
Greenwich Park

Movement Trial Analysis

March 2022



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1. Introduction

This document has been prepared by Stantec UK Ltd on behalf of The Royal Parks (TRP) to report the findings of the movement trial schemes implemented across five London Parks in August 2020. The study provides a summary of the results of various data collected pre and post implementation of the trial schemes, as well as conclusions drawn from the analysis. Where applicable, recommendations for the next stages of TRP's Movement Strategy have been provided.

The findings of each of the five parks have been analysed and reported separately across five documents. This report (ref: *RPMA-STN-GP-XX-R-TR-0001-P01*) focuses solely on Greenwich Park.

1.1 TRP's Movement Strategy

TRP's Movement Strategy¹ was published in 2020 as a framework to help shape and inform the policies and decisions taken with regard to how park visitors can access, experience and move within the park. The Movement Principles in the Movement Strategy document set out TRP's Vision, as follows:

- *We will protect and conserve our parks' special qualities*
- *Our parks are for people*
- *We will encourage the use of more sustainable ways to access our parks*
- *Our park roads are not intended to be commuter through-routes for motor vehicles*
- *We will achieve more by delivering key projects through partnership and collaboration*
- *We will make evidence-based decisions*
- *We will be proactive in our approach to future transport challenges and opportunities*

In August 2020, TRP launched a series of traffic-related trials across five London parks to reduce the impact of cut-through traffic, improve the park visitor experience and open new spaces for park visitors to enjoy. The five park included in the movement Trials are:

- Richmond Park;
- Bushy Park;
- St. James's Park;
- Hyde Park; and
- Greenwich Park.

The trials underwent consultation in November 2020. Greenwich Park received 2,036 responses to the consultation survey, showing 81% of respondents would be supportive of the scheme being made permanent.

The trials were initially planned to run until February 2021, however TRP decided to keep the measures in place for the remaining of 2021 with the aim to carry out monitoring and understand the impact of the schemes before determining whether they should be permanent

The Greenwich Park Trial involved restricting vehicle movements along The Avenue to

¹ [TheRoyalParks_MovementStrategy.pdf](#)

reduce cut-through traffic and enhance the park experience for visitors during the week and at the weekend.

1.2 Study Purpose

This study provides an analysis of a number of monitoring surveys carried out within Greenwich Park and traffic data within the local road network. The purpose of this study is bifold:

- i. To understand any changes in the park's movement patterns since the trial was implemented; and
- ii. To understand the impacts of TRP's trial on traffic within the local and strategic road network outside Greenwich Park since the trial was implemented.

Based on the above, the results of the study have been presented and discussed for TRP's consideration

1.3 Assessment Methodology

Study Area

The extent of the study area has been based upon the Common Operational Road Network (CORN) map shown in **Figure 1.1**, which was prepared by TfL for an area within 500m and 1,000m of the park, and agreed between TRP and Local Authorities and TfL, as part of the

traffic study proposal. Key roads within the CORN map extent were subsequently identified as potential reassignment routes as a result of the trial scheme, these comprise the study area of the analysis presented in this report and are highlighted in **Appendix A**.

Data Sources

To understand the impact of the movement trial within Greenwich Park, both on-park and off-park traffic data has been obtained from various sources including the Royal Borough of Greenwich (RBG) and Transport for London (TfL). The following data was obtained for the Greenwich Park study:

Off-Park Traffic Data

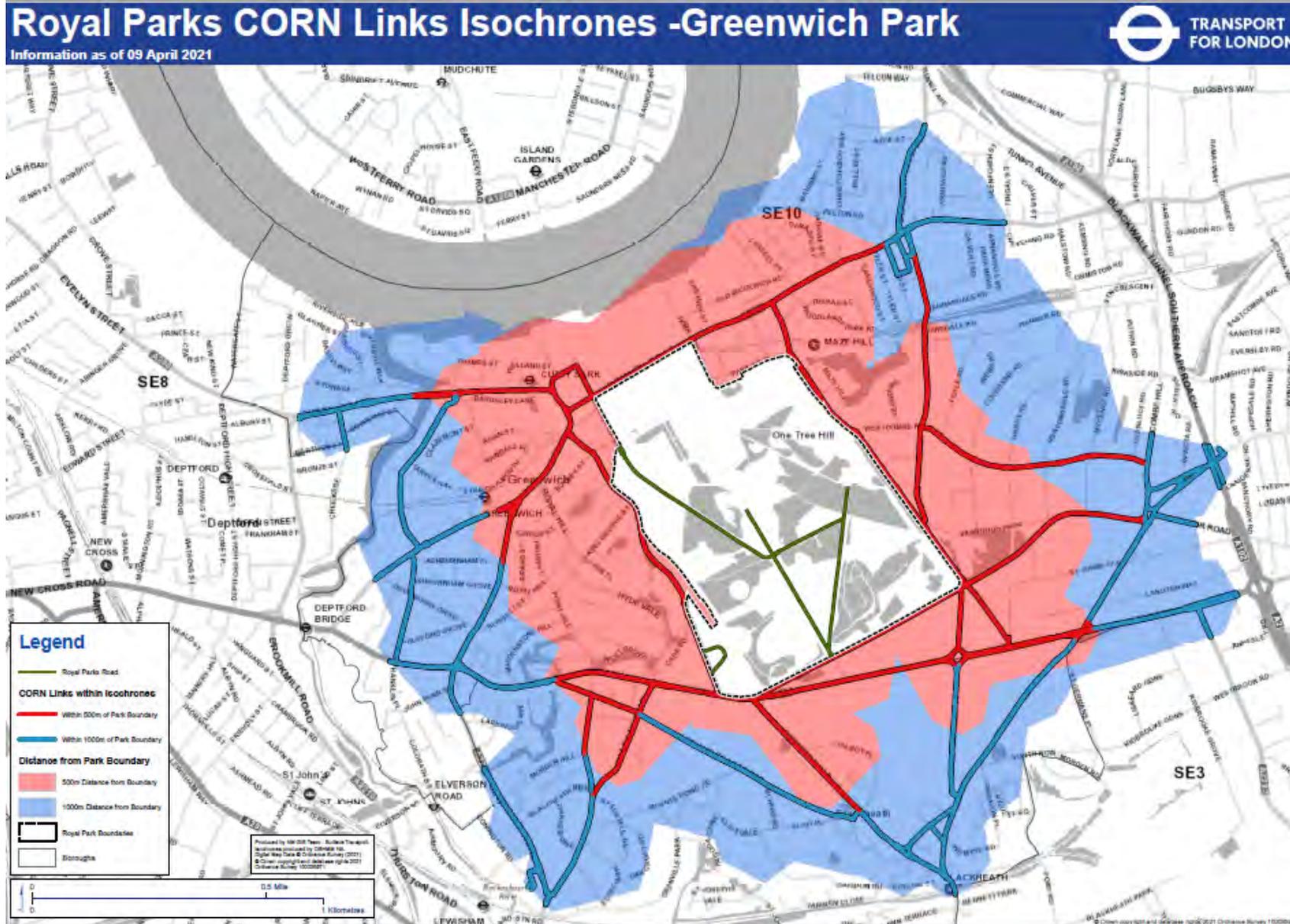
- Vehicle Journey Time data;
- Bus Journey Time Data; and
- Vehicle Volume data (including predominantly Automatic Traffic Counts and some Manual Traffic Counts).

On-Park Traffic Data

- Manual Traffic Counts (MTC) at Blackheath Avenue/ The Avenue.

From the available traffic data, the impact of the movement Trial within the park has been assessed to understand changes in traffic flows, general traffic journey times along strategic routes and along key bus routes surrounding Greenwich Park. Furthermore, the on-park traffic data has been used to understand the levels of traffic at the park following implementation of the trial.

Figure 1.1 Greenwich Park CORN Map



1.4 COVID-19 Impact and General Traffic Trends

In response to COVID-19 pandemic national lockdown restrictions were introduced in late March 2020, which included closure of schools, non-essential shops, working-from-home regulation. As a result of this, traffic volumes dropped to levels not seen since the 1960s.

Passenger capacity on TfL London Buses was significantly reduced to promote social distancing. This significantly reduced capacity and may have encouraged more people to undertake single occupancy vehicle journeys.

After a period of relaxation and reintroduction of the above restrictions during the rest of 2020 and beginning of 2021, it wasn't until May 2021 when most restrictions associated with people's movement were lifted. Since then, TfL have reported that traffic in London is back to +/- 3% of pre-COVID levels, with the exception of central London where traffic is still significantly lower than it was before the pandemic.

On this basis the analysis undertaken in this report seeks to present the recorded traffic flows / journey times in 2020 but has not looked to use this assess the change pre and post-trial. All numerical and percentage change figures presented through this report are based upon change between 2018/2019 and 2021, with 2020 numbers just presented for context.

Recovery of the Highway Network (Text from TfL)

Following discussions with TfL with regard to the scope and methodology of this study, the following text was drafted by TfL on 18th March 2022 for incorporation in this report, with regard to general trends in the strategic road network:

“Prior to understanding the full shape of the London traffic recovery from the pandemic the Royal Parks chose May 2021 as the month to compare traffic changes relative to a pre-pandemic baseline of May 2019. This follows industry practice where May is accepted to be a “neutral” month for the purposes of understanding year-on-year changes in traffic patterns, meaning it is not unduly influenced by seasonal influences such as holiday periods and adverse weather patterns.

*The chart below [see **Figure 1.2**] shows the profile of the traffic flows on the roads TfL manages (TLRN) during the pandemic relative to a baseline of 2019/20. It illustrates the impact of the first 3 lockdowns, 1) 23 March 2020, 2) 5 November 2020, and 3) 5 January 2021, on overall traffic volumes. There was a large recovery in volumes through April 2021 as lockdown restrictions eased enabling the reopening of non-essential business and there was also a notable increase in volumes in mid-May when indoor hospitality re-opened, and at*

this point traffic volumes were still down relative to their 2019 baseline by 5.6%

However, although overall traffic volumes were still down the associated journey times were showing a slightly different trend due to changes in travel patterns by road users. At the point of return to the network in May 2021, traffic volumes were very much more concentrated in the inter-peak (10:00 to 16:00) and PM peak (16:00 to 19:00) [...].”

Journey Time Change TfL Case Study (Richmond Park and TLRN) (May 2021 – Baseline 2019)

TfL have provided an example of the change in journey times in May 2021 for the vicinity of the largest Royal Park (Richmond Park) for the A205 within Richmond Borough, which shows that journey times were 7% up relative to the pre-pandemic baseline [see **Figure 1.3**].

For comparison, **Figure 1.4** shows the same trend for all of the TLRN, weekdays, in both directions. which shows an elevated journey time relative to the baseline of 2019.

“On the TLRN, outside of May 2021, through to recent weeks, journey times stayed below the baseline, and this was what we would have

expected to see given the relative trends in traffic flow data. Given this insight of journey times in May 2021 showing elevation related the drop in traffic flows, as the network adjusted to the new reality of coming out of lockdown points to the choice of May 2021, not being as representative of movement outside of pandemic, between lockdowns. This could not have been foreseen. It means that the results in the report should be treated as over-inflating the observed impact of policies, than would otherwise have been the case. If it is possible a good point of comparison to test this assumption would be to revisit the data for May 2022, if that is possible.

Network patterns have changed again outside of the 4th lockdown for Omicron and we are beginning to see elements of normality return to the network, although recent changes arising from increased fuel price rises in March 2022, suggest that traffic flows remain suppressed at about 5% less than baseline, and it may take several months before we can fully determine what the new normal on the road network will become. There is some evidence that traffic flows and their associated journey times will remain below their pre-pandemic level in a time frame of the next year or so.”

Figure 1.2 – Profile of traffic flows



Figure 1.3 – A205 Journey Time Trends (May 2021 – Baseline 2019)



Figure 1.4 – TLRN Journey Time Trends (May 2021 – Baseline 2019)



London-wide Traffic Trends

The latest ‘Travel in London Report (Report 14)²’ which collates data for the period up to November 2021, summarises trends and development relating to travel and transport in London, including disruption caused by the COVID-19 pandemic from March 2020 and London’s early recovery during the latter part of 2021. This report shows the following key trends:

- By November 2021 the demand for public transport overall was around 70 per cent of pre-pandemic levels, while traffic on London’s major roads was typically 95 percent of pre-pandemic levels. This indicates there has been a car-based recovery in transport activity across London.
- Weekend travel has recovered more strongly than weekdays.
- Relative to average overall demand levels, the recovery of the weekday commuter peak is lagging. It is thought that this primarily reflects the persistence, as of late 2021, of flexible working arrangements put in place during the pandemic.

- Active travel mode shares were notably higher during the pandemic. However, this took place in the context of overall reductions to activity, meaning absolute trip making overall by these modes remained close to, or below, pre-pandemic levels through much of 2020.
- By spring of 2021 however, there have been signs that absolute volumes of cyclists have begun to increase in certain parts of London. **Table 1.1** shows that Inner London (of which Greenwich is part) has seen a 4.5% increase in cycling volumes relative to pre-pandemic levels.

Table 1.1 – Year-on-year change in cycling volume (TfL)

Year	Central London	Inner London	Outer London
2020	-24%	+7.5%	+24.4%
2021 (from 2019)	-16.4%	+4.6%	+19.9%

1.5 Summary of Stakeholder Engagement

Transport for London (TfL)

- Stantec contacted TfL on 15th November 2021 regarding the scope and methodology of the study, requesting data and feedback
- An online meeting between Stantec and TfL was held on 15th November 2021
- Further correspondence was exchanged regarding updates on the data request. The full set of ATC/ vehicle journey/ bus journey time data was provided on 20th December 2021.
- No concerns were raised by TfL regarding the trial, however some refinement of data previously provided by TfL was required, and an additional set of updated ATC/ vehicle journey/ bus journey time data was provided on Tuesday 1st March 2022.
- A further meeting took place on Monday 28th February 2022 to discuss and reach an agreement regarding the methodology to analyse the revised set of data provided by TfL, presented in TRP’s study.

² [travel-in-london-report-14.pdf \(tfl.gov.uk\)](https://tfl.gov.uk/what-its-new/articles/2021/11/15/Travel-in-London-report-14)

Royal Borough of Greenwich (RBG)

- Stantec first contacted RBG on 25th November 2021 regarding the scope and methodology of the study, requesting data and feedback.
- Further attempts to get in touch with RBG were made on 2nd December, 15th December 2021 and 8th February 2022, however no response was received until 15th February 2022.
- A meeting between RBG, TRP and Stantec took place on 9th March 2022, where the initial findings of the study were discussed. During the meeting, RBG raised concerns with regard to results shown in respect of increase in vehicle volumes along the A2 Blackheath Hill and journey times along various roads around Greenwich Park, in comparison with the report prepared by Steer transport consultants in January 2022³
- Steer's report has been reviewed against the results of this study, to provide a comparison and understand differences between these.

³ [West Greenwich LTN Monitoring Report and Proposed Westcombe Park LTN Modelling \(royalgreenwich.gov.uk\)](#)

1.6 Report Structure

This report is set out in the following structure:

- **Section 2:** Greenwich Park Trial
- **Section 3:** Off-Park Data Analysis
- **Section 4:** On-Park Data Analysis
- **Section 5:** Accident Analysis
- **Section 6:** Summary of Findings

2. Greenwich Park

2.1 Overview

Greenwich Park is situated within the London Borough of Greenwich. It is bounded by residential development on all sides. The park is located on the south side of the River Thames. A plan showing the location of the park within its surrounding area and access gates is shown in **Figure 2.1**.

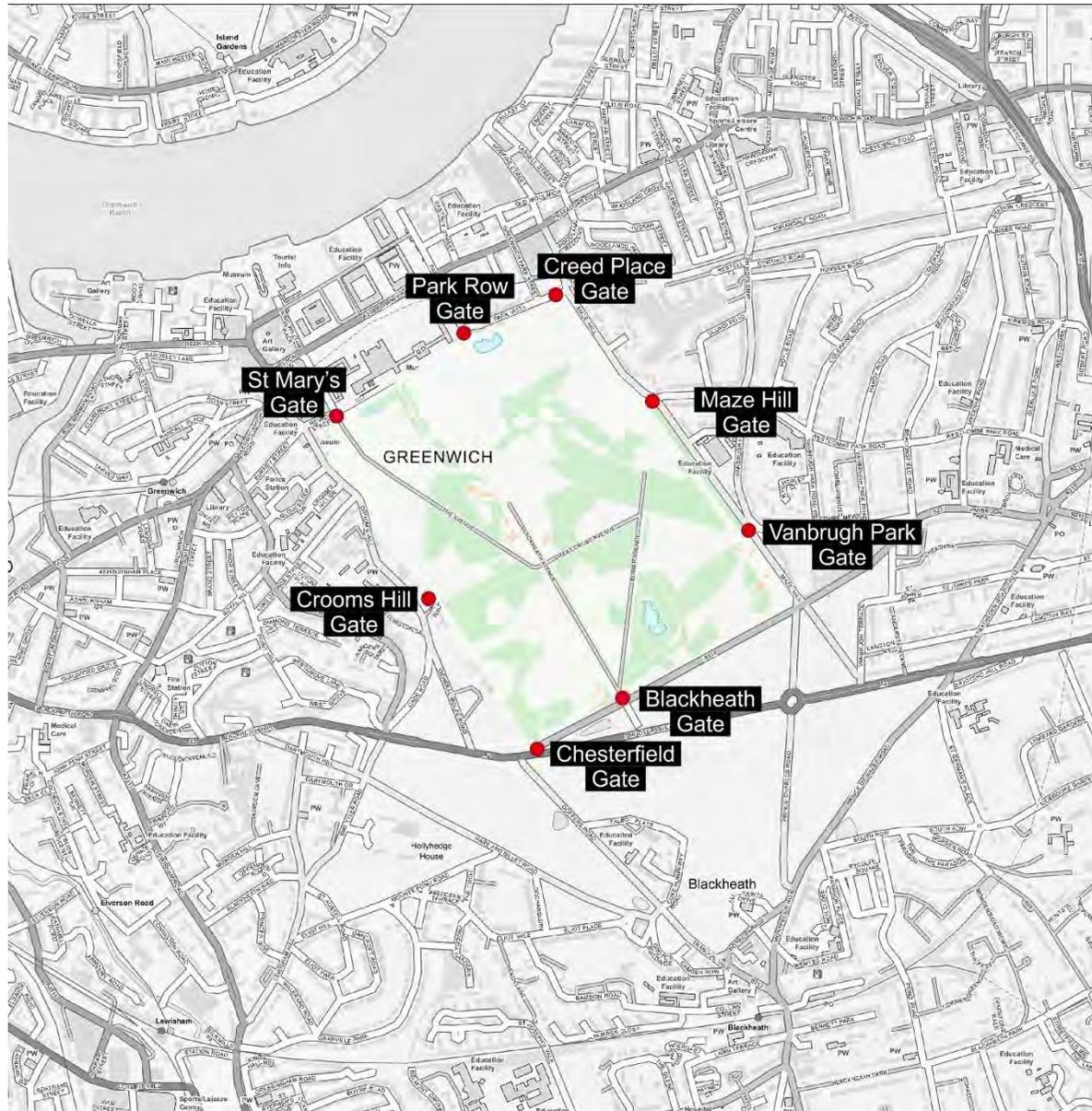
2.2 Accessibility to Park

Greenwich Park can be easily accessed by means of public transport services, including railway, London Underground, London Overground and bus services.

Vehicle access can be gained via Blackheath Gates. Access to the park can be gained from 06:00 for pedestrians. Before the trial was implemented, vehicle gates opening times were as follows:

- Weekdays: open between 07:00 and 10:00 and between 16:00 and park closure (dusk).
- Weekends: closed to vehicles.

Figure 2.1: Greenwich Park Site Location Plan



2.3 Greenwich Park Movement Trial Scheme

The TRP introduced the following vehicle traffic restrictions at Greenwich Park:

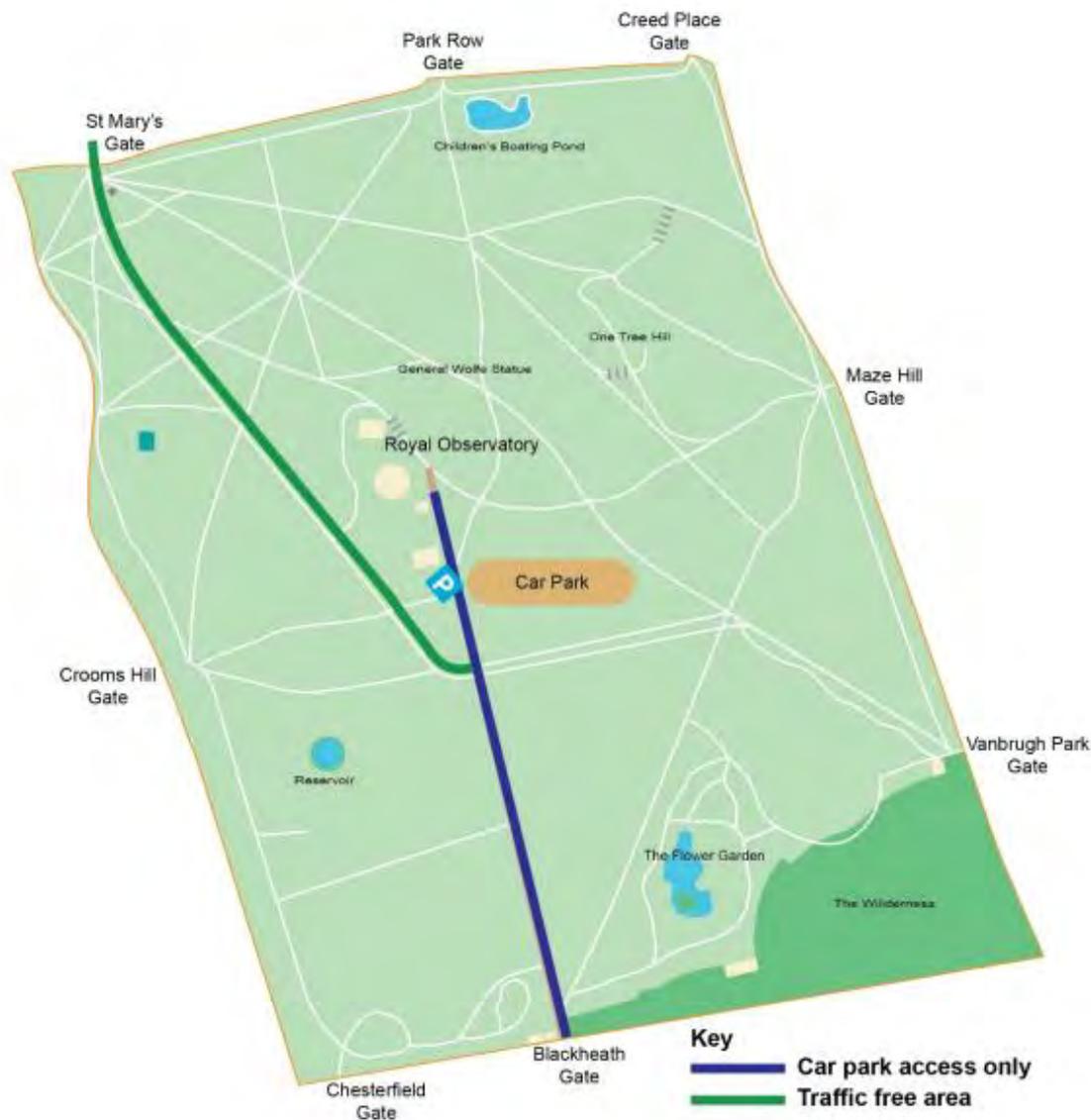
- Close vehicle access to the park from St Marys Gate along The Avenue. This closure has been in place on both weekdays and weekends.

A plan showing the Greenwich Park Trial Scheme is presented in **Figure 2.2** with further details of the Trial scheme outlined in the Royal Parks Movement Strategy document.

The start date of the Trial was the 15th August 2020, and it was initially planned be in place for 6-months. However, in February 2021 an extension to the trial was agreed as a result of the COVID-19 pandemic. On this basis the Trial scheme is still in place at the time of publishing this report.

Based on the data analysis and findings presented in this report, TRP is likely to make a decision with regard to the implementation of the trial as a permanent feature or any changes to this.

Figure 2.2: Greenwich Park Trial Scheme Plan



2.4 Other Local Schemes

In addition to the Greenwich Park Trial scheme, other local schemes under the West Greenwich Low Traffic Neighbourhood (LTN) have been introduced in the area around the park, these are illustrated in **Figure 2.3** overleaf. The key elements of the scheme include no vehicle access (except black cabs, refuse trucks and emergency vehicles) at:

- Crooms Hill at the junction with Burney Street
- Hyde Vale at the junction with King George Street
- Winforton Street at the junction with Blissett Street
- Royal Palace at the junction with Royal Hill
- Point Hill at the junction with Royal Hill
- Maidenstone Hill at the junction with Point Hill
- Dabin Crescent.

The above restrictions operated all day, with the exception of Hyde Vale which operated all day except weekdays between 7:00 and 9:00.

The LTN has been subject to review as part of the Experimental Traffic Regulation Order (ETRO) under which the scheme was introduced. Consultation on the ETRO was undertaken until 18th February 2022 before the ETRO expired on 25th February 2022. A Cabinet Report⁴ prepared by RBG in February 2022 detailed responses received to the engagement and consultation on the experimental scheme, alongside other data related to its functioning such as the monitoring report⁵ prepared by Steer consultants.

West Greenwich LTN Monitoring Report Conclusions

The monitoring report prepared by Steer concluded the following:

- Daily average traffic flows within the LTN have reduced significantly between 2019 and 2021.
- Crooms Hill and Burney Street have seen the most significant traffic flow reductions. The boundary roads that have been

monitored have also seen traffic flow reductions or little change.

- The roads that have seen the most significant increase are the alternative north – south corridors adjacent to the LTN i.e Maze Hill and Vanbrugh Hill.
- The number of ‘through’ vehicle trips using borough roads have decreased between 2019 and 2021.
- In terms of bus journey times, the results in the area are mixed, with some routes seeing improvements and others becoming slower. The reasons for this include the implementation of the CS4 cycle scheme, changes in travel behaviour due to the pandemic, changes in development and construction activity, and reassignment of ‘through’ traffic.

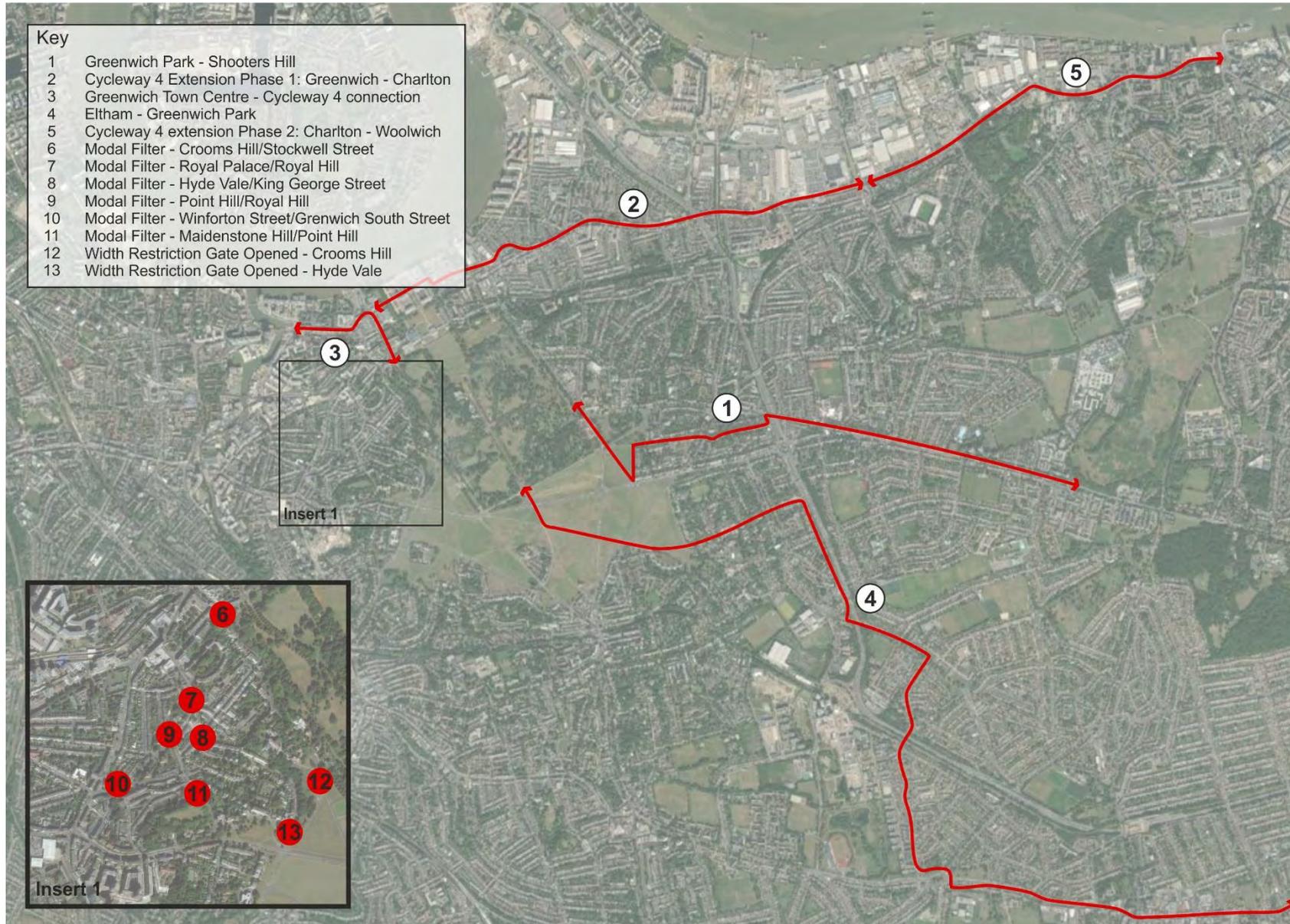
Decision

On 25th February 2022, RBG decided to remove the West Greenwich LTN.

⁴ [RESPONSE TO A PETITION \(SHERARD, LASSA AND EVEREST ROAD, SE9\) \(royalgreenwich.gov.uk\)](#)

⁵ [West Greenwich LTN Monitoring Report and Proposed Westcombe Park LTN Modelling \(royalgreenwich.gov.uk\)](#)

Figure 2.3: Other Local Schemes Plan



3. Off-Park Data Analysis

3.1 Overview

To assess the impact of the scheme on the surrounding road network to Greenwich Park, off-park data was obtained from TfL which included the following data types:

- **Vehicle Journey Time data**
- **Bus Journey Time data**
- **Vehicle Volume data**

The analysis undertaken seeks to assess the change in time or volume at key highway links pre and post implementation of the Movement Trial within the park.

3.2 Methodology

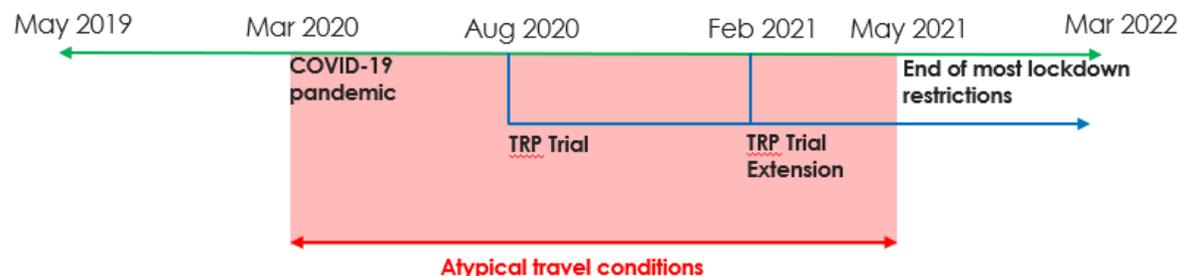
The off-park data analysed in this report uses May 2019 as the ‘Pre-Trial Year’ and May 2021 as the ‘Post-Trial Year’. May has been selected as the assessment month as it generally considered to be a neutral month with respect to commuter traffic. Furthermore, as shown in **Figure 3.1** due to the COVID-19 Pandemic, data through March 2020 and April 2021 could

not be used as atypical travel conditions were present. In May 2022, the UK Government announced the easing of most lockdown restrictions, therefore travel behaviour is likely to more representative.

Analysis of August data has also been undertaken alongside May as August is one of the peak periods for visitors to the Royal Parks, however it should be noted that travel patterns may not be as representative of typical travel conditions due to school summer holidays and associated lower levels of daily commuters. Where relevant, brief commentary of the August results have been provided within this report with supplementary detailed analysis provided in the appendices.

For the off-park datasets, analysis has been undertaken for Weekday periods only. Analysis of Weekend data has been excluded from the study, due to the park being closed on weekends prior to implementation of the trial. The analysis of the Weekday includes the data recorded for Tuesday, Wednesday and Thursday and excludes data for Monday and Friday as Tuesday through Thursday are considered to be more representative of a ‘neutral’ weekday whereas Monday and Friday often exhibit different travel behaviour especially for AM and PM commuter traffic. This is in line with guidance prescribed by the Department for Transport on paragraphs 3.3.6 and 3.3.7 of TAG Unit M1.2⁶.

Figure 3.1: Timeline of Travel Conditions



⁶ [TAG Unit M1.2 - Data Sources and Surveys \(publishing.service.gov.uk\)](https://www.gov.uk/publishing.service.gov.uk)

For the Weekday data an AM, Inter Peak (IP), PM and Daily period have been assessed. Each time period covers the following hours:

- **AM:** 07:00-10:00 (3 hours)
- **IP:** 10:00 – 16:00 (6 hours)
- **PM:** 10:00-16:00 (6 hours)
- **Daily:** 07:00-19:00 (12 hours)

It should be noted that Greenwich Park was closed during the weekday IP period prior to the trial implementation, therefore analysis of this data has been used to draw comparisons against the AM, PM and daily period analysis.

Analysis of the above time periods are provided in the following formats:

- Journey time
 - an hourly average of the journey time and change: seconds per kilometre (secs/km)
 - an overall average of the journey time and change: seconds per length of route (secs/route)
 - percentage change (%)

- Vehicle volume:
 - Number of vehicles and change (number of vehicles)
 - Percentage change (%)

The analysis of the vehicle and bus journey time data provides an hourly average across the total 12 hour time period for the Daily time period. For the vehicle volume data however, the Daily time period is rather a total traffic flow across the 12 hour period to give an understanding of the total number of vehicles throughout the day.

The percentage change recorded for each of the datasets has been assigned a classification of impact to highlight where changes have occurred. Each classification has been assigned a colour using the following system:

- Decrease – **Green**
- 0% to 15% – **Light Blue**
- 15% to 30% – **Medium Blue**
- Greater than 30% – **Dark Blue**

Within the report, comparison summary tables with the percentage change between the Pre and Post Trial year is provided as well as summary of the key findings of the results. Further analysis tables which include the

recorded raw journey times (number of seconds per journey), and vehicle flow (number of vehicles at each highway link) are provided the following appendices:

- **Appendix A** – Greenwich Park Reassignment Routes (from TfL's CORN Map)
- **Appendix B** - Detailed vehicle Journey Time Analysis (May)
- **Appendix C** – Detailed vehicle Journey Time Analysis (August)
- **Appendix D** – Detailed Bus Journey Time Analysis (May)
- **Appendix E** – Detailed Bus Journey Time Analysis (August)
- **Appendix F** – Detailed Vehicle Volume Analysis (May)
- **Appendix G** – Detailed Vehicle Volume Analysis (August)

Within the further analysis, data from 2020 is also provided for context but has not been used in the analysis due to significant changes in travel behaviours due to the COVID-19 Pandemic.

3.3 Vehicle Journey Time Data

Overview

The impact of the Greenwich Park Movement Trial on journey times for general traffic surrounding the park has been assessed using vehicle journey time data obtained from TfL. It should be read in the context of the traffic environment (see Section 1.4) and other local schemes (see Section 2.4).

The vehicle journey time data is extracted from TfL's INRIX database; this combines an anonymous, real-time GPS probe data from over 60 different providers. This data is then assigned to TfL's Common Operational Road Network (CORN). This network comprises of small road links which usually run between intersections.

TfL have provided journey time data for their CORN for links within a 5km radius of the Greenwich Park.

Methodology

12 journey time routes have been identified from the available data of which each route is made up of multiple links within the CORN. These include two primary routes which cover the perimeter of the park, and ten additional secondary routes which include highway links that provide connection from park gates to the strategic road network.

A map illustrating the location of each of the nine vehicle journey time routes included in this assessment is shown in **Figure 3.2**.

For each of the 12 routes assessed, the average vehicular journey time in seconds has been calculated by direction and time period.

Analysis of the vehicle journey times for the month of May is within this section with the associated comparison tables and a summary of the findings. Detailed analysis tables, including journey time data for the full length of each link, are presented in **Appendix B**.

A high-level summary of the August results are also provided within this section with the detailed comparison tables presented in **Appendix C**.

Figure 3.2: Vehicle Journey Time Routes Study Area

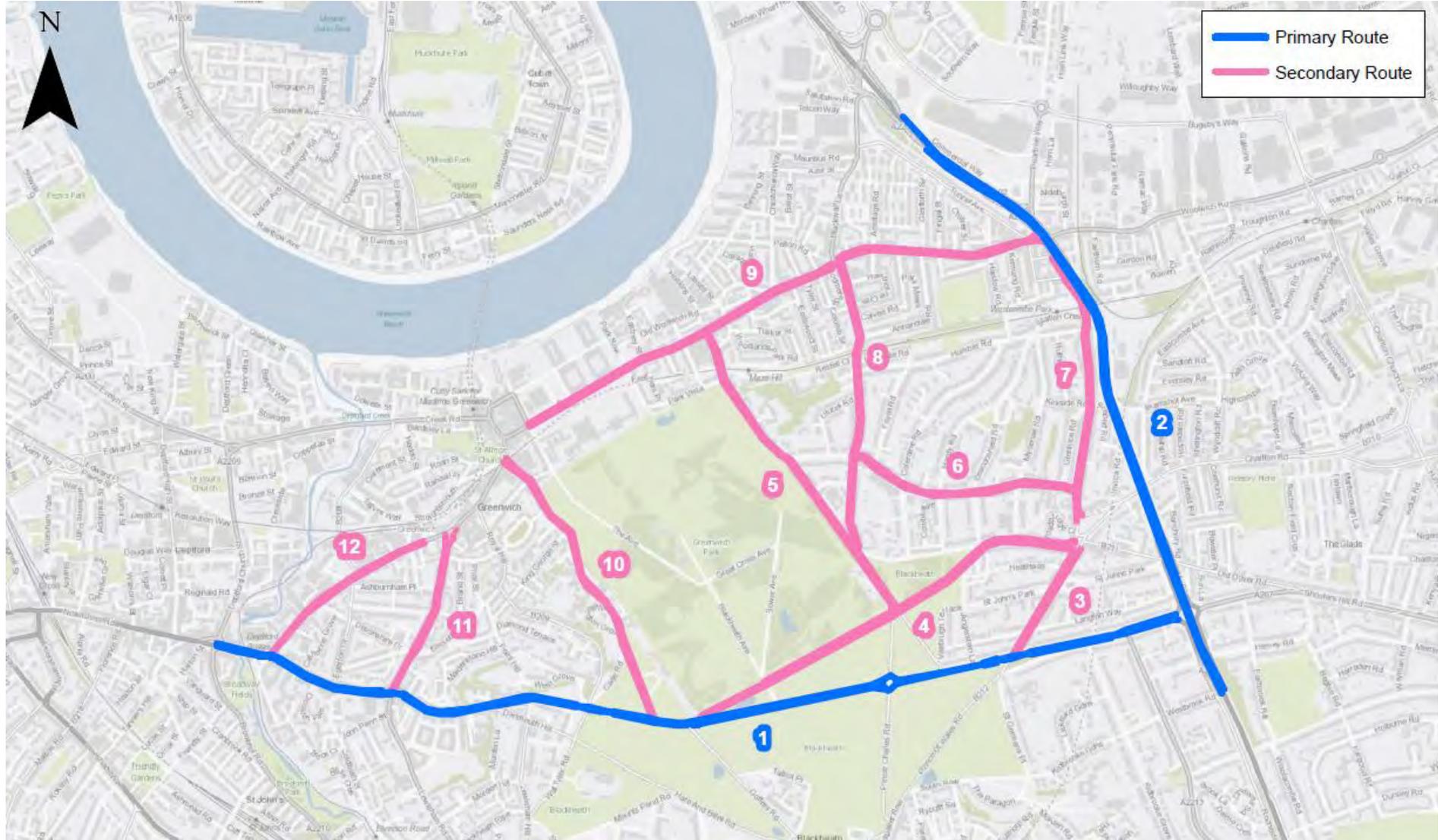


Table 3.1: Vehicle Journey Time 2019 to 2021 Comparison
Summary (May Weekday)

Vehicle Journey Time Summary - May Weekday (Average Hour)										
Journey Time Route No.	Location	Direction	Average Hour AM (07:00-10:00)		Average Hour IP (10:00-16:00)		Average Hour PM (16:00-19:00)		Average Hour Daily (07:00-19:00)	
			2019 (secs/km)	Change to 2021 (%)	2019 (secs/km)	Change to 2021 (%)	2019 (secs/km)	Change to 2021 (%)	2019 (secs/km)	Change to 2021 (%)
1	Shooters Hill Road (A2)	NB	238	11%	87	-4%	144	-32%	156	-5%
		SB	67	10%	63	-2%	104	-14%	78	-4%
2	Blackwall Tunnel Southern Approach (A102)	EB	135	16%	179	17%	244	4%	186	11%
		WB	311	61%	172	12%	172	10%	219	35%
3	Stratheden Road (B212)	NB	245	17%	190	-2%	212	-3%	216	5%
		SB	239	28%	229	-7%	293	-19%	254	0%
4	Charlton Way	EB	144	-3%	130	-8%	157	-18%	144	-10%
		WB	152	0%	128	-11%	136	-15%	139	-8%
5	Maze Hill	NB	234	106%	185	6%	170	36%	196	54%
		SB	179	-1%	158	2%	169	-3%	168	-1%
6	Westcombe Way	EB	219	2%	209	-5%	198	-5%	209	-3%
		WB	186	-3%	213	-4%	209	3%	203	-1%
7	Westcombe Hill	NB	229	2%	224	-8%	219	-2%	224	-3%
		SB	228	-3%	218	-10%	236	-12%	227	-8%
8	Vanbrugh Hill	NB	218	96%	204	19%	203	23%	208	47%
		SB	210	10%	207	21%	204	20%	207	17%
9	Trafalgar Road (A206)	EB	251	0%	296	31%	333	20%	293	18%
		WB	385	14%	276	-6%	253	3%	304	5%
10	Crooms Hill	NB	176	10%	174	9%	194	-1%	181	6%
		SB	202	-56%	176	-36%	169	-56%	182	-50%
11	Greenwich Street	NB	218	-9%	213	-3%	218	-7%	216	-6%
		SB	187	-9%	197	11%	206	27%	197	10%
12	Greenwich High Road (A206)	NB	148	-2%	148	-4%	172	-8%	156	-5%
		SB	211	-3%	178	-1%	179	-3%	189	-2%

Summary of Results - May

The summary tables provide the May 2019 to May 2021 vehicle journey time comparisons during a weekday and weekend. The results presented in **Table 3.1** and **Table 3.2** demonstrate the recorded journey time of the route in 2019 (measured in seconds per kilometre) and the percentage change to 2021.

A summary of the results of the Vehicle Journey Time (VJT) comparison for May are provided below.

Weekday AM

- Links recorded a varied level of change in journey time with an average change of +12% across all routes with a range of between -56% to +106%.
- Largest decrease recorded at Crooms Hill SB **[10]** of -113 secs/km (-121 secs/route, -56%).
- Largest increases were recorded at the following:
 - Blackwall Tunnel Southern Approach (A102) **[2]** +21 secs/km (+74 secs/route, +16%) in the SB, and +189 secs/km (+658 secs/route, +61%) in the NB.

- Stratheden Road (B212) **[2]** +43 secs/km (+18 secs/route, +17%) in the SB, and +68 secs/km (+30 secs/route, +28%) in the NB.
- Maze Hill NB **[5]** +247 secs/km (+296 secs/route, +106%).
- Vanbrugh Hill NB **[8]** +209 secs/km (+209 secs/route, +96%).

Weekday IP

- Majority of links recorded a reduction in journey times with an average of +1% across all routes with a range of between -36% to +31%.
- Largest decrease recorded at Crooms Hill SB **[10]** of -64 sec/km (-68 sec/route, -36%).
- Largest increases were recorded at the following:
 - Trafalgar Road (A206) EB **[9]** +93 sec/km (+179 sec/route, 31%).
 - Vanbrugh Hill **[8]** +38 sec/km (+39 sec/route, 19%) in the NB, and +43 sec/km (+44 sec/route, 21%) in the SB.
 - Blackwall Tunnel Southern Approach (A102) **[2]** +31 sec/km (+106 sec/route,

+17%) in the EB, and +21 sec/km (+73 sec/route, 12%) in the WB.

Weekday PM

- Majority of links recorded a reduction in journey time with an average change of -2% across all routes with a range of between -56% to +36%.
- Largest decrease recorded at Crooms Hill SB **[10]** of -95 secs/km (-102 secs/route, -56%).
- Largest increases were recorded at the following:
 - Maze Hill NB **[5]** +61 secs/km (+74 secs/route, +36%).
 - Vanbrugh Hill **[8]** +47 secs/km (+49 secs/route, +23%) in the SB, and +40 secs/km (+41 secs/route, +20%) in the NB.
 - Trafalgar Road (A206) EB **[9]** +68 secs/km (+130 secs/route, +20%).
 - Greenwich Street NB **[11]** +56 secs/km (+34 secs/route, +27%).

Weekday Daily (Average Hour)

- Majority of links recorded a reduction in journey time with an average change of +4% across all routes with a range of between -50% to +54%.
- Largest decrease recorded at Crooms Hill SB **[10]** of -91 secs/km (-97 secs/route, -50%).
- Largest increases were recorded at the following:
 - Blackwall Tunnel Southern Approach (A102) SB **[2]** +76 secs/km (+264 secs/route, +35%).
 - Maze Hill NB **[5]** +76 secs/km (+128 secs/route, +35%).
 - Vanbrugh Hill **[8]** +98 secs/km (+101 secs/route, +47%) in the SB, and +35 secs/km (+36 secs/route, +17%) in the NB.
 - Trafalgar Road (A206) EB **[9]** +54 secs/km (+103 secs/route, +18%).

Large increases recorded along Maze Hill and Vanbrugh Hill are expected to be related to West Greenwich LTN (see Section 2.4 'West Greenwich LTN Monitoring Report

Conclusions': Maze Hill and Vanbrugh Hill provide alternative routes for reassignment of traffic, due to their location adjacent to roads affected by the LTN.

Summary Statement

Average change in vehicle journey time in May across the four time periods ranges between -2% to +12% in the weekday periods. The largest impact on journey times is recorded along Vanbrugh Hill **[Route 8]** and Maze Hill **[Route 5]**, these are expected to be as a result of the West Greenwich LTN implementation in August 2020.

Other roads that recorded significant increases in journey time are:

- Blackwall Tunnel Southern Approach (A102) **[Route 2]** – increases along this route are consistent with the change in journey time during the IP period (when the park was closed prior to the trial implementation), and therefore are expected to be related to other factors.
- Stratheden Road (B212) **[Route 3]** – only AM

Summary of Results – August

A high-level summary of the results of the Vehicle Journey Time (VJT) comparison for August are provided below.

- Majority of links recorded a decrease in journey time the three weekday time periods although localised large increases were recorded at a number of links. The average change and range for each time period is as follows:
 - AM recorded an average change of -4% and range of between -64% to +31%.
 - IP recorded an average change of +2% and range of between -21% to +31%.
 - PM recorded an average change of +3% and range of between -42% to +42%.
 - Daily recorded an average change of -0% and range of between -43% to +25%.
- Largest decreases recorded at Crooms Hill SB [10] with the following change in each time period:
 - -112 secs/km (-120 secs/route, -64%) in the AM.
- -35 sec/km (-37 sec/route, -21%) in the IP.
- +67 secs/km (-72 secs/route, -42%) in the PM.
- +46 secs/km (-76 secs/route, -43%) in the in the Daily.
- Largest increases were recorded at the following locations in the specified time period:
 - Blackwell Tunnel Southern Approach (A102) NB [2] +43 secs/km (+149 secs/route, +23%) in the PM, +42 sec/km (+146 sec/route, 28%) in the IP, and +30 secs/km (+105 secs/route, +20%) in the Daily.
 - Maze Hill NB [8] recorded the following:
 - +57 secs/km (+69 secs/route, +31%) in the AM.
 - +3 sec/km (+3 sec/route, +1%) in the IP.
 - +78 secs/km (+94 secs/route, +42%) in the PM.
 - +46 secs/km (+55 secs/route, +25%) in the in the Daily.
 - Vanbrugh Hill [8] recorded the following:
 - +27 sec/km (+28 sec/route, 14%) NB and +27 sec/km (+27 sec/route, 13%) SB in the AM.
 - +23 sec/km (+24 sec/route, 11%) NB and +52 sec/km (+53 sec/route, 23%) in the IP.
 - +32 sec/km (+33 sec/route, 16%) NB and +64 sec/km (+66 sec/route, 29%) SB in the PM.
 - +27 sec/km (+28 sec/route, 14%) NB and +48 sec/km (+49 sec/route, 22%) SB in the Daily.
 - Trafalgar Road (A206) EB [9] +80 sec/km (+153 sec/route, +31%) in the IP, and +65 secs/km (+125 secs/route, +20%) in the PM
 - Crooms Hill NB [10] recorded the following:
 - +36 secs/km (+39 secs/route, +21%) in the AM.
 - +23 sec/km (+25 sec/route, 13%) in the IP.

- +49 secs/km (+52 secs/route, +30%)
in the PM.
- +36 secs/km (+39 secs/route, +21%)
in the in the Daily.

Summary Statement

Average change in vehicle journey time in August across the four time periods ranges between -64% to +42% in the weekday periods. The largest increases in traffic are consistent with the results obtained in May, and are largely attributed to the West Greenwich LTN and other factors.

3.4 Bus Journey Time Data

Overview

The impact of the Greenwich Park Movement Trial on bus journey times for bus services surrounding the park has been assessed using bus journey time data obtained from TfL. It should be read in the context of the traffic environment (see Section 1.4) and other local schemes (see Section 2.4).

The bus journey time data captures the 'travel time' and 'dwell time' of bus services from one bus stop to another along a specified bus route.

TfL provided data for bus services included on their CORN within 1km radius of Greenwich Park.

Methodology

Thirteen bus services were identified which route past the park via the perimeter road network of the park. From these selected bus services, a small section of the bus route has been analysed which is made up multiple 'bus stop to bus stop' links.

A map illustrating the location and length of the seven bus services used in this assessment is shown in **Figure 3.3**.

For the purpose of this assessment, all analysis undertaken accounts for travel time only and does not include the dwell time. This decision was made as there are a number of external factors that can affect the dwell time of buses which are likely to be unrelated to the Greenwich Park movement trial.

For each link, the average bus travel time in seconds has been calculated for the section of each bus service shown in **Figure 3.3**, **Figure 3.4** and **Figure 3.5** by direction and for each time period.

Analysis of the bus journey times for the month of May is within this section with the associated comparison tables and a summary of the findings. Detailed analysis tables with for the May assessment are presented in **Appendix D**.

A high-level summary of the August results are also provided within this section with the detailed comparison tables presented in **Appendix E**.

Figure 3.3: Greenwich Park Bus Services Study Area

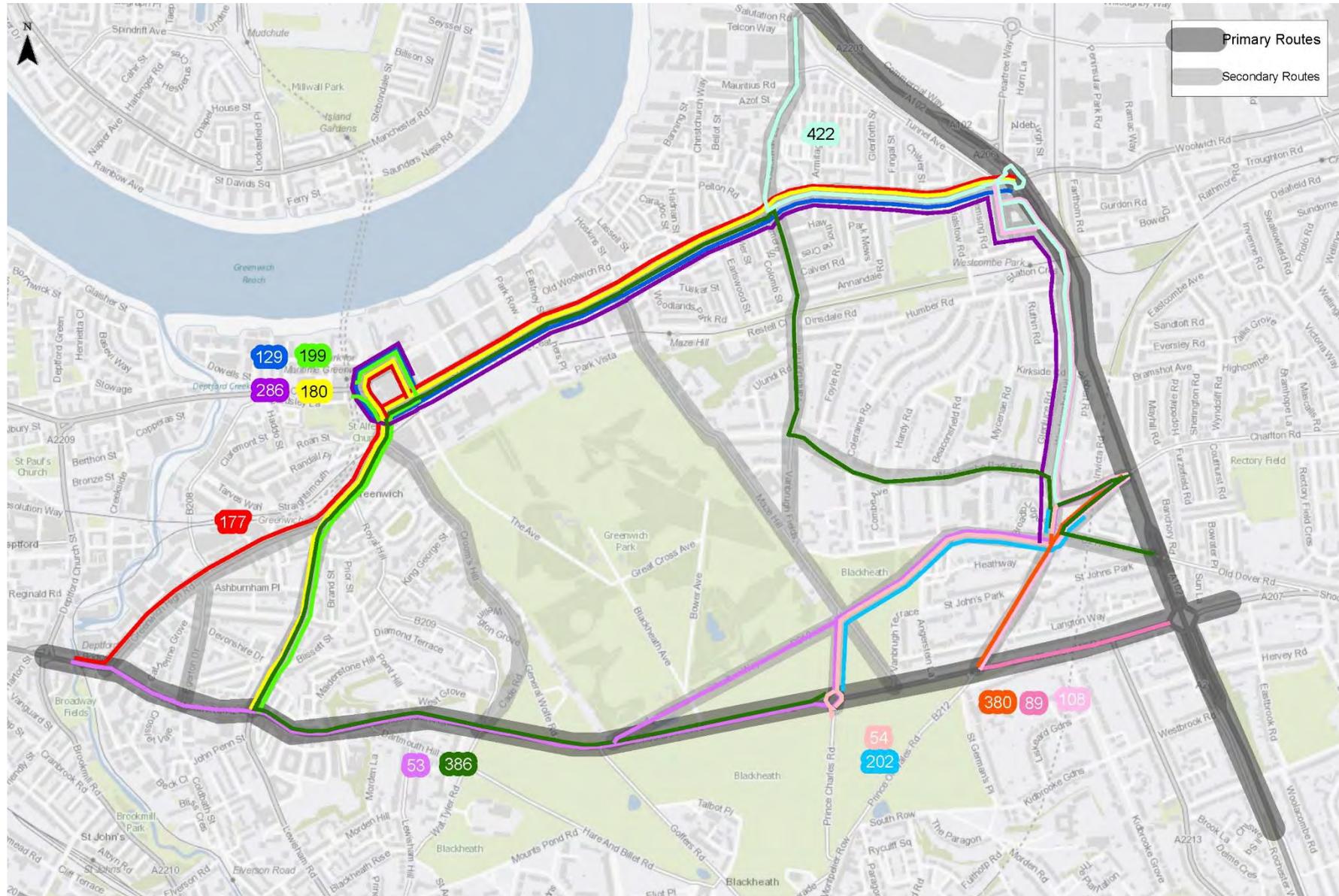


Table 3.2: Bus Journey Time 2019 to 2021 Comparison
Summary (May Weekday)

Bus Service No.	Route Start	Route End	Distance of Route (km)	Direction	Average Hour AM (07:00-10:00)		Average Hour IP (10:00-16:00)		Average Hour PM (16:00-19:00)		Average Hour Daily (07:00-19:00)		Associated V/ITR
					2019 (secs/km)	Change to 2021 (%)	2019 (secs/km)	Change to 2021 (%)	2019 (secs/km)	Change to 2021 (%)	2019 (secs/km)	Change to 2021 (%)	
53	Charlton Road	Deptford Bridge	3.5	WB	310	37%	193	15%	205	11%	236	24%	1 & 4
	Deptford Bridge	Charlton Road	3.4	EB	171	9%	195	21%	277	11%	214	14%	
54	Prince Charles Road	Charlton Road	1.1	EB	209	21%	186	1%	208	-7%	201	5%	4
	Charlton Road	Prince Charles Road	0.9	WB	248	19%	195	2%	211	-8%	218	5%	
89	Prince of Wales Road	A2 Shooters Hill Road	0.7	EB	235	-1%	227	-10%	280	-16%	247	-9%	1
	A2 Shooters Hill Road	Prince of Wales Road	0.6	WB	343	73%	200	4%	206	-1%	249	34%	
108	Westcombe Hill	B212 Stratheden Road	1.8	SB	192	4%	178	-4%	214	-17%	195	-6%	1 & 3
	B212 Stratheden Road	Westcombe Hill	1.3	NB	209	7%	176	-4%	183	2%	189	2%	
129	A206 Woolwich Road	A206 Romney Road	1.4	WB	371	-5%	269	-12%	227	5%	289	-4%	9
	A206 Romney Road	A206 Woolwich Road	1.4	EB	197	-6%	255	28%	315	20%	256	16%	
177	Deptford Bridge	A206 Woolwich Road	2.5	EB	220	-7%	254	9%	313	4%	263	3%	9 & 12
	A206 Woolwich Road	Deptford Bridge	2.7	WB	333	-8%	275	-7%	239	6%	282	-4%	
180	A206 Woolwich Road	Greenwich S Street	2.0	WB	343	-4%	275	-1%	232	18%	283	3%	9 & 11
	Greenwich S Street	A206 Woolwich Road	2.6	EB	206	-9%	259	15%	298	13%	254	7%	
199	Greenwich S Street	Greenwich Church Street	1.0	NB	267	0%	268	-8%	295	0%	277	-3%	9 & 11
	Nelson Road	Greenwich S Street	1.0	SB	225	-9%	228	4%	232	13%	228	3%	
202	Prince Charles Road	B10 Charlton Road	1.0	NB	178	36%	154	2%	178	-8%	170	10%	4
	B10 Charlton Road	Prince Charles Road	0.9	SB	218	28%	178	3%	185	0%	194	11%	
286	A206 King William Walk	A2 Shooters Hill Road	3.6	WB	304	13%	237	-5%	218	6%	253	5%	7 & 9
	A2 Shooters Hill Road	A206 Romney Road	3.3	EB	214	20%	234	11%	263	8%	237	12%	
380	Prince Charles Road	B210 Charlton Road	1.1	EB	203	21%	179	-1%	202	-9%	195	4%	3
	B210 Charlton Road	Prince Charles Road	0.9	WB	248	28%	183	2%	196	-8%	209	9%	
386	Old Dover Road	A2 Shooters Hill Road	5.3	EB	253	21%	250	2%	275	5%	259	9%	1, 6, 8, 9 & 11
	A2 Shooters Hill Road	Old Dover Road	5.1	WB	254	9%	209	15%	217	21%	227	15%	
422	A206 Woolwich Road	B210 Charlton Road	2.1	SB	216	37%	216	-3%	270	-17%	234	4%	7 & 9
	B210 Charlton Road	A206 Woolwich Road	1.7	NB	302	66%	246	-1%	221	13%	256	29%	

Summary of Results – May

The summary tables provide the 2019 to 2021 Bus Journey Time comparisons for May weekday and weekend. The results presented in **Table 3.3** and **Table 3.4** demonstrate the recorded bus journey time of the section of the bus service in 2019 (measured in secs/km) and the percentage change to 2021.

The results of the Bus Journey Time (BJT) comparison for May indicated the following:

Weekday AM

- The majority of bus services have recorded an increase in their bus journey time with an average increase across all bus routes of +15%.
- The largest increases were seen on bus route **89** WB and **422** NB of +252 secs/km (+73%) and +201 secs/km (+66%). While bus route **89** runs to the north of the park along the B212 Stratheden Road (VJT **Route 3**), bus route **422** runs to the east of the park along Blackwell Lane and the A206 Woolwich Road (VJT **Route 9**).
- Bus Services **129**, **177**, **180** and **199** recorded a reduction in both directions of the bus journey times. 199 had a 0% change in NB direction and -9% reduction in SB direction.

Weekday IP

- Most bus services show an increase in the bus journey time. The most significant increase is the **129** EB-bus service to Woolwich Road of +28%, an increase of +38 secs/km. Bus route **129** runs to the north of the park A206 Trafalgar Road / Woolwich Road (VJT **Route 9**).
- The average increase in bus journey time was +9% across all services, and the average reduction is recorded as being -5%.
- Considering the percentage change in time for both directions, the **53** service has the greatest overall increase of 15% WB, and 21% EB.

Weekday PM

- There is no common trend between the journey times recorded for the buses during the PM peak as about half increase and half reduce in journey time. The average change across all bus routes is +2%.
- The largest increases were seen on bus route **129** EB, and **386** WB of +62 secs/km (+20%) and +46 secs/km (+21%). While bus route **129** runs to the north of the park along the A206 Trafalgar Road / Woolwich Road (VJT **Route 9**), bus route **386** runs to the south of the park along the A2 Shooters Hill Road (VJT **Route 1**).
- Bus Services **54**, **89**, **202** and **380** recorded a reduction in both directions of the bus journey times with a range of between 0% and -16%.

Weekday Daily

- The majority of bus services have recorded an increase in their bus journey time with an average increase across all bus routes of +8%.
- The largest increases were seen on bus route **89** WB and **422** NB of +86 secs/km (+34%) and +75 secs/km (+29%). While bus route **89** runs to the north of the park along

the B212 Stratheden Road (VJT **Route 3**), bus route **422** runs to the east of the park along Blackwell Lane and the A206 Woolwich Road (VJT **Route 9**).

- Bus Services **89** EB, **108** SB, **129** WB, **177** WB and **199** NB recorded a reduction in one direction of the bus journey times recording -9%, -6%, -4%, -4% and -3% respectively.

The above should be considered in the context of the CS4 cycle scheme being installed along the A206 in the period analysed, which has removed the eastbound bus lane and reduced junction capacity at the A206/ Vanbrugh Hill junction.

Summary Statement

On average, the bus journey time recorded in May had an overall increase from 2019 to 2021 for the AM, IP, PM and Daily of +15%, +3%, +2%, and +8%. No common trends have been observed with regard to the location of bus services where increases were recorded.

The above should be considered in the context of the CS4 cycle scheme being installed along the A206 in the period analysed, which has removed the eastbound bus lane and reduced junction capacity at the A206/ Vanbrugh Hill junction.

Summary of Results – August

The results of the Bus Journey Time Comparison for August indicated the following:

- Majority of BJTs across all the AM peak recorded a reduction in BJT, whilst the IP, PM and Daily recorded a variation of services increasing and reducing BJT with an average change across all routes of -5% in the AM, +3% for the IP, 4% in the PM, and +1% for the Daily.
- The largest increase in BJT was recorded during the IP along Bus Service **129** (EB direction) to Woolwich Road of +53 secs/km (23%).
- The largest decrease in BJTs was also recorded on Bus Service **129** (WB direction) during the AM period, with a reduction of -46 secs/km (-23%). Bus route **129** runs to the north of the park A206 Trafalgar Road / Woolwich Road (VJT **Route 9**).

Summary Statement

The majority of routes recorded a reduction in journey time during all weekday periods in August.

A localised increase in bus journey time was recorded to the north of the park, along Bus Service **129**.

3.5 Vehicle Volume Data

Introduction

The impact of the Greenwich Park Movement Trial on the traffic flows on strategic highway links surrounding the park has been assessed by reviewing traffic counts provided by TfL.

Six ATC sites have been provided which cover the strategic road network around the park.

A map illustrating the location of each traffic count analysed and the respective source of the data shown in **Figure 3.6**.

For AM, IP and PM time periods assessed, an average hourly vehicle flow by direction has been calculated and used to derive the percentage change. For the Daily period a total traffic flow across the 12-hour period has been presented and used to derive the percentage change.

Methodology

For the analysis of the ATCs the Pre-Trial year used is 2019 as per the off-park methodology described in **Section 3.2**.

The analysis of the change in vehicle volume for the month of May is provided within this section with the associated comparison tables and a summary of the findings. Detailed analysis tables with for the May assessment are presented in **Appendix F**.

A high-level summary of the August results are also provided within this section with the detailed comparison tables presented in **Appendix G**.

Figure 3.4: Greenwich Park ATC Locations

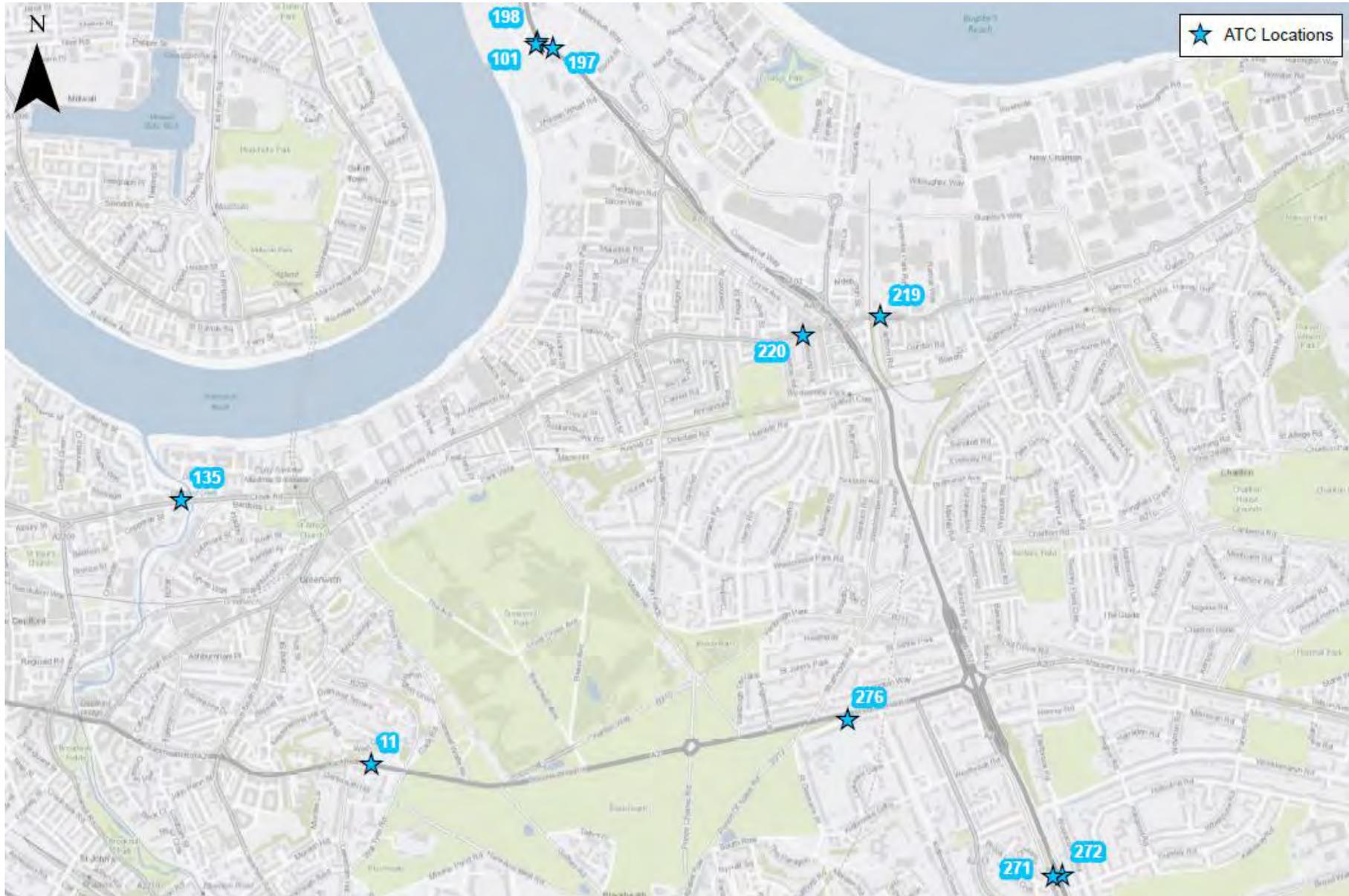


Table 3.3: Vehicle Volume 2019 to 2021 Comparison Summary
(May Weekday)

Vehicle Volume Summary - May Weekday										
ATC Ref	Location	Direction	Average Hour AM (07:00-10:00)		Average Hour IP (10:00-16:00)		Average Hour PM (16:00-19:00)		Total Daily (07:00-19:00)	
			2019 (Vehicles)	Change to 2021 (%)	2019 (Vehicles)	Change to 2021 (%)	2019 (Vehicles)	Change to 2021 (%)	2019 (Vehicles)	Change to 2021 (%)
11	A2 Blackheath Hill	EB	883	8%	8,526	19%	705	50%	10,113	20%
		WB	682	2%	8,109	0%	871	-4%	9,662	0%
135	A200	EB	402	-31%	5,528	-37%	725	-46%	6,655	-38%
		WB	908	-56%	5,961	-38%	531	-29%	7,400	-39%
198	A2203 Blackw all Tunnel Southern Approach (NB)	NB	2,614	0%	25,497	-1%	2,603	-1%	30,714	-1%
197	A2203 Blackw all Tunnel Southern Approach (SB)	SB	2,712	-6%	29,100	-2%	3,396	-5%	35,208	-2%
219	A206 (EB)	EB	680	-65%	7,691	-71%	838	-77%	9,209	-71%
220	A206 (WB)	WB	630	-31%	5,839	-15%	677	-16%	7,145	-16%
271	A102 Blackw all Tunnel Southern Approach (SB)	SB	2,319	-3%	28,491	1%	3,353	2%	34,164	1%
272	A102 Blackw all Tunnel Southern Approach (NB)	NB	3,119	-11%	26,754	-5%	2,756	-4%	32,629	-6%
276	A2 Shooters Hill Rd	EB	933	-2%	13,002	-2%	1,622	-4%	15,558	-2%
		WB	923	-42%	9,121	-16%	930	-8%	10,974	-18%

Summary of Results - May

The summary tables provide the 2019 to 2021 comparison in traffic flow at each location for May, weekday and weekend for the ATCs. The results presented in **Table 3.5** and **Table 3.6** demonstrate the recorded traffic flow at each location 2019 (measured in number of vehicles) and the percentage change to 2021.

A summary of the results of the Vehicle Volume comparison for May are provided below.

Weekday AM

- Majority of ATCs recorded decreases in vehicle volume with an average change of -20% across all ATCs with a range of between -65% to +8%.
- Largest decreases were recorded at the following locations:
 - A200 **[135]** recorded -125 vehicles (-31%) in the EB and -510 vehicles (-56%) in the WB.
 - A206 EB **[219]** recorded -442 vehicles (-65%).
 - A206 WB **[220]** recorded -195 vehicles (-31%).

- A2 Shooters Hill Road **[276]** recorded -388 vehicles (-42%).
- No large increases were recorded across the time period with largest increase on A2 Blackheath Hill EB **[11]** of only +72 vehicles (+8%).

Weekday IP

- Majority of ATCs recorded decreases in vehicle volume with an average change of -14% across all ATCs with a range of between -71% to +19%.
- Largest decreases were recorded at the following locations:
 - A206 **[219]** recorded -5447 vehicles in the EB (-71%).
 - A200 **[135]** recorded -2048 (-37%) vehicles in the EB and -2258 (-38%) vehicles in the WB.
 - A2 Shooters Hill Rd **[276]** recorded -1482 vehicles (-16%) in the WB.
- The largest increase in vehicle volume was recorded at A2 Blackheath Hill **[11]** of +1638 vehicles (19%). During this period the park was already closed to traffic prior to the trial implementation.

Weekday PM

- Majority of ATCs recorded decreases in vehicle volume with only one notable large increase across the time period. An average change of -12% across all ATCs with a range of between -77% to +50%.
- Largest decreases were recorded at the following locations:
 - A200 **[135]** recorded -334 vehicles (-46%) in the EB and -154 vehicles (-29%) in WB.
 - A206 EB **[219]** recorded -646 vehicles (-77%).
 - A206 WB **[220]** recorded -106 vehicles (-16%).
- The largest increase in vehicle volume was recorded at A2 Blackheath Hill EB **[11]** of only +353 vehicles (+50%). It is expected that the increase in vehicle volume along this the A2 Blackheath hill is the result of other factors i.e. West Greenwich LTN, COVID-19 and London-wide traffic patterns, as the park was closed during the weekday IP prior to the trial implementation,

Weekday Daily

- Majority of ATCs recorded decreases in vehicle volume with only one notable large increase across the time period. An average change of -14% across all ATCs with a range of between -71% to +20%.
- Largest decreases across the day were recorded at the following locations:
 - A200 [135] recorded -2,507 vehicles (-38%) in the EB and -2,922 vehicles (-39%) in the WB.
 - A206 EB [219] recorded -6,535 vehicles (-77%).
 - A206 WB [220] recorded -1,115 vehicles (-16%).
 - A2 Shooters Hill Road [276] recorded -1,948 vehicles (-18%).
- One large increase in vehicle volume was recorded at A2 Blackheath Hill EB [11] of only +353 vehicles (+50%).

Summary Statement

Most ATCs recorded an overall reduction in vehicle volume between May 2019 to May 2022 weekday periods. Average change in vehicle volumes was -20%, -14%, -12% and -14% during the weekday AM, IP, PM and daily average hour, respectively.

Significant increases in traffic volumes were only recorded along the A2 Blackheath Hill. The results of the weekday IP, which show an increase in vehicle volume at this location, suggest that the change in traffic at this location is the result of factors unrelated to the Greenwich Park trial i.e. West Greenwich LTN, COVID-19 and London-wide traffic patterns, as the park was closed during the weekday IP prior to the trial implementation.

Summary of Results – August

A summary of the results of the Vehicle Volume comparison for August are provided below.

- Majority of ATCs recorded decreases in vehicle volume across all three time periods (AM, IP, PM & Daily). An average change of -13%, -12% and 14% was recorded respectively across the weekday time periods.
- The largest decreases were recorded at the following locations:
 - A200 [135] recorded large reduction in traffic flow in both directions across all four periods ranging from -23% to -54%.
 - A206 [219] recorded large reductions in the EB direction ranging between -65% to -75%.
- A2 Blackheath Hill [11] was the only location which recorded larger increases in vehicle volume with the largest increase recorded in the EB in the PM of +223 vehicles (+26%).

Summary Statement

Most ATCs recorded a reduction in vehicle volumes between August 2019 and August 2021 weekday periods. Average changes of -13%, -14%, -12% and 14% were recorded across the weekday AM, IP, PM and daily average hour respectively.

The most significant increases in traffic were recorded along the A2 Blackheath Hill during all periods, including the weekday IP. Again, this suggests that the change in traffic at this location is the result of factors unrelated to the Greenwich Park trial, as the park was closed during the weekday IP prior to the trial implementation.

3.6 West Greenwich LTN Monitoring Report

The results of the vehicle volume data and bus journey time analysis presented in this chapter have been compared with those included in the West Greenwich LTN Monitoring Report prepared by Steer in January 2022).

Vehicle Volume Data

The comparison of the vehicle volume data is presented in **Table 3.7**. The results are generally consistent along all roads for which data can be compared (A2 Blackheath Hill, A2 Shooters Hill and Blackwall Tunnel Approach). Differences in the results obtained are expected to be due to the following:

- ATC data was collected in October 2019 and October 2019 – this could result in differences in the change of traffic volume due to different month selection.
- ATC Data was analysed for a 24h period, whilst this report provides analysis of data for peak and 12h daily periods instead.

Bus Journey Time Data

A summary of the results of the bus journey time analysis presented by Steer is outlined below:

- Bus journey times on the A206 southern sections improved by over 30 seconds during weekdays and over 50 seconds during Saturdays.
- Bus journey times on the A2 and on the Blackwall Tunnel South Approach have not changes during weekdays but have improved on Saturdays by 30 seconds.
- Bus journey times on north-south routes 108 and 386) through Westcombe Park have worsened by over 90 seconds during weekdays and by over 30 seconds during Saturdays.

A direct comparison between the results of the bus journey time analysis carried out in the LTN monitoring report and this study cannot be carried out due to significant differences in the methodology employed, however both studies show that the increases in bus journey time have generally occurred on routes along the north and east corridors around Greenwich Park, whilst bus journey times have generally improved along the western corridor.

The report highlights the importance of the CS4 cycle scheme being installed along the A206 in

the period analysed, which has removed the eastbound bus lane and reduced junction capacity at the A206/ Vanbrugh Hill junction.

Table 3.4 – West Greenwich LTN Report vs TRP Analysis

Site Location	ATC Ref No	Direction	Steer Report (24h flows)			TRP Movement Analysis Study (12h flows)		
			2019	2021	Diff	2019	2021	Diff
A2 Blackheath Hill	11	NB	N/A	N/A	N/A	8,526	10,164	19%
		SB	N/A	N/A	N/A	8,109	8,098	0%
		2-W	33,112	33,816	2%	16,635	18,262	10%
A2 Shooters Hill	276	NB	N/A	N/A	N/A	13,002	12,751	-2%
		SB	N/A	N/A	N/A	9,121	7,639	-16%
		2-W	38,599	36,734	-5%	22,123	20,390	-8%
Blackw all Tunnel Approach	271 & 272	NB	N/A	N/A	N/A	26,754	25,327	-5%
		SB	N/A	N/A	N/A	28,491	28,875	1%
		2-W	50,344	47,654	-5%	55,245	54,202	-2%

4. On-Park Data Analysis

4.1 Overview

An assessment of the internal Greenwich Park road network has been undertaken to understand the changes to traffic. The data obtained is from third-party traffic survey undertaken on behalf of Stantec and include the following:

- **Manual Classified Turning Counts (MCTC) Data** – at the junction between The Avenue and Blackheath Avenue.

4.2 MCTC Data

Introduction

MCTC surveys were commissioned in November 2021 in order to understand the levels of traffic using The Avenue/ Blackheath Avenue junction. Weekday and weekend MCTC surveys were undertaken on the following days:

- Thursday 25th November 2021
- Saturday 27th November 2021
- Sunday 28th November 2021

Methodology

The same methodology employed to analyse weekday off-park data has been employed here. Additionally, analysis of weekend data has also been included. Time periods analysed are as follows:

Weekday:

- AM: Hourly average from 07:00 to 10:00
- PM: Hourly average from 16:00 to 19:00
- Daily: Total from 07:00 to 19:00

Saturday:

- IP: Hourly average from 10:00 to 16:00
- Daily: Total from 07:00 to 19:00

Sunday:

- IP: Hourly average from 10:00 to 16:00
- Daily: Total from 07:00 to 19:00

Unfortunately, there is no historic data available for Greenwich Park, therefore, the 2021 survey data has been presented to give an understanding of the internal flows using Blackheath Avenue when no through-traffic is permitted at any time.

Although it is not possible to quantify the net change in flows pre/post trial implementation, it is expected that traffic levels recorded as part of the 2021 surveys are significantly lower than those using the park roads prior to the trial implementation, as a result of the trial implementation.

Summary of Results

Summary figures are presented overleaf which demonstrate the traffic flows using either The Avenue and Blackheath Avenue. The results show:

- In the region of 400-500 vehicles using Blackheath Avenue, and in the region of 100 vehicles using The Avenue and Great Cross Avenue during the weekday daily period (07:00 – 19:00).
- In the region of 500-700 vehicles using Blackheath Avenue, in the region of 60 -100 vehicles using Great Cross Avenue and in the region of 10-15 vehicles using The Avenue during the weekend daily periods (07:00 – 19:00)

Figure 4.1 presents the Weekday data, **Figure 4.2** presents the Saturday data, and **Figure 4.3** presents the Sunday data.

Figure 4.1: Greenwich Park Vehicle Volume from MCTC (2021 Saturday)

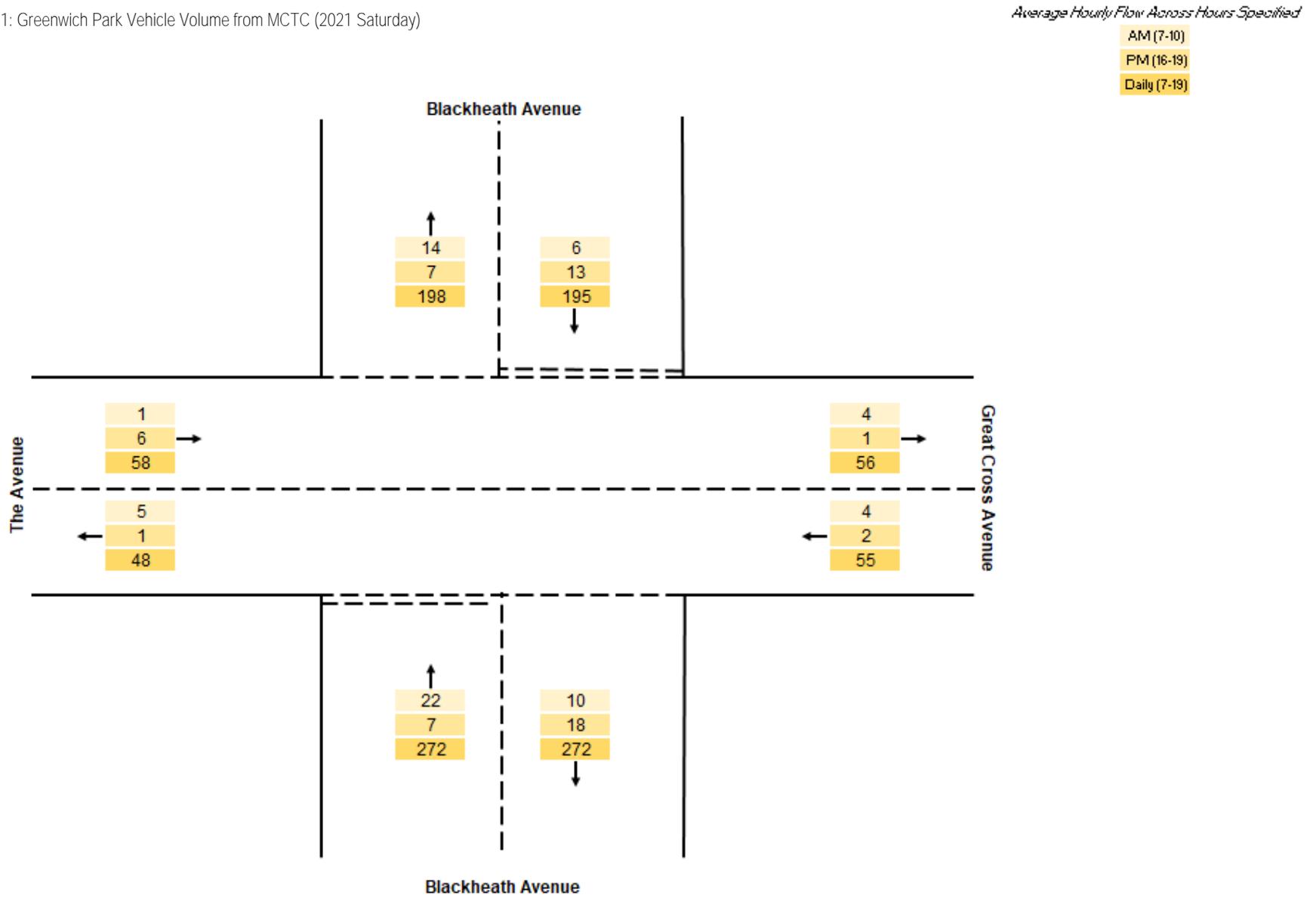
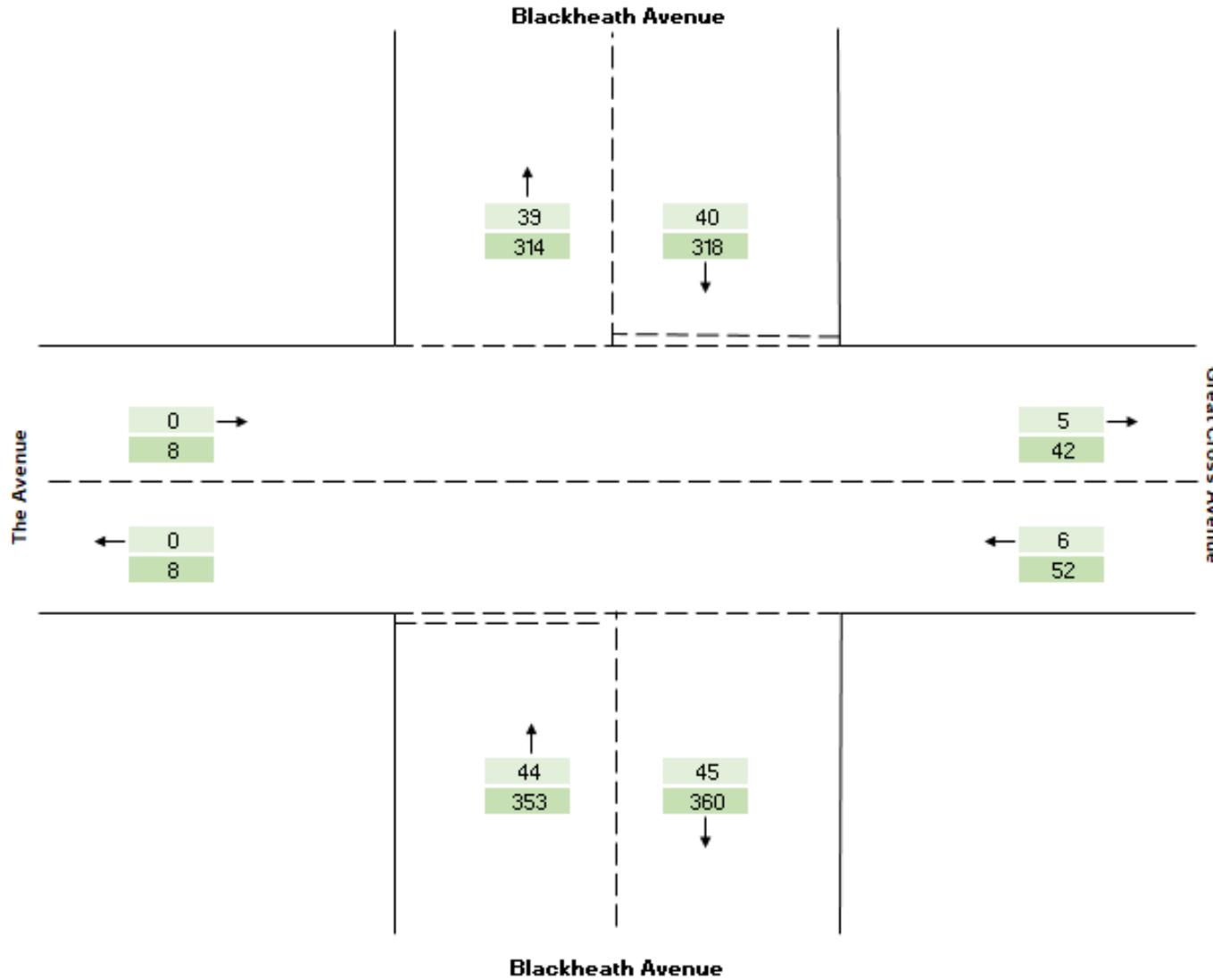


Figure 4.2: Greenwich Park Vehicle Volume from MCTC (2021 Sunday)

Average Hourly Flow Across Hours Specified

IP (10-16)

Daily (7-19)



5. Accident Analysis

This section summarises the results of the accident analysis carried out at key locations at and around Greenwich Park, for the most recent 3-full year period of available data (2018, 2019 and 2020). This meant that the difference in the number, and severity of accidents between 2018 and 2020 could be compared. Accident data for the 2021 period was excluded due to this only being available between the months of January June.

Accident data has been extracted from the Crashmap website. The data comes from the Department for Transport, the statistics relate only to personal injury accidents on public roads that are reported to the police, and subsequently recorded, using the STATS19 accident reporting form.

The accidents are classed into three categories: slight, serious, and fatal a definition of which is provided below:

- **Slight Injury:** Injuries of a minor nature, such as sprains, bruises or cuts not judged to be severe, or slight shock requiring only roadside attention (medical treatment is not a prerequisite for an injury to be defined as slight):

- **Serious Injury:** Injuries for which a person is detained in hospital, as an in-patient, or any of the following injuries, whether or not a person is detained in hospital; fractures, concussion, internal injuries, severe cuts and lacerations, several general shock requiring medical treatment and injuries which result in death 30 days after the accident. The serious category therefore covers a very broad range of injuries; and
- **Fatal Injury:** Injuries which cause death either immediately or any time up to 30 days after the accident.

The extent of the accident study area is presented in **Figure 5.1** below, whilst the total number of accidents recorded throughout the 3-year period, split by user type, have been summarised in **Table 5.1**. A detailed summary of the collisions recorded within Greenwich Park and outside the park and by junction is presented in **Appendix H**.

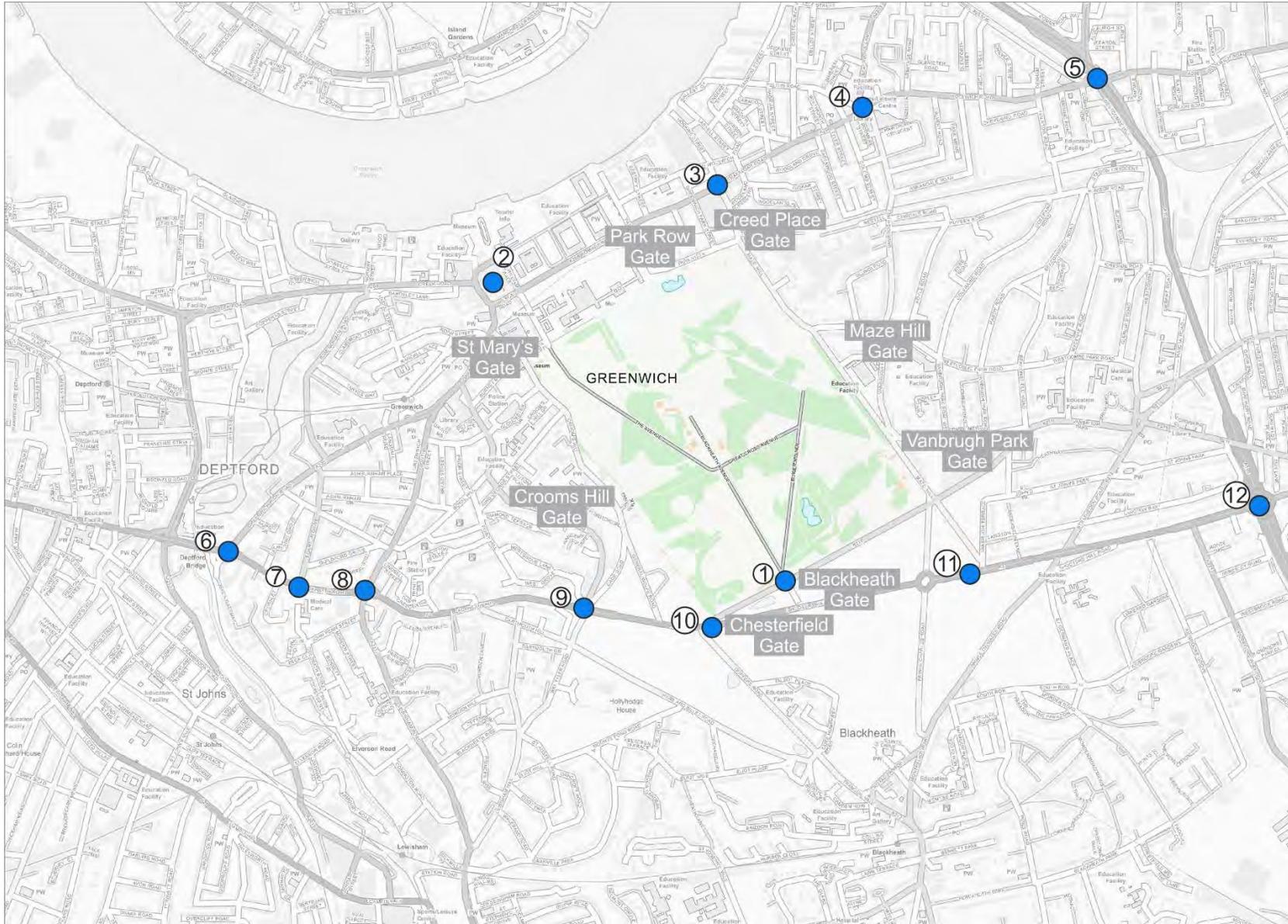
Table 5.1 – Summary of Accidents 2018 – 2020

	Severity	2018	2020	Difference
All Modes	Slight	29	22	-7
	Serious	2	2	0
	Fatal	1	0	-1
Total		32	24	-8
Vulnerable Road Users (Pedestrians, Cyclists, Motorcyclists)	Slight	19	16	-3
	Serious	2	2	0
	Fatal	1	0	-1
Total		22	18	-4

Key Findings

As shown in **Table 5.1**, a significant reduction in the number of overall collisions, and fatal collisions where a vulnerable road user was involved, at key locations in and around Greenwich Park occurred during the period 2018 – 2020. It is expected that this is the result of measures introduced to increase safety of all users, including the Movement Strategy implemented by TRP.

Figure 5.1 – Accident Analysis Study Area



6. Summary of Findings

This section provides a summary of the key findings of this study. Results from the analysis of TfL's August data has been excluded from this summary but are provided in the Appendices.

6.1 Off-Park Data

Vehicle Journey Time Data

- During the weekday periods the majority of the links have recorded decreases or a small level of increase in journey times between May 2019 and May 2021.
- The largest increases in vehicle journey time were recorded on the following links were:
 - Blackwall Tunnel Southern Approach (A102)
 - Stratheden Road (B212)
 - Maze Hill
 - Vanbrugh Hill

Maze Hill and Vanbrugh Hill provide alternative routes adjacent to the West Greenwich LTN, therefore it is expected that increases in traffic flows along these links are associated with the LTN.

Bus Journey Time Data

- During the weekday AM period, an average increase across all bus routes of +15% was recorded.
- During the weekday IP period, an average increase across all bus routes of +3% was recorded.
- During the weekday PM period, the average change across all bus routes is +2%.

The above should be considered in the context of the CS4 cycle scheme being installed along the A206 in the period analysed, which has removed the eastbound bus lane and reduced junction capacity at the A206/ Vanbrugh Hill junction.

Vehicle Volume Data

- The majority of the links recorded decreases in vehicle volume between May 2019 and May 2021.
- Increases were recorded at A2 Blackheath Hill across all time periods, including the weekday IP. Significant increases in traffic volumes were only recorded along the A2 Blackheath Hill. This suggests that the change in traffic at this location is the result of factors unrelated to the Greenwich Park trial i.e. West Greenwich LTN, COVID-19 and London-wide traffic patterns, as the

park was closed during the weekday IP prior to the trial implementation.

6.2 On-Park Data

No pre-trial data is available for the internal traffic surveys at Greenwich Park, therefore the 2021 MCTC survey data has been presented to provide a quantitative analysis of the internal flows when no through-traffic along The Avenue is permitted. The results of the 2021 MCTC surveys show:

- In the region of 400-500 vehicles using Blackheath Avenue, and in the region of 100 vehicles using The Avenue and Great Cross Avenue during the weekday daily period (07:00 – 19:00).
- In the region of 500-700 vehicles using Blackheath Avenue, in the region of 60 -100 vehicles using Great Cross Avenue and in the region of 10-15 vehicles using The Avenue during the weekend daily periods (07:00 – 19:00)

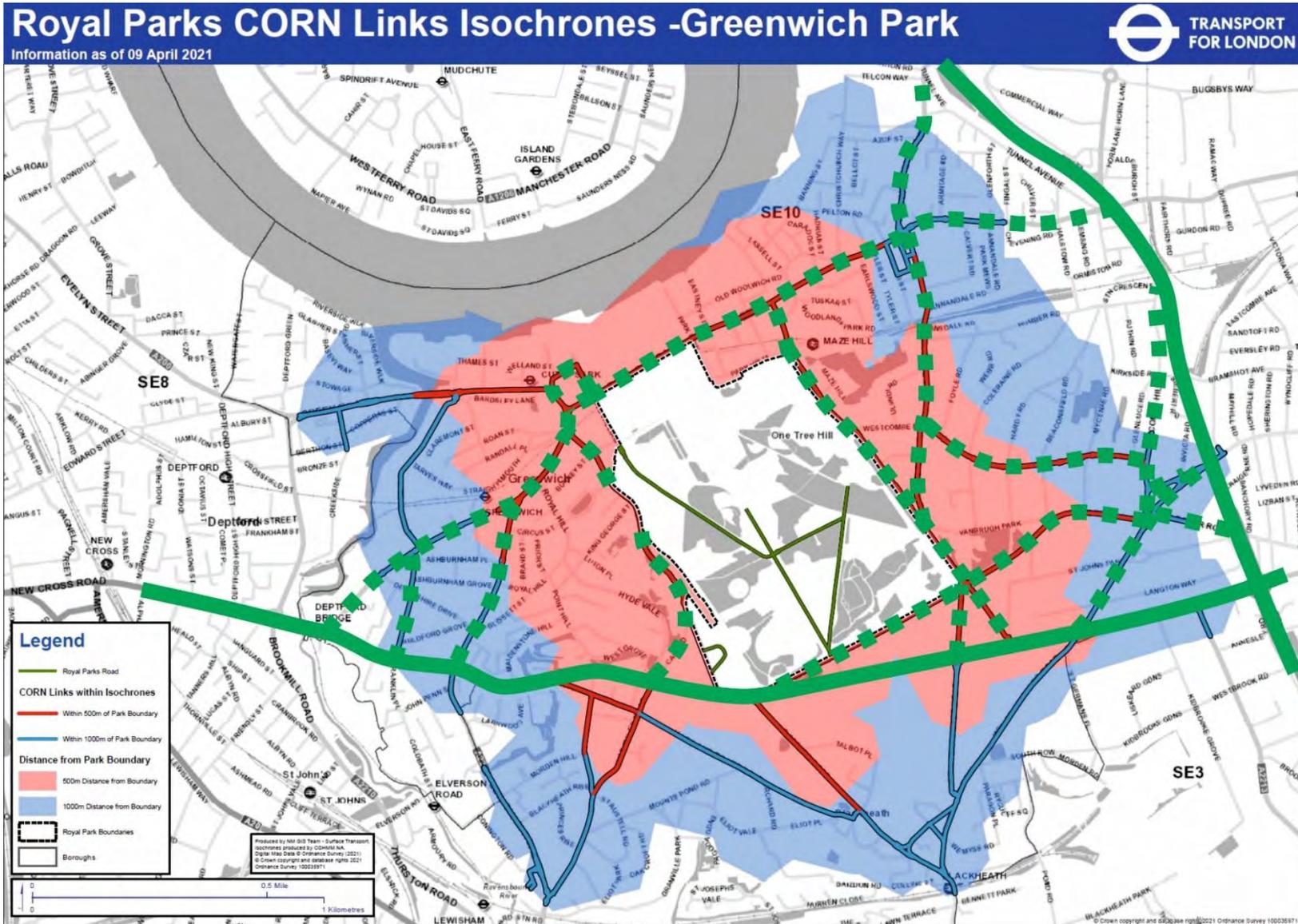
6.3 Alignment of the Trial with TRP's Movement Strategy

Although it is not possible to quantify the net change in traffic volumes as a result of the implementation of the Movement Strategy trial scheme at Greenwich Park, it is expected that

traffic levels recorded as part of the 2021 surveys are significantly lower than those using the park roads prior to the trial implementation. This aligns with the overall TRP's Movement Strategy and its principles to:

- *We will protect and conserve our parks' special qualities*
- *Our parks are for people*
- *We will encourage the use of more sustainable ways to access our parks*
- *Our park roads are not intended to be commuter through-routes for motor vehicles*
- *We will achieve more by delivering key projects through partnership and collaboration*
- *We will make evidence-based decisions*
- *We will be proactive in our approach to future transport challenges and opportunities*

Appendix A Greenwich Park Reassignment Routes (from TfL's CORN Map)



Appendix B Detailed Vehicle Journey Time Analysis (May) (seconds/route)

Journey Time Route No.	Location	Direction	Average Vehicle Journey Time - Weekday - May																			
			Average Hour AM (07:00-10:00)					Average Hour IP (10:00-16:00)					Average Hour PM (16:00-19:00)					Average Hour Daily (07:00-19:00)				
			2019 (secs/km)	2020 (secs/km)	2021 (secs/km)	Change (secs/km)	2019-2021 Difference (%)	2019 (secs/km)	2020 (secs/km)	2021 (secs/km)	Change (secs/km)	2019-2021 Difference (%)	2019 (secs/km)	2020 (secs/km)	2021 (secs/km)	Change (secs/km)	2019-2021 %Diff	2019 (secs/km)	2020 (secs/km)	2021 (secs/km)	Change (secs/km)	2019-2021 %Diff
1	Shooters Hill Road (A2)	EB	238	100	265	+27	11%	87	70	83	-4	-4%	144	87	97	-47	-32%	156	86	148	-8	-5%
		WB	67	66	74	+7	10%	63	62	61	-2	-2%	104	60	90	-15	-14%	78	62	75	-3	-4%
2	Blackwall Tunnel Southern Approach (A102)	NB	135	111	157	+21	16%	179	141	210	+31	17%	244	175	253	+9	4%	186	142	207	+20	11%
		SB	311	182	501	+189	61%	172	139	193	+21	12%	172	143	189	+17	10%	219	155	294	+76	35%
3	Stratheden Road (B212)	NB	245	163	287	+43	17%	190	165	187	-3	-2%	212	170	205	-7	-3%	216	166	227	+11	5%
		SB	239	164	307	+68	28%	229	182	214	-15	-7%	293	192	238	-55	-19%	254	179	253	-1	0%
4	Charlton Way	EB	144	124	140	-4	-3%	130	123	120	-10	-8%	157	136	129	-28	-18%	144	128	130	-14	-10%
		WB	152	126	153	+0	0%	128	117	114	-14	-11%	136	119	115	-21	-15%	139	121	127	-12	-8%
5	Maze Hill	NB	234	153	481	+247	106%	185	143	196	+11	6%	170	141	232	+61	36%	196	146	303	+107	54%
		SB	179	187	178	-1	-1%	158	157	160	+3	2%	169	157	163	-6	-3%	168	167	167	-1	-1%
6	Westcombe Way	EB	219	165	224	+5	2%	209	188	199	-10	-5%	198	188	188	-11	-5%	209	180	203	-5	-3%
		WB	186	158	180	-6	-3%	213	199	204	-8	-4%	209	189	215	+6	3%	203	182	200	-3	-1%
7	Westcombe Hill	NB	229	172	234	+5	2%	224	199	206	-19	-8%	219	192	214	-5	-2%	224	188	218	-6	-3%
		SB	228	173	221	-7	-3%	218	184	196	-22	-10%	236	182	209	-27	-12%	227	180	209	-19	-8%
8	Vanbrugh Hill	NB	218	159	427	+209	96%	204	200	243	+38	19%	203	204	250	+47	23%	208	188	307	+98	47%
		SB	210	183	232	+22	10%	207	187	249	+42	21%	204	194	245	+40	20%	207	188	242	+35	17%
9	Trafalgar Road (A206)	EB	251	169	251	+0	0%	296	217	389	+93	31%	333	254	401	+68	20%	293	213	347	+54	18%
		WB	385	180	439	+55	14%	276	209	260	-17	-6%	253	212	261	+8	3%	304	200	320	+15	5%
10	Crooms Hill	NB	176	147	193	+17	10%	174	154	190	+16	9%	194	200	192	-2	-1%	181	167	191	+10	6%
		SB	202	177	89	-113	-56%	176	151	112	-64	-36%	169	149	74	-95	-56%	182	159	92	-91	-50%
11	Greenwich Street	NB	218	181	198	-20	-9%	213	197	205	-7	-3%	218	202	204	-14	-7%	216	193	202	-14	-6%
		SB	187	169	171	-16	-9%	197	185	219	+22	11%	206	188	262	+56	27%	197	181	217	+21	10%
12	Greenwich High Road (A206)	NB	148	139	145	-3	-2%	148	139	141	-7	-4%	172	158	158	-14	-8%	156	145	148	-8	-5%
		SB	211	193	204	-7	-3%	178	162	175	-2	-1%	179	167	174	-5	-3%	189	174	184	-5	-2%

Detailed Vehicle Journey Time Analysis (May) (total seconds across route)

Journey Time Route No.	Location	Direction	Average Vehicle Journey Time - Weekday - May																			
			Average Hour AM (07:00-10:00)					Average Hour IP (10:00-16:00)					Average Hour PM (16:00-19:00)					Average Hour Daily (07:00-19:00)				
			2019 (secs)	2020 (secs)	2021 (secs)	Change (secs)	2019-2021 Difference (%)	2019 (secs)	2020 (secs)	2021 (secs)	Change (secs)	2019-2021 Difference (%)	2019 (secs)	2020 (secs)	2021 (secs)	Change (secs)	2019-2021 %Diff	2019 (secs)	2020 (secs)	2021 (secs)	Change (secs)	2019-2021 %Diff
1	Shooters Hill Road (A2)	NB	524	221	584	+59	11%	193	155	184	-9	-4%	317	192	215	-103	-32%	345	189	328	-17	-5%
		SB	158	154	174	+15	10%	147	146	144	-4	-2%	244	140	210	-34	-14%	183	147	176	-7	-4%
2	Blackwall Tunnel Southern Approach (A102)	EB	469	384	543	+74	16%	621	489	727	+106	17%	846	608	877	+31	4%	645	493	716	+70	11%
		WB	1081	631	1739	+658	61%	598	483	671	+73	12%	597	496	657	+61	10%	759	537	1022	+264	35%
3	Stratheden Road (B212)	NB	105	70	123	+18	17%	81	71	80	-1	-2%	91	73	88	-3	-3%	92	71	97	+5	5%
		SB	105	72	135	+30	28%	100	80	94	-7	-7%	129	84	105	-24	-19%	111	79	111	-0	0%
4	Charlton Way	EB	215	185	209	-6	-3%	194	183	179	-15	-8%	234	202	191	-42	-18%	214	190	193	-21	-10%
		WB	185	154	185	+0	0%	156	142	139	-17	-11%	165	145	140	-26	-15%	169	147	155	-14	-8%
5	Maze Hill	NB	280	184	576	+296	106%	222	171	235	+13	6%	204	169	278	+74	36%	235	175	363	+128	54%
		SB	214	225	213	-1	-1%	189	188	192	+3	2%	202	188	195	-7	-3%	202	200	200	-2	-1%
6	Westcombe Way	EB	182	137	186	+4	2%	174	156	165	-9	-5%	165	156	156	-9	-5%	174	150	169	-4	-3%
		WB	155	132	150	-5	-3%	177	166	170	-7	-4%	174	158	179	+5	3%	169	152	166	-2	-1%
7	Westcombe Hill	NB	216	162	221	+5	2%	212	188	194	-18	-8%	207	181	202	-4	-2%	212	177	206	-6	-3%
		SB	213	161	207	-6	-3%	203	172	183	-20	-10%	220	170	195	-25	-12%	212	168	195	-17	-8%
8	Vanbrugh Hill	NB	224	164	439	+215	96%	210	206	249	+39	19%	208	210	257	+49	23%	214	193	315	+101	47%
		SB	216	188	238	+22	10%	212	192	256	+44	21%	210	199	251	+41	20%	213	193	249	+36	17%
9	Trafalgar Road (A206)	EB	483	326	483	+1	0%	569	417	749	+179	31%	640	488	771	+130	20%	564	410	668	+103	18%
		WB	754	353	861	+107	14%	541	410	509	-32	-6%	495	415	511	+16	3%	597	393	627	+30	5%
10	Crooms Hill	NB	188	157	206	+18	10%	187	165	203	+17	9%	208	214	205	-3	-1%	194	179	205	+11	6%
		SB	216	190	96	-121	-56%	188	161	120	-68	-36%	181	159	79	-102	-56%	195	170	98	-97	-50%
11	Greenwich Street	NB	129	107	116	-12	-9%	125	116	121	-4	-3%	128	119	120	-8	-7%	127	114	119	-8	-6%
		SB	114	103	104	-10	-9%	120	113	134	+14	11%	126	115	160	+34	27%	120	110	132	+13	10%
12	Greenwich High Road (A206)	NB	101	95	99	-2	-2%	101	95	97	-4	-4%	118	108	108	-10	-8%	107	99	101	-5	-5%
		SB	144	132	139	-5	-3%	121	111	120	-2	-1%	122	114	119	-3	-3%	129	119	126	-3	-2%

Appendix C Detailed Vehicle Journey Time Analysis (August) (seconds/km)

Journey Time Route No.	Location	Direction	Average Vehicle Journey Time - Weekday - August																			
			Average Hour AM (07:00-10:00)					Average Hour IP (10:00-16:00)					Average Hour PM (16:00-19:00)					Average Hour Daily (07:00-19:00)				
			2019 (secs/km)	2020 (secs/km)	2021 (secs/km)	Change (secs/km)	2019-2021 Difference (%)	2019 (secs/km)	2020 (secs/km)	2021 (secs/km)	Change (secs/km)	2019-2021 Difference (%)	2019 (secs/km)	2020 (secs/km)	2021 (secs/km)	Change (secs/km)	2019-2021 %Diff	2019 (secs/km)	2020 (secs/km)	2021 (secs/km)	Change (secs/km)	2019-2021 %Diff
1	Shooters Hill Road (A2)	EB	195	140	132	-63	-32%	90	82	85	-255	-5%	150	116	135	-16	-10%	145	113	117	-28	-19%
		WB	66	66	62	-4	-6%	63	91	61	-1	-2%	75	70	71	-5	-6%	68	76	65	-3	-5%
2	Blackwall Tunnel Southern Approach (A102)	NB	119	122	124	+5	5%	153	170	195	+42	28%	186	221	229	+43	23%	152	171	183	+30	20%
		SB	220	258	241	+21	10%	159	173	173	+14	9%	164	191	185	+21	13%	181	207	200	+19	10%
3	Stratheden Road (B212)	NB	203	186	180	-23	-11%	190	186	179	-11	-6%	197	193	193	-4	-2%	197	188	184	-12	-6%
		SB	202	211	193	-9	-5%	210	224	198	-12	-6%	225	213	215	-11	-5%	212	216	202	-11	-5%
4	Charlton Way	EB	133	132	128	-5	-4%	126	123	122	-4	-4%	141	135	127	-14	-10%	133	130	126	-8	-6%
		WB	129	125	118	-10	-8%	126	126	114	-13	-10%	128	129	115	-13	-10%	128	127	116	-12	-9%
5	Maze Hill	NB	186	248	243	+57	31%	189	202	191	+2	1%	185	233	263	+78	42%	186	228	232	+46	25%
		SB	168	158	150	-18	-10%	155	166	161	+6	4%	158	154	160	+2	1%	160	159	157	-3	-2%
6	Westcombe Way	EB	206	141	214	+8	4%	199	150	196	-3	-2%	202	136	191	-10	-5%	202	142	200	-2	-1%
		WB	194	119	176	-18	-9%	190	132	205	+15	8%	202	119	207	+5	2%	195	123	196	+1	0%
7	Westcombe Hill	NB	230	216	216	-14	-6%	210	208	204	-6	-3%	219	211	208	-11	-5%	220	212	210	-10	-5%
		SB	210	202	191	-20	-9%	232	201	188	-44	-19%	233	208	203	-31	-13%	225	204	194	-31	-14%
8	Vanbrugh Hill	NB	197	99	224	+27	14%	202	93	225	+23	11%	200	105	232	+32	16%	200	99	227	+28	14%
		SB	203	81	229	+27	13%	228	85	280	+52	23%	219	85	283	+64	29%	217	84	264	+48	22%
9	Trafalgar Road (A206)	EB	250	203	214	-36	-14%	257	268	337	+80	31%	321	313	386	+65	20%	276	261	312	+36	13%
		WB	268	329	276	+8	3%	244	323	250	+6	2%	262	406	263	+1	0%	258	353	263	+5	2%
10	Crooms Hill	NB	173	171	209	+36	21%	172	173	195	+23	13%	164	181	213	+49	30%	170	175	206	+36	21%
		SB	175	184	63	-112	-64%	167	168	132	-35	-21%	161	186	94	-67	-42%	168	179	96	-71	-43%
11	Greenwich Street	NB	211	209	214	+3	1%	214	207	208	-6	-3%	211	210	206	-5	-2%	212	208	209	-3	-1%
		SB	186	179	180	-7	-4%	199	190	203	+4	2%	200	196	225	+26	13%	195	188	203	+8	4%
12	Greenwich High Road (A206)	NB	150	140	142	-8	-5%	147	139	140	-6	-4%	144	150	143	-1	-1%	147	143	142	-5	-4%
		SB	194	185	182	-11	-6%	173	168	166	-6	-4%	167	160	163	-4	-3%	178	171	171	-7	-4%

Detailed Vehicle Journey Time Analysis (August) (total seconds across route)

Journey Time Route No.	Location / Roads	Direction	Average Vehicle Journey Time																			
			AM Peak Period					Inter Peak Period					PM Peak Period					Across Day (AM, IP & PM)				
			2019	2020	2021	Change	2019-2021 %Diff	2019	2020	2021	Change	2019-2021 %Diff	2019	2020	2021	Change	2019-2021 %Diff	2019	2020	2021	Change	2019-2021 %Diff
1	Shooters Hill Road (A2)	EB	430	309	291	-139	-32%	198	182	188	-10	-5%	332	256	297	-35	-10%	320	249	259	-61	-19%
		WB	155	154	145	-10	-6%	148	214	144	-3	-2%	177	164	166	-11	-6%	160	178	152	-8	-5%
2	Blackwall Tunnel Southern Approach (A102)	NB	411	423	430	+19	5%	529	590	676	+146	28%	645	767	794	+149	23%	528	593	633	+105	20%
		SB	763	897	836	+73	10%	553	601	602	+49	9%	568	663	641	+73	13%	628	720	693	+65	10%
3	Stratheden Road (B212)	NB	87	80	77	-10	-11%	81	79	77	-5	-6%	85	83	83	-2	-2%	84	81	79	-5	-6%
		SB	88	93	84	-4	-5%	92	98	87	-5	-6%	99	94	94	-5	-5%	93	95	88	-5	-5%
4	Charlton Way	EB	198	197	191	-7	-4%	188	184	181	-7	-4%	210	201	188	-21	-10%	199	194	187	-12	-6%
		WB	157	152	144	-13	-8%	153	153	138	-15	-10%	155	157	140	-15	-10%	155	154	141	-15	-9%
5	Maze Hill	NB	223	297	291	+69	31%	226	243	229	+3	1%	222	279	315	+94	42%	223	273	278	+55	25%
		SB	201	189	180	-21	-10%	186	199	193	+7	4%	189	184	191	+3	1%	192	191	188	-4	-2%
6	Westcombe Way	EB	171	117	178	+6	4%	165	125	163	-3	-2%	168	113	159	-9	-5%	168	118	166	-2	-1%
		WB	162	99	147	-15	-9%	158	110	171	+13	8%	168	99	172	+4	2%	163	102	163	+1	0%
7	Westcombe Hill	NB	217	203	204	-13	-6%	198	196	193	-5	-3%	207	200	197	-10	-5%	207	200	198	-10	-5%
		SB	196	189	178	-18	-9%	216	188	175	-41	-19%	218	194	189	-29	-13%	210	190	181	-29	-14%
8	Vanbrugh Hill	NB	202	102	230	+28	14%	207	96	231	+24	11%	206	108	238	+33	16%	205	102	233	+28	14%
		SB	208	83	236	+27	13%	235	88	288	+53	23%	225	88	291	+66	29%	223	86	271	+49	22%
9	Trafalgar Road (A206)	EB	480	390	411	-69	-14%	494	515	648	+153	31%	617	603	742	+125	20%	531	503	600	+70	13%
		WB	526	646	541	+15	3%	478	632	490	+11	2%	515	797	517	+2	0%	506	692	516	+10	2%
10	Crooms Hill	NB	185	183	224	+39	21%	184	185	209	+25	13%	175	193	228	+52	30%	182	187	220	+39	21%
		SB	188	197	68	-120	-64%	179	180	142	-37	-21%	172	199	100	-72	-42%	180	192	103	-76	-43%
11	Greenwich Street	NB	125	123	126	+2	1%	126	122	123	-4	-3%	124	124	121	-3	-2%	125	123	123	-2	-1%
		SB	114	109	110	-4	-4%	121	116	124	+2	2%	122	119	138	+16	13%	119	115	124	+5	4%
12	Greenwich High Road (A206)	NB	103	96	97	-5	-5%	101	95	96	-4	-4%	99	103	98	-1	-1%	101	98	97	-4	-4%
		SB	132	127	125	-8	-6%	118	115	114	-4	-4%	114	109	111	-3	-3%	122	117	117	-5	-4%

Appendix D Detailed Bus Journey Time Analysis (May) (seconds/km)

Bus Service No.	Route Start	Route End	Distance of Route (km)	Direction	Average Bus Travel Time - May Weekday																			
					Average Hour AM (07:00-10:00)					Average Hour IP (10:00-16:00)					Average Hour PM (16:00-19:00)					Average Hour Daily (07:00-19:00)				
					2019 (secs/km)	2020 (secs/km)	2021 (secs/km)	Change (secs/km)	2019-2021 Difference (%)	2019 (secs/km)	2020 (secs/km)	2021 (secs/km)	Change (secs/km)	2019-2021 Difference (%)	2019 (secs/km)	2020 (secs/km)	2021 (secs/km)	Change (secs/km)	2019-2021 Difference (%)	2019 (secs/km)	2020 (secs/km)	2021 (secs/km)	Change (secs/km)	2019-2021 Difference (%)
53	Charlton Road	Deptford Bridge	3.5	WB	310	167	425	+115	37%	193	152	222	+29	15%	205	154	228	+23	11%	236	158	292	+56	24%
	Deptford Bridge	Charlton Road	3.4	EB	171	126	187	+16	9%	195	153	237	+41	21%	277	186	309	+32	11%	214	155	244	+30	14%
54	Prince Charles Road	Charlton Road	1.1	EB	209	147	252	+43	21%	186	169	189	+2	1%	208	168	193	-15	-7%	201	162	211	+10	5%
	Charlton Road	Prince Charles Road	0.9	WB	248	155	295	+48	19%	195	167	199	+4	2%	211	163	194	-17	-8%	218	161	229	+11	5%
89	Prince of Wales Road	A2 Shooters Hill Road	0.7	EB	235	177	233	-2	-1%	227	193	205	-22	-10%	280	204	235	-45	-16%	247	191	224	-23	-9%
	A2 Shooters Hill Road	Prince of Wales Road	0.6	WB	343	153	594	+252	73%	200	176	207	+7	4%	206	151	204	-2	-1%	249	160	335	+86	34%
108	Westcombe Hill	B212 Stratheden Road	1.8	SB	192	134	200	+8	4%	178	147	171	-7	-4%	214	171	177	-37	-17%	195	151	183	-12	-6%
	B212 Stratheden Road	Westcombe Hill	1.3	NB	209	138	223	+14	7%	176	156	170	-6	-4%	183	150	187	+4	2%	189	148	193	+4	2%
129	A206 Woolwich Road	A206 Romney Road	1.4	WB	371	157	354	-17	-5%	269	181	238	-31	-12%	227	188	239	+12	5%	289	175	277	-12	-4%
	A206 Romney Road	A206 Woolwich Road	1.4	EB	197	123	185	-12	-6%	255	157	326	+71	28%	315	191	377	+62	20%	256	157	296	+40	16%
177	Deptford Bridge	A206 Woolwich Road	2.5	EB	220	149	205	-15	-7%	254	184	277	+23	9%	313	199	326	+13	4%	263	177	269	+7	3%
	A206 Woolwich Road	Deptford Bridge	2.7	WB	333	188	305	-28	-8%	275	202	255	-20	-7%	239	201	253	+14	6%	282	197	271	-11	-4%
180	A206 Woolwich Road	Greenwich S Street	2.0	WB	343	178	329	-13	-4%	275	206	272	-4	-1%	232	206	275	+43	18%	283	197	292	+9	3%
	Greenwich S Street	A206 Woolwich Road	2.6	EB	206	143	187	-19	-9%	259	183	296	+38	15%	298	198	336	+38	13%	254	175	273	+19	7%
199	Greenwich S Street	Greenwich Church Street	1.0	NB	267	180	267	-0	0%	268	200	246	-22	-8%	295	208	294	-1	0%	277	196	269	-8	-3%
	Nelson Road	Greenwich S Street	1.0	SB	225	166	205	-19	-9%	228	190	237	+9	4%	232	188	262	+30	13%	228	181	235	+7	3%
202	Prince Charles Road	B10 Charlton Road	1.0	NB	178	124	242	+64	36%	154	142	157	+3	2%	178	135	164	-14	-8%	170	134	188	+18	10%
	B10 Charlton Road	Prince Charles Road	0.9	SB	218	133	279	+61	28%	178	151	184	+6	3%	185	150	184	-1	0%	194	145	216	+22	11%
286	A206 King William Walk	A2 Shooters Hill Road	3.6	WB	304	160	343	+39	13%	237	192	225	-12	-5%	218	184	231	+13	6%	253	179	266	+13	5%
	A2 Shooters Hill Road	A206 Romney Road	3.3	EB	214	157	256	+43	20%	234	196	259	+26	11%	263	205	283	+20	8%	237	186	266	+29	12%
380	Prince Charles Road	B210 Charlton Road	1.1	EB	203	146	245	+42	21%	179	159	176	-3	-1%	202	160	184	-18	-9%	195	155	202	+7	4%
	B210 Charlton Road	Prince Charles Road	0.9	WB	248	146	317	+69	26%	183	153	187	+4	2%	196	146	180	-16	-8%	209	148	228	+19	9%
386	Old Dover Road	A2 Shooters Hill Road	5.3	EB	253	157	304	+52	21%	250	211	255	+5	2%	275	224	288	+13	5%	259	198	282	+23	9%
	A2 Shooters Hill Road	Old Dover Road	5.1	WB	254	141	278	+23	9%	209	167	241	+32	15%	217	178	263	+46	21%	227	162	261	+34	15%
422	A206 Woolwich Road	B210 Charlton Road	2.1	SB	216	167	296	+80	37%	216	186	209	-7	-3%	270	191	224	-45	-17%	234	181	243	+9	4%
	B210 Charlton Road	A206 Woolwich Road	1.7	NB	302	183	503	+201	66%	246	191	242	-4	-1%	221	190	250	+29	13%	256	188	332	+75	29%

Detailed Bus Journey Time Analysis (May) (total seconds across route)

Route Start	Route End	Distance of Route (km)	Direction	Average Bus Journey Time - May Weekday																			
				Average Hour AM (07:00-10:00)					Average Hour IP (10:00-16:00)					Average Hour PM (16:00-19:00)					Average Hour Daily (07:00-19:00)				
				2019 (secs)	2020 (secs)	2021 (secs)	Change (secs)	2019-2021 Difference (%)	2019 (secs)	2020 (secs)	2021 (secs)	Change (secs)	2019-2021 Difference (%)	2019 (secs)	2020 (secs)	2021 (secs)	Change (secs)	2019-2021 Difference (%)	2019 (secs)	2020 (secs)	2021 (secs)	Change (secs)	2019-2021 Difference (%)
Charlton Road	Deptford Bridge	3.5	WB	1088	586	1490	+402	37%	677	534	780	+102	15%	720	541	801	+81	11%	828	554	1024	+195	24%
Deptford Bridge	Charlton Road	3.4	EB	575	423	630	+54	9%	658	516	797	+140	21%	934	627	1040	+106	11%	722	522	822	+100	14%
Prince Charles Road	Charlton Road	1.1	EB	224	158	270	+46	21%	200	182	203	+3	1%	223	181	207	-16	-7%	216	174	227	+11	5%
Charlton Road	Prince Charles Road	0.9	WB	223	139	266	+43	19%	176	150	179	+3	2%	190	146	175	-15	-8%	196	145	207	+10	5%
Prince of Wales Road	A2 Shooters Hill Road	0.7	EB	170	128	168	-2	-1%	164	140	148	-16	-10%	202	147	169	-33	-16%	179	138	162	-17	-9%
A2 Shooters Hill Road	Prince of Wales Road	0.6	WB	207	92	358	+152	73%	120	106	125	+4	4%	124	91	123	-1	-1%	150	96	202	+52	34%
Westcombe Hill	B212 Stratheden Road	1.8	SB	338	237	353	+14	4%	314	259	301	-13	-4%	377	301	312	-66	-17%	343	266	322	-21	-6%
B212 Stratheden Road	Westcombe Hill	1.3	NB	270	179	288	+19	7%	228	201	220	-8	-4%	237	194	241	+5	2%	245	192	250	+5	2%
A206 Woolwich Road	A206 Romney Road	1.4	WB	526	223	503	-24	-5%	382	257	338	-44	-12%	323	267	339	+17	5%	410	249	393	-17	-4%
A206 Romney Road	A206 Woolwich Road	1.4	EB	273	171	256	-16	-6%	353	217	451	+98	28%	436	264	521	+85	20%	354	218	409	+55	16%
Deptford Bridge	A206 Woolwich Road	2.5	EB	543	368	505	-38	-7%	628	455	685	+57	9%	773	491	805	+32	4%	648	438	665	+17	3%
A206 Woolwich Road	Deptford Bridge	2.7	WB	904	510	827	-77	-8%	746	549	692	-55	-7%	649	545	688	+39	6%	767	535	736	-31	-4%
A206 Woolwich Road	Greenwich S Street	2.0	WB	682	355	655	-26	-4%	548	409	540	-8	-1%	462	410	547	+85	18%	564	391	581	+17	3%
Greenwich S Street	A206 Woolwich Road	2.6	EB	530	368	481	-49	-9%	664	469	761	+97	15%	765	509	863	+98	13%	653	449	701	+48	7%
Greenwich S Street	Greenwich Church Street	1.0	NB	254	171	254	-0	0%	255	190	234	-21	-8%	280	198	280	-1	0%	263	186	256	-7	-3%
Nelson Road	Greenwich S Street	1.0	SB	215	159	196	-18	-9%	217	182	226	+9	4%	222	179	250	+28	13%	218	173	224	+6	3%
Prince Charles Road	B10 Charlton Road	1.0	NB	173	121	236	+63	36%	150	138	152	+3	2%	174	131	160	-14	-8%	166	130	183	+17	10%
B10 Charlton Road	Prince Charles Road	0.9	SB	196	120	251	+55	28%	160	136	166	+5	3%	166	135	166	-1	0%	174	131	194	+20	11%
A206 King William Walk	A2 Shooters Hill Road	3.6	WB	1083	571	1223	+141	13%	846	683	803	-44	-5%	779	654	823	+45	6%	903	636	950	+47	5%
A2 Shooters Hill Road	A206 Romney Road	3.3	EB	715	526	858	+144	20%	782	657	868	+86	11%	880	687	947	+67	8%	792	623	891	+99	12%
Prince Charles Road	B210 Charlton Road	1.1	EB	218	157	263	+46	21%	192	171	189	-3	-1%	217	172	198	-20	-9%	209	167	217	+8	4%
B210 Charlton Road	Prince Charles Road	0.9	WB	223	132	285	+63	28%	165	137	168	+3	2%	177	131	162	-15	-8%	188	133	205	+17	9%
Old Dover Road	A2 Shooters Hill Road	5.3	EB	1328	828	1601	+273	21%	1315	1112	1340	+25	2%	1447	1176	1512	+66	5%	1363	1038	1484	+121	9%
A2 Shooters Hill Road	Old Dover Road	5.1	WB	1294	717	1413	+119	9%	1066	849	1227	+161	15%	1107	904	1340	+234	21%	1156	823	1327	+171	15%
A206 Woolwich Road	B210 Charlton Road	2.1	SB	444	343	607	+164	37%	444	382	429	-15	-3%	554	392	461	-93	-17%	481	372	499	+18	4%
B210 Charlton Road	A206 Woolwich Road	1.7	NB	507	307	845	+337	66%	412	320	406	-6	-1%	371	318	420	+49	13%	430	315	557	+127	29%

Appendix E Detailed Bus Journey Time Analysis (August) (seconds/km)

Bus Service No.	Route Start	Route End	Distance of Route (km)	Direction	Average Bus Travel Time - August Weekday																			
					Average Hour AM (07:00-10:00)					Average Hour IP (10:00-16:00)					Average Hour PM (16:00-19:00)					Average Hour Daily (07:00-19:00)				
					2019 (secs/km)	2020 (secs/km)	2021 (secs/km)	Change (secs/km)	2019-2021 Difference (%)	2019 (secs/km)	2020 (secs/km)	2021 (secs/km)	Change (secs/km)	2019-2021 Difference (%)	2019 (secs/km)	2020 (secs/km)	2021 (secs/km)	Change (secs/km)	2019-2021 Difference (%)	2019 (secs/km)	2020 (secs/km)	2021 (secs/km)	Change (secs/km)	2019-2021 Difference (%)
53	Charlton Road	Deptford Bridge	3.5	WB	230	247	238	+8	4%	188	200	204	16.06	9%	192	218	216	24.24	13%	203	222	219	16.19	8%
	Deptford Bridge	Charlton Road	3.4	EB	163	146	149	-14	-8%	184	196	224	39.33	21%	221	288	274	52.66	24%	189	210	215	26.09	14%
54	Prince Charles Road	Charlton Road	1.1	EB	195	178	181	-15	-8%	185	174	179	-5.63	-3%	198	188	183	-15.29	-8%	193	180	181	-11.86	-6%
	Charlton Road	Prince Charles Road	0.9	WB	204	199	192	-12	-6%	193	193	193	0.12	0%	195	188	191	-3.50	-2%	197	193	192	-5.06	-3%
89	Prince of Wales Road	A2 Shooters Hill Road	0.7	EB	209	195	201	-8	-4%	212	209	202	-9.06	-4%	249	229	227	-21.90	-9%	223	211	210	-13.05	-6%
	A2 Shooters Hill Road	Prince of Wales Road	0.6	WB	209	223	196	-13	-6%	197	187	194	-3.23	-2%	192	187	213	20.46	11%	200	199	201	1.32	1%
108	Westcombe Hill	B212 Stratheden Road	1.8	SB	176	166	162	-14	-8%	173	173	162	-11.08	-6%	193	177	176	-17.59	-9%	181	172	167	-14.18	-8%
	B212 Stratheden Road	Westcombe Hill	1.3	NB	192	175	173	-19	-10%	178	176	168	-10.65	-6%	182	187	175	-6.23	-3%	184	179	172	-11.91	-6%
129	A206 Woolwich Road	A206 Romney Road	1.4	WB	262	292	227	-35	-13%	230	280	226	-3.40	-1%	239	369	234	-5.36	-2%	244	314	229	-14.52	-6%
	A206 Romney Road	A206 Woolwich Road	1.4	EB	199	150	154	-46	-23%	231	237	284	53.35	23%	303	331	366	62.99	21%	244	239	268	23.53	10%
177	Deptford Bridge	A206 Woolwich Road	2.5	EB	237	180	192	-44	-19%	244	229	263	19.13	8%	297	327	321	24.08	8%	259	245	259	-0.30	0%
	A206 Woolwich Road	Deptford Bridge	2.7	WB	280	285	248	-32	-11%	247	279	243	-3.62	-1%	246	343	242	-3.50	-1%	257	302	244	-13.10	-5%
180	A206 Woolwich Road	Greenwich S Street	2.0	WB	268	298	234	-33	-12%	242	304	239	-2.17	-1%	250	390	248	-1.95	-1%	253	331	241	-12.51	-5%
	Greenwich S Street	A206 Woolwich Road	2.6	EB	206	169	167	-39	-19%	237	236	266	29.15	12%	290	321	325	35.32	12%	244	242	253	8.36	3%
199	Greenwich S Street	Greenwich Church Street	1.0	NB	262	254	247	-15	-6%	249	253	236	-13.14	-5%	259	339	252	-6.25	-2%	257	282	245	-11.43	-4%
	Nelson Road	Greenwich S Street	1.0	SB	206	190	194	-12	-6%	224	208	218	-5.97	-3%	224	216	237	13.53	6%	218	204	216	-1.61	-1%
202	Prince Charles Road	B10 Charlton Road	1.0	NB	168	156	161	-7	-4%	153	146	154	1.38	1%	165	154	159	-5.46	-3%	162	152	158	-3.66	-2%
	B10 Charlton Road	Prince Charles Road	0.9	SB	191	209	227	+36	19%	181	185	185	3.95	2%	190	170	224	34.43	18%	187	188	212	24.88	13%
286	A206 King William Walk	A2 Shooters Hill Road	3.6	WB	237	243	221	-15	-6%	216	237	212	-4.11	-2%	220	283	226	5.74	3%	224	254	220	-4.54	-2%
	A2 Shooters Hill Road	A206 Romney Road	3.3	EB	198	199	188	-10	-5%	209	220	237	27.81	13%	237	248	270	33.01	14%	215	222	232	16.99	8%
380	Prince Charles Road	B210 Charlton Road	1.1	EB	179	167	166	-13	-7%	174	167	167	-7.50	-4%	186	183	178	-7.84	-4%	180	172	170	-9.36	-5%
	B210 Charlton Road	Prince Charles Road	0.9	WB	192	191	185	-7	-4%	177	183	181	3.23	2%	178	182	178	0.48	0%	182	185	181	-1.23	-1%
386	Old Dover Road	A2 Shooters Hill Road	5.3	EB	216	155	231	+15	7%	229	1621	242	12.67	6%	253	241	264	11.18	4%	233	672	246	12.89	6%
	A2 Shooters Hill Road	Old Dover Road	5.1	WB	198	119	227	+29	15%	187	118	215	27.25	15%	205	149	236	30.86	15%	197	128	226	29.14	15%
422	A206 Woolwich Road	B210 Charlton Road	2.1	SB	203	198	200	-3	-1%	215	223	214	-1.61	-1%	255	265	250	-4.15	-2%	224	229	221	-2.83	-1%
	B210 Charlton Road	A206 Woolwich Road	1.7	NB	238	257	262	+24	10%	212	217	221	8.68	4%	213	265	239	26.38	12%	221	246	241	19.67	9%

Detailed Bus Journey Time Analysis (August) (total seconds across route)

Bus Service No.	Route Start	Route End	Distance of Route (km)	Direction	Average Bus Journey Time - August Weekday																			
					Average Hour AM (07:00-10:00)					Average Hour IP (10:00-16:00)					Average Hour PM (16:00-19:00)					Average Hour Daily (07:00-19:00)				
					2019 (secs)	2020 (secs)	2021 (secs)	Change (secs)	2019-2021 Difference (%)	2019 (secs)	2020 (secs)	2021 (secs)	Change (secs)	2019-2021 Difference (%)	2019 (secs)	2020 (secs)	2021 (secs)	Change (secs)	2019-2021 Difference (%)	2019 (secs)	2020 (secs)	2021 (secs)	Change (secs)	2019-2021 Difference (%)
53	Charlton Road	Deptford Bridge	3.5	WB	806	866	835	+29	4%	660	702	716	+56	9%	672	764	757	+85	13%	713	777	769	+57	8%
	Deptford Bridge	Charlton Road	3.4	EB	548	493	502	-46	-8%	621	660	754	+133	21%	745	970	923	+177	24%	638	708	726	+88	14%
54	Prince Charles Road	Charlton Road	1.1	EB	210	191	194	-16	-8%	198	187	192	-6	-3%	213	202	196	-16	-8%	207	193	194	-13	-6%
	Charlton Road	Prince Charles Road	0.9	WB	184	179	173	-11	-6%	173	174	173	+0	0%	175	169	172	-3	-2%	177	174	173	-5	-3%
89	Prince of Wales Road	A2 Shooters Hill Road	0.7	EB	151	141	145	-6	-4%	153	151	146	-7	-4%	180	165	164	-16	-9%	161	152	152	-9	-6%
	A2 Shooters Hill Road	Prince of Wales Road	0.6	WB	126	134	118	-8	-6%	119	113	117	-2	-2%	116	113	128	+12	11%	120	120	121	+1	1%
108	Westcombe Hill	B212 Stratheden Road	1.8	SB	311	292	286	-24	-8%	305	305	285	-20	-6%	341	313	310	-31	-9%	319	303	294	-25	-8%
	B212 Stratheden Road	Westcombe Hill	1.3	NB	248	226	223	-24	-10%	231	227	217	-14	-6%	235	242	227	-8	-3%	238	232	222	-15	-6%
129	A206 Woolwich Road	A206 Romney Road	1.4	WB	372	415	323	-49	-13%	326	398	321	-5	-1%	339	525	332	-8	-2%	346	446	325	-21	-6%
	A206 Romney Road	A206 Woolwich Road	1.4	EB	276	208	212	-63	-23%	319	328	393	+74	23%	419	457	506	+87	21%	338	331	371	+33	10%
177	Deptford Bridge	A206 Woolwich Road	2.5	EB	584	444	475	-109	-19%	603	566	650	+47	8%	733	806	793	+59	8%	640	605	639	-1	0%
	A206 Woolwich Road	Deptford Bridge	2.7	WB	760	773	673	-87	-11%	670	756	660	-10	-1%	668	932	658	-9	-1%	699	820	664	-36	-5%
180	A206 Woolwich Road	Greenwich S Street	2.0	WB	533	593	466	-67	-12%	481	605	476	-4	-1%	498	776	494	-4	-1%	504	658	479	-25	-5%
	Greenwich S Street	A206 Woolwich Road	2.6	EB	529	433	428	-101	-19%	608	606	683	+75	12%	744	824	835	+91	12%	627	621	649	+21	3%
199	Greenwich S Street	Greenwich Church Street	1.0	NB	250	242	235	-14	-6%	237	241	224	-12	-5%	246	323	240	-6	-2%	244	269	233	-11	-4%
	Nelson Road	Greenwich S Street	1.0	SB	197	181	185	-12	-6%	214	198	208	-6	-3%	214	206	226	+13	6%	208	195	207	-2	-1%
202	Prince Charles Road	B10 Charlton Road	1.0	NB	164	151	157	-7	-4%	148	142	150	+1	1%	160	149	155	-5	-3%	157	148	154	-4	-2%
	B10 Charlton Road	Prince Charles Road	0.9	SB	172	188	205	+33	19%	163	166	167	+4	2%	171	153	202	+31	18%	169	169	191	+22	13%
286	A206 King William Walk	A2 Shooters Hill Road	3.6	WB	844	866	789	-54	-6%	771	845	756	-15	-2%	783	1009	804	+20	3%	799	907	783	-16	-2%
	A2 Shooters Hill Road	A206 Romney Road	3.3	EB	662	665	629	-33	-5%	700	736	793	+93	13%	792	831	903	+110	14%	718	744	775	+57	8%
380	Prince Charles Road	B210 Charlton Road	1.1	EB	192	179	178	-14	-7%	187	180	179	-8	-4%	200	197	192	-8	-4%	193	185	183	-10	-5%
	B210 Charlton Road	Prince Charles Road	0.9	WB	173	171	166	-7	-4%	160	165	162	+3	2%	160	163	160	+0	0%	164	167	163	-1	-1%
386	Old Dover Road	A2 Shooters Hill Road	5.3	EB	1137	813	1215	+78	7%	1203	8522	1270	+67	6%	1331	1269	1390	+59	4%	1224	3534	1291	+68	6%
	A2 Shooters Hill Road	Old Dover Road	5.1	WB	1007	603	1156	+149	15%	954	602	1093	+139	15%	1045	756	1202	+157	15%	1002	654	1150	+148	15%
422	A206 Woolwich Road	B210 Charlton Road	2.1	SB	417	408	411	-6	-1%	442	459	439	-3	-1%	523	545	515	-9	-2%	461	470	455	-6	-1%
	B210 Charlton Road	A206 Woolwich Road	1.7	NB	399	432	439	+40	10%	356	364	371	+15	4%	358	445	402	+44	12%	371	413	404	+33	9%

Appendix F Detailed Vehicle Volume Analysis (May)

Site	Location	Dir	Weekday (Tues, Wed, Thur)																			
			AM Peak Hour					Inter Peak Hour					PM Peak Hour					Daily (07:00-19:00)				
			2,019	2,020	2,021	Change	19-2021 %C	2,019	2,020	2,021	Change	19-2021 %C	2,019	2,020	2,021	Change	19-2021 %C	2,019	2,020	2,021	Change	19-2021 %C
Site 11	A2 Blackheath Hill	EB	883	704	957	74	8%	8,526	9,049	10,164	1,639	19%	705	943	1,058	353	50%	10,113	10,696	12,179	2,066	20%
		WB	682	834	694	12	2%	8,109	7,477	8,098	-11	0%	871	743	837	-34	-4%	9,662	9,054	9,629	-33	0%
		Two-Way	1,565	1,538	1,651	86	6%	16,635	16,526	18,262	1,628	10%	1,576	1,686	1,895	319	20%	19,775	19,750	21,808	2,033	10%
Site 135	A200	EB	402	246	277	-125	-31%	5,528	3,983	3,481	-2,048	-37%	725	522	391	-334	-46%	6,655	4,751	4,148	-2,507	-38%
		WB	908	478	398	-510	-56%	5,961	4,079	3,703	-2,258	-38%	531	400	378	-154	-29%	7,400	4,956	4,479	-2,922	-39%
		Two-Way	1,310	724	675	-635	-48%	11,490	8,062	7,183	-4,306	-37%	1,256	922	769	-487	-39%	14,056	9,707	8,627	-5,429	-39%
Site 198	Wall Tunnel Southern A	NB	2,614	2,435	2,621	7	0%	25,497	22,349	25,178	-319	-1%	2,603	2,524	2,566	-38	-1%	30,714	27,308	30,365	-349	-1%
		SB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Two-Way	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Site 191	Wall Tunnel Southern A	NB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
		SB	2,712	2,295	2,555	-157	-6%	29,100	25,515	28,621	-479	-2%	3,396	2,984	3,235	-160	-5%	35,208	30,794	34,411	-796	-2%
		Two-Way	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Site 219	A206 (EB)	EB	680	685	238	-442	-65%	7,691	7,127	2,244	-5,447	-71%	838	754	192	-646	-77%	9,209	8,566	2,674	-6,535	-71%
		WB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Two-Way	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Site 220	A206 (WB)	EB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
		WB	630	518	435	-195	-31%	5,839	4,992	4,985	-854	-15%	677	508	570	-106	-16%	7,145	6,019	5,990	-1,155	-16%
		Two-Way	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Site 271	Wall Tunnel Southern A	NB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
		SB	2,319	1,709	2,253	-66	-3%	28,491	23,943	28,875	383	1%	3,353	2,987	3,427	74	2%	34,164	28,638	34,554	391	1%
		Two-Way	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	#VALUE!	#VALUE!	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Site 272	Wall Tunnel Southern A	NB	3,119	2,450	2,786	-333	-11%	26,754	20,016	25,327	-1,427	-5%	2,756	2,084	2,655	-101	-4%	32,629	24,550	30,768	-1,861	-6%
		SB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Two-Way	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Site 276	A2 Shooters Hill Rd	EB	933	704	914	-20	-2%	13,002	10,555	12,751	-251	-2%	1,622	1,262	1,565	-57	-4%	15,558	12,521	15,230	-328	-2%
		WB	923	905	535	-388	-42%	9,121	7,849	7,639	-1,482	-16%	930	767	852	-78	-8%	10,974	9,522	9,027	-1,948	-18%
		Two-Way	1,856	1,609	1,449	-407	-22%	22,123	18,405	20,390	-1,733	-8%	2,553	2,029	2,418	-135	-5%	26,532	22,043	24,257	-2,275	-9%

Site	Location	Dir	Saturday										Sunday									
			Inter Peak					Daily (07:00-19:00)					Inter Peak					Daily (07:00-19:00)				
			2,019	2,020	2,021	Change	19-2021 %C	2,019	2,020	2,021	Change	19-2021 %C	2,019	2,020	2,021	Change	19-2021 %C	2,019	2,020	2,021	Change	19-2021 %C
Site 11	A2 Blackheath Hill	EB	1,028	891	1,077	49	5%	11,883	9,515	12,424	542	5%	973	789	1,077	105	11%	10,905	8,257	11,956	1,051	10%
		WB	907	702	898	-8	-1%	10,738	7,918	10,736	-3	0%	903	610	948	45	5%	10,145	6,686	10,391	246	2%
		Two-Way	1,935	1,594	1,976	41	2%	22,621	17,432	23,160	539	2%	1,876	1,399	2,026	150	8%	21,050	14,943	22,347	1,297	6%
Site 135	A200	EB	573	379	337	-236	-41%	6,059	3,896	3,651	-2,408	-40%	526	310	332	-193	-37%	5,380	3,100	3,389	-1,991	-37%
		WB	590	397	423	-167	-28%	6,585	4,247	4,631	-1,954	-30%	573	317	366	-206	-36%	6,078	3,372	3,751	-2,327	-38%
		Two-Way	1,163	775	760	-403	-35%	12,644	8,143	8,282	-4,362	-34%	1,098	627	699	-400	-36%	11,458	6,472	7,140	-4,318	-38%
Site 198	Wall Tunnel Southern A	NB	2,567	2,030	2,501	-67	-3%	30,621	22,728	29,614	-1,007	-3%	2,586	1,720	2,500	-86	-3%	29,044	19,054	27,476	-1,569	-5%
		SB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Two-Way	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Site 191	Wall Tunnel Southern A	NB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		SB	2,971	2,233	2,907	-65	-2%	34,179	24,259	32,977	-1,201	-4%	2,901	1,901	2,810	-91	-3%	30,726	19,845	29,685	-1,042	-3%
		Two-Way	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Site 219	A206 (EB)	EB	785	643	175	-610	-78%	8,728	7,164	1,979	-6,749	-77%	795	513	152	-644	-81%	8,123	5,303	1,491	-6,632	-82%
		WB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Two-Way	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Site 220	A206 (WB)	EB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		WB	677	496	595	-81	-12%	7,486	5,328	6,461	-1,025	-14%	640	413	572	-68	-11%	6,692	4,209	5,734	-958	-14%
		Two-Way	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Site 271	Wall Tunnel Southern A	NB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		SB	3,013	2,089	2,926	-87	-3%	33,084	21,538	31,836	-1,248	-4%	2,787	1,779	2,803	16	1%	29,276	17,744	28,975	-301	-1%
		Two-Way	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Site 272	Wall Tunnel Southern A	NB	2,834	1,822	2,778	-56	-2%	33,053	20,378	31,238	-1,816	-5%	2,982	1,573	2,831	-151	-5%	31,773	17,120	29,187	-2,586	-8%
		SB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Two-Way	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Site 276	A2 Shooters Hill Rd	EB	1,350	1,031	1,336	-14	-1%	14,863	10,800	14,659	-204	-1%	1,228	905	1,311	83	7%	13,189	9,208	13,673	484	4%
		WB	977	777	945	-31	-3%	11,546	8,619	10,997	-549	-5%	981	698	1,012	31	3%	10,933	7,437	10,855	-77	-1%
		Two-Way	2,327	1,808	2,282	-45	-2%	26,408	19,419	25,655	-753	-3%	2,209	1,603	2,323	114	5%	24,121	16,646	24,528	407	2%

Appendix G Detailed Vehicle Volume Analysis (August)

Site	Location	Dir	Weekday (Tues, Wed, Thur)																			
			AM Peak Hour					Inter Peak Hour					PM Peak Hour					Daily (07:00-19:00)				
			2,019	2,020	2,021	Change	19-2021 %C	2,019	2,020	2,021	Change	19-2021 %C	2,019	2,020	2,021	Change	19-2021 %C	2,019	2,020	2,021	Change	19-2021 %C
Site 11	A2 Blackheath Hill	EB	841	704	903	63	7%	9,083	9,284	10,269	1,186	13%	849	754	1,073	223	26%	10,773	10,741	12,245	1,473	14%
		WB	790	834	892	101	13%	8,240	7,319	7,884	-356	-4%	850	902	854	3	0%	9,880	9,054	9,629	-251	-3%
		2w ay	1,631	1,538	1,795	164	10%	17,322	16,602	18,153	831	5%	1,700	1,656	1,927	227	13%	20,653	19,795	21,874	1,222	6%
Site 135	A200	NEB	350	246	271	-79	-23%	5,293	4,196	3,403	-1,890	-36%	672	429	382	-290	-43%	6,314	4,870	4,056	-2,258	-36%
		SWB	844	478	390	-454	-54%	5,758	4,097	3,719	-2,038	-35%	519	382	370	-149	-29%	7,120	4,956	4,479	-2,641	-37%
		2w ay	1,193	724	660	-533	-45%	11,050	8,293	7,122	-3,928	-36%	1,191	810	752	-439	-37%	13,434	9,826	8,535	-4,900	-36%
Site 198	Wall Tunnel Southern A	NB	2,570	2,435	2,631	61	2%	25,586	25,768	25,257	-329	-1%	2,664	2,669	2,517	-147	-6%	30,821	30,872	30,405	-416	-1%
		SB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		2w ay	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Site 197	Wall Tunnel Southern A	NB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		SB	2,753	2,295	2,561	-192	-7%	28,774	25,309	28,703	-71	0%	3,168	3,190	3,147	-21	-1%	34,695	30,794	34,411	-284	-1%
		2w ay	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Site 219	A206 (EB)	EB	684	685	239	-445	-65%	7,075	7,315	2,301	-4,775	-67%	742	742	183	-559	-75%	8,501	8,741	2,722	-5,779	-68%
		WB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		2w ay	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Site 220	A206 (WB)	EB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		WB	573	518	528	-45	-8%	5,776	4,918	4,878	-898	-16%	635	583	584	-51	-8%	6,985	6,019	5,990	-994	-14%
		2w ay	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Site 271	Wall Tunnel Southern A	NB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		SB	2,267	1,709	2,176	-92	-4%	28,822	23,457	28,923	101	0%	3,437	3,472	3,456	19	1%	34,526	28,638	34,554	28	0%
		2w ay	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Site 272	Wall Tunnel Southern A	NB	3,034	2,450	2,969	-65	-2%	26,335	23,396	26,521	186	1%	2,652	2,618	2,612	-40	-2%	32,021	28,464	32,102	80	0%
		SB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		2w ay	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Site 276	A2 Shooters Hill Rd	EB	868	704	897	29	3%	12,443	13,302	12,427	-16	0%	1,506	1,526	1,451	-54	-4%	14,817	15,532	14,775	-42	0%
		WB	1,025	905	800	-225	-22%	9,178	7,691	7,395	-1,783	-19%	903	926	832	-71	-8%	11,105	9,522	9,027	-2,079	-19%
		2w ay	1,893	1,609	1,697	-196	-10%	21,621	20,993	19,822	-1,799	-8%	2,408	2,452	2,283	-125	-5%	25,922	25,054	23,802	-2,120	-8%

Site	Location	Dir	Saturday										Sunday									
			Inter Peak					Daily (07:00-19:00)					Inter Peak					Daily (07:00-19:00)				
			2,019	2,020	2,021	Change	19-2021 %C	2,019	2,020	2,021	Change	19-2021 %C	2,019	2,020	2,021	Change	19-2021 %C	2,019	2,020	2,021	Change	19-2021 %C
Site 11	A2 Blackheath Hill	EB	1,029	1,036	1,113	85	8%	11,295	11,674	12,554	1,259	11%	966	966	1,083	117	12%	10,654	10,560	11,826	1,172	11%
		WB	872	880	884	13	1%	10,328	10,347	10,433	106	1%	862	863	890	28	3%	9,731	9,587	10,070	339	3%
		2way	1,900	1,917	1,998	97	5%	21,623	22,021	22,987	1,364	6%	1,828	1,829	1,973	145	8%	20,385	20,147	21,897	1,512	7%
Site 135	A200	NEB	515	443	329	-186	-36%	5,593	4,748	3,571	-2,022	-36%	486	416	325	-161	-33%	5,025	4,242	3,319	-1,706	-34%
		SWB	566	459	414	-152	-27%	6,250	5,036	4,532	-1,718	-27%	506	415	359	-148	-29%	5,492	4,434	3,669	-1,823	-33%
		2way	1,081	902	743	-338	-31%	11,843	9,784	8,103	-3,740	-32%	992	831	684	-308	-31%	10,517	8,676	6,988	-3,529	-34%
Site 198	Wall Tunnel Southern A	NB	2,518	2,561	2,482	-36	-1%	29,683	29,394	29,081	-603	-2%	2,497	2,514	2,512	15	1%	28,062	27,182	27,607	-455	-2%
		SB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		2way	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Site 197	Wall Tunnel Southern A	NB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		SB	2,947	2,946	2,792	-155	-5%	33,668	33,268	31,906	-1,762	-5%	2,654	2,761	2,760	106	4%	29,362	29,156	29,117	-245	-1%
		2way	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Site 219	A206 (EB)	EB	694	704	175	-518	-75%	7,845	7,983	1,906	-5,939	-76%	653	681	151	-502	-77%	6,807	7,071	1,487	-5,320	-78%
		WB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		2way	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Site 220	A206 (WB)	EB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		WB	633	625	607	-26	-4%	6,966	6,697	6,369	-597	-9%	621	579	583	-37	-6%	6,476	5,900	5,849	-627	-10%
		2way	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Site 271	Wall Tunnel Southern A	NB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		SB	2,960	3,013	2,813	-147	-5%	33,036	32,162	31,449	-1,587	-5%	2,656	2,656	2,627	-29	-1%	27,895	27,235	27,523	-372	-1%
		2way	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Site 272	Wall Tunnel Southern A	NB	2,825	2,707	2,830	5	0%	31,676	29,889	31,100	-576	-2%	2,857	2,687	2,712	-145	-5%	30,249	27,804	28,067	-2,182	-7%
		SB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		2way	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Site 276	A2 Shooters Hill Rd	EB	1,223	1,341	1,226	3	0%	13,729	14,428	13,710	-19	0%	1,124	1,202	1,190	66	6%	12,127	12,539	12,703	576	5%
		WB	925	974	907	-18	-2%	10,897	11,176	10,516	-381	-3%	944	987	941	-2	0%	10,437	10,594	10,354	-83	-1%
		2way	2,148	2,315	2,133	-15	-1%	24,626	25,604	24,226	-400	-2%	2,067	2,189	2,131	64	3%	22,564	23,133	23,057	493	2%

Appendix H Collision Data Analysis

Table H.1 - Accident Severity by Location and Year (On Park)

	Junction	Slight		Difference	Serious		Difference
		2018	2020		2018	2020	
All Modes	1	5	4	-1			0
	10			0			0
	11		1	+1		2	+2
Total		5	5	0	0	2	+2
Vulnerable Road Users (pedestrians and cyclists)	1	5	4	-1			0
	10			0			0
	11		1	+1		2	+2
Total		5	5	0	0	2	+2

Table H.2 - Accident Severity by Location and Year (Off Park)

	Junction	Slight		Difference	Serious		Difference
		2018	2020		2018	2020	
All Modes	2	2	5	+3			0
	3			0			0
	4	4	1	-3			0
	5	6		-6			0
	6		3	+3	1		-1
	7			0			0
	8	9	6	-3			0
	9			0			0
	12	3	2	-1	1		-1
Total		24	17	-7	2	0	-2
Vulnerable Road Users (pedestrians and cyclists)	2	2	2	0			0
	3			0			0
	4	2	1	-1			0
	5	5		-5			0
	6		3	+3	1		-1
	7			0			0
	8	4	4	0			0
	9			0			0
	12	1	1	0	1		-1
Total		14	11	-3	2	0	-2