

Unravelling volume patterns of Brussels traffic in times of Covid-19

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Elena Tsiporkova

This is the second in a series of blogs, in the context of the MISTic project concerning the traffic situation in Brussels in times of Covid-19 restrictions. Here we focus on the evolution of traffic during the relaxations of the restrictions.

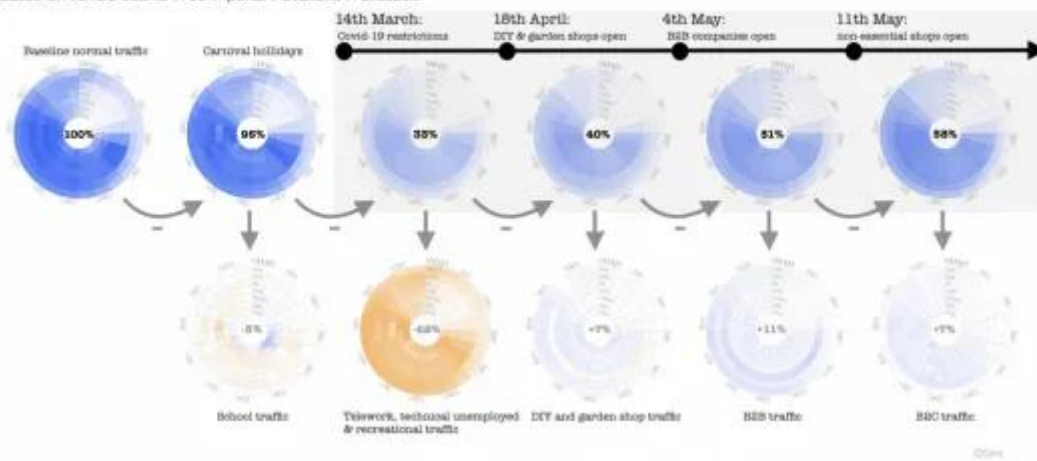
Our analysis is based on the open dataset of [Brussels Mobility](#), which contains vehicle counts on 55 busy locations in the city of Brussels. In our first blog, we discovered that traffic has dramatically, but unevenly reduced in terms of locations (e.g. less reduction witnessed at the small ring of Brussels) and time (e.g. evening peaks retained up to 80%). In this second blog, we focus on the evolution of traffic during the relaxations of the restrictions, and on providing answers to questions such as 'What is the effect from each relaxation of the restrictions on the Brussels traffic?' and 'Do people consistently obey the restrictions?'

Traffic fingerprints

Since the Covid-19 restrictions are gradually being relaxed, traffic is slowly returning to 'normal' and allows us to observe the emergence of traffic volumes associated to different activities. Following the approach from the first blog, we have generated characteristic weekly fingerprints for different time periods. Each of these fingerprints depicts the hourly traffic intensity throughout the (averaged) week. Our baseline (100% traffic volume) is constructed by averaging over 5 'regular' work-school weeks, excluding the school holidays, in January and February 2020. The second fingerprint (Carnival holidays refers to the spring half-term school holidays at the end of February, while the remaining fingerprints average traffic intensities over the different phases of the quarantine period e.g. complete lockdown between 14 March and 17 April, followed by the opening of the DIY & garden shops, re-starting of companies' activities and re-opening of all other shops.

Evolving traffic fingerprints

Based on vehicle counts in 55 important locations in Brussels



(Click to enlarge)

18 April: opening of DIY shops might cause some non-essential traffic

The opening of the DIY and garden shops resulted overall in 7% of traffic increase. Since Brussels is a major city with few DIY shops, we expected to see this increase mostly for some nodes only, and for sure not for nodes located in residential areas. However, we observed a similar increase for all nodes across the entire city. In addition, it appears the traffic volume also increased with a similar amount on Sunday, when shops are closed. All this seems to suggest that **probably not all observed traffic increase is due to DIY-garden shopping**. Perhaps people thought that DIY-shopping could be used as a valid pretext for doing other non-essential commutes?

Notice also how the volume didn't increase consistently for all days: Friday even has a decrease in traffic volume. This Friday is Labour Day, an official bank holiday.

4 May: friends or family visits are preferred over going back to work

In the next fingerprint, corresponding to the week in which B2B companies could restart their activities, we see 11% average increase in traffic volume. Even though more people were allowed to go to work again, we see the highest increase in traffic volume on Sunday. This is obviously not due to work activities. This particular Sunday was Mother's Day, and people were allowed to meet with up to four other people. **Many people seem to have seized this opportunity to go and visit their relatives and friends**. Note that the very clear increase of traffic on Friday is influenced by the reduced traffic on Labour Day of the week before, so this is probably not significant.

11 May: no rush to go shopping

The most recent relaxation, namely the opening of all B2C shops, results only in a **moderate increase of 7% in the overall traffic that seems to be quite nicely spread over all days of the week**. It appears that not everybody rushed to benefit immediately from the shopping opportunities at the same time. This has helped to avoid very busy peak periods at the shopping areas. It is also interesting to note that no increase of traffic was observed on Sunday, 17 May. This indicates that people travelled as much as on the previous Sunday, which was Mother's Day. Does this mean

that people visited their friends on both Sundays, and not their mothers? Or they just visited their mothers again complying strictly to the rule of four?

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Authors



Elena Tsiporkova