

Champion Hill Area Monitoring Study



Introduction

Southwark Council has completed the trial for a 'no entry except for cycles' scheme along Champion Hill. The introduction of this scheme is aimed at supporting the successful delivery of Quietway 7 as well as reducing traffic volumes along Champion Hill to turn it into a healthier environment for residents and others using the street.

This study provides a comparison between monitoring results from data collected before and after the implementation of the trial scheme. The area covered by the monitoring study corresponds to the extent shown in the map on the next page.

Scope of the monitoring exercise

Based on feedback from public consultation and discussions with TfL on assessment criteria, the monitoring exercise includes surveys on residential roads and main roads, with the aim of capturing potential impacts on the road network surrounding Champion Hill and capturing potential traffic displacement in the neighbouring area.

The data used in the following pages are the results traffic surveys undertaken in January 2019 and September 2019:

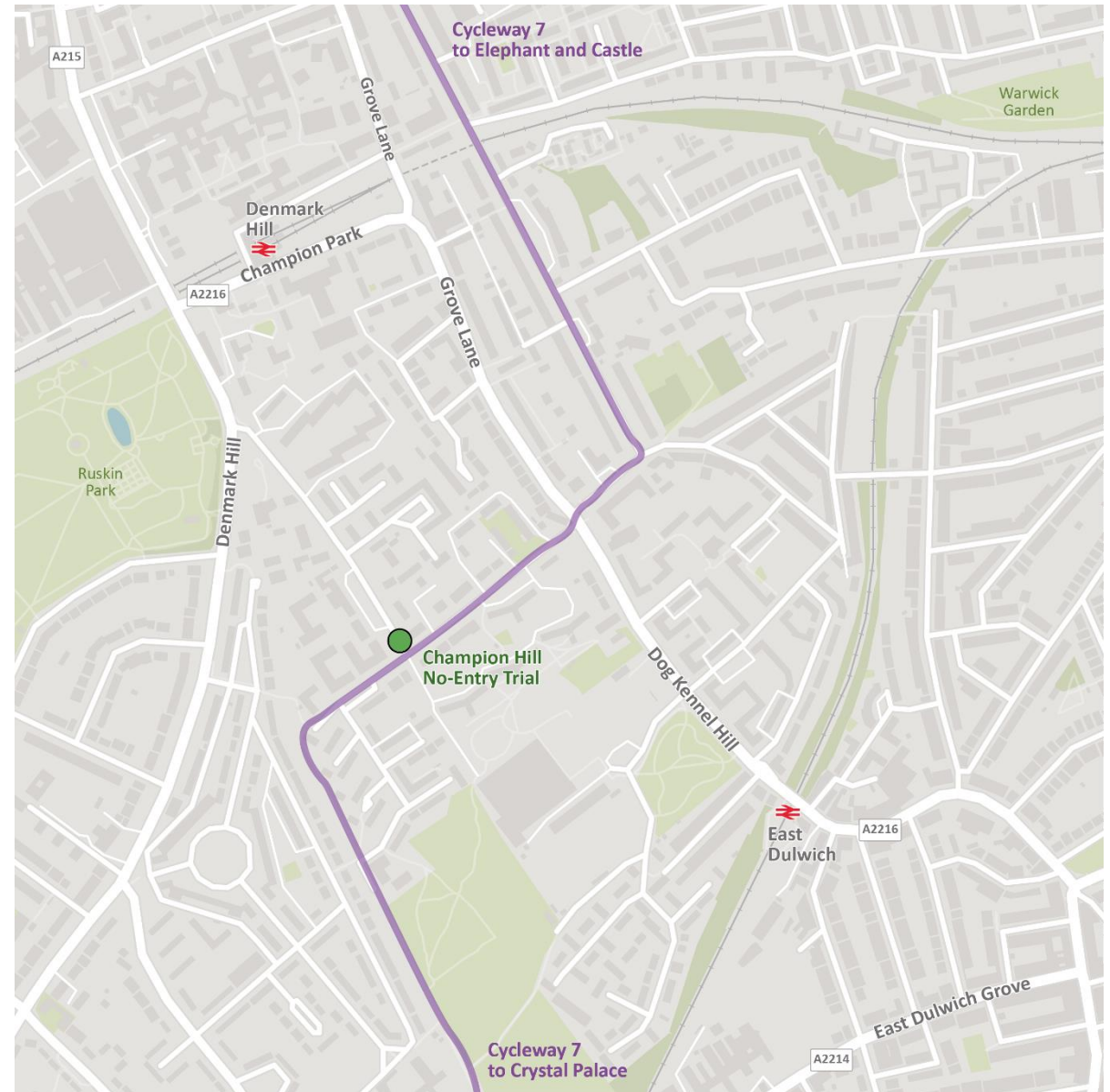
- Automated Traffic Counts (ATC) in 20 locations, capturing classified traffic volumes and traffic speeds for 7 days, 24 hours/day.
- Manual Classified Counts collected during the weekday AM peak period (7am-10am) at Grove Lane junction with Dog kennel Hill junction with Champion Hill
- Bus Interaction Data (Journey Times and Dwell Times at bus stop) on two weekdays
- NO₂ concentration data recorded monthly by LB Southwark monitoring stations (data from October 2017 to October 2019)

It is worth noting that, whilst these traffic surveys constitute a comprehensive and exhaustive baseline, comparisons between traffic data recorded in different periods can be influenced by several external conditions, including seasonality, changes to the wider network,

disruptions in the wider network, drivers/riders/Public Transport users' behaviour.

The following chapters provide a summary analysis of the survey results with key findings.

Figure 1: Study Area



Motorised vehicle flows - AM peak (8am-9am)

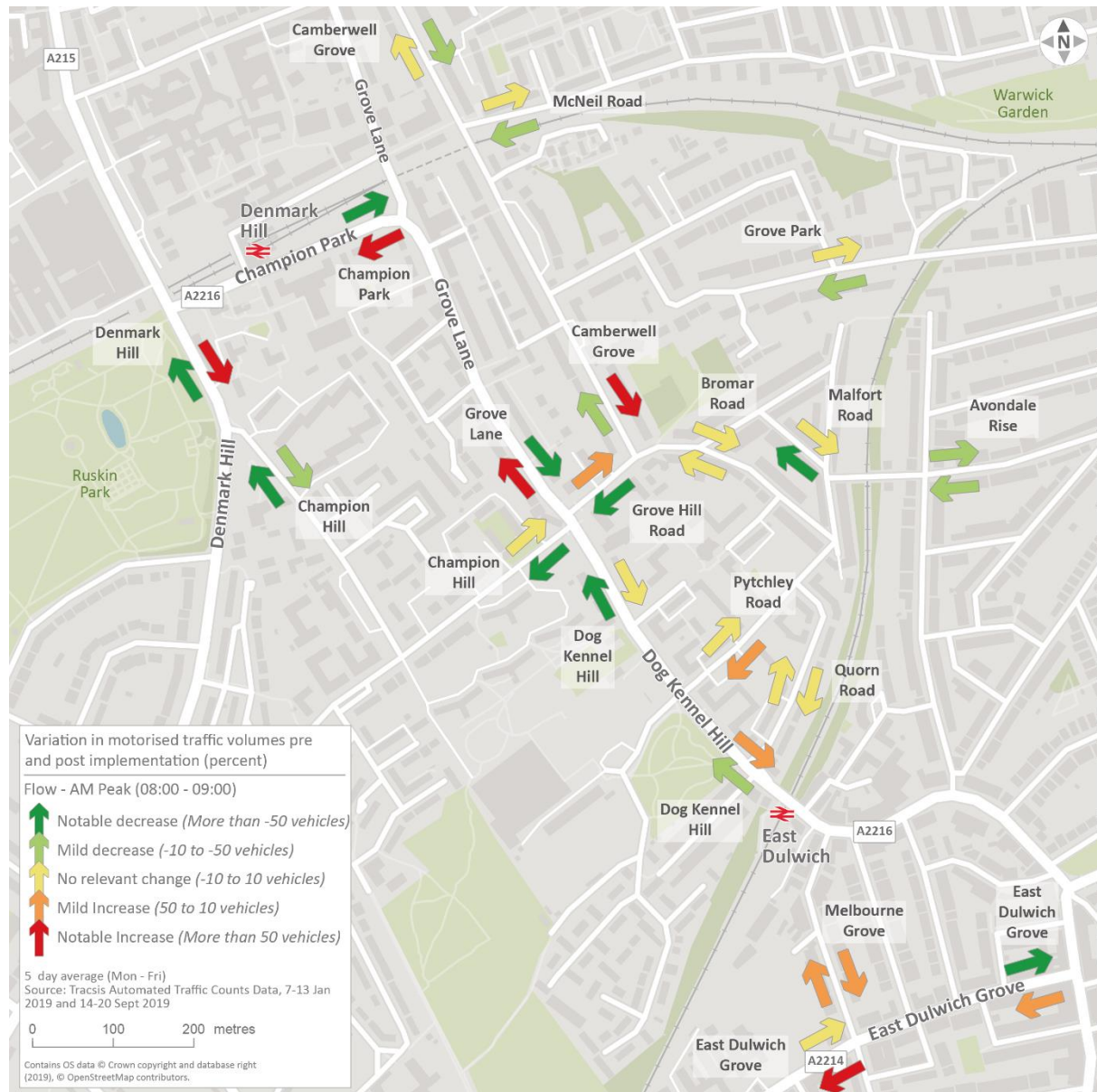
Figure 2 shows the variation in number of motorised vehicles recorded on an average weekday in the AM peak hour, between 8am and 9am.

Alongside the exclusion of northbound traffic from Champion Hill, the most significant reductions are observed along the Quietway route: northbound along Camberwell Grove and westbound along Grove Hill Road. A reduction in northbound traffic is also recorded along Denmark Hill and Dog Kennel Hill.

The most notable increases are observed along Grove Lane/Champion Park (northbound), Camberwell Grove (southbound), East Dulwich Grove (westbound).

It is worth noting that the increase recorded along Grove Lane (~130 vehicles) is far lower than the reduction achieved along Champion Hill (~340 vehicles). Moreover, the decrease in traffic along Champion Hill has resulted in a decrease along Dog Kennel Hill, south of the junction with Champion Hill (further detail provided in the next chapter).

Figure 2: Motorised vehicle flows - AM peak (08:00-9:00)



Motorised vehicle flows - PM peak (6pm-7pm)

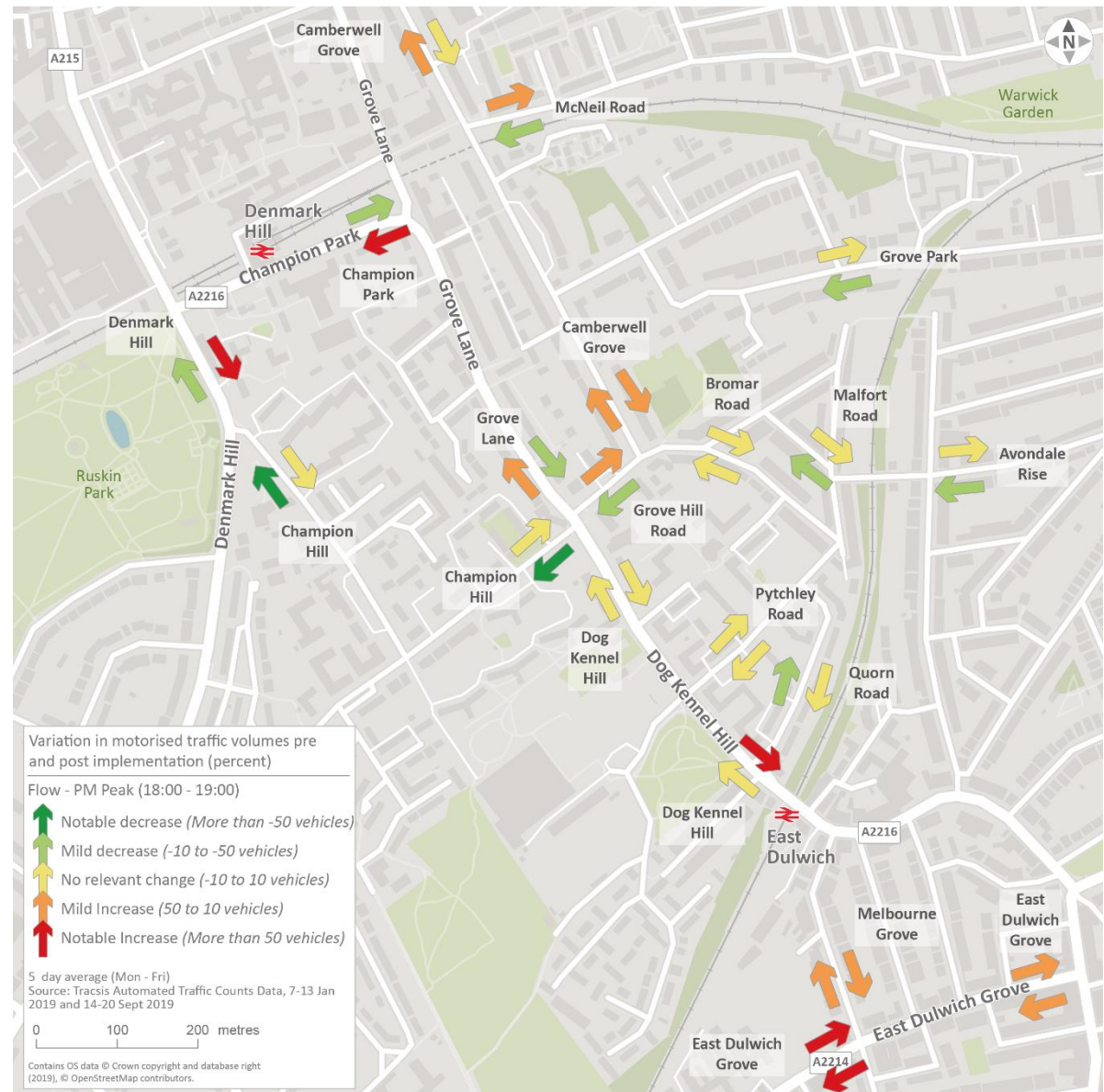
Figure 3 shows the variation in number of motorised vehicles recorded on an average weekday in the PM peak hour, between 6pm and 7pm. Variations appear significantly less pronounced than those observed in the AM peak, with very few sites recorded an increase above 30 vehicles.

In particular, the reduction of over 170 vehicles along Champion Hill has not determined a significant increase in any of the alternative northbound routes, but only limited increases along Grove Lane and Camberwell Grove (both show increases of 40-50 vehicles per hour).

Minor reductions are observed westbound, along the Avondale Rise/Malfort Road/Grove Hill Road route, potentially associated with Champion Hill scheme. This is likely to be a sign of a reduction in east-west traffic filtering through residential streets to join Denmark Hill.

The variations observed along East Dulwich Grove and Denmark Hill are not likely to be attributable to the Champion Hill scheme. Melbourne Grove also recorded an increase in traffic.

Figure 3: Motorised vehicle flows - PM peak (18:00-19:00)



Dog Kennel Hill junction with Grove Hill Road and Champion Hill

The comparison between AM and PM peak analysis has shown how the AM peak is the period where the highest variations have been recorded. As such the following charts focus on AM peak data. A comparison of turning movements at the junction Dog Kennel Hill/Grove Hill Road/Champion Hill was undertaken using data recorded in the peak AM hour between 8am and 9am on two typical days in January and in September.

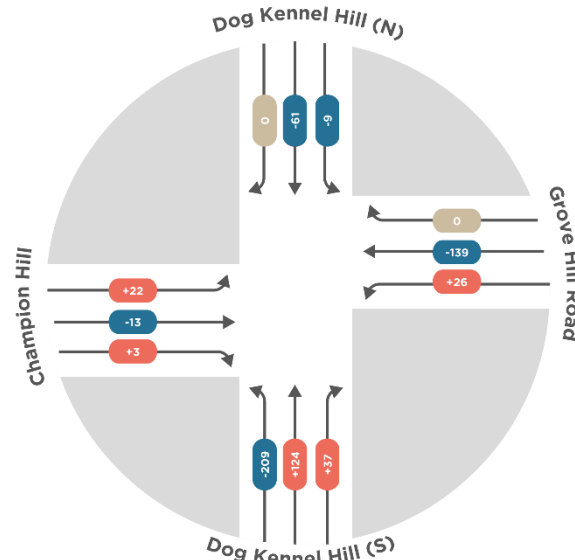
The overall number of motorised vehicles travelling through the junction has decreased between January and September, due to a reduction in movements into Champion Hill (-200 vehicles per hour).

Traffic along Dog Kennel Hill South has decreased in both directions: the increase in vehicles heading north (+150 vehicles approximately) is lower than the reduction in traffic observed turning into Champion Hill.

The number of cycle movements recorded has seen an increase between Grove Hill Road and Champion Hill (+12 cycles, equating to a 50% increase). Southbound cyclists have also noticeably increased from Dog Kennel Hill North.

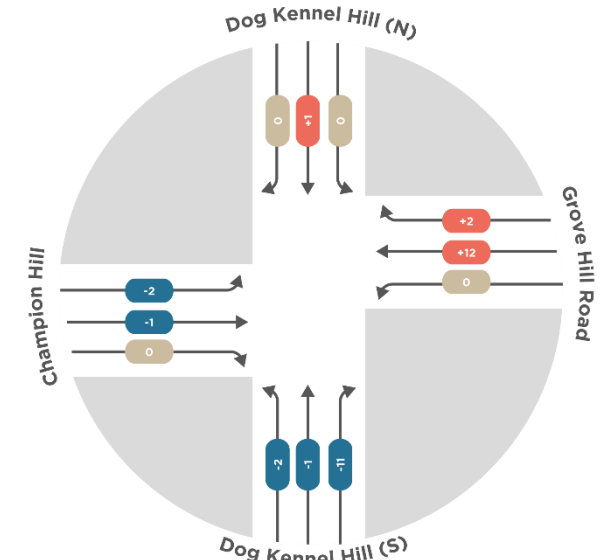
Champion Hill has also seen an increase in cyclists travelling westbound.

Dog Kennel Hill/Champion Hill/Grove Hill Road
Motorised vehicles 8am-9am (peak)



Comparison based on traffic counts undertaken on 8-9 January 2019 and 10-11 September 2019

Dog Kennel Hill/Champion Hill/Grove Hill Road
Cycles 8am-9am (peak)



Comparison based on traffic counts undertaken on 8-9 January 2019 and 10-11 September 2019



Denmark Hill junction with Champion Park

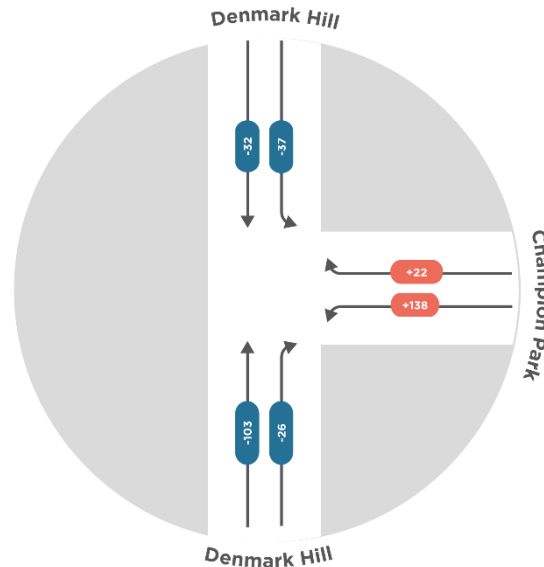
A comparison of turning movements at the junction Denmark Hill / Champion Park was undertaken using data recorded in the peak AM hour between 8am and 9am on two typical days in January and in September.

The overall number of motorised vehicles travelling through the junction has decreased between January and September, due to a reduction in vehicles travelling along Denmark Hill (largely independent from the Champion Hill scheme).

The increase in traffic out of Champion Park is likely to be attributable to the trial one-way southbound along Champion Hill, displacing traffic on Grove Lane / Champion Park: most additional vehicles turn south at the junction. However, the increase along Champion Park is lower than the decrease along Champion Hill, highlighting that some of the traffic has stopped crossing the neighbourhood.

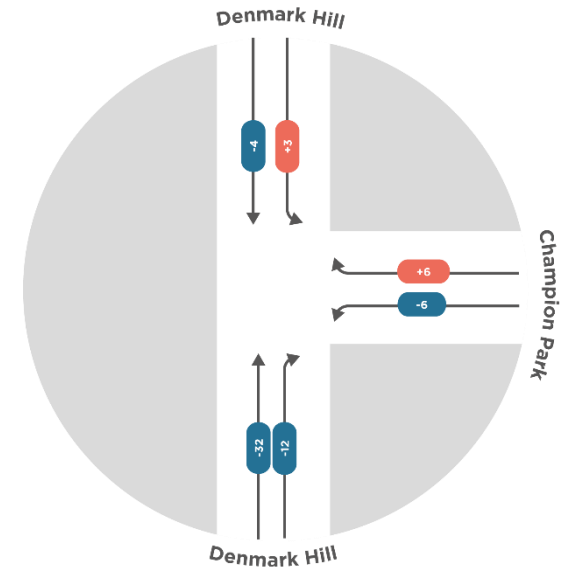
Negligible variations have been observed on cycle movements, with the exception of a reduction along Denmark Hill northbound (-44 vehicles equating to -10%).

Denmark Hill/Champion Park
Motorised vehicles 8am-9am (peak)



Comparison based on traffic counts undertaken on 8-9 January 2019 and 10-11 September 2019

Denmark Hill/Champion Park
Cycles 8am-9am (peak)



Comparison based on traffic counts undertaken on 8-9 January 2019 and 10-11 September 2019



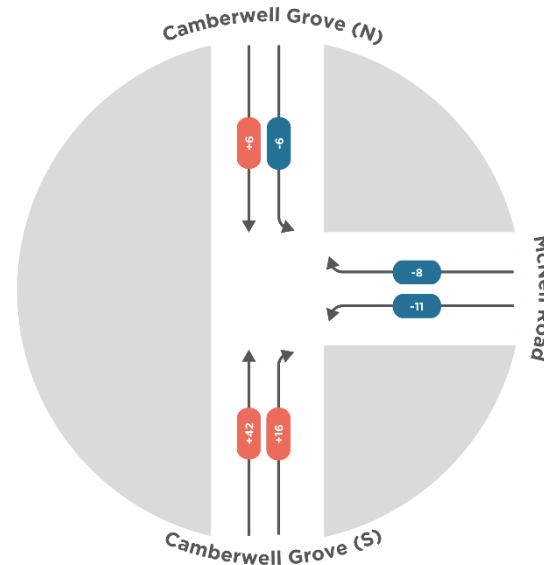
Camberwell Grove junction with McNeil Road

A comparison of turning movements at the junction Camberwell Grove / McNeil Road was undertaken using data recorded in the peak AM hour between 8am and 9am on two typical days in January and in September.

The number of northbound motorised vehicles travelling through the junction has increased (+58 vehicles equating to +30%). However, the overall number of vehicles travelling in both directions along Camberwell Grove has changed from 330 to 360 vehicles per hour in both directions. It is worth noting that this traffic increase is only marginally linked with the Champion Hill trial.

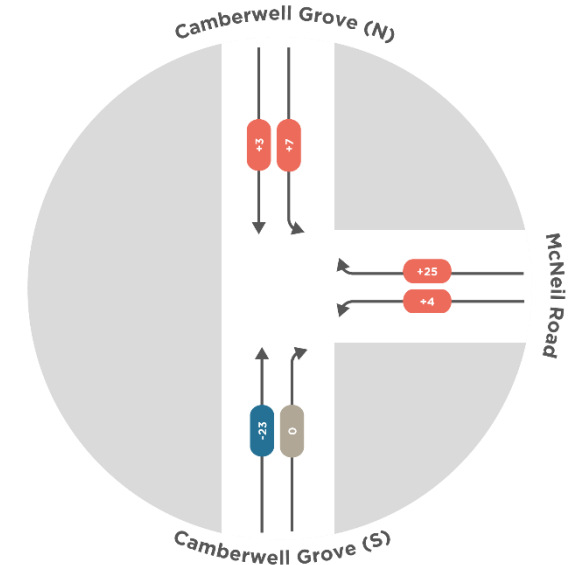
The overall number of cyclists travelling through the junction has increased, with all movements recording +20/30% with the exception of northbound cyclists along Camberwell Grove (-23 cycles, equating to -10%).

Camberwell Grove/McNeil Road
Motorised vehicles 8am-9am (peak)



Comparison based on traffic counts undertaken on 8-9 January 2019 and 10-11 September 2019

Camberwell Grove/McNeil Road
Cycles 8am-9am (peak)



Comparison based on traffic counts undertaken on 8-9 January 2019 and 10-11 September 2019



Bus interaction Data

Bus Interaction data was gathered through bus journey time information along Grove Lane, between Grove Hill Road and Denmark Hill Station, with the following breakdown:

- Journey time between Grove Hill Road and bus stop G, including
- Dwell Time at bus stop G, including delay time before merging with traffic
- Journey time between bus stop G and bus stop H
- Dwell time at bus stop H, including delay time before merging with traffic
- Journey time between bus Stop H and Timing Point 2 at Denmark Hill Station

No distinction between routes has been made at this stage, as all routes (namely Routes 40, 176, 185, 484) serve both stops and would thus be influenced by the same factors.

The total journey time is quite variable across the sample: as such, an average has been presented for each of the four days of survey, two in January and two in September.

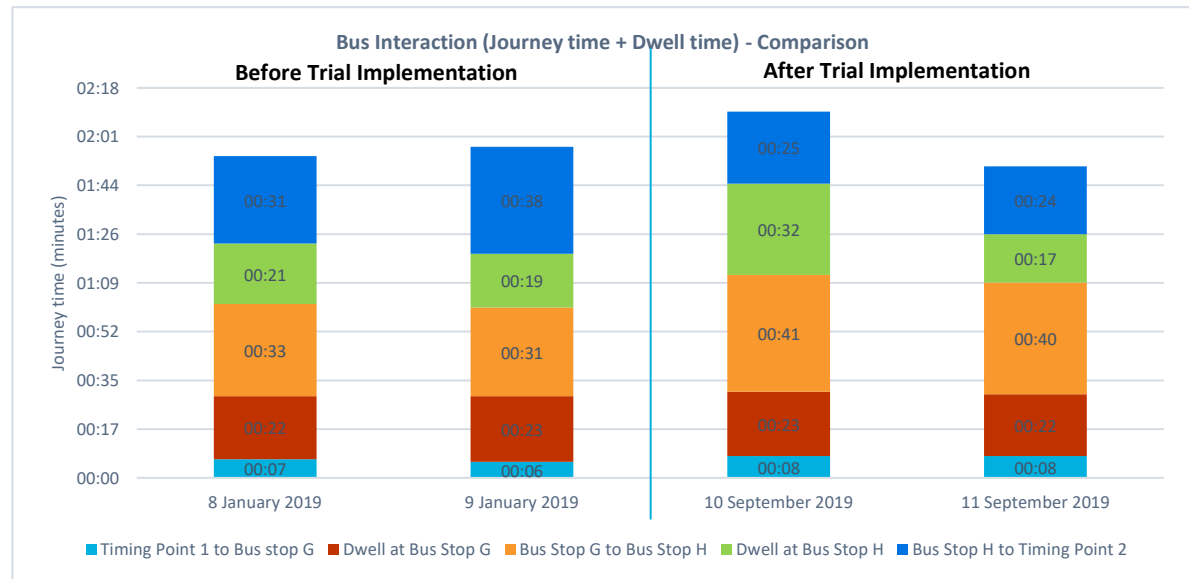
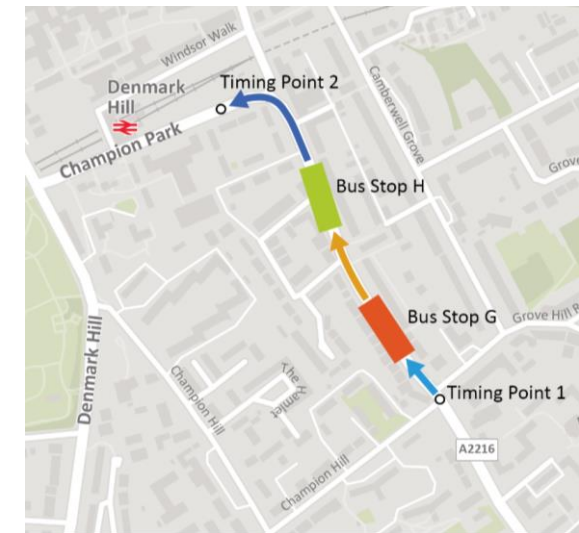
The average journey time between Point 1 Bus Stop G and the dwell time at Stop G are constant across all survey dates. The journey time between Stop G and H is approximately 10 seconds longer during the two dates in September.

The dwell time at stop H is similar (between 17 and 21 seconds) in three days out of four, with a significant increase only in one of the September dates, potentially showing that any extra traffic delay due to congestion does not prevent buses from leaving the stop and merging with traffic soon after picking up passengers.

The journey time between Bus Stop H and Point 2 is significantly higher in the January dates.

Overall, journey time has not changed significantly across the two survey periods.

Figure 4: Bus Interaction survey points



Air Quality Monitoring

Air quality is currently monitored in the area by eight monitoring stations. Four of these were already in place prior to the implementation of the one-way scheme. As such, the data recorded by these four stations have been used to draw comparisons.

The table on the right shows annual mean Nitrogen Dioxide concentration for all eight sites based on November 2018 - October 2019 data. All sites fall within the UK Target Limit (40 $\mu\text{g}/\text{m}^3$) except the site located on Grove Lane. It is worth noting that the figure for this site has been projected using an annualization factor, as the monitoring station has been in place for less than

a calendar year. The table also shows annual means for the 3 stations already installed in 2017 and 2018: all mean values have decreased in 2019.

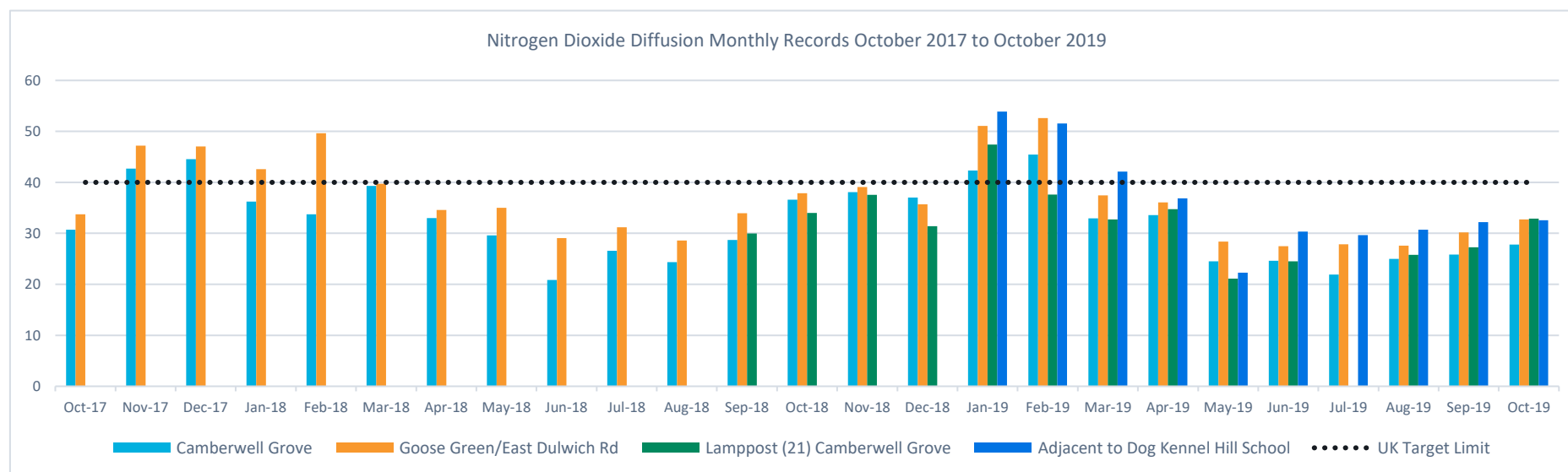
Looking at monthly figures, all sites show mean values in line with or slightly above the National Target limit in the winter months, falling below target during summer months, as shown in Figure 5. The monitoring stations with a longer range of historical data show a slight decrease in pollution levels in most months between March and October 2019.

Figure 5: Nitrogen Dioxide Diffusion Monthly Records October 2017 to October 2019

Table 1: Annualised Nitrogen Dioxide concentrations

Site ID	Site description	Annual Mean (2017)	Annual Mean (2018)	Annual Mean (2019)
SDT 54	Camberwell Grove	34.11	32.01	31.59
SDT 114	Goose Green/East Dulwich Rd	40.76	36.42	35.51
SDT 119	21 Camberwell Grove	-	32.34	32.10
SDT 136	Adjacent to Dog Kennel Hill School*	-	-	36.86
SDT 137	Champion Hill *	-	-	26.83
SDT 138	11 Pytchley Road*	-	-	36.58
SDT 139	29 Grove Lane*	-	-	40.65
SDT140	Dog Kennel Hill*	-	-	37.82

To allow comparison, annual means presented for 2017 and 2018 are raw data (not bias adjusted)
 *Average mean for these sites has been calculated using an annualization factor calculated using Department for Environment guidance



Summary of observations

The comparison of survey data presented in this note highlights the following results:

- Traffic volumes along Champion Hill have decreased in both directions, with an overall 55% reduction in traffic during the AM peak.
- Overall traffic volumes in the residential area have mildly decreased, particularly in the AM peak, with approximately 800 less motorised vehicle movements captured in total, equating to 8% of the total movements recorded (considering that each vehicle is likely to have been captured by more than one sensor).
- The impact of the trial scheme on PM peak flows is much lower than the impact observed in the AM peak.
- In addition to the traffic reduction on Champion Hill, minor reductions are observed along the Avondale Rise/Malfort Road/Grove Hill Road East-West route.
- Grove Lane has taken the highest share of traffic displaced by the closure on Champion Hill. However, only a proportion of the displaced traffic has rerouted on Dog Kennel Hill/Grove Lane/Champion Park (130 out of 340 vehicles).
- Noticeable traffic increases are observed on Camberwell Grove and East Dulwich Grove, but this are not likely to be linked with the trial scheme.
- All streets located along the Quietway route show less than 500 vehicles per hour in both direction during the peak (Camberwell Grove, Grove Hill Road, Champion Hill).
- Cycle volumes along the Quietway, measured from Grove Hill Road to Champion Hill have increased.
- Average bus journey time along Grove Lane/Champion Park has remained stable between January and September.
- Any conclusion on air quality data is premature, but a trend of reduction in the concentration of pollutants is observed through month-by-month comparisons between 2018 and 2019 data.

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