

Survey results:

Traffic impact of Kantstrasse pop-up cycle lane

Background situation:

Charlottenburg's Kantstrasse as well as the adjoining Neue Kantstrasse to the west is a major arterial road through the western part of the City of Berlin and connects the trade fair grounds at the Berlin Radio Tower with the Zoologischer Garten railway station.

Sections of the 3.6 kilometre stretch of Neue Kantstrasse and Kantstrasse are densely lined with residential and commercial buildings. It is a major road with two to three lanes in each direction and a grassed central reservation. The western part is dominated by a cross-section of the road with two lanes in each direction and adjacent parking bays on both sides. The eastern part of the traffic axis is mostly a three-lane road in each direction, including the respective parking strip.

Due to extensive commercial delivery traffic, several bus routes operated by the Berlin public transport company with numerous bus stops, and illegal double-parking, there was usually only one lane available in each direction. No provision was made for cycling before 2020.

A serious accident most recently occurred on Kantstrasse in February 2020, resulting in fatal injuries to a 64-year-old cyclist.

Initial markings for a pop-up cycle lane were made on both sides of the road at the end of April 2020. In summer 2020, the longest pop-up cycle lane in Germany, 3.6 kilometres in each direction, was completed.

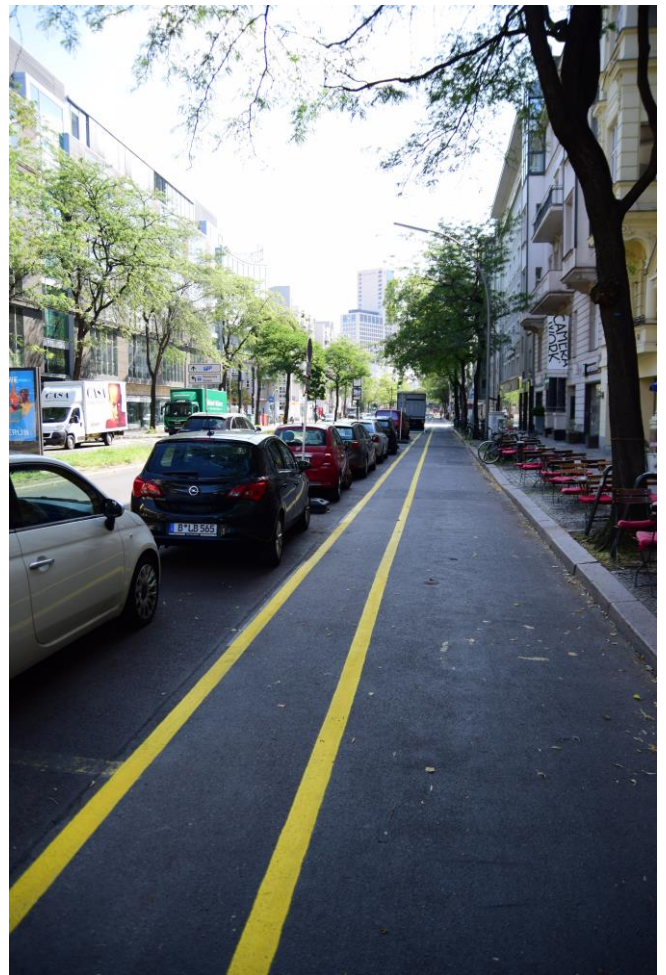


Figure 1: Kantstrasse in July 2021

Volume of traffic: Counts commissioned by the Berlin Senate.

There are a total of six measuring points along Kantstrasse/Neue Kantstrasse, each with one measuring sensor per direction. In the course of 2020, four of the six measuring points were switched off, so that data for [almost] the entire period under consideration is available from two measuring points. No data is available for these two remaining sensors for the months of January and February 2021. The following graph shows the progression (in blue) and average values (in green) for both measuring points.

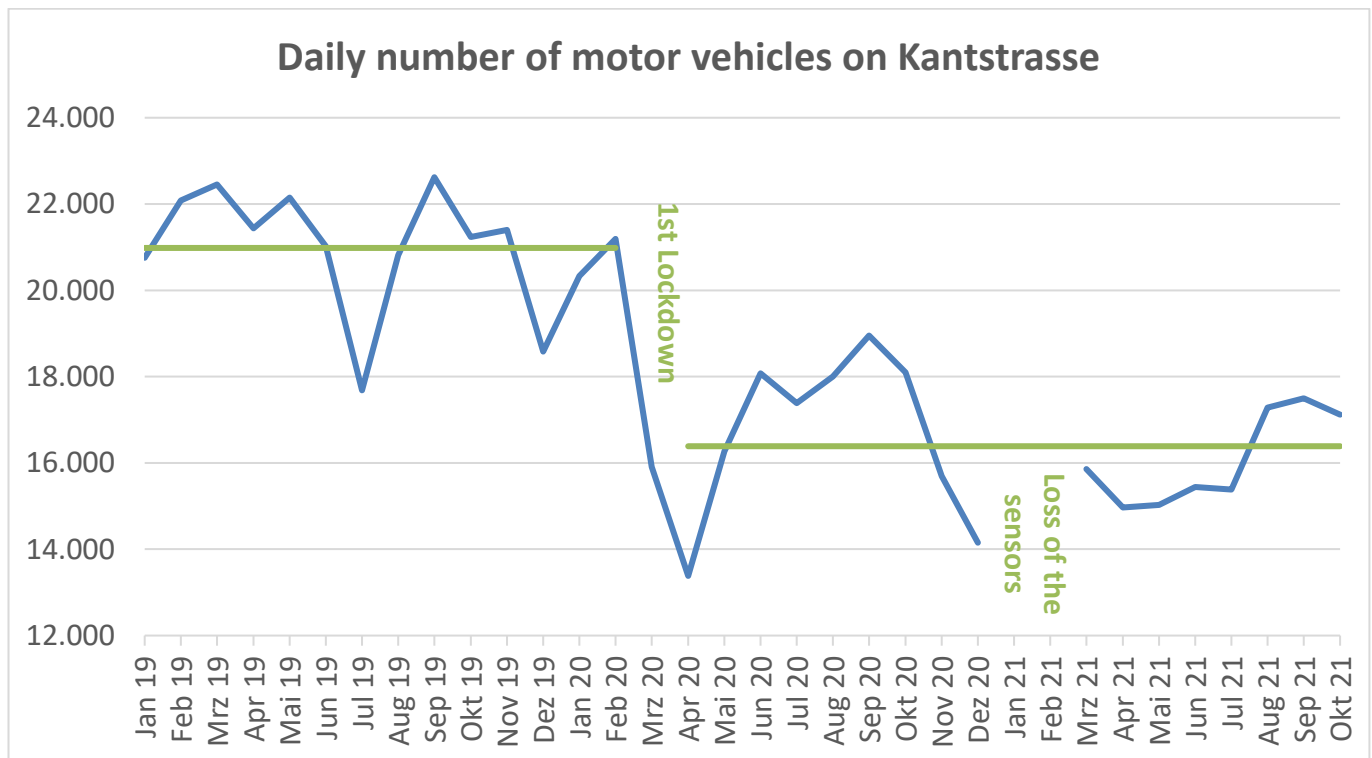


Figure 2: Development of motor vehicle traffic on Kantstrasse - daily averages. Data from the Berlin Senate Department for the Environment, Transport and Climate Protection; Evaluation: Environmental Action Germany

From January 2019 to February 2020, the volume of motor vehicle traffic on Kantstrasse averaged 20,982 motor vehicles per day. From the start of the establishment of the pop-up cycle lane in April 2020 until the end of October 2021, the number of motor vehicles dropped significantly, with only 16,387 vehicles per day. This corresponds to a decrease of 22%.

20,982 vehicles before pop-up cycle lane



16,387 vehicles after pop-up cycle lane

Cycle traffic counts through the Strava Metro mobility data platform.

The Berlin Senate Department for the Environment, Transport and Climate Protection (SenUVK) operates 17 automatic permanent counting stations for the continuous survey of bicycle traffic. There is no counting station on Kantstrasse, so other data sources have to be used to quantify the development of cycle traffic. For this purpose, data from the Strava Metro mobility platform is used. A comparison with the official figures from the Senate Department shows that Strava records slightly more than one percent of all cycling movements in Berlin - with the trend increasing. The proportion of movements recorded was calculated as an annual average and applied to the figures contained in Strava, so that a statement can also be made for streets that are not covered by the permanent counting stations. For Kantstrasse, the cycle traffic figures were evaluated at the points where motor vehicle figures are also recorded.

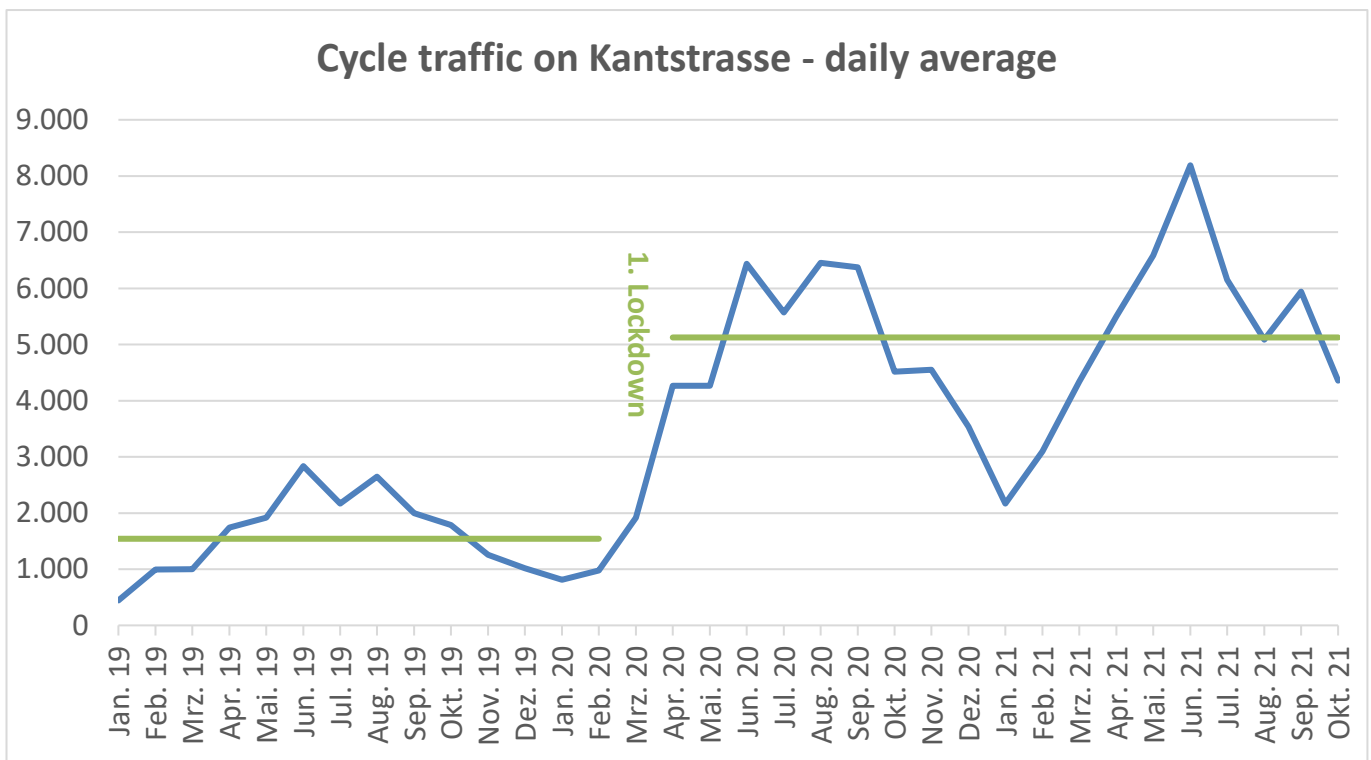


Figure 3: Development of cycle traffic on Kantstrasse - monthly averages. Data from Strava Metro and Berlin Senate Department for the Environment, Transport and Climate Protection. Evaluation: Environmental Action Germany

From January 2019 to February 2020, daily movements of cyclists on Kantstrasse averaged 1,542. Following the introduction of the pop-up cycle lane in April 2020 until the end of October 2021, the number of cyclists increased significantly to 5,125 per day. This corresponds to an increase in cycle traffic of 232%.

5,125 bicycles after pop-up cycle lane



1,542 bicycles before pop-up cycle lane

For comparison: Throughout the whole of Berlin, cycle traffic increased by 22.6 per cent in 2020 compared to the previous year. This is shown by a data evaluation of the official cycle counting stations carried out by Rundfunk Berlin-Brandenburg (rbb).

Air quality: Nitrogen dioxide pollution in Berlin

The pattern of nitrogen dioxide pollution in Berlin varies from area to area: In residential areas and on the outskirts of the city, limits are consistently complied with, but on major roads the pollution is so high that in 2017 the limit was exceeded at all the measuring stations located close to traffic. For this reason, DUH filed a lawsuit against the State of Berlin in early 2018. As a result, Berlin's Administrative Court ordered the State of Berlin to update its Air Quality Plan.

The 2nd update of the Air Quality Plan for Berlin was published in 2019. The implementation of numerous measures from this plan, such as route-related diesel driving bans, more 30 km/h speed limit zones and a significant expansion of parking space management, as well as general fleet renewal, have led to a significant decrease in NO₂ pollution in Berlin in recent years.

Four air quality measurement containers on major roads, for which NO₂ pollution readings are continuously available for the period under consideration, show a decrease in NO₂ pollution of 6.9 µg/m³. This statement refers to measurement data from the SenUVK on the major roads Schildhornstrasse, Mariendorfer Damm, Silbersteinstrasse and Frankfurter Allee. All the other SenUVK measurement containers have either not collected any data for several months, have been moved to a different location in the meantime (Karl-Marx-Strasse) or are not comparable with a main road in terms of their location (Hardenbergplatz bus station).

Nitrogen dioxide measurements by Environmental Action Germany (DUH):

On 22 October 2020, Environmental Action Germany (DUH) set up four measuring points for NO₂ on Kantstrasse and monitored the air quality over a period of one year until 1 November 2021.

Measurements between Savignyplatz and Uhlandstrasse:

- Kantstrasse 147 (southern side of the street)
- Kantstrasse 19 (northern side of the street)

Measurements between Kaiser-Friedrich-Strasse and Windscheidstrasse:

- Kantstrasse 97 (southern side of the street)
- Kantstrasse 71 (northern side of the street)

The passive collectors at Kantstrasse 71 were repeatedly removed by unauthorised persons, so that no meaningful measurement results are available here.

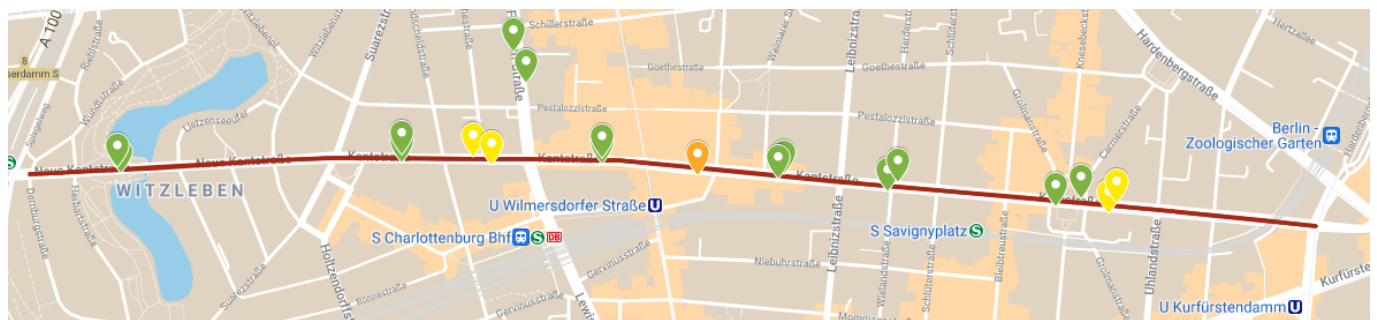


Figure 4: Route of Neue Kantstrasse and Kantstrasse pop-up cycle lane. Yellow: DUH NO₂ measurement; Orange: SenUVK NO₂ measurement; Green: Infrared vehicle sensors

For the sections of Kantstrasse where DUH carried out air quality measurements, modelling of traffic-related air pollution in 2020 is available in the Berlin Environmental Atlas. In the forecast, which was prepared in November 2018, modelling was carried out without a cycle lane and without the Corona pandemic.

	NO₂ pollution - Modelling in the Environmental Atlas	NO₂ pollution - Measurements with the cycle lane
Kantstrasse 147	35.4 µg/m ³	21.7 µg/m ³
Kantstrasse 19	35.4 µg/m ³	20.9 µg/m ³
Kantstrasse 97	34.9 µg/m ³	25.6 µg/m ³

The DUH measurements show NO₂ levels between 9.3 and 14.5 µg/m³ below the levels modelled without the pandemic and without a cycle lane.

Nitrogen dioxide measurements by the Berlin SenUVK:

The Berlin SenUVK has been measuring NO₂ pollution at the location of Kantstrasse 117 between Wilmersdorfer Strasse and Krumme Strasse for many years.

As recently as 2019, the last year in which three lanes in each direction were designated for motorised traffic, NO₂ pollution there was 33 µg/m³. For the year 2021, previously unpublished, preliminary and non-validated measurement data was made available to DUH.

	NO₂ pollution 2019	NO₂ pollution 2020	NO₂ pollution 01 to 10/2021
Kantstrasse 117	33 µg/m ³	26 µg/m ³	24 µg/m ³

The measurements by the Berlin SenUVK confirm the trend shown by the DUH measurements of a reduction in NO₂ pollution of 9 µg/m³ compared to the period before the introduction of the pop-up cycle lane.

Classification:

According to the Senate Department, the annual average impact of the Corona pandemic on NO₂ pollution in the air we breathe is only 2 µg/m³. The reduction in NO₂ pollution of 9 to 14.5 µg/m³ recorded in the current measurements thus clearly exceeds the effect of the Corona pandemic.

In Berlin as a whole, NO₂ pollution has recently been on the decline. At the four air quality measurement containers on major roads which collected data continuously during the period under consideration, NO₂ pollution decreased by 6.9 µg/m³ during the period monitored. This reduction is partly due to the Corona pandemic. The measurements along Kantstrasse show that the introduction of the pop-up cycle lane along Kantstrasse has contributed to a significant improvement in air quality – far beyond the city-wide trend. The contribution of the pop-up cycle lane to NO₂ reduction can be estimated at 3.0 to 7.6 µg/m³.

The fear that the pop-up cycle lane would lead to more congestion and thus to higher NO₂ pollution is hereby refuted. The precise traffic lane counts show that the right-hand lane was previously only of limited use to the flow of traffic due to delivery traffic and double-parking. This meant that a lane that could only be used in sections for motor vehicle traffic was replaced by a lane that could be used continuously and permanently for bicycle traffic. This is reflected in a significant increase of 232 percent in bicycle traffic volume. This measure is thus able to significantly increase the overall traffic capacity.

Even in the winter of 2020/2021, average bicycle traffic volumes were slightly above the levels reached in the summer of 2019. Accordingly, with a suitably good cycling infrastructure, considerably more people cycle even in adverse weather conditions. If the Kantstrasse pop-up cycle lane were comprehensively shielded from motor vehicle traffic by protective elements, it would presumably be possible to achieve significantly higher levels of bicycle traffic.

About the project:

DUH has been working since October 2020 on the project "Pop-up Republic: Mobility Turnaround Berlin", which is funded by the international association of cities ICLEI within the framework of the ICLEI Action Fund. The aim of the project is to collect, prepare and analyse environmental data in order to objectify discussions about the transition of mobility. The impact of new cycle lanes – with a special focus on pop-up cycle lanes, parking space management, neighbourhood traffic calming measures and 30 km/h speed limits – on the volume and composition of traffic as well as on NO₂ pollution will be investigated in order to be able to make informed statements about the impact on air quality and climate. In addition to data on Kantstrasse, an analysis of air quality following the introduction of the provisional Friedrichstrasse shopping street has already been published. In the coming months, data will be collected and evaluated in the following areas of Berlin:

- The traffic-calmed Bergmannkiez
- Pop-up cycle lane Lindenstrasse
- Pop-up cycle lane Kottbusser Damm and Kottbusser Strasse
- Improved cycling facilities Frankfurter Allee
- New cycling facilities and 30 km/h speed limit Hermannstrasse
- Cycling facilities and 30 km/h speed limit Tempelhofer Damm and parking space management Alt-Tempelhof
- Parking space management Moabit
- Parking space management zone Grossgörschenstrasse and cycle route Monumentenstrasse



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