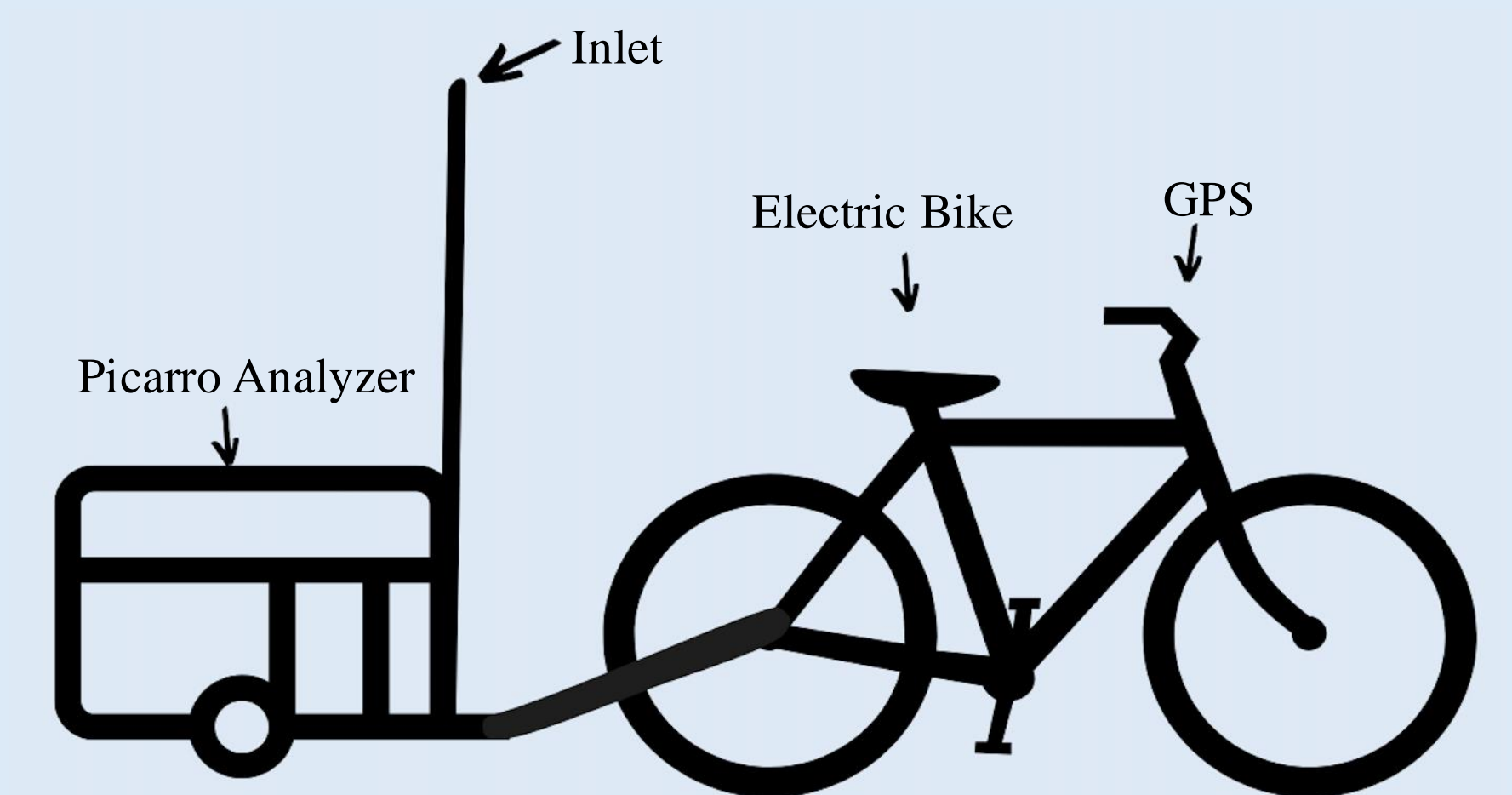
INTRODUCTION

- ➔ Methane (CH_4) is a potent greenhouse gas with a warming potential 28 times that of carbon dioxide (CO_2) and is responsible for about 16% of global warming.
- ➔ Cities are responsible for roughly 20% of anthropogenic methane emissions.
- ➔ In Montréal, methane is primarily emitted from the gas pipeline system, manhole covers and landfills.

METHODS

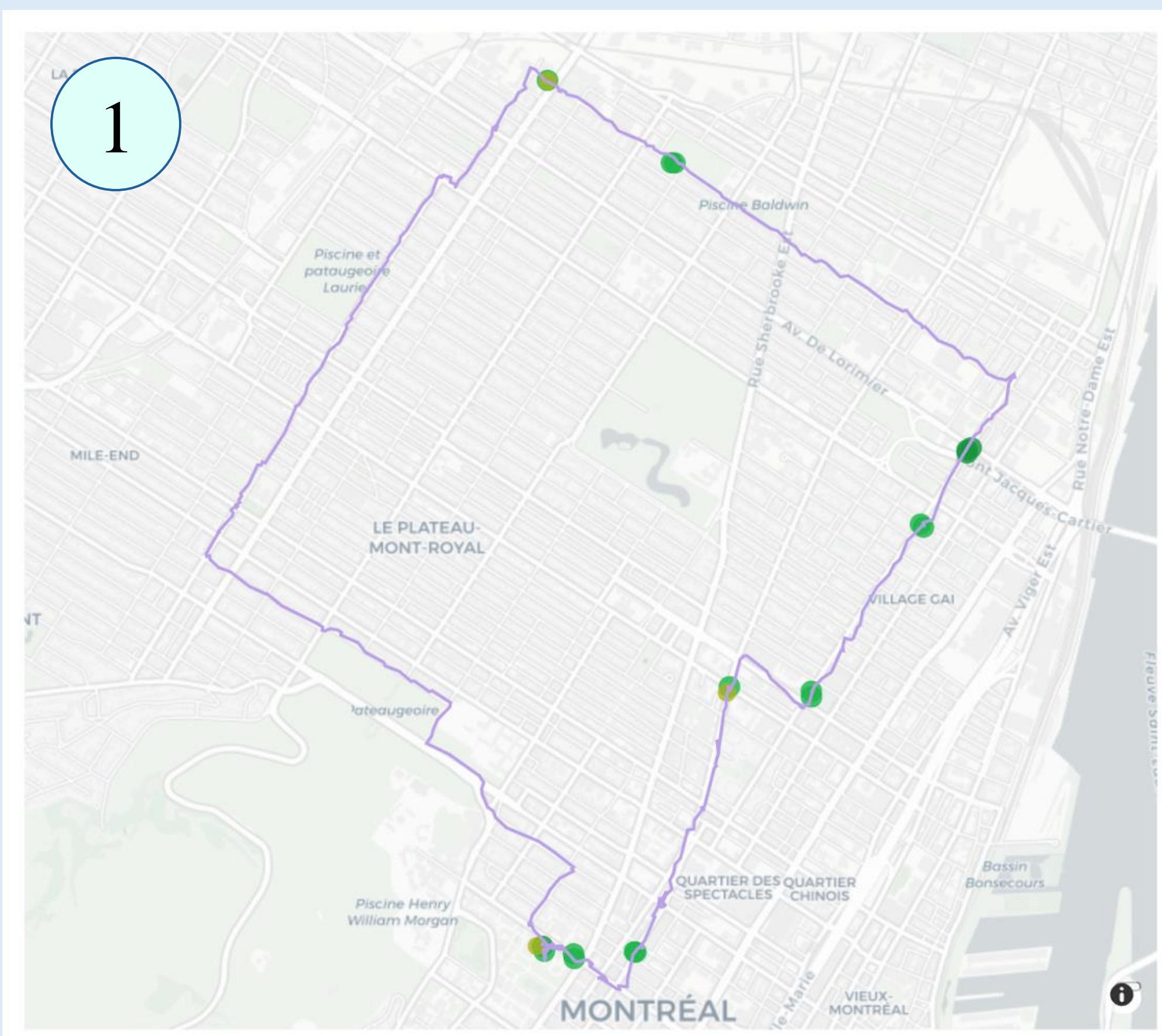


Overview of the 3 routes in the downtown and plateau neighborhoods of Montréal, QC.



Data collection occurred using an electric bike pulling a trailer which contained the G4301 Picarro analyzer with PVC pipe to elevate the inlet point. A GPS tracker was attached to the bike to record the routes.

RESULTS

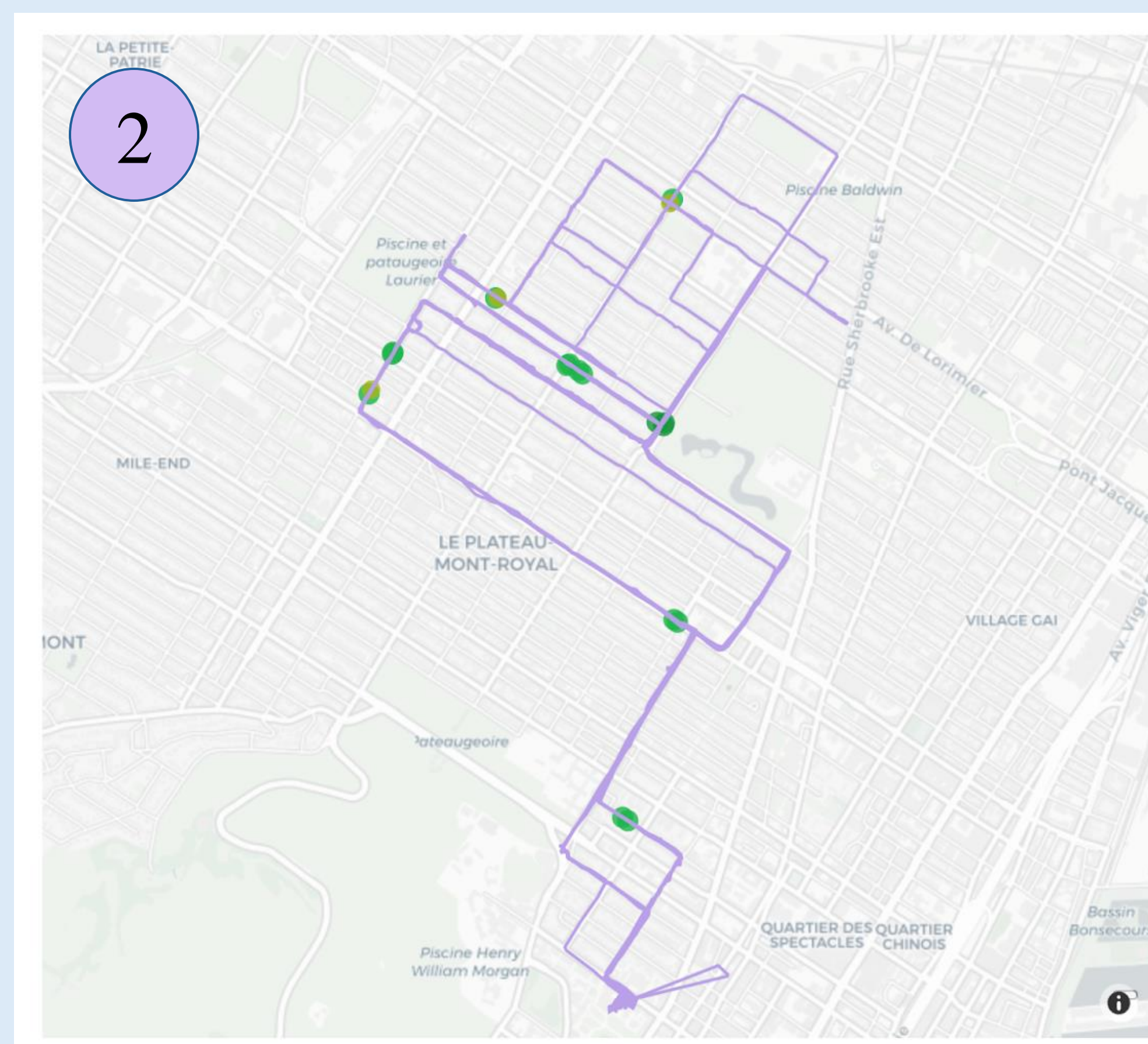


Each route was sampled 10 times from May – August 2024.

Peak thresholds were identified as:

- Small enhancements (Green) : < 0.2 ppm
- Medium enhancements (Yellow) : $0.2 - 1$ ppm
- Large enhancements (Red) : > 1 ppm

Recurring peaks were kept and plotted above by route.



	Number of Total Peaks Across All Surveys	Number of Recurring Peaks
ROUTE 1	80	9
ROUTE 2	63	9
ROUTE 3	78	11
TOTAL	221	29

Areas of interest include McGill Campus, Westmount, the canal and busy streets in residential areas.

Most recurring peaks were small enhancements with few exceptions in the areas outlined above.

CONCLUSION

Main streets in residential areas are more likely to have methane leaks.

As a case study, this research helps to understand where excess methane emissions are coming from in our municipal systems.

Additional hotspots in Montréal include past or present landfill areas.

ACKNOWLEDGEMENTS

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