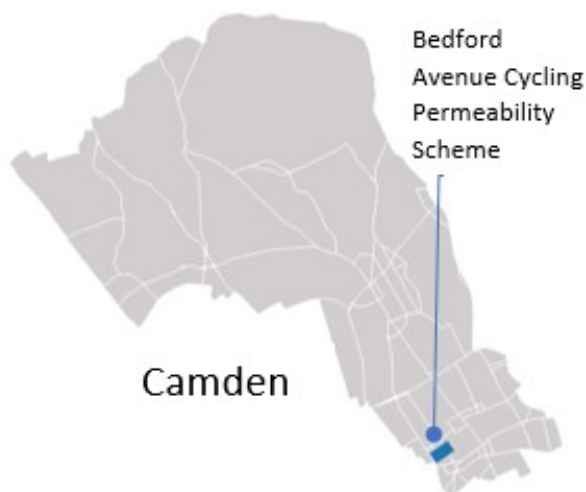


Bedford Avenue Cycling Permeability Scheme Permanent Proposals Monitoring Factsheet

This document sets out data and other information gathered pre-scheme installation and during the trial period of the Bedford Avenue Cycling Permeability scheme which has provided an eastbound cycle contraflow on Bedford Avenue, from the junction with Adeline Place to the junction with Bloomsbury Street, providing a continuous and direct cycle link between Tottenham Court Road and Bloomsbury Street.

Data has been gathered and analysed to help assess the impact of the scheme during the trial period of operation. The data and feedback are summarised below.



Summary

A review of **'Before'** and **'After'** scheme data for the Bedford Avenue Cycling Permeability scheme area indicates the following:



- Traffic levels overall on Bedford Avenue, near to the scheme, (ATC04) were low post scheme implementation. After scheme traffic flows have reduced by 42% compared to before scheme flows.
- Traffic counts (ATC01) undertaken in January 2022 show, on average, 487 motor vehicles per day (24hr period) travelling westbound on Bedford Avenue from Bloomsbury Street.
- Video surveys (junction turning counts, or JTCs) undertaken in January 2022 show, on average, 363 motor vehicles per day are turning into Bedford Avenue from Bloomsbury Street during daytime hours (7am-7pm).



- Average speeds have remained the same on the western end of Bedford Avenue (ATC04) (10.5mph to 10.6mph). This remains well below the 20mph speed limit.



- In January 2022, average speeds on Bedford Avenue (ATC01) were 16.2mph. This remains below the 20mph speed limit.
- Cycling flows (ATC04) have increased between 2020-2021. Cycling eastbound has increased by 209% and cycling westbound has increased by 35%. Overall cycling has increased by 71%.
- Cycle counts (ATC01) undertaken in January 2022 show, on average, 90 cyclists are travelling westbound on Bedford Avenue per day (24hr period), whilst 39 cyclists are travelling eastbound (making the contraflow movement).
- Video surveys (JTCs) undertaken in daytime hours (7am-7pm) in January 2022 corroborate this showing, on average, 89 cyclists are travelling westbound on Bedford Avenue, whilst 39 cyclists are travelling eastbound.



In August 2021, 725 Lime hire bike trips were recorded, which is equivalent to a 13% increase from August 2020 (644 trips recorded).



Video surveys (JTCs) undertaken in January 2022 show, on average, 742 pedestrians are moving between Bedford Avenue and Bloomsbury Street in daytime hours (7am-7pm).



No collisions were recorded between 1 January 2017 to 26 November 2020, before the scheme was implemented. Following the scheme implementation, no collisions have been recorded.



The scheme received some comments to the 'Safer Travel' inbox, which have been summarised. There were no comments provided on the "Safer Travel in Camden" Commonplace map.

Motor vehicle data

Automatic traffic counts (ATCs) were set up to collect **before scheme** data in August 2020 and **after scheme** data in October 2021 (ATC04). At this point the trial scheme had been in place for approximately 10 months. These counts took place to the west of the trial contraflow cycling scheme on Bedford Avenue.

A further round of ATC surveys was undertaken in January 2022 (**after scheme**) to provide data on where the contraflow cycle flow is in operation, on the eastern section of Bedford Avenue. **Before scheme** data was not recorded at this location.

Figure 1: Location of traffic count



A methodology for this ATC data collection is provided in **Appendix A**.

Figure 1 shows the location of traffic count 'ATC04', to the west of Adeline Place, between Adeline Place and Morwell Street. While this is not the exact location of the trial cycling contraflow (results for this are presented below) this count is still of interest due to its proximity to the scheme. **Figure 1** also shows the location of traffic data collected in January 2022 (ATC01 and JTC01), including motor vehicle, cycle and pedestrian flows where contraflow cycling is operational. Cycle and pedestrian flows are analysed in later sections of this report.

To establish whether there have been any changes in traffic flows on Bedford Avenue (ATC04), **before scheme** traffic counts have been compared against **after scheme** traffic counts. Due to the unavailability of **before scheme** data at ATC01 and JTC01, only **after scheme** data has been presented for these locations.

Table 1 shows the daily average vehicle counts for the full week of data collection. This shows a 42% reduction in overall traffic travelling westbound on Bedford Avenue between August 2020 and October 2021. This is due to the Bedford Avenue – Tottenham Court Road junction being converted to cyclists only in April 2021, which reduced westbound traffic on Bedford Avenue as vehicles travelling to Tottenham Court Road chose other routes.

Table 1: Traffic Counts: Daily Average Vehicle Counts (excluding cycles) (ATC04)

Motor Vehicles - daily average vehicle counts				
Road	Direction	Aug-20	Oct-21	Change (%)
Bedford Ave (ATC04)	Westbound	522	302	-42%

Traffic data was also collected in January 2022 (after scheme), to the east of Adeline Place, between Adeline Place and Bloomsbury Street (at the location of the trial cycling contraflow) as shown by traffic count 'ATC01' in **Figure 1**. **Table 2** shows the daily average vehicle counts for the full week of data collection. The results between 'ATC01' and 'ATC04' may suggest that up to 150 motor vehicles travelling westbound on Bedford Avenue turned onto Adeline Place and therefore did not reach 'ATC04'.

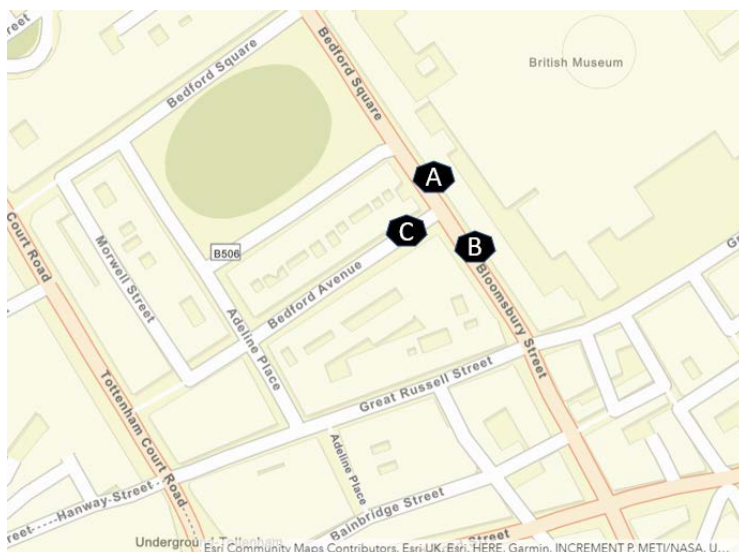
Table 2: Traffic Counts: Daily Average Vehicle Counts (excluding cycles) (ATC01)

Road	Direction	Jan-22
Bedford Ave (ATC01)	Westbound	487

Junction turning counts

At the junction of Bedford Avenue and Bloomsbury Street, junction turning counts (JTCs) were set up to collect **after scheme** data in January 2022. A methodology for this data collection is provided in **Appendix B**. The turning movements that data was collected for are shown in **Figure 2**.

Figure 2: Location of junction turning counts



The data has been collected using video surveys, identifying the number of vehicles turning onto:

- Bloomsbury Street from Bedford Avenue travelling northbound (Arm A).
- Bloomsbury Street from Bedford Avenue travelling southbound (Arm B).
- Bedford Avenue from Bloomsbury Street, travelling westbound (Arm C).

The data also identifies the number of cycles turning from Bedford Avenue to Bloomsbury Street (eastbound); this data is presented in a later section of this report.

Table 3 shows the daily average turning count for the full week of data collection. For 'Arm C' (the vehicles travelling westbound on Bedford Avenue) the difference in average vehicle counts observed during the January 2022 ATC and JTC surveys can be explained due to the ATC surveys collecting data 24-hour per day, whereas the JTC surveys collect data during a 12-hour (07:00-19:00) period.

The table shows, as would be expected, that movements onto Bloomsbury Street in both directions are more popular than onto Bedford Avenue, with (on average across the survey week) 2329 motor vehicles turning northbound onto Bloomsbury Street and 3459 vehicles turning southbound onto Bloomsbury Street.

Table 3: Junction Turning Counts: Daily Average Vehicle Counts (excluding cycles)

Road	ID	Direction	Jan-22
Bloomsbury Street	Arm A	Northbound	2329
Bloomsbury Street	Arm B	Southbound	3459
Bedford Ave	Arm C	Westbound	363

Total traffic data

It is recognised that the Covid-19 pandemic has had an impact on general traffic levels throughout London and in Camden. However, analysis (comparing this data to the dates of the scheme traffic counts) shows that:

- **Inner London** – Average daily traffic volumes on the Inner London Transport for London Road Network were 5% higher in October 2021 relative to October 2020 based on data available from TfL; and
- **Camden** – Average daily traffic volumes were approximately 3% higher in July 2021 relative to October 2020 (excluding school holidays) based on data from Vehicle Activated Signs at 13 sites in Camden (October 2021 data is not yet available).

Therefore, the results of the October 2021 survey data discussed in the 'Traffic count data' section should be broadly representative of changes in local area traffic rather than Camden or London more broadly.

Speed data (traffic count survey data)

Speed data was collected in August 2020 (before scheme) and October 2021 (after scheme); the speed data is taken from the ATC surveys (ATC04) presented in the earlier 'Traffic count data' section and has been presented for the westbound 7 day 24-hour average speed observed.

Motor vehicle speeds on the western section of Bedford Avenue have stayed roughly the same (10.5mph to 10.6mph) between 2020-2021. The speed limit on Bedford Avenue is 20mph. The observed speeds collected before and after the scheme being introduced suggest the speed limit is safely observed, likely due to the nature of Bedford Avenue being a short street with pedestrians, cyclists and parked cars using the street.

Speed data was also collected to the east of Adeline Place in January 2022 (ATC01) and shows, on average, motor vehicle speeds (travelling westbound) are slightly higher on this section of Bedford Avenue, recording 16.2mph on average across the week. This is still well below the 20mph speed limit. The higher speeds observed at ATC01, compared to ATC04 can be explained by the eastern end of Bedford Avenue (east of Adeline Place) being longer than the western end of Bedford Avenue (west of Adeline Place).

Cycling data (1): cycle count survey data

Cycle data was collected in August 2020 (before scheme) and October 2021 (after scheme) to the west of Adeline Place, between Adeline Place and Morwell Street. While this is not the exact location of the trial cycling contraflow (results for this are presented below) this count is still of interest due to its proximity to the scheme.

This cycling data is taken from the ATC surveys presented in the earlier 'Traffic count data' section and has been processed and analysed according to the process outlined in that section. The results are presented in **Table 4**.

Table 4: Traffic Counts: Daily Average Cycle Counts (ATC04)

Cycling - daily average vehicle counts				
Road name (site ID)	Direction	Aug 2020	Oct 2021	Change
Bedford Ave (ATC 04)	Eastbound	29	91	209%
	Westbound	114	154	35%
	Combined	143	245	71%

The data shows that between August 2020 and October 2021, on Bedford Avenue westbound there was an increase of 40 cyclists (35%) and eastbound there was an increase of 62 cyclists (209%). The eastbound direction experiences a more significant increase. The trial scheme, by creating a continuous connection for cyclists between Bloomsbury Street and Tottenham Court Road in both directions, is likely to have facilitated the significant increase in east bound cycle flows recorded.

Overall, the results indicate a positive outcome following the implementation of the scheme, with an increased number of cyclists using Bedford Avenue. The reduction in motor vehicles observed may be contributing to the increase in cyclists as Bedford Avenue may feel like a quieter and safer street to travel on.

Cycle data was also collected in January 2022 (after scheme), to the east of Adeline Place, between Adeline Place and Bloomsbury Street (at the location of the trial cycling contraflow). The results are presented in **Table 5**.

Table 5: Traffic Counts: Daily Average Cycle Counts (ATC01)

Road name (site ID)	Direction	Jan 2022
Bedford Ave (ATC01)	Eastbound	39
	Westbound	90
	Combined	129

The number of cyclists using Bedford Road (ATC01) is lower than the number of cyclists observed at ATC04 in October 2021. This could be due to seasonality having an effect on the number of cyclists in the colder months. Moreover, England was under 'Plan B' Covid-19 restrictions during January 2022, including the recommendation to work from home if possible. It is possible that this could have an impact on numbers. It is expected the number of cyclists using Bedford Avenue will increase in the coming months as temperatures increase.

Cycling Data (2): Cycle count survey data

Further cycling data was collected in January 2022 (after scheme) at the junction with Bedford Avenue and Bloomsbury Street. The data has been collected using video surveys, identifying the number of vehicles turning onto Bedford Avenue from Bloomsbury Street, as well as turning onto Bloomsbury Street from Bedford Avenue.

This cycling data is taken from the JTC surveys presented in the earlier 'Traffic count data' section and has been processed and analysed according to the process outlined in that section. The results are presented in **Table 6**. The similar cycling numbers shown between the January 2022 ATC and JTC are expected, despite the JTC surveys being 12-hour, due to the majority of cycle trips being undertaken during the daytime.

Table 6: Junction Turning Counts: Daily Average Cycle Counts

Road name (site ID)	Direction	Jan 2022		
		Cycle	E-scooters (Private)	E-scooters (Hire)
Bedford Ave (JTC 01)	Eastbound	39	1	1
	Westbound	89	2	0
	Combined	128	3	1

Cycling Data (3): Lime hire bikes - bicycle ‘through’ trips

Monitoring of ‘through’ trips on Bedford Avenue by Lime (the bike rental operator) in August 2020 and 2021 indicate that cycling levels have significantly increased following the scheme implementation. In August 2021, 725 trips were recorded, which is equivalent to a 13% increase from August 2020 (644 trips recorded).

Pedestrian survey data

Pedestrian data was collected in January 2022 (after scheme) at the junction with Bedford Avenue and Bloomsbury Street. The data has been collected using video surveys, identifying the number of pedestrians and vehicles turning onto Bedford Avenue from Bloomsbury Street, as well as the number of pedestrians and vehicles turning onto Bloomsbury Street from Bedford Avenue.

The pedestrian data is taken from the JTC surveys presented in the earlier ‘Traffic count data’ section and has been processed and analysed according to the process outlined in that section. The results are presented in **Table 7**. The survey results suggest Bedford Avenue is a popular road for pedestrian use, proving access to Tottenham Court Road to the west and Bloomsbury Street to the east, which also leads to Gower Street (to the north), where the University of London is located, as well as New Oxford Street (to the south) where a number of amenities, shops and restaurants are located.

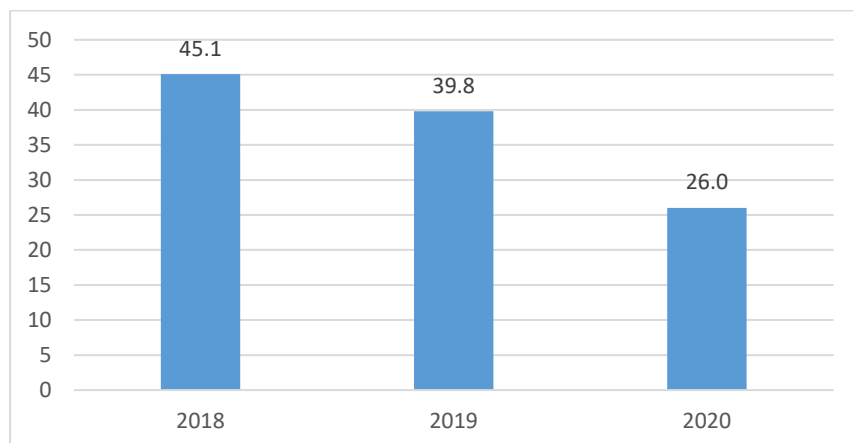
Table 7: Junction Turning Counts: daily average pedestrian counts (JTC01)

Road name (site ID)	Direction	Jan 2022
Bedford Ave (JTC 01)	Eastbound	450
	Westbound	292
	Combined	742

Air quality data

Camden monitors air quality at various sites across the borough. Air quality monitors called 'diffusion tubes' are in place on Bedford Square (Site ID: WEP18), near to the cycle contraflow scheme on Bedford Avenue. **Figure 3** provides data from previous years at the WEP18 air quality site and shows that the annual mean NO₂ concentrations fell slightly between 2018-2019 and more significantly between 2019-2020. COVID-19 restrictions will have contributed to this decrease.

Figure 3: WEP18 bias-adjusted annual mean diffusion tube NO₂ data, µg/m³



The raw and provisional monthly average NO₂ concentration measures at the site in 2021 are recorded in **Table 8**. Normally, this data would be 'bias adjusted' and annualised using the [LLAQM.TG\(19\) methodology](#). However, since the 'bias adjustment factors' for 2021 will not be available until later in 2022, this data is presented in 'raw' form and must therefore be considered indicative and provisional at this stage.

Bias adjustment factors are continually reviewed and vary each year and are not published until the April of the following year. Therefore, we are unable to provide annual figures for the monitoring that has taken place at this site in 2021 until April 2022.

Table 8: Raw and provisional month-average diffusion tube NO₂ data (2021), µg/m³

2021 NO ₂ raw & provisional month average (µg m-3)					
Site	Jan-21	Feb-21	Mar-21	Apr-21	May-21
Bedford Square (WEP18)	40.8	36.6	29.6	29.3	27.8

There are a couple of important caveats when considering 'raw' diffusion tube data:

- Typically, diffusion tubes over-estimate NO₂ concentrations and we therefore expect the annual mean for 2021 to be lower than the average of the individual month average NO₂ concentrations shown in the table; and

- We estimate that road transport contributes about half of NO₂ emissions in Camden. Approximately 40% is from buildings, from the use of natural gas for heating and power. Therefore, NO₂ emissions are always higher during colder periods when there is increased heating demand in residential and commercial properties which is why NO₂ concentrations are typically higher during winter months.

Compared with the month-on-month readings from 2020, the readings for 2021 have broadly stayed the same. It is therefore possible that air quality levels have remained steady at this site, however we will not know until the calculations described earlier have been performed. We also note that the expansion of the ULEZ on 25th October 2022 may have a beneficial impact on local air quality across the borough.

Collision data

STATS19 collision data (collected by TfL) has been reviewed for the most recent period available, running from 1 January 2017 to 30 June 2021. Collision data has been analysed for the section of Bedford Avenue between Adeline Place and Bloomsbury Street.

Analysis of the data indicates no collisions were recorded between 1 January 2017 to 26 November 2020, before the scheme was implemented. Following the scheme implementation, no collisions have been recorded.

Feedback received during the Experimental Traffic Order (ETO) period

Residents and stakeholders were able to provide Camden with feedback via the [“Safer Travel in Camden” Commonplace map](#) and the Safer Travel inbox. No comments were left on the Commonplace map regarding this scheme. The following feedback was received to the Safer Travel inbox:

- Negative: two responses
- Neutral: three responses
- Positive: one response

Those that were not supportive of the scheme shared issues around the principles of contra-flow cycling, and concerns around the relocation of the motorcycle parking bay. In response to concerns around the motorcycle parking bay, Camden prepared a new design in December 2020 which relocated the motorcycle bay much closer to its original location at the eastern end of Bedford Avenue, and the ETO was amended slightly to reflect this.

Those that were neutral about the scheme wrote with concerns that elements of the scheme had not been carried out according to publicised plans. Minor amendments

were undertaken to rectify this. Others wrote in favour of the scheme, but with concerns about the motorcycle bay (now relocated).

Feedback was also provided by the Royal National Institute of Blind People (RNIB) regarding Camden's wider programme of improvements in general, rather than this specific scheme. The RNIB provided details of principles to be followed when designing streetspace schemes to ensure accessibility and inclusivity for people with sight loss.

Appendix A: Traffic Data Methodology

Automatic traffic counts (ATCs) were set up to collect **before scheme** data in August 2020. Data was collected from Monday 3 August to Sunday 9 August 2020. ATCs were set up to collect **after scheme** data in October 2021. Data was collected from Wednesday 13 October to Tuesday 19 October 2021. Data is logged in 15-minute intervals over the full 24-hour period on those days.

There was one minor period of data loss, for Site ATC04 on 17/10/2021.

Data was collected according to vehicle class; the following vehicle types were recorded:

- Pedal cycle (PC)
- Motorcycle (MC)
- Car
- Light Goods Vehicle (LGV)
- Other Goods Vehicle 1 (OGV1) – heavy goods vehicle such as a lorry
- Other Goods Vehicle 2 (OGV2) – larger lorry, usually articulated
- Public Service Vehicle (PSV) – for example a bus or coach

Appendix B: Junction Turning Movement Count Methodology

Junction turning counts (JTCs) were set up to collect **after scheme** data in January 2022 through video camera surveys at the junction with Bedford Avenue and Bloomsbury Street. Data was collected from Monday 17 January to Sunday 23 January 2022. Data is logged in 15-minute intervals over a 12-hour period (07:00-19:00) on those days. The eastbound flows presented within this factsheet represent movements from Bedford Avenue to Bloomsbury Street. Only cycles are permitted to make this movement since Bedford Avenue is one way for motor vehicles. Westbound flows represent vehicles travelling on Bloomsbury Street turning onto Bedford Avenue. Westbound movements are presented for both motor vehicles and cycles. E-scooters are also included in the data collection.

Data was collected according to vehicle class; the following vehicle types were recorded:

- Pedestrians
- Pedal cycle (PC)
- E-Scooters (Private) – note their use on the public highway remains illegal
- E-Scooters (Hire)
- Motorcycle (MC)
- Car
- Light Goods Vehicle (LGV)
- Other Goods Vehicle 1 (OGV1) – heavy goods vehicle such as a lorry
- Other Goods Vehicle 2 (OGV2) – larger lorry, usually articulated
- Public Service Vehicle (PSV) – for example a bus or coach