

BIXI BIKESHARE

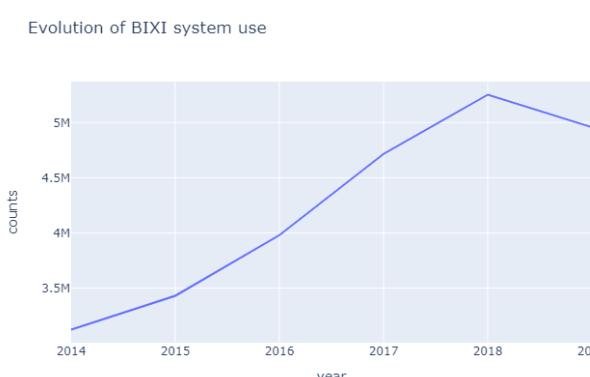
Improving the system for green and healthy travel



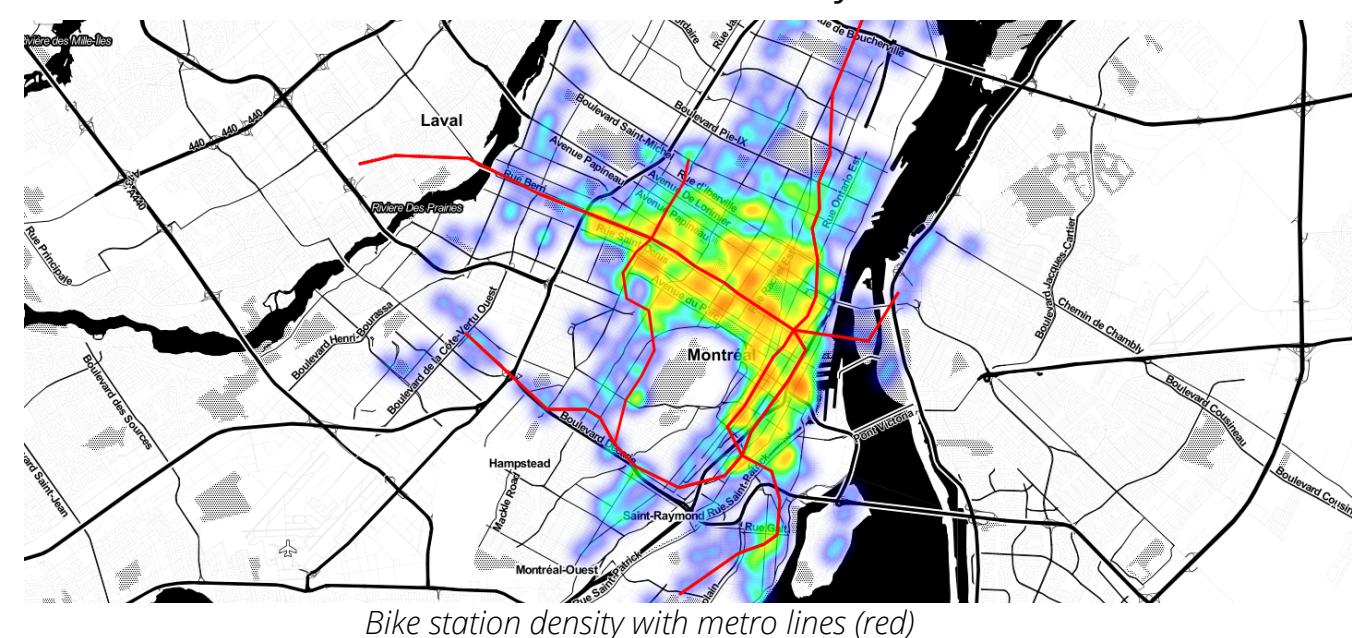
BIXI SYSTEM

What is it? A system allowing users to pick-up and drop-off shared bikes at specific stations around the city for short duration trips

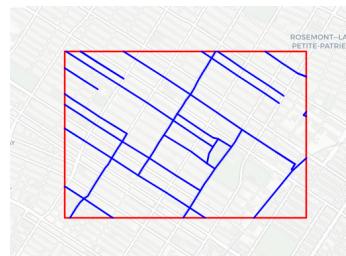
Increasing popularity as a means of commuting (short trips) instead of or in combination with other public transport



The stations are concentrated around downtown, mostly around the northern section of the Montmorency metro line



Finding the most bike-friendly area of Montreal



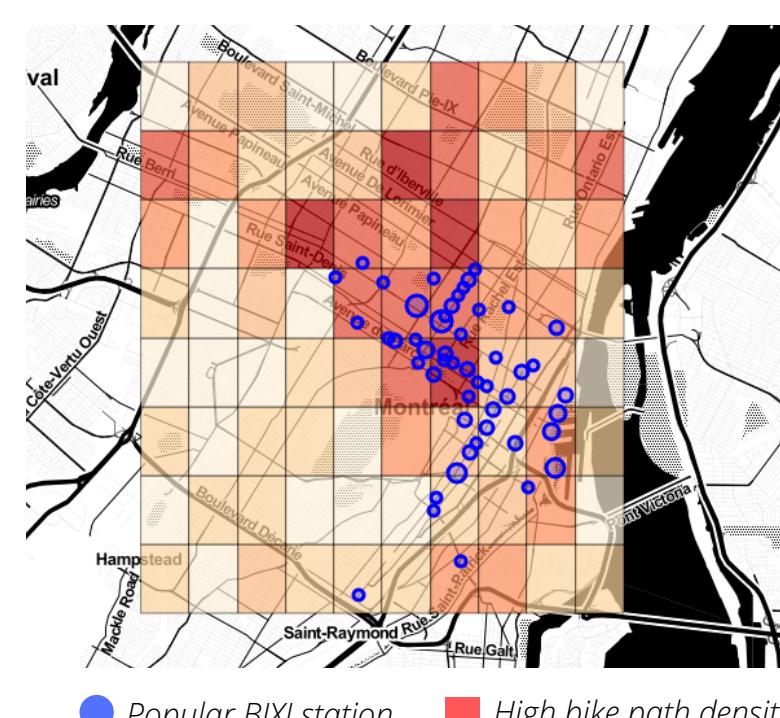
We had to find a way to define the **bike-friendliness** of an area. For a given zone, we therefore defined this magnitude as the **total length of bike paths** inside, in blue, **divided by the area of the zone**, in red.

Are the most popular BIXI stations in a bike-friendly zone?

Many of the **most popular stations**, represented beside by blue circles whose diameter increases with popularity, are indeed **located in an area with a high density of bicycle paths**.

However, there are still a few stations in the top 50, arranged to the right, in a straight line, on portions with low densities of bike lanes.

A further analysis including street speed limits may give better indication of bike friendliness.



Does Bike-friendliness increase popularity of a trip ?

Unfortunately, our analyses did not allow us to show a correlation between the popularity and the bike-friendliness of a trip.

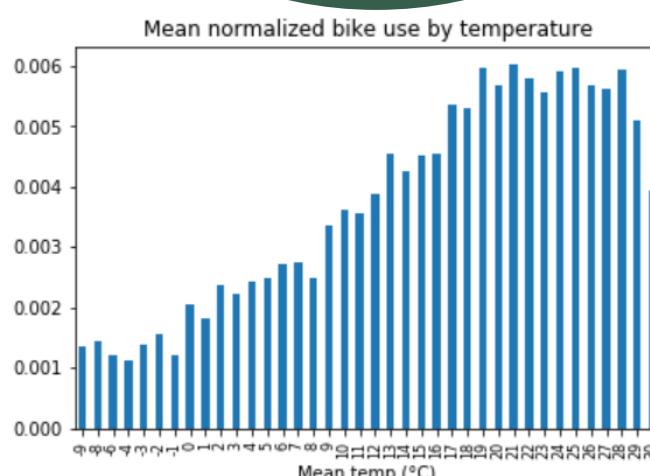
To really study if there is an increase, it seems more interesting to look at the difference in popularity of a trip before and after the construction of a bicycle path.

ROAD SAFETY

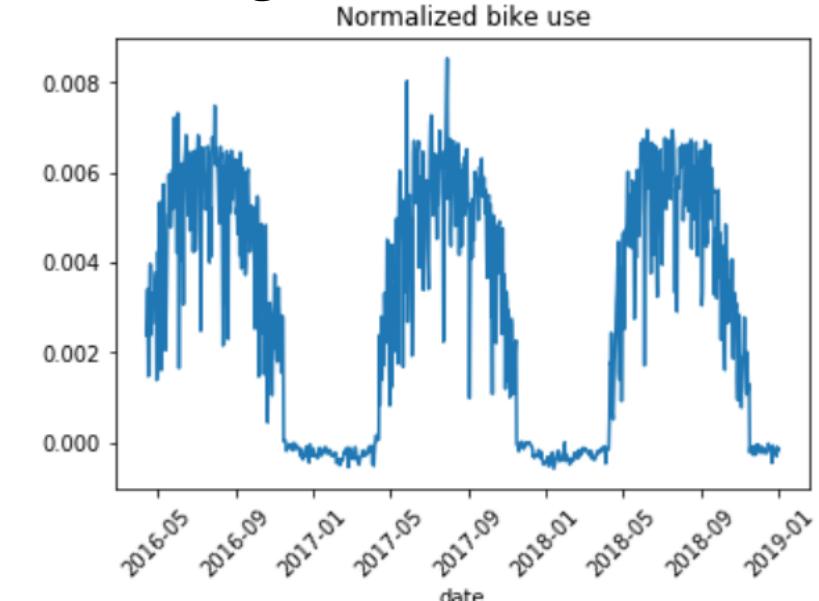
WEATHER

Rain or shine ?

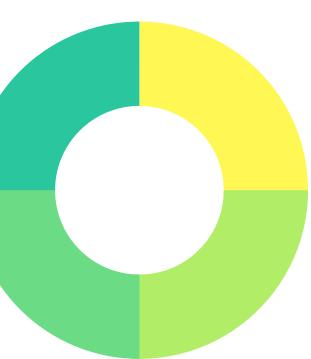
Using Montreal historical weather data, we computed the influence of parameters such as temperature, precipitation, and snow on bike use. As expected, **higher temperatures** (until 28°C) and **less precipitation**, increased **bike use**.



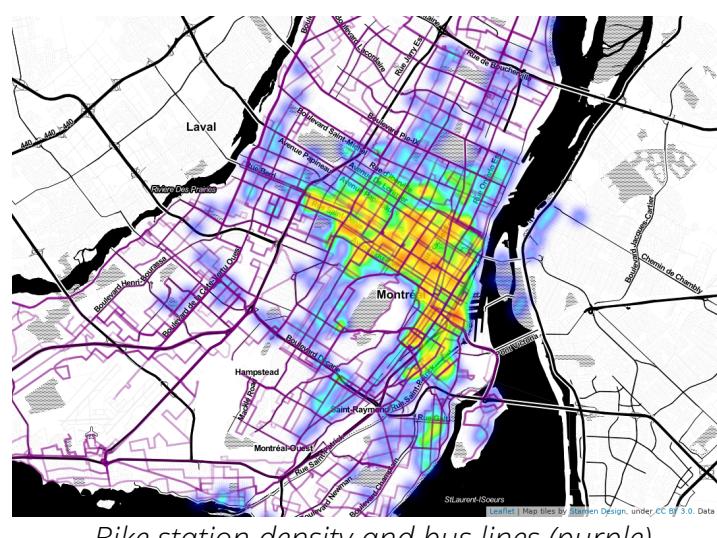
In the kingdom of Bixi, there is and should be no winter



Completing a Ridge regression we predicted the bike use during the months where the BIXI system is closed (Nov. 15th to Apr. 15th). We predicted **very low usage during winter** and thus believe **the system should remain closed during these months**.



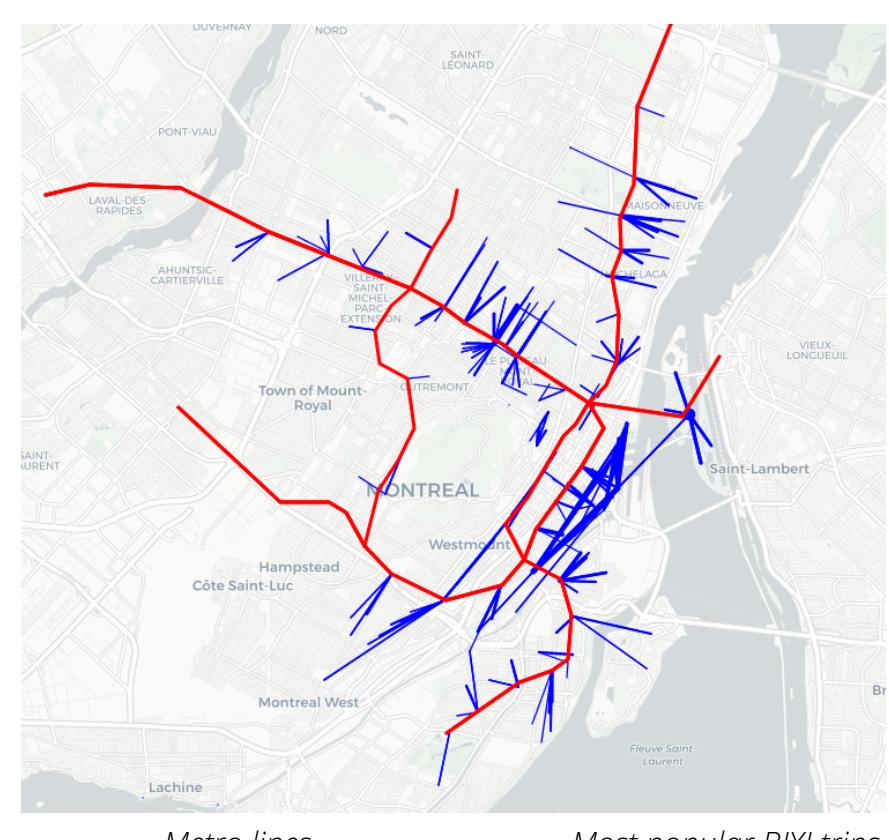
Does public transit affect bike use ?



BIXI is not filling a spatial gap in public transport stops. It is mainly represented in areas covered by many bus lines. The BIXI station density seems to be in a weird shape. **Is it only following the population density or is there something more ?**

With this one trick reach the metro faster !

The BIXI station density follows metro lines. If we look at the most popular BIXI bike trips the picture becomes clear. **People are biking to and from the metro**. This is likely a strategy to avoid waiting for buses which take 15 minutes on average.



PUBLIC TRANSPORT

Our recommendation to the BIXI company is:

- Focus on populating bike stations around the metro stops
- Add stations around the southern portions of the metro line to expand bike use
- Create a discounted joint membership with Montreal public transport to encourage use of bikes from metro stops in place of buses