steer davies gleave

Green Lanes Area Transport Study

Existing Conditions Note
March 2017

London Borough of Haringey

Our ref: 22933701
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A Origin destination matrices

B Origin destination flow diagrams

1 Introduction

1.1 Steer Davies Gleave has been commissioned to undertake the Green Lanes Area Transport Study on behalf of the London Borough of Haringey. The purpose of this is to examine transport in the study area, and to develop a series of measures that are holistic and equitable.

1.2 The study area is shown in Figure 1.1, and places of interest within it are shown in Figure 1.2.It lies within Haringey, coverings parts of Harringay, St Ann's and Seven Sisters wards. In addition, this area is also close to the neighbouring boroughs of Hackney and Islington.

1.3 The purpose of this note is to bring together information from a range of sources that relate to transport in the study area. This will provide an evidence base regarding existing movement patterns and transport issues in the study area, which will then be used to inform the options development process.

1.4 This is an updated version of the interim note that was issued in June 2016. The key change is that information on the effects of the Wightman Road closure has been added, based on various sources of data. A new chapter on air quality has also been added.

1.5 Following on from this introduction, this note contains the following chapters:

- Chapter 2: Overall transport context
- Chapter 3: Road network and traffic
- Chapter 4: Public transport
- Chapter 5: Walking and cycling
- Chapter 6: Road safety
- Chapter 7: Air quality
- Appendix A: Origin destination matrices
- Appendix B: Origin destination flow diagrams

Figure 1.1: Study area

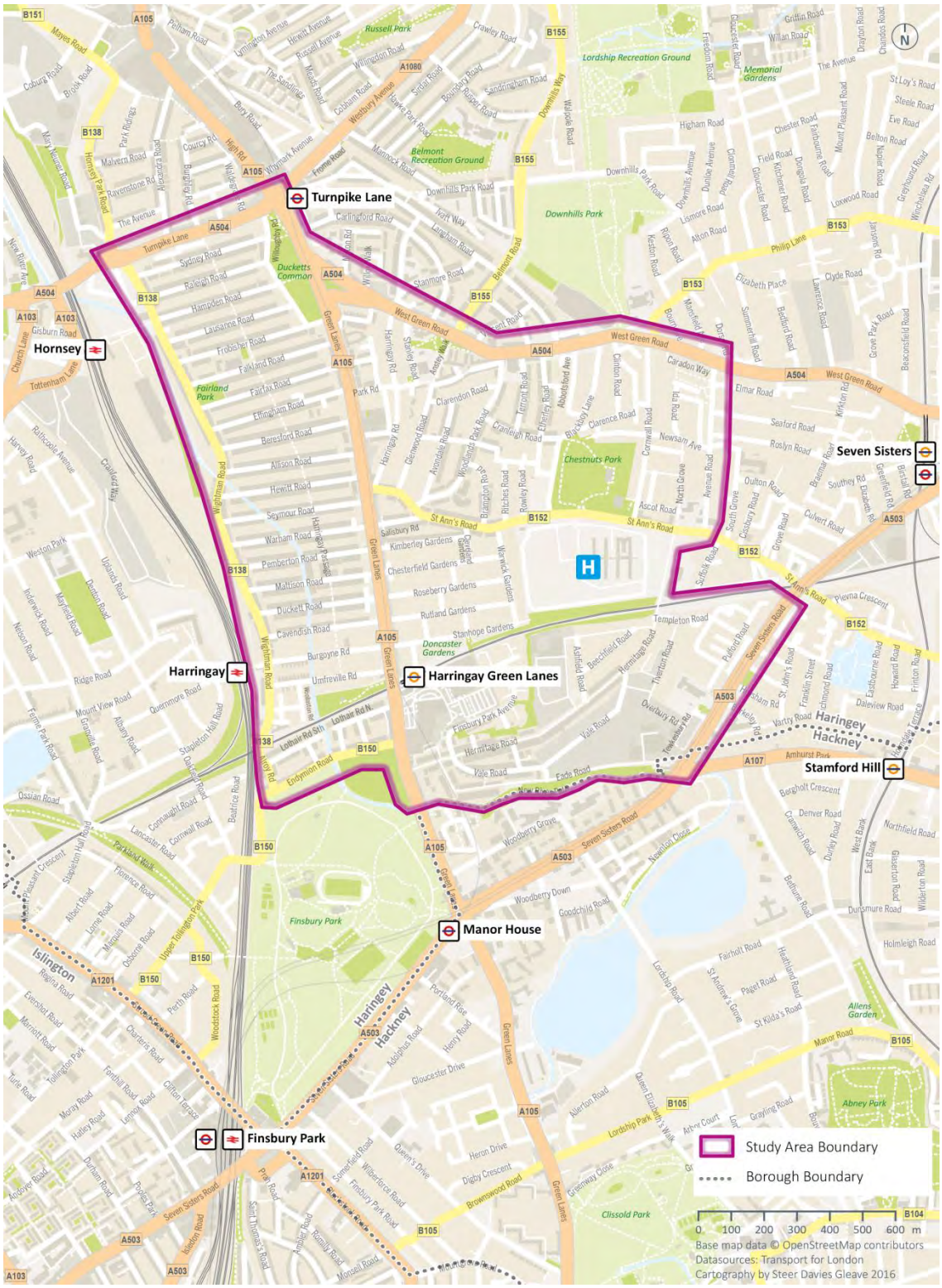
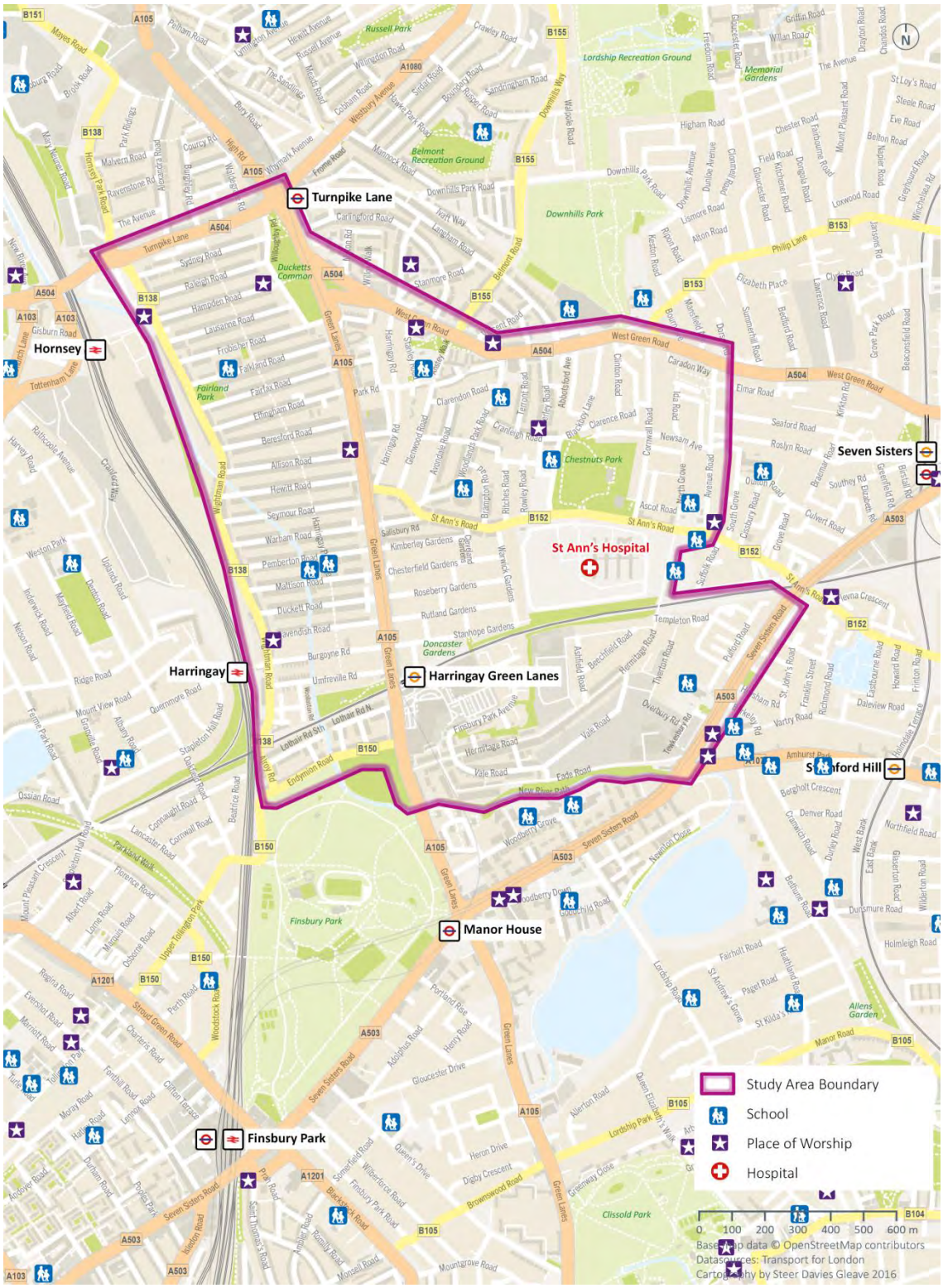


Figure 1.2: Places of interest



Sub-areas

1.6 For the purposes of this study, we have divided the study area into four sub-areas. This has solely been done in order to aid discussion, and the names and boundaries of the sub-areas do not necessarily correspond to those used for other purposes (for example ward boundaries), nor boundaries between neighbourhoods as perceived by the local community.

1.7 The four sub-areas are shown on Figure 1.3, and are:

- **Ladder**: Area to the west of Green Lanes
- **St Ann's**: Area to the north of St Ann's Road and east of Green Lanes
- **Gardens**: Area bounded by Green Lanes, St Ann's Road, St Ann's Hospital and the Gospel Oak to Barking railway line
- **Hermitage**: Area to the east of Green Lanes and south of St Ann's Road, excluding the Gardens

Wider areas

1.8 Some of the analysis carried out for this study examines movement across a wider area. In order to assist with this analysis, we have defined a number of areas that are shown on Figure 1.4 below, and are defined as follows:

- **Study area**: As defined above
- **Haringey (west)**: The part of Haringey that is west of the Great Northern railway line
- **Haringey (east)**: The part of Haringey that is east of the Great Northern railway line, excluding the study area
- **Neighbouring boroughs**: This includes the six boroughs that are immediately adjacent to Haringey (Barnet, Enfield, Waltham Forest, Hackney, Islington and Camden)
- **Non-neighbouring boroughs**: This encompasses all of the London boroughs (including the City of London) that do not neighbour Haringey
- **Outside London**: Areas outside Greater London

Figure 1.3: Sub-areas

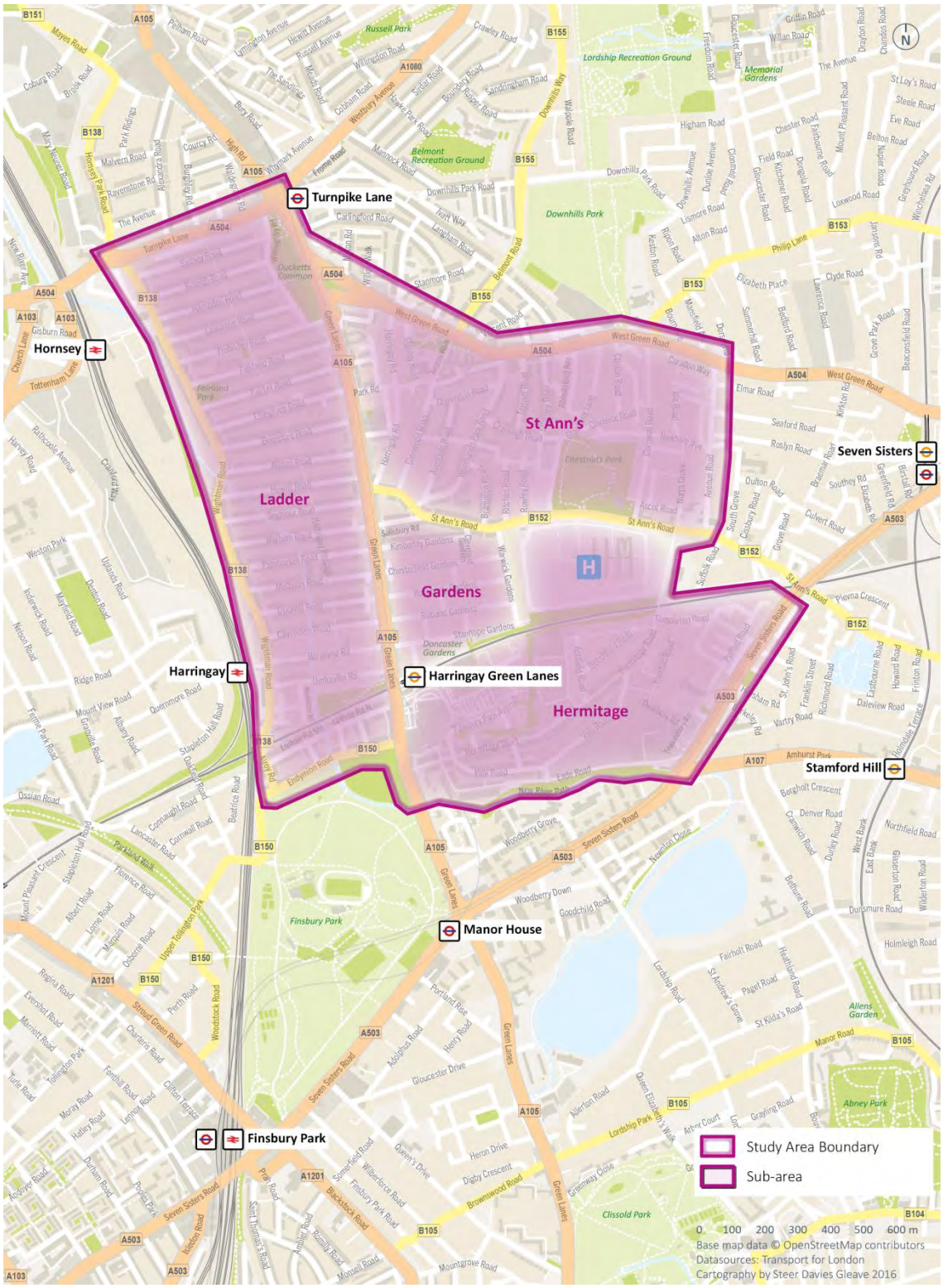
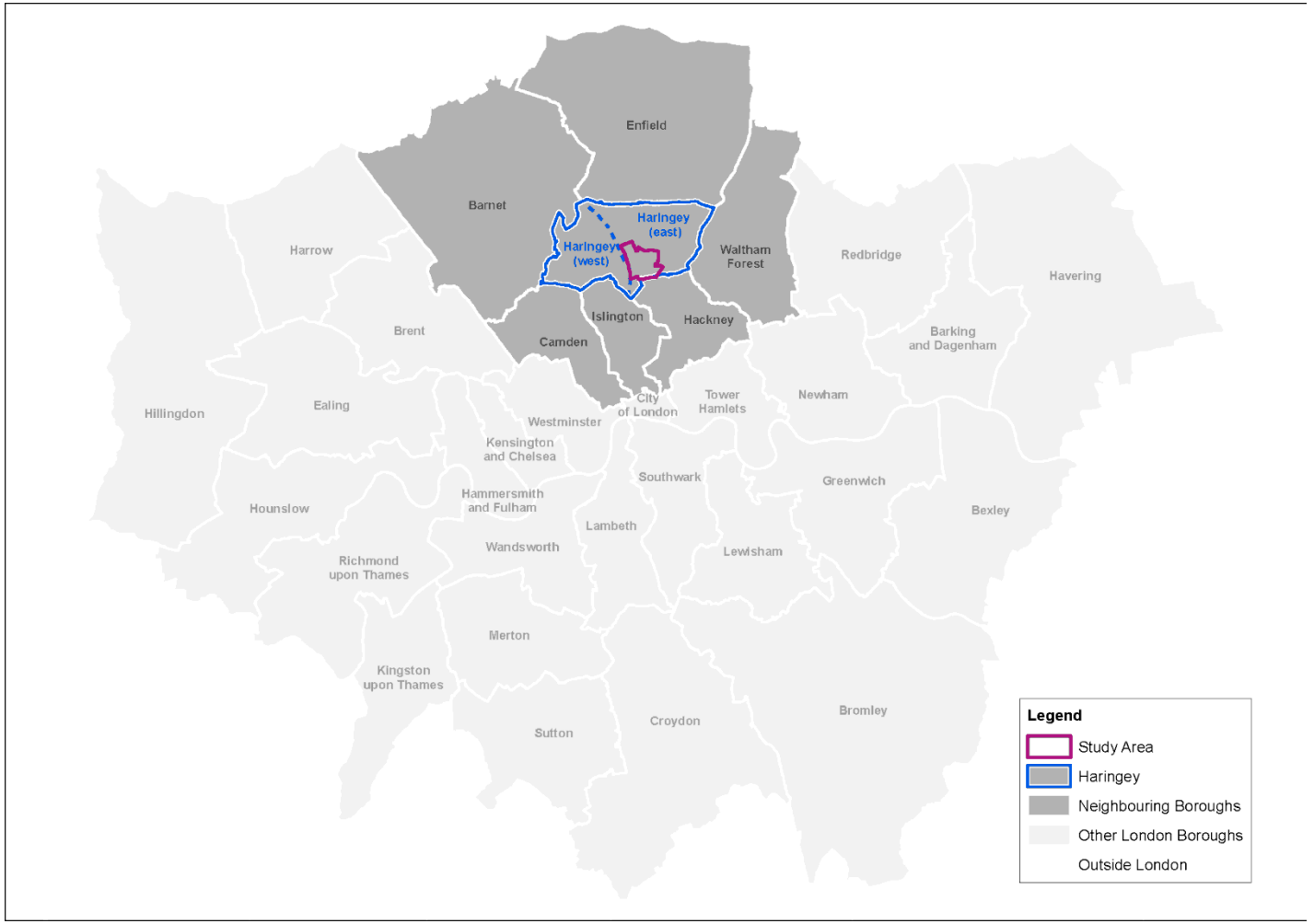


Figure 1.4: Study area, neighbouring boroughs and non-neighbouring boroughs



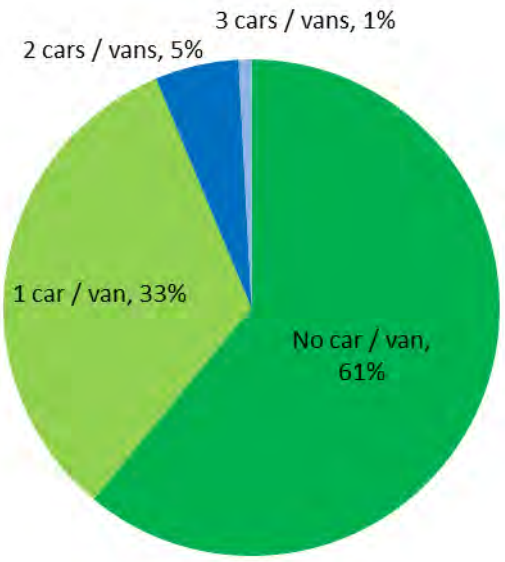
2 Overall transport context

Demographic profile of the study area[1]

2.1 In 2011, there were approximately 34,500 people living in the study area. Of these, 51% were male and 49% female. 75% of residents of the study area are in the economically active age range (16 – 64), 17% are under 16 and 8% are over 65.

2.2 Figure 2.1 shows over 60% of study area households do not own a car, 33% own one car and 6% own two or more cars. The total number of cars or vans owned by residents of the study area is just over 6,300.

Figure 2.1: Car ownership in study area by household, 2011



Source: Census 2011

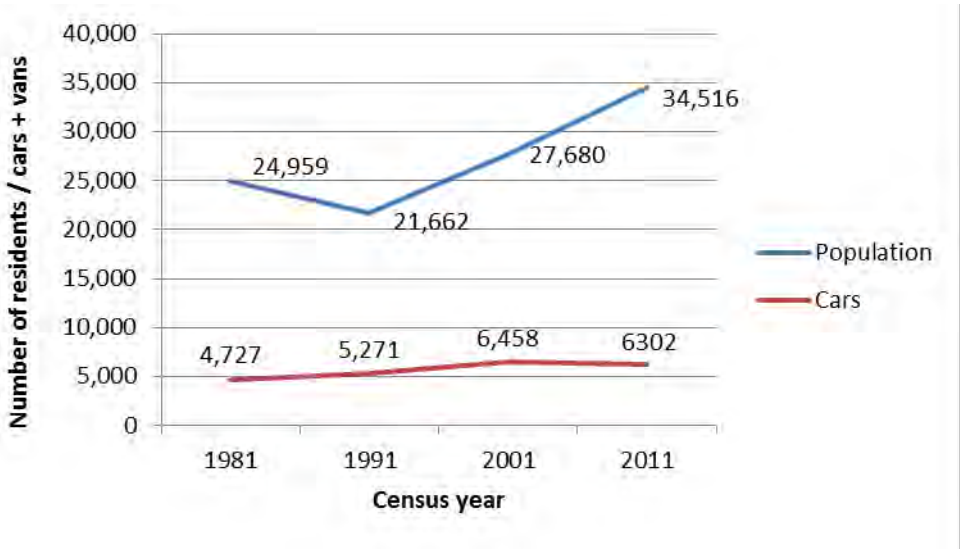
Historic trends

2.3 The population of the study area has increased by 38% from 25,000 in 1981 to 35,000 in 2011. It has grown in each of the ten year periods between censuses, except for a dip in 1991 (which also occurred across the borough as a whole)[2].

[1] Census 2011 data, unless otherwise stated

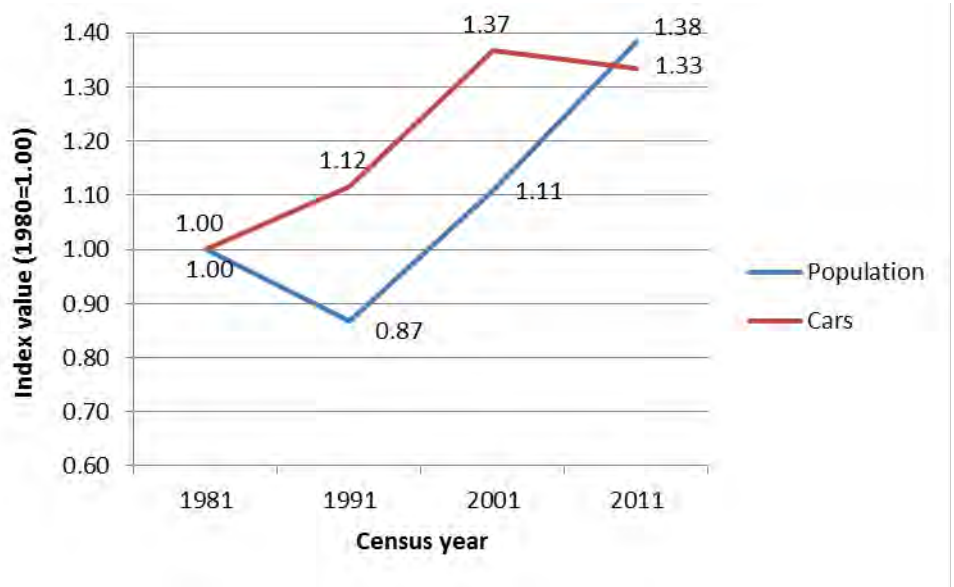
2.4 The number of cars / vans in the study area increased from 4,700 in 1981 to 6,500 in 2001, but fell slightly to 6,300 in 2011. On the other hand, the population of the area increased by approximately 6,800 people between 2001 and 2011. This appears to indicate that in recent years, there may have been a decoupling between population growth and growth in the number of cars / vans in the study area. This is also reflected in the percentage of households in the study area which own one or more cars, which had remained relatively constant at around 45% between 1981 and 2001, but fell to 39% in 2011. In any case, since 1981 households with no cars / vans have formed a majority within the study area,

Figure 2.2: Population and total number of cars / vans in the study area, 1981–2011



Source: Census 1981– 2011

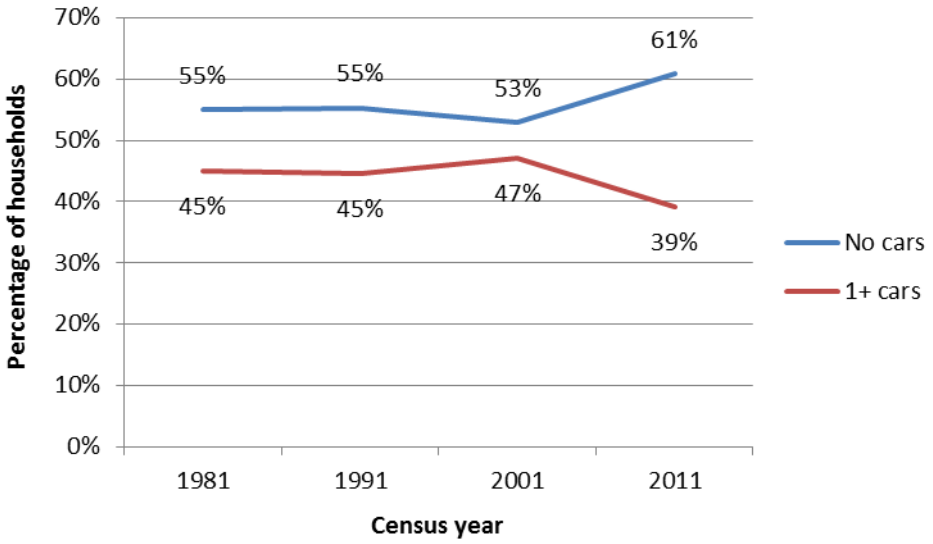
Figure 2.3: Population and number of cars / vans in study area compared to 1981



Source: Census 1981–2011

[2] Census areas used for historical comparisons differ slightly between 1981/1991 and 2001/ 2011 due to changes in the boundaries used.

Figure 2.4: Car ownership, 1981–2011



Source: Census 1981 – 2011

Travel to and from the study area[3]

All trip purposes (based on London Travel Demand Survey)

2.5 The London Travel Demand Survey (LTDS) is a continuous survey of households in the London boroughs and the area outside Greater London but within the M25. Around 8,000 households take part in LTDS each year. The survey includes a trip diary element, which collects information on trips made on a single day by every household member over the age of five. The trip data recorded includes trip purposes, modes used, trip start and end times and the location of trip origins and destinations.

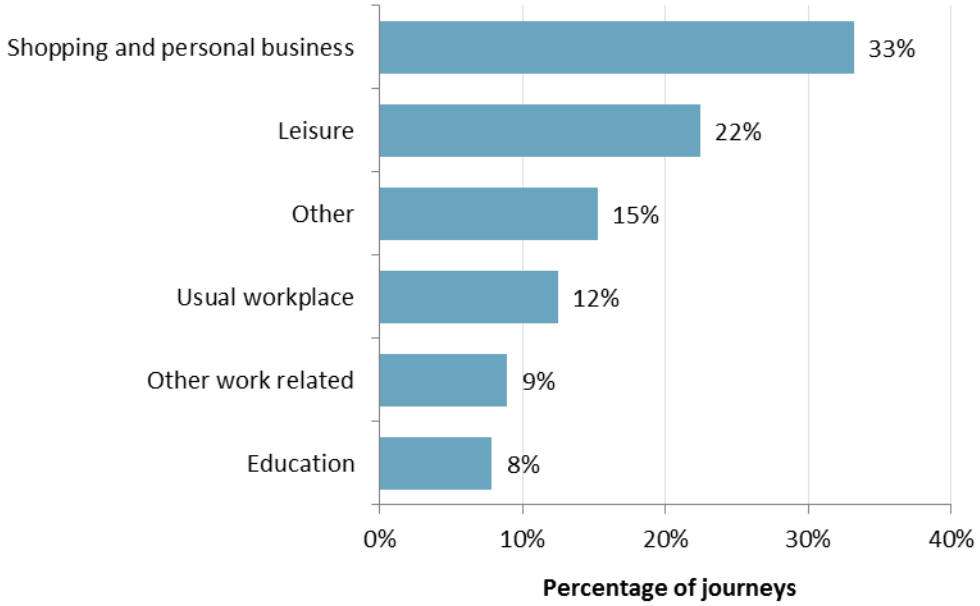
2.6 LTDS has been analysed in this chapter to provide an understanding of the nature of trips to, from, and within the study area, made for all purposes. The trip purposes in LTDS are as follows:

- **Usual workplace** including commuting trips;
- **Other work related** including business travel and delivering / loading;
- **Education** including education as a pupil;
- **Shopping and personal business** including food and other shopping, and use of services;
- **Leisure** including entertainment and recreation, visiting friends / relatives at home, participating in sport, participating in other social events, leisure trips for enjoyment and trips to hotels / holiday homes;
- **Other** including escort to school / college, escort to work, escort to health visits and worship / other religious observance.

2.7 LTDS suggests that the majority of trips starting or finishing in the study area are for shopping and personal business (33%) or leisure purposes (22%). 12% of trips are commuting trips and 15% are made for other reasons, including escorting children to school and trips to places of worship.

[3] LTDS, average of 2010/11 to 2014/15 data, unless otherwise stated

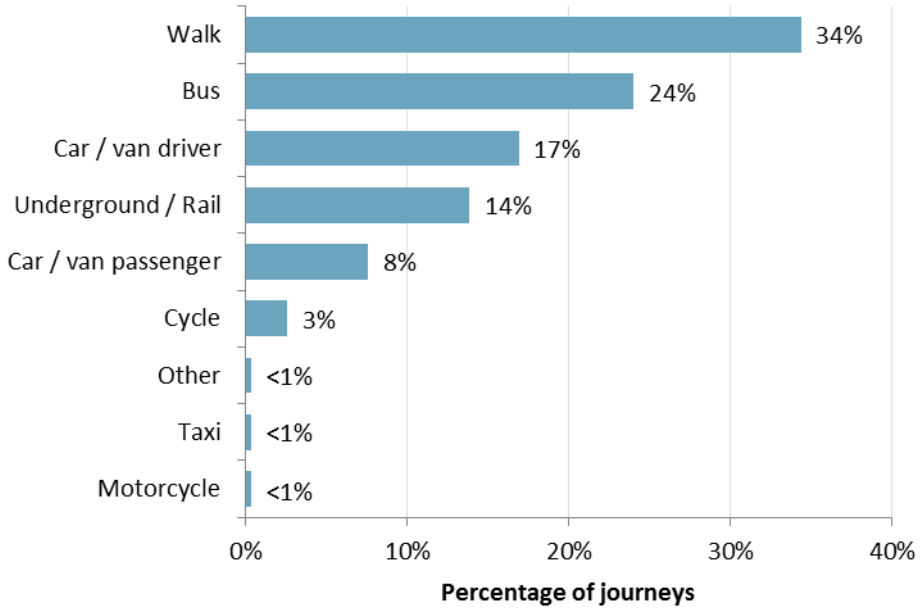
Figure 2.5: Journey purpose of trips starting or ending in the study area



Source: LTDS (average of 2010/11 to 2014/15 data)

2.8 Figure 2.6 below shows the mode share of trips to and from the study area, according to the distance-based main mode (i.e. the mode of transport used for the longest part of the journey). The most popular modes of travel to and from the study area, for all journey purposes, are walking (34% of trips are made on foot) and bus (24%). In total, about a quarter of trips are made by car / van; 17% as a driver and 8% as a passenger. 14% are made by Underground / rail, 3% by cycle and the remaining modes have shares of less than 1%.

Figure 2.6: Modes of transport used for trips starting or ending in the study area (distance based main mode)



Source: LTDS (average of 2010/11 to 2014/15 data)

2.9 The majority of trips starting in the study area are local trips: one in three also end within the study area and one in three end outside the study area but within Haringey (26% end in Haringey (east) and 7% in Haringey (west)). Almost one in four trips end in neighbouring

boroughs. The origins of trips ending in the study area follow a similar pattern: two in three start within the study area or elsewhere within the borough and almost one in four starts in neighbouring boroughs.

Table 2.1: Study area trips: origins and destinations

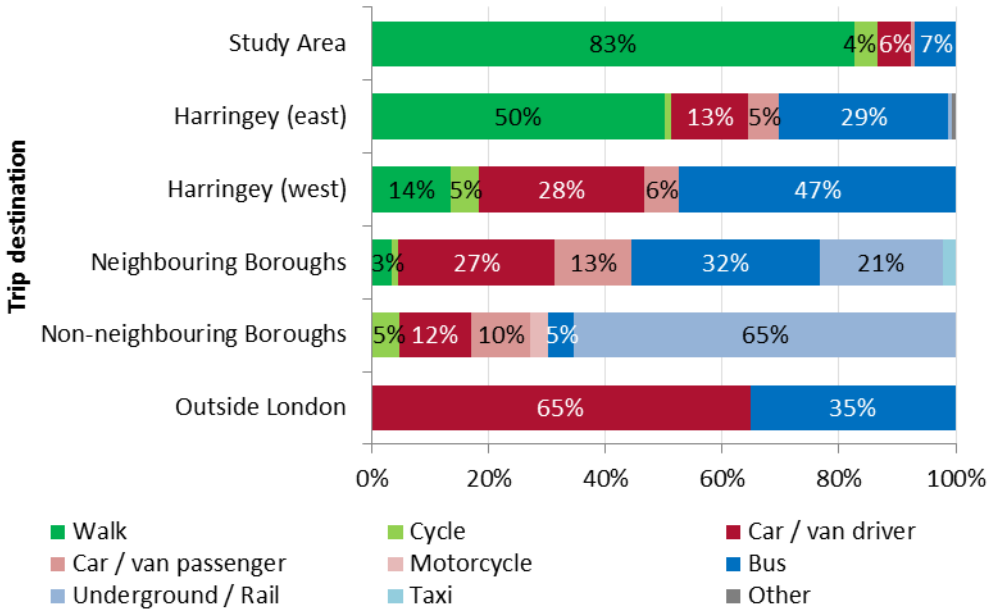
	Destinations of trips starting in study area (trips per average day)		Origins of trips ending within study area (trips per average day)	
Study Area	18,199	33%	18,199	32%
Haringey (east)	14,720	26%	14,493	26%
Haringey (west)	3,717	7%	3,195	6%
Neighbouring Boroughs	13,106	23%	13,303	24%
Non-neighbouring Boroughs	5,472	10%	6,129	11%
Outside London	391	1%	583	1%
Total	*55,605*	*100%*	*55,903*	*100%*

Source: LTDS (average of 2010/11 to 2014/15 data)

2.10 Over 80% of trips made within the study area are made on foot, followed by 7% by bus and 6% by car. People travelling between the study area and Haringey (east) are most likely to walk, while people travelling between the study area and Haringey (west) are most likely to take the bus.

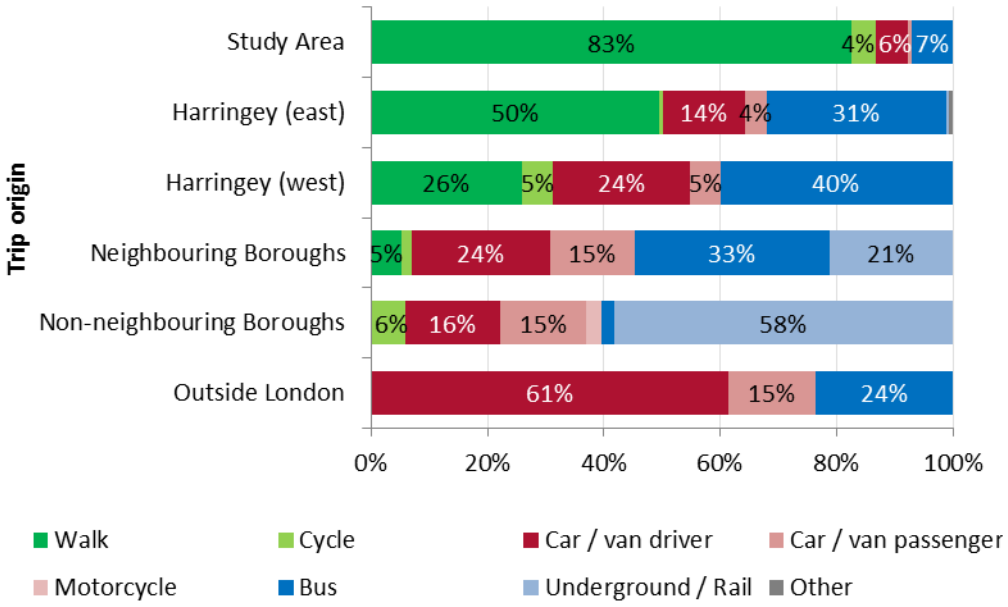
2.11 The top three modes used to travel between the study area and neighbouring boroughs are bus (around a third of trips), car (around 40%), and Underground / rail (around a fifth). Roughly three fifths of trips between the study area and other London boroughs are made by Underground / rail and roughly 70% of trips between the study area and outside London are made by car.

Figure 2.7: Modes used for trips starting in the study area, by destination (distance based main mode)



Source: LTDS (average of 2010/11 to 2014/15 data)

Figure 2.8: Modes used for trips ending in the study area, by origin (distance based main mode)

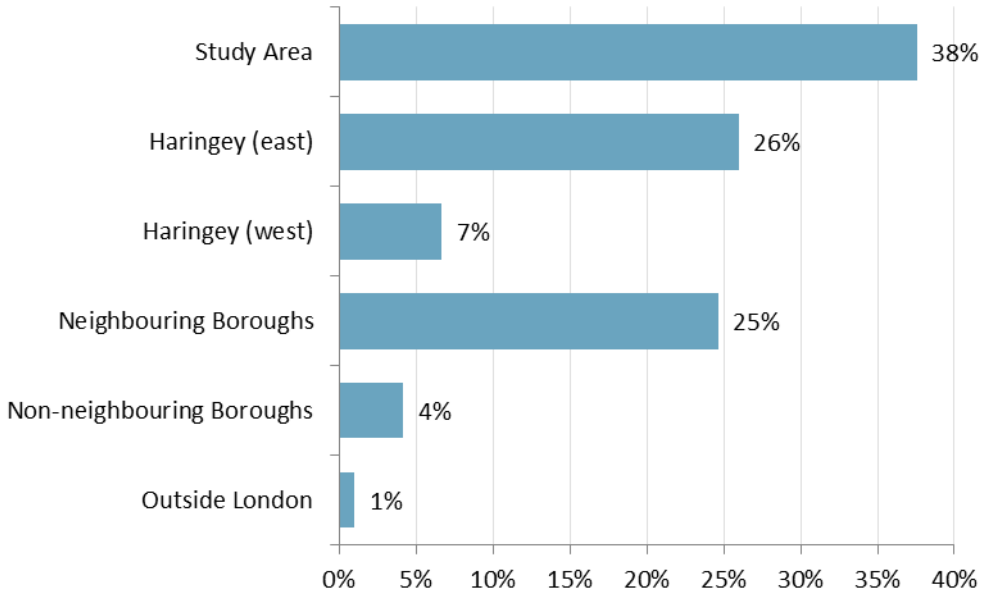


Source: LTDS (average of 2010/11 to 2014/15 data)

Shopping, personal business and leisure trips (based on London Travel Demand Survey)

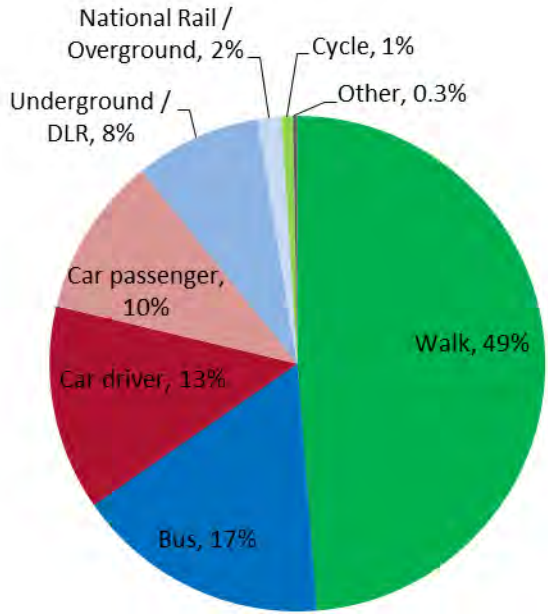
2.12 Whilst much of the study area is residential in nature, it is also an important retail and dining-out area, particularly along Green Lanes. An analysis specifically of trips made for shopping, personal business and leisure purposes that end in the study area has therefore been carried out. Over a third of shopping, personal business and leisure trips start and end in the study area, around a quarter start in Haringey (east) and a quarter start in neighbouring boroughs. Almost half of the shopping, personal business and leisure trips that end in the study area are made on foot, 17% are made by bus and 13% by car (as a driver). This demonstrates the wide range of transport modes used by customers of businesses in the study area, as well as the range of trip origins for these customers.

Figure 2.9: Origin of journeys made for shopping, personal business and leisure trips to the study area



Source: LTDS (average of 2010/11 to 2014/15 data)

Figure 2.10: Mode of transport used to reach study area, for shopping, personal business and leisure trips (distance based main mode)



Source: LTDS (average of 2010/11 to 2014/15 data)

Commuting trips (based on Census)

2.13 Figure 2.12 shows the highest concentration of study area residents' jobs is in central London, there are also reasonably high numbers of study area residents working within the study area and areas to the north of the study area, particularly in Wood Green. Figure 2.13 shows people

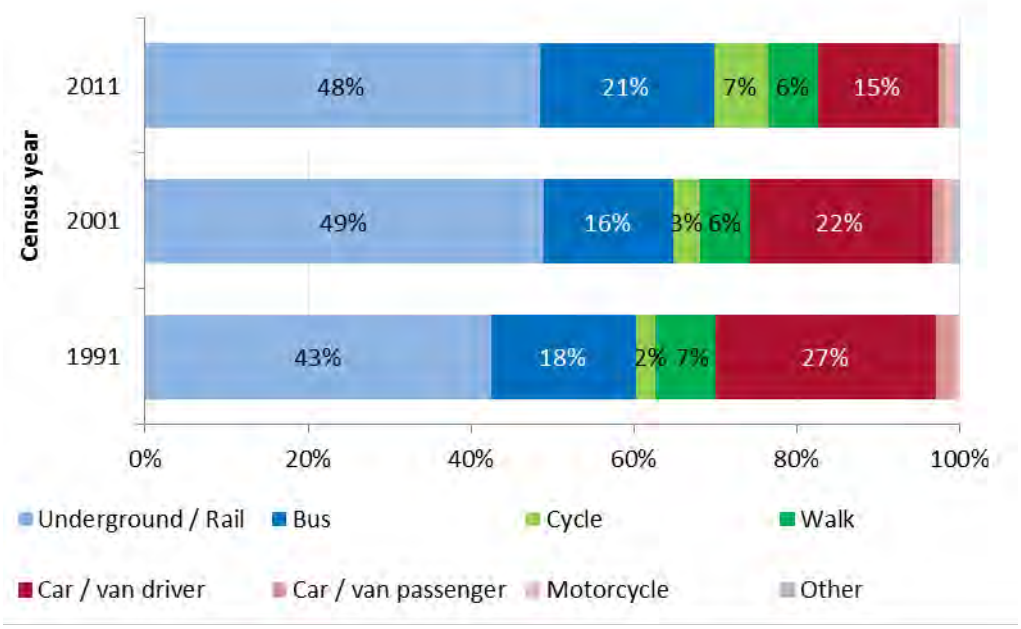
who work in the study area live in a wide range of areas, with the highest concentrations in Haringey and boroughs to the north of the study area.

2.14 The most popular commuting mode among residents of the study area is Underground / Rail (48%), followed by bus (21%) and car (as a driver, 15%)[4].

Historical trends

2.15 Journey to work data has been collected by the Census since 1991. In that time, the percentage of residents in the study area travelling to work using public transport and non-motorised modes (Underground, rail, bus, cycle or walk) has increased from 70% in 1991 to 82% in 2011. Conversely, the percentage of residents in the study area travelling to work using private vehicles (car, van and motorcycle) has fallen from 30% in 1991 to 18% in 2011.

Figure 2.11: Journey to work mode share of study area residents, 1991–2011 (distance based main mode)



Source: Census 1991 - 2011

[4] Census 2011, Journey to Work

Figure 2.12: Place of work for usual residents of the study area

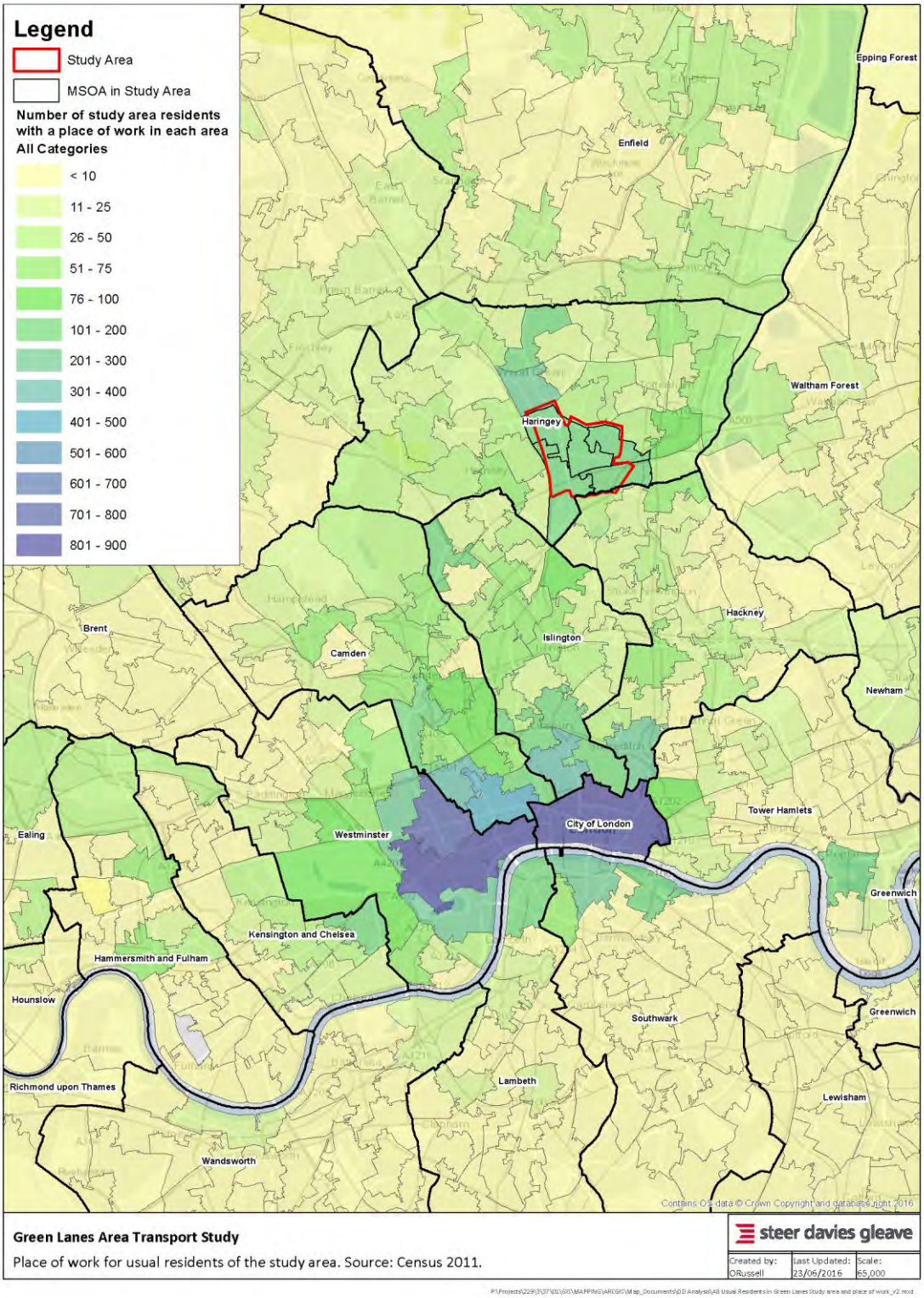
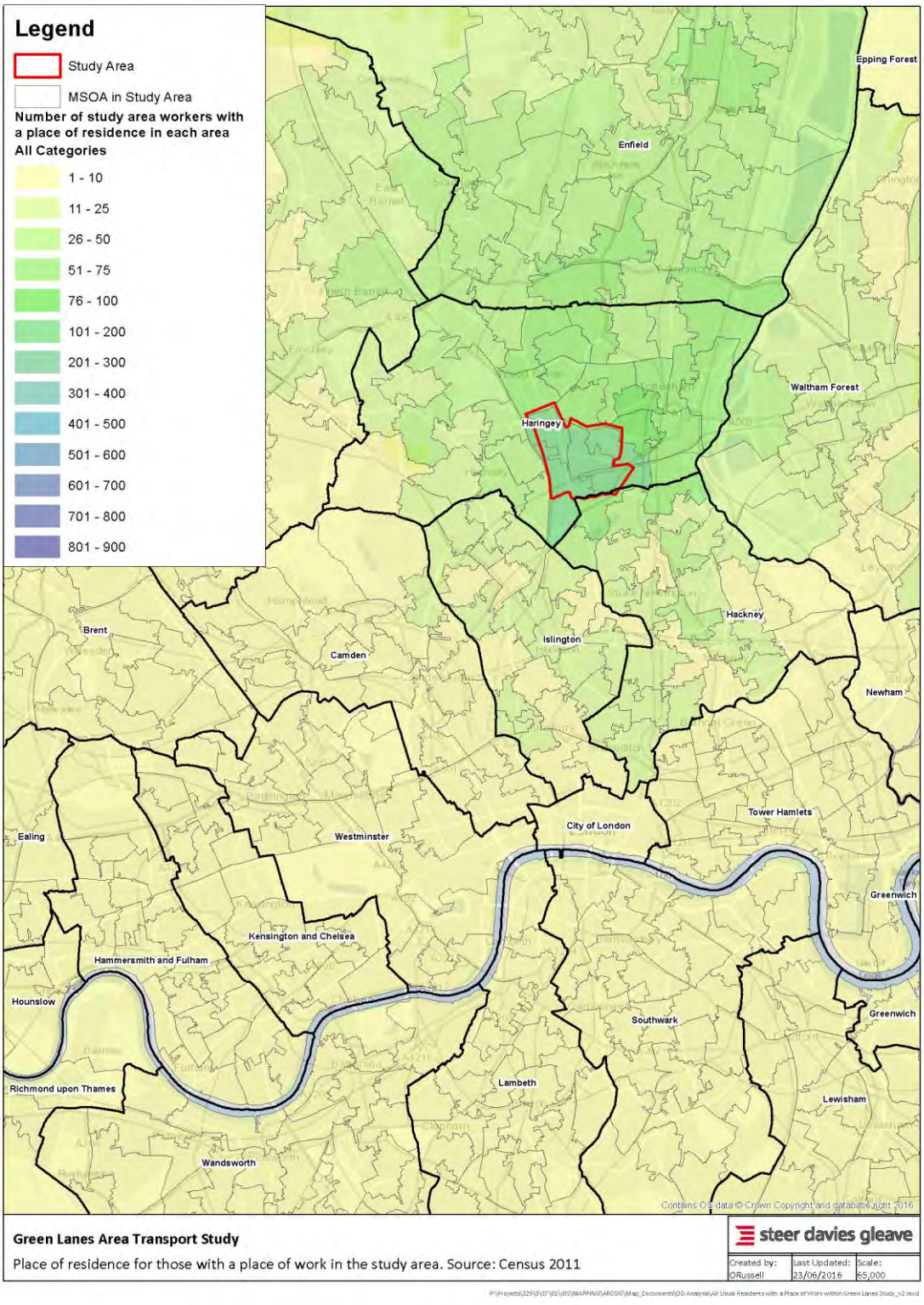


Figure 2.13: Place of residence for those with a place of work in the study area



3 Road network and traffic

Road network

3.1 Almost all of the roads within the study area are borough roads, which means that they are managed by and the responsibility of LB Haringey. The exceptions to this are roads that have the following designations:

- Strategic Road Network (SRN): Whilst these roads are managed by LB Haringey, Transport for London has also has strategic responsibility over them. These roads are marked in blue on the map below, and within the study area Green Lanes forms part of the SRN.
- Transport for London Road Network (TLRN): These roads, which are also known as 'red routes' are managed by Transport for London. These are marked in red on the map below and in the study area only Seven Sisters Road is part of the TLRN.

3.2 As shown overleaf, the highway network within the study area is centred on Green Lanes which acts as a north-south spine and is designated as an A road while also forming part of the SRN. Due to the limited number of similar north-south links in the wider area, Green Lanes is frequently congested due to the high traffic flows and also as a result of friction caused by turning movements and parking manoeuvres within the limited carriageway width.

3.3 This congestion means that a significant number of drivers seek to use parallel routes; and Wightman Road often offers a quicker alternative, even though it is only a B road and features extensive traffic calming. This leads to a loss of amenity for abutting residents.

3.4 Green Lanes and Wightman Road form the two sides of the 'Harringay Ladder', the northern end of which is bounded by Turnpike Lane, whilst the bottom end in bounded by Endymion Road. Again, due to high traffic flows to, from and within the study area, both of these key east-west links are frequently congested. This leads to many drivers choosing to use the residential streets forming the 'rungs' of the ladder, which offer (broadly) alternating east and westbound routes through the area, to move between Wightman Road and Green Lanes.

3.5 St Ann's Road and West Green Road both provide links from Green Lanes through to areas to the east, including Seven Sisters and Tottenham. As these roads do not extend through to Wightman Road, particular pressure is placed on the Ladder streets that offer the fastest and most convenient through routes.

3.6 The area to the northeast of the Green Lanes / St Ann's Road intersection is largely residential and is generally only accessed by local users due to the main links provided by St Ann's Road and West Green Road and some traffic management interventions.

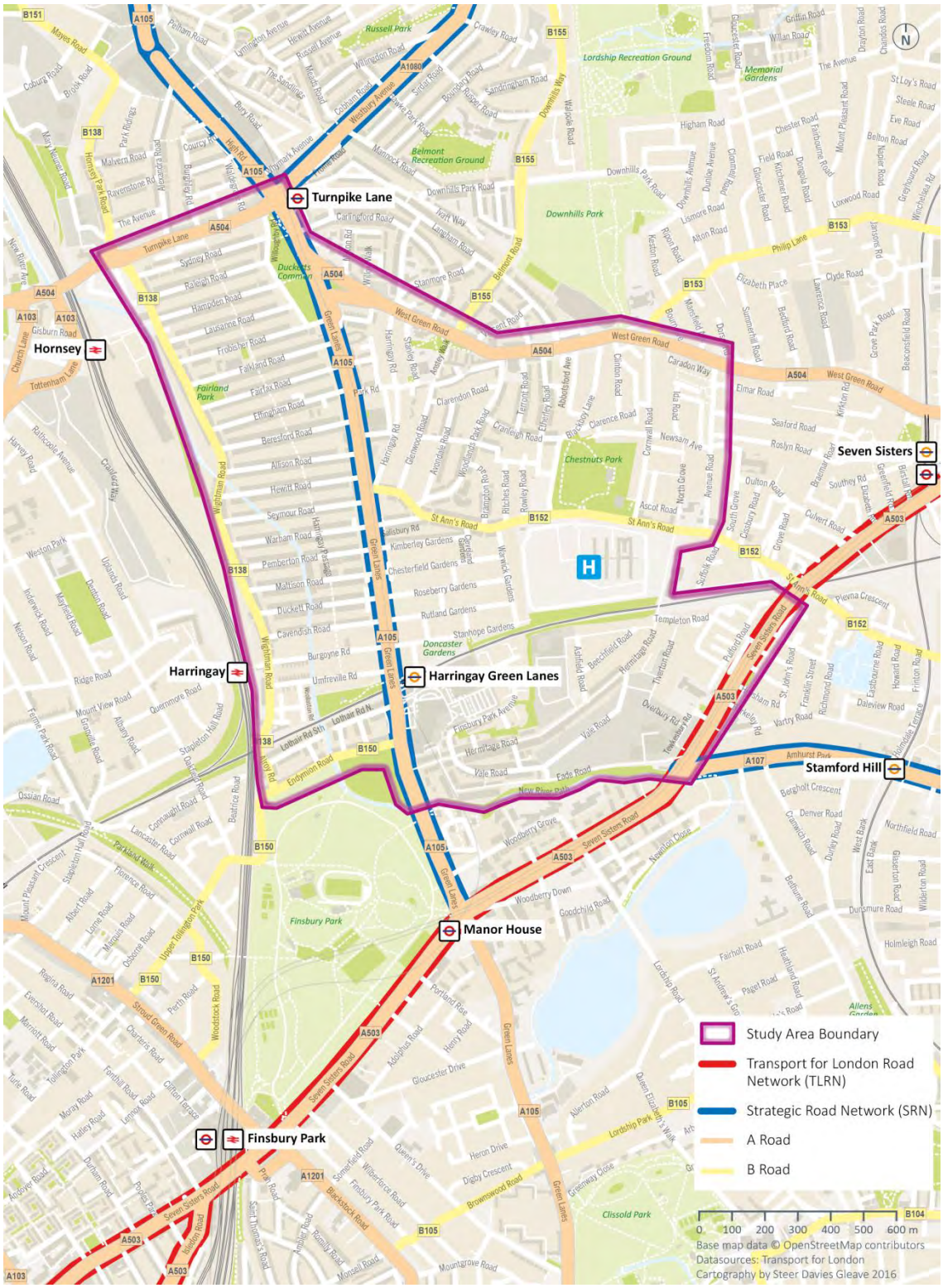
3.7 The Harringay Gardens area is situated immediately south of St Ann's Road and consists of a small enclosed network of residential streets. St Ann's Hospital occupies a large site to the east of this area and extends up to the study area boundary at Hermitage Road.

3.8 The remaining sub-area of interest lies to the south of the London Overground rail line. Although much of it is residential in nature, this area does include the Arena Retail Park which includes several other large 'high street' stores and also the large Sainsbury's superstore. Access to the 760-space car park is available via a signalised link road, which at busier times is often congested and can cause delays further afield.

Speed limits

3.9 As part of borough-wide scheme, almost all roads within the study area are now subject to a 20mph speed limit. The only exception is Seven Sisters Road, which remains subject to a 30mph speed limit.

Figure 3.1: Road network



Traffic management measures

3.10 This section describes the main traffic management measures that are highlighted in the plan overleaf. In short, it seems that although the existing traffic management measures have been introduced to address legitimate issues, based on anecdotal feedback they have in many cases simply shifted the problems elsewhere. These impacts, based on analysis of an extensive traffic survey dataset are discussed later in this note.

Turnpike Lane

3.11 Turnpike Lane offers the main east-west connection at the northern end of the study area, and at each end vehicles are controlled using traffic signals. The junctions with Wightman Road and Wood Green High Road both include banned turns to maximise traffic throughput and allow for the provision of 'walk-with-traffic' pedestrian crossing facilities. The Wightman Road junction is due for improvement in the near future, and the Wood Green High Road junction has recently been reconfigured as part of the TfL-funded Major Scheme for Wood Green and Green Lanes.

Harringay Ladder

3.12 As previously highlighted, the east-west roads forming the 'rungs' of the Ladder offer generally alternating one-way east and westbound routes through the area. These are used by both local residents and businesses for access, and also by through traffic seeking alternatives to Turnpike Lane and Endymion Road. To discourage through traffic from using these residential streets, several traffic management measures have been implemented over the years in an incremental fashion. Most recently, the right turn from Hewitt Road onto Green Lanes has been banned to discourage traffic travelling eastbound from using this road. Slightly further south, Warham Road and Salisbury Road also include banned turns to help manage localised impacts.

St Ann's

3.13 The network of streets sandwiched between West Green Road and St Ann's Road are less restricted but this area does include a number of localised closures around the Harringay Road / Stanley Road loop which reduce rat-running. The plan highlights these roads in blue to show that they are not of use to through traffic. Likewise, the closure at the southern end of North Grove has a similar effect on the local network immediately east of Chestnuts Park.

Harringay Gardens

3.14 In conjunction with a point closure in Cleveland Gardens, the relatively recent introduction of a rising bollard on Warwick Gardens effectively precludes the use of the roads in the Harringay Gardens area by through traffic.

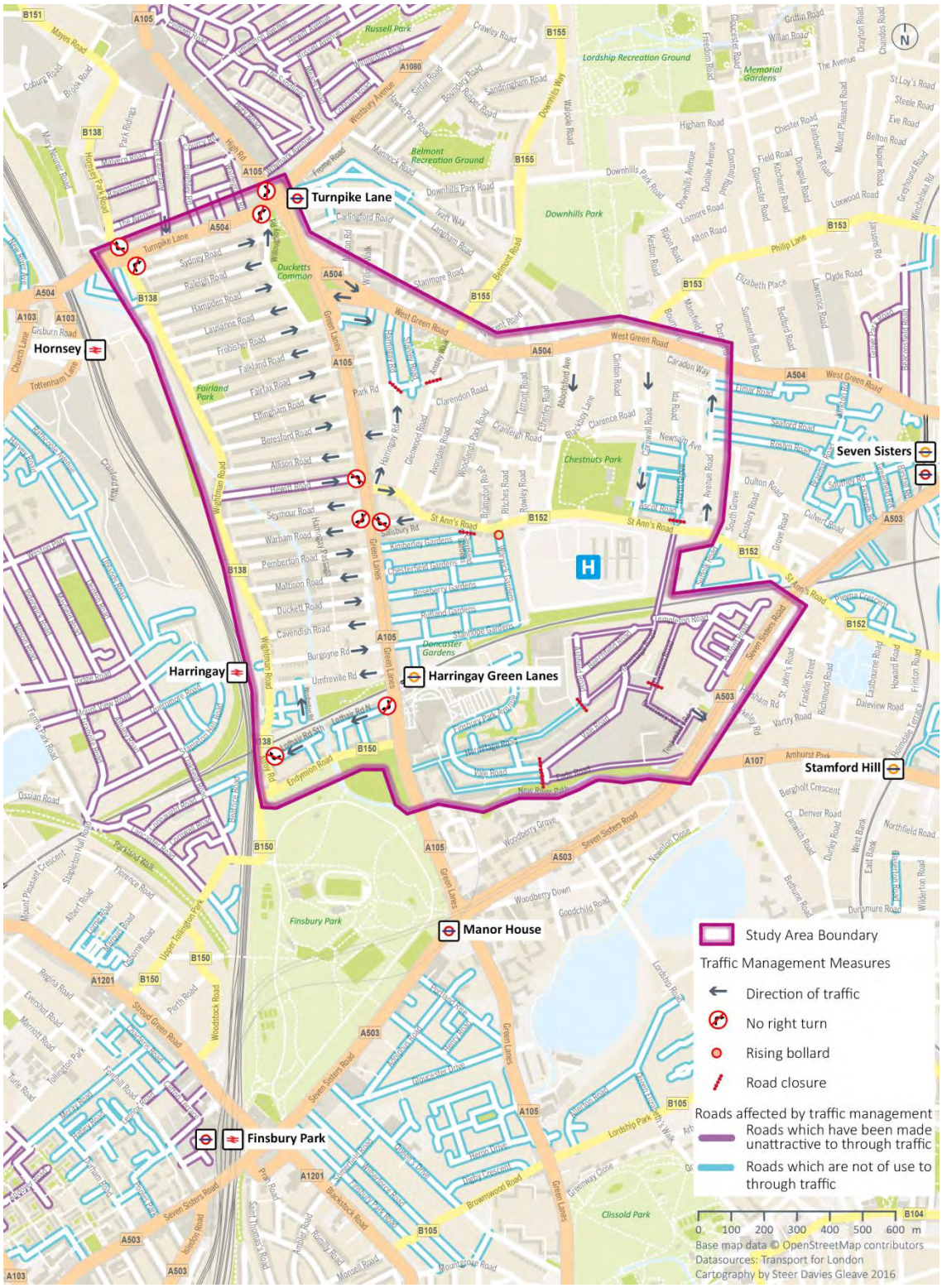
Hermitage

3.15 As shown, the area to the south of the rail line includes a series of point closures which make them unpassable or unattractive to through traffic.

Surrounding areas

3.16 Also shown on the map are the effects of traffic management measures on roads in the areas surrounding the study area.

Figure 3.2: Traffic management



On-street parking

3.17 Controlled parking zones (CPZs) were first introduced in Haringey in 1994 to reduce traffic congestion, improve road safety and promote other forms of transport. As such the vast majority of the study area is covered by parking controls and these generally take the form of CPZs. Figure 3.3 shows the designated area and corresponding hours of operation.

Figure 3.3: Controlled Parking Zones (CPZs)

Traffic flows

By road

3.18 This section summarises the traffic flows recorded as part of an extensive series of surveys undertaken in January 2016 by LB Haringey, prior to the closure of Wightman Road. These surveys were then repeated in June / July 2016, during the Wightman Road closure. The traffic arrangements that were in place during the closure are shown on Figure 3.4. The analysis is broken down into a series of sub areas to aid understanding, and also by vehicle classification where it is of particular interest.

3.19 The first plan (Figure 3.5) shows the average daily traffic flows for all key roads within the area in January 2016. It highlights that, as expected, Green Lanes carries the highest number of vehicles at over 20,000 per day. The eastern end of St Ann's Road (west of the Hermitage Road roundabout) is the next busiest link with over 18,000 vehicles per day. Turnpike Lane, West Green Road and Wightman Road all carry a similar magnitude of traffic at around 14,000–16,000 vehicles per day.

3.20 Figure 3.6 shows flows in June / July 2016 during the Wightman Road closure, and Figure 3.7 shows the difference between before and during the closure. Changes in traffic flows during the Wightman Road closure are discussed further in the following sections.

3.21 The subsequent plans (Figure 3.8, Figure 3.9 and Figure 3.10) show a summary of the average daily flow of heavy vehicles within the same network. Trends are broadly similar to that of the general traffic flows.

3.22 The subsequent graphs provide a breakdown by area as follows:

- Figure 3.11 shows average daily traffic flows for the A and B roads
- Figure 3.12 shows average daily traffic flows for the Gardens sub-area
- Figure 3.13 shows average daily traffic flows for the Hermitage sub-area
- Figure 3.14 shows average daily traffic flows for the Ladder sub-area
- Figure 3.15 and Figure 3.16 show average daily traffic flows for the St Ann's sub-area
- Figure 3.17 shows average daily traffic flows for the roads surveyed outside the study area

Study area wide daily profile

3.23 Figure 3.18 shows the summed vehicular movements over a seven day period.

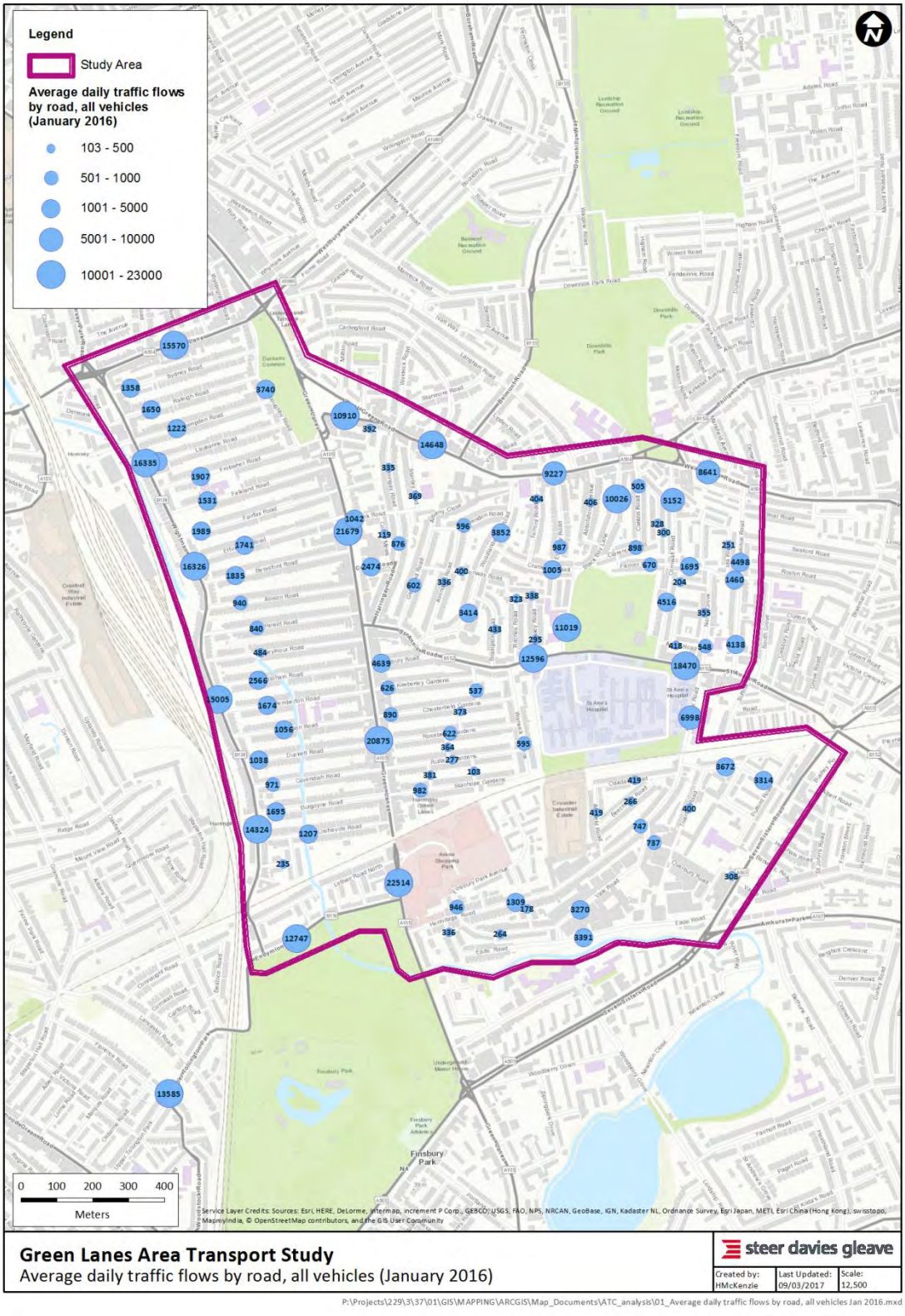
3.24 The weekday profile includes two peaks, one during the morning around 8:00am and then a second, higher peak in the early evening at around 5:00pm. This is the case for both before and during the Wightman Road closure, although the flow profile during the closure was lower than before the closure during the day. Interestingly, during late nights (from about 22:00–03:00), there was a slight increase in traffic across the area during the Wightman Road closure.

3.25 The Saturday profile sees a different pattern emerge and traffic generally builds up through the morning to a peak around midday. This level of flow then continues fairly consistently for the rest of the afternoon before starting to fall away after 6:00pm in the evening. Again, this pattern is similar for before the closure and during the closure, except that flows during the closure were lower, apart from during the late night time period.

3.26 The Sunday profile is very similar to that seen on a Saturday but flows are slightly reduced for most of the day. The flows during the closure were lower than before the closure, except during the late night time period.

Figure 3.4: Traffic arrangements during the Wightman Road closure

Figure 3.5: Average daily traffic flows by road, all vehicles (January 2016, before Wightman Road closure)

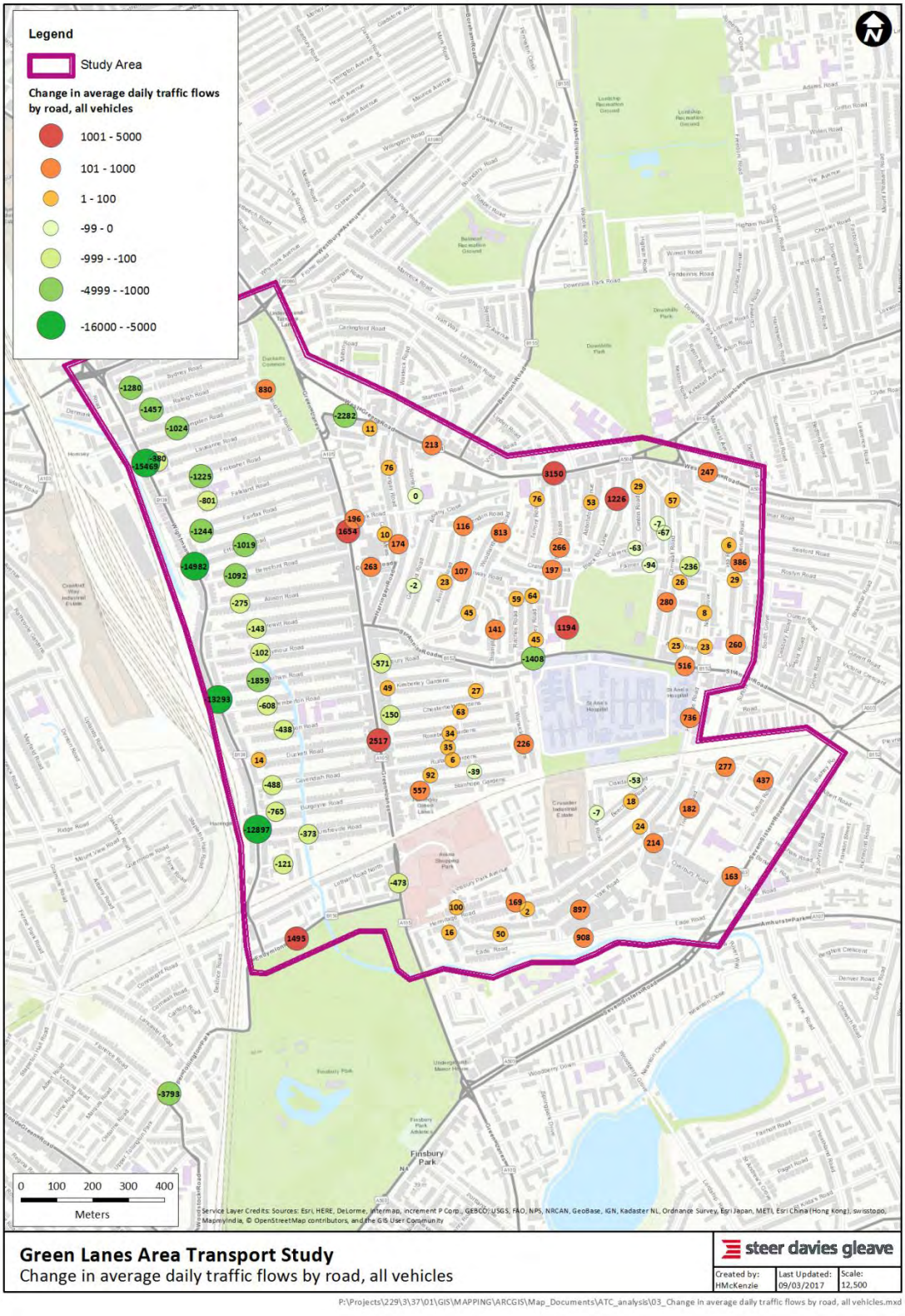


Source: Traffic surveys, January 2016

Figure 3.6: Average daily traffic flows by road, all vehicles (June / July 2016, during Wightman Road closure)

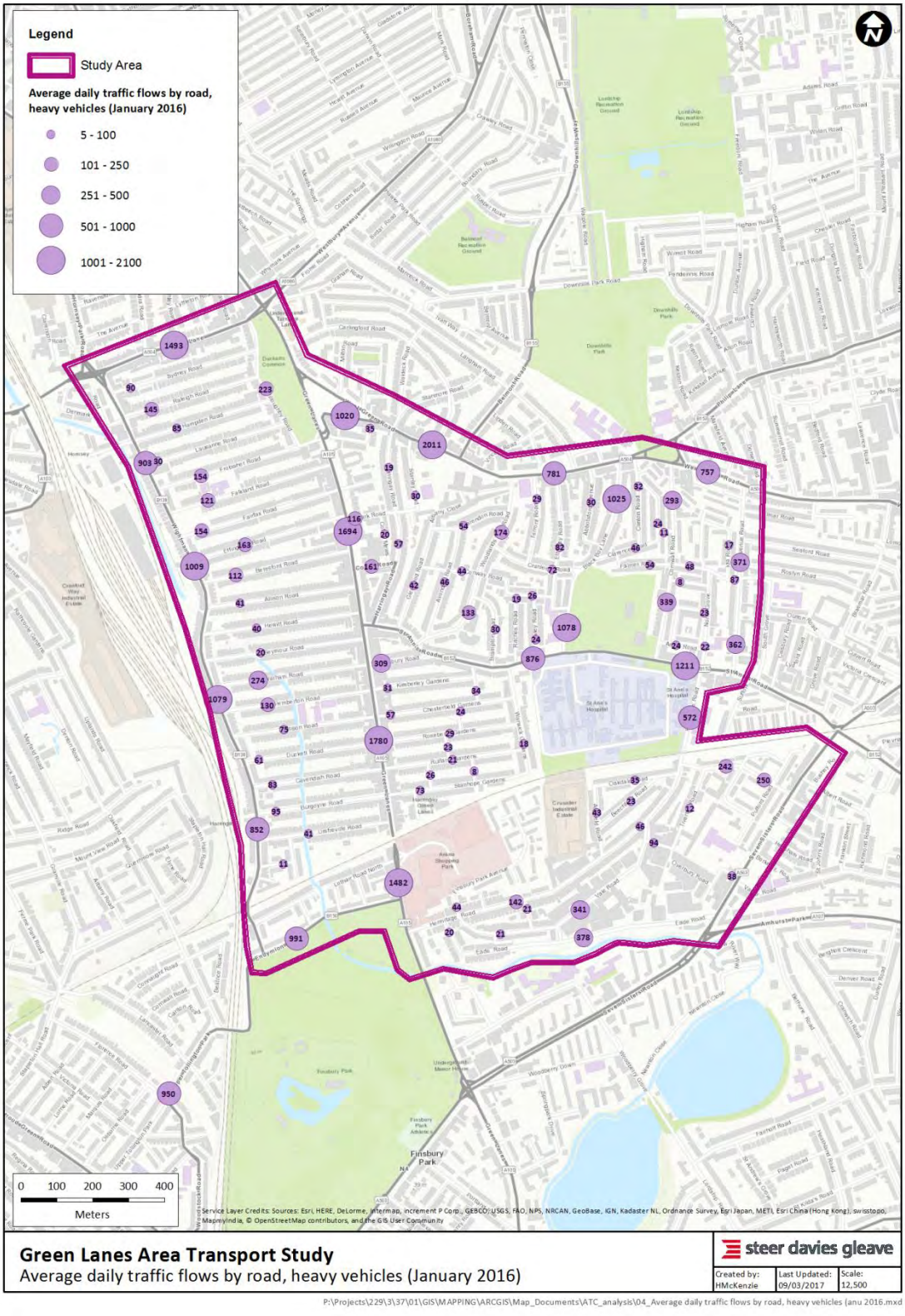
Source: Traffic surveys, June / July 2016

Figure 3.7: Change in average daily traffic flows by road, all vehicles



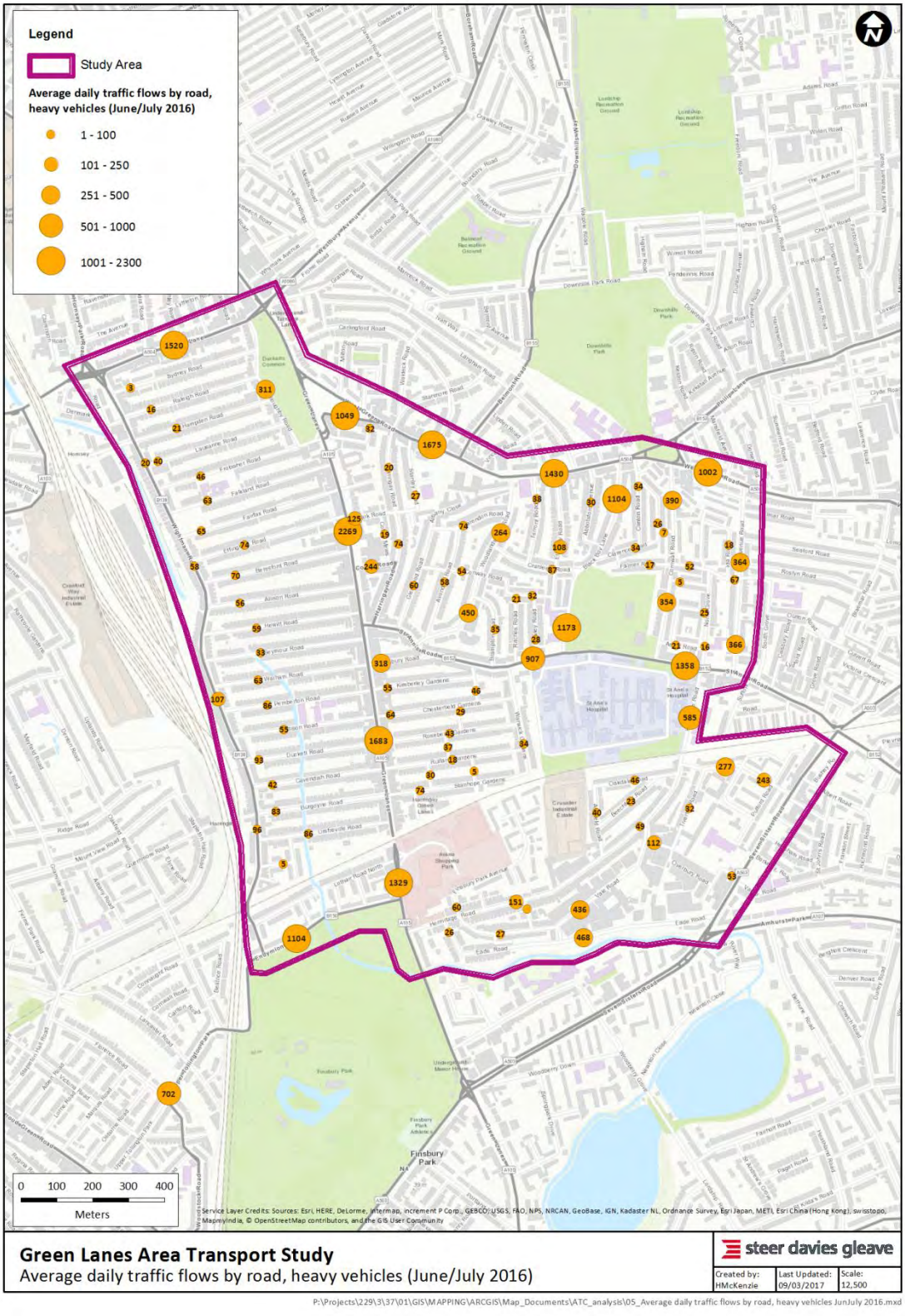
Source: Traffic surveys, January 2016 and June / July 2016

Figure 3.8: Average daily traffic flows by road, heavy vehicles (January 2016, before Wightman Road closure)



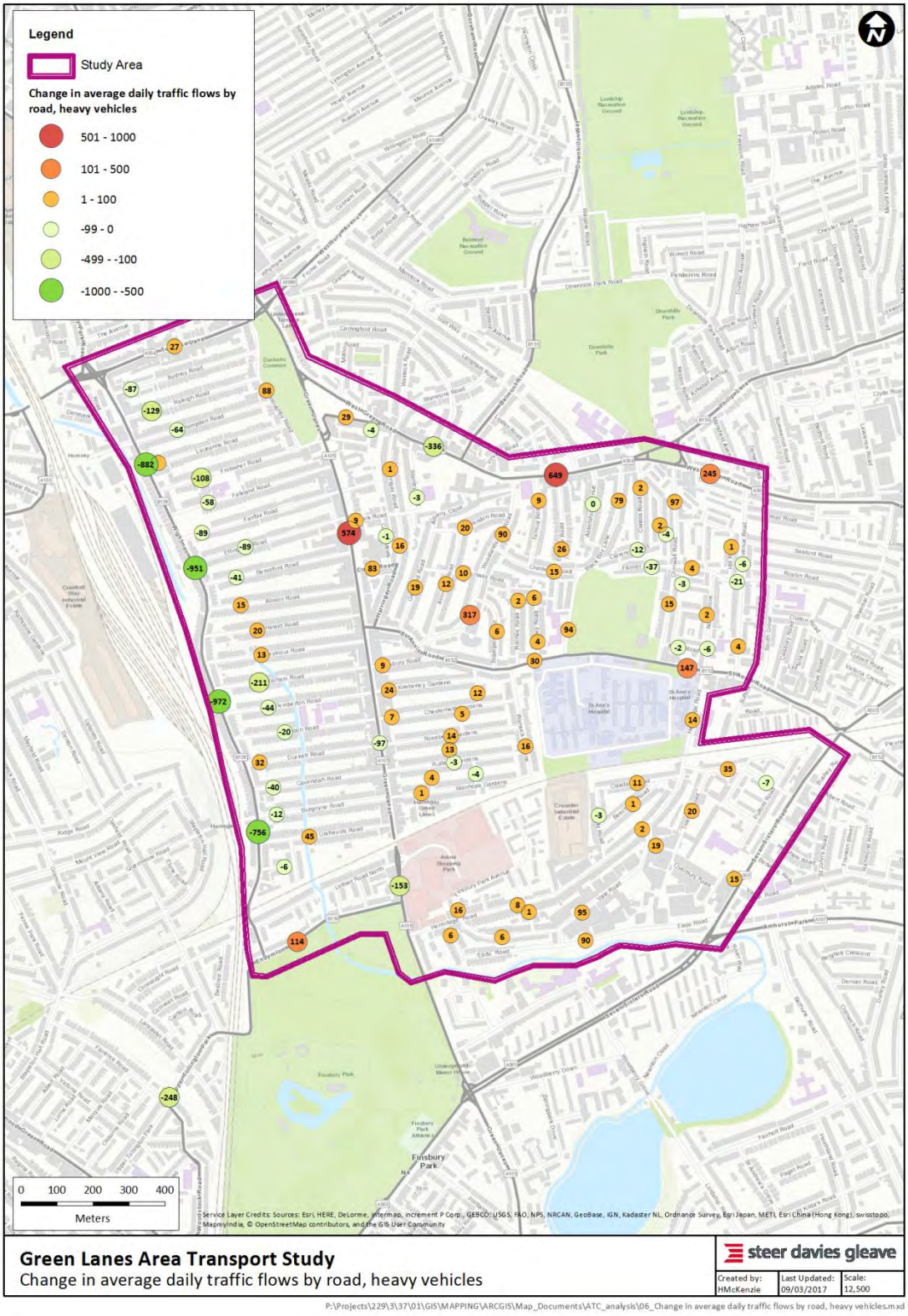
Source: Traffic surveys, January 2016

Figure 3.9: Average daily traffic flows by road, heavy vehicles (June / July 2016, during Wightman Road closure)



Source: Traffic surveys, June / July 2016

Figure 3.10: Change in average daily traffic flows by road, heavy vehicles



Source: Traffic surveys, January 2016 and June / July 2016

Sub-areas

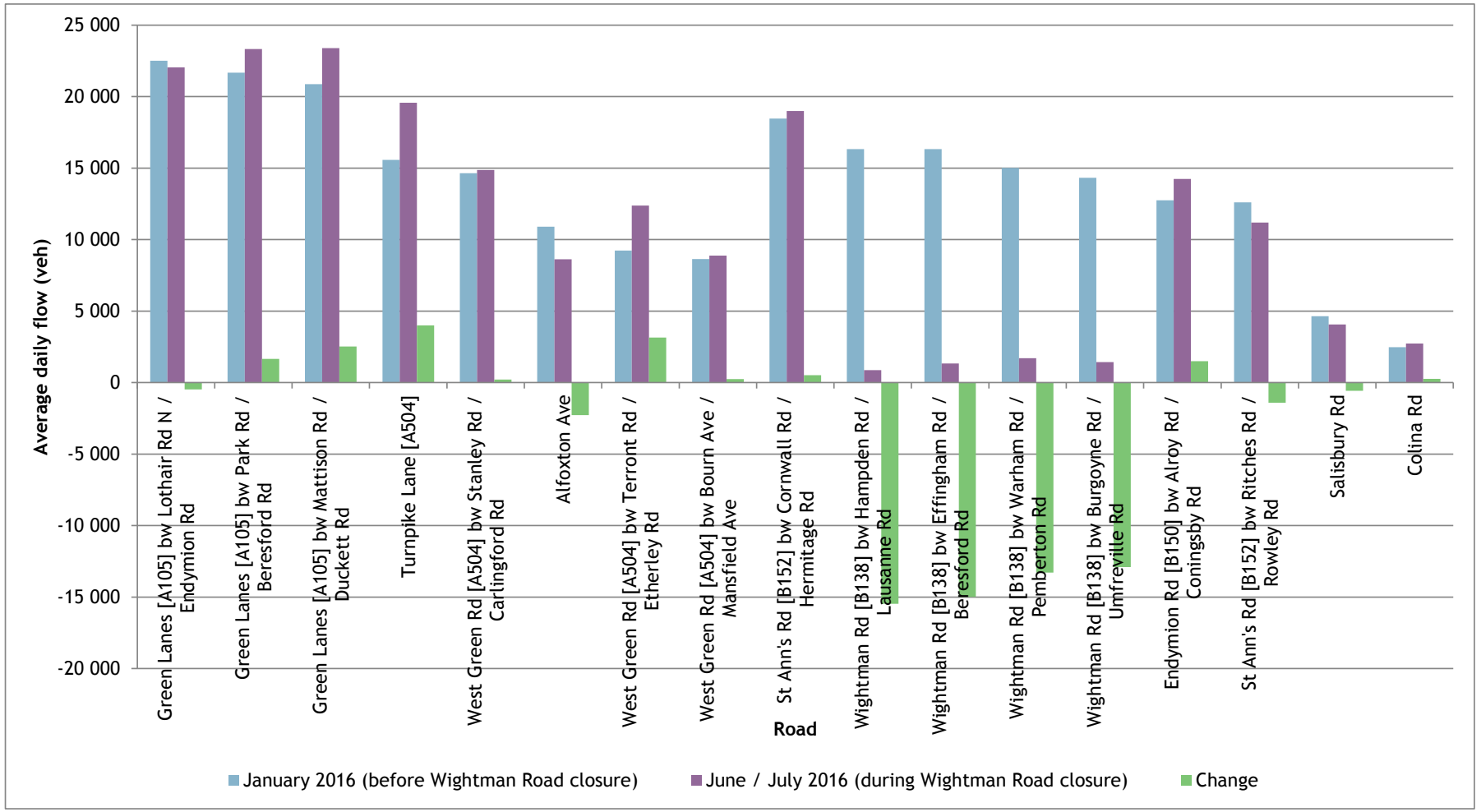
3.27 The key patterns that are evident from the traffic counts are as follows:

- **A roads and B roads**:
  - *North-south corridors*: As noted above, before the Wightman Road closure Green Lanes was the busiest road in the study area, with over 20,000 vehicles per day. It is slightly busier at its southern end compared to its northern end. This was reversed during the closure, when the northern sections were busier than the southern section. There were flow increases in the northern sections (+1,700–2,500 vehicles per day), and a slight decrease in the southern section (-500 vehicles per day). Before its closure, Wightman Road carried approximately 15,000 vehicles per day, but in contrast to Green Lanes is slightly busier at its northern end compared to its southern end. As would be expected, traffic flows along Wightman Road during its closure were extremely low, leading to decrease of about 13,000–15,000 vehicles per day.
  - *East-west corridors*: St Ann's Road is busier in its eastern section relative to its western section, whilst West Green Road is busier in its western section relative to its eastern section, both before and during the closure. In general, the sections of these roads closest to Green Lanes saw decreases in traffic flows during the closure, whilst there were increases further to the east. There were noticeable increases in flows on both Endymion Road and Turnpike Lane during the closure, which is not surprising given that other east-west routes between Wightman Road and Green Lanes were no longer available. Flows on Endymion Road were about 12,700 vehicles per day before the closure ,and 14,200 vehicles per day during it. On Turnpike Lane, the increase was from about 15,600 to 19,600 vehicles per day (an increase of over a quarter).
- **Gardens**: As all of the roads in this area cannot be used by through traffic, they all have relatively low average daily flows. Before the Wightman Road closure, flows on all roads were less than 1,000 vehicles per day. There were varying changes during the closure. Traffic levels on most roads remained broadly similar. However, flows on Stanhope Gardens increased by about 600 vehicles per day, and on Warwick Gardens by about 200 vehicles per day. Conversely, flows on Chesterfield Gardens declined by about 200 vehicles per day.
- **Hermitage**: The road network in this sub-area is effectively split into eastern and western halves by a series of road closures. In general before the Wightman Road closure, roads in the eastern half had higher average flows of greater than 3,000 vehicles per day, whereas roads in the western half had lower average flows of about 1,000 vehicles per day or less. During the Wightman Road closure, traffic flows on roads in the western half remained broadly similar. However, in the eastern half there were some notable increases, of up to about 900 vehicles per day. This may be because more drivers were using roads in this area to travel between St Ann's Road and Seven Sisters Road.
- **Ladder**: Before the Wightman Road closure, the busiest road by far in this sub-area was Willoughby Road, with over 3,500 vehicles per day. During the closure, it became even busier with about 4,600 vehicles per day. This is because it is used by drivers avoiding the Turnpike Lane / Green Lanes junction. Apart from this, the east-west 'rungs' of the Ladder had a very wide range of flows before the closure, from less than 500 vehicles per day on Seymour Road, through to 2,500 vehicles per day on Warham Road. Atterbury Road has very low flows, as it effectively only serves local traffic for a small area. During the closure, traffic flows on most rungs fell (except on Duckett Road). Flows were generally about 700–800 vehicles per day on typical rungs. Some rungs had lower or higher flows due to

the traffic arrangements in place (for example the three northernmost rungs had lower flows as they were effectively cul-de-sacs, whilst Pemberton Road and Duckett Road had higher flows as they were eastbound rungs paired with two westbound rungs).

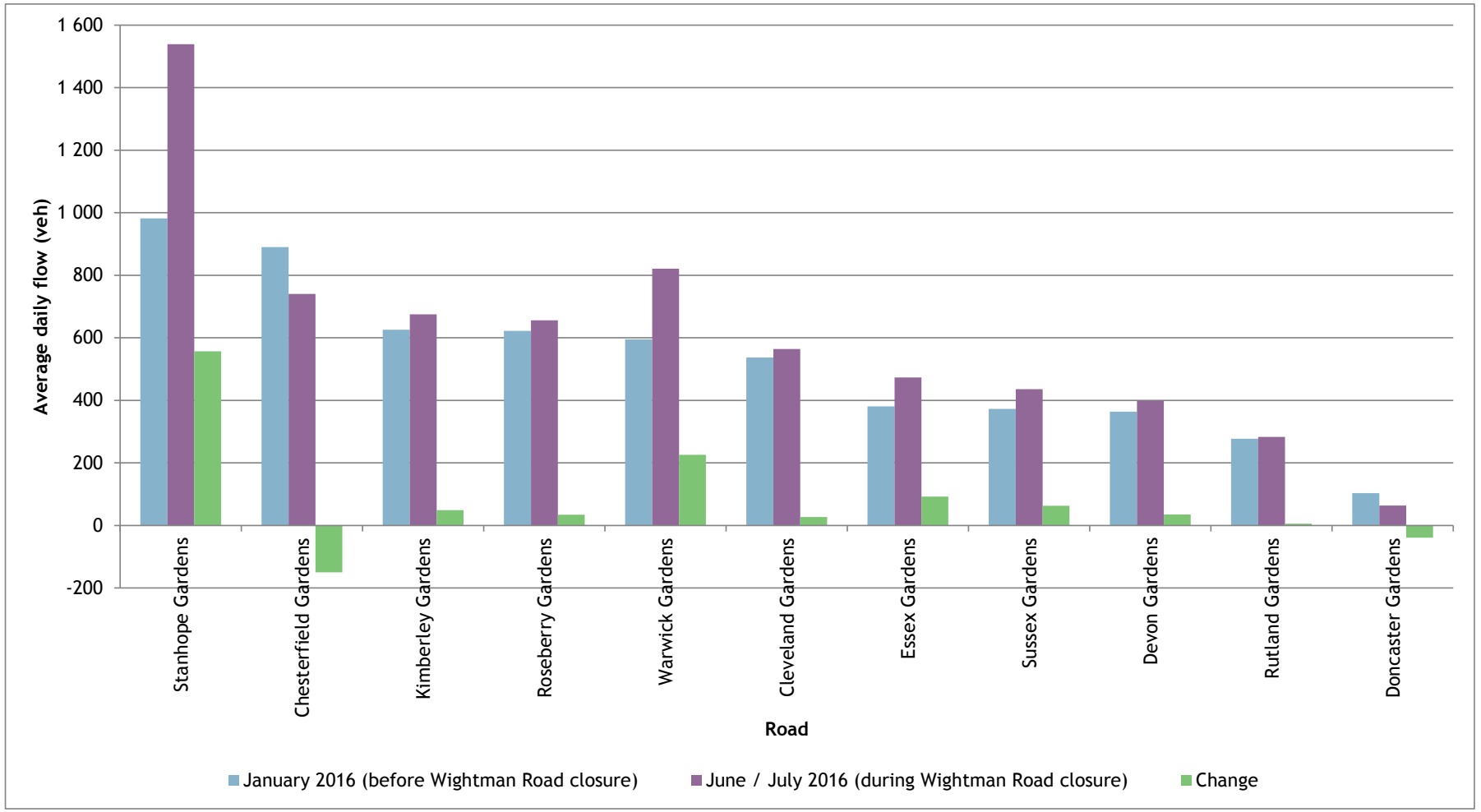
- **St Ann's**:
  - *North-south links*: The busiest roads in this area, with average flows greater than 3,000 vehicles per day, are those that provide north-south links (Black Boy Lane, Cornwall Road, Avenue Road and Woodlands Park Road). Some of these roads had increases in traffic flows during the Wightman Road closure. Black Boy Lane had increases of about 1,200 vehicles per day, whilst increases on the other links varied between very small increases, to 800 vehicles per day on the northern section of Woodlands Park Road. This may be caused by an increase in vehicles seeking to avoid Green Lanes.
  - *Other roads*: Apart from these, all of the other roads in this area have average flows of less than 2,000 vehicles per day. There were varying changes during the Wightman Road closure, but generally speaking traffic flows either stayed broadly the same or increased by up to about 270 vehicles per day. The main exception to this was Gorleston Road, which showed a decrease of about 240 vehicles per day.
- **Roads outside study area**: A selection of roads to the west of the study area were also surveyed. Most of these showed increase in traffic flows of between 500–3,100 vehicles per day during the closure, which appears to indicate that some traffic that formerly travelled through the study area instead chose to divert to the west. The exception is Upper Tollington Park, which saw a decrease during the closure. This is because it feeds both Endymion Road and Wightman Road; whilst the former saw an increase in traffic, this was outweighed by the fact that Wightman Road was closed.

Figure 3.11: Average daily traffic flow, A roads and B roads



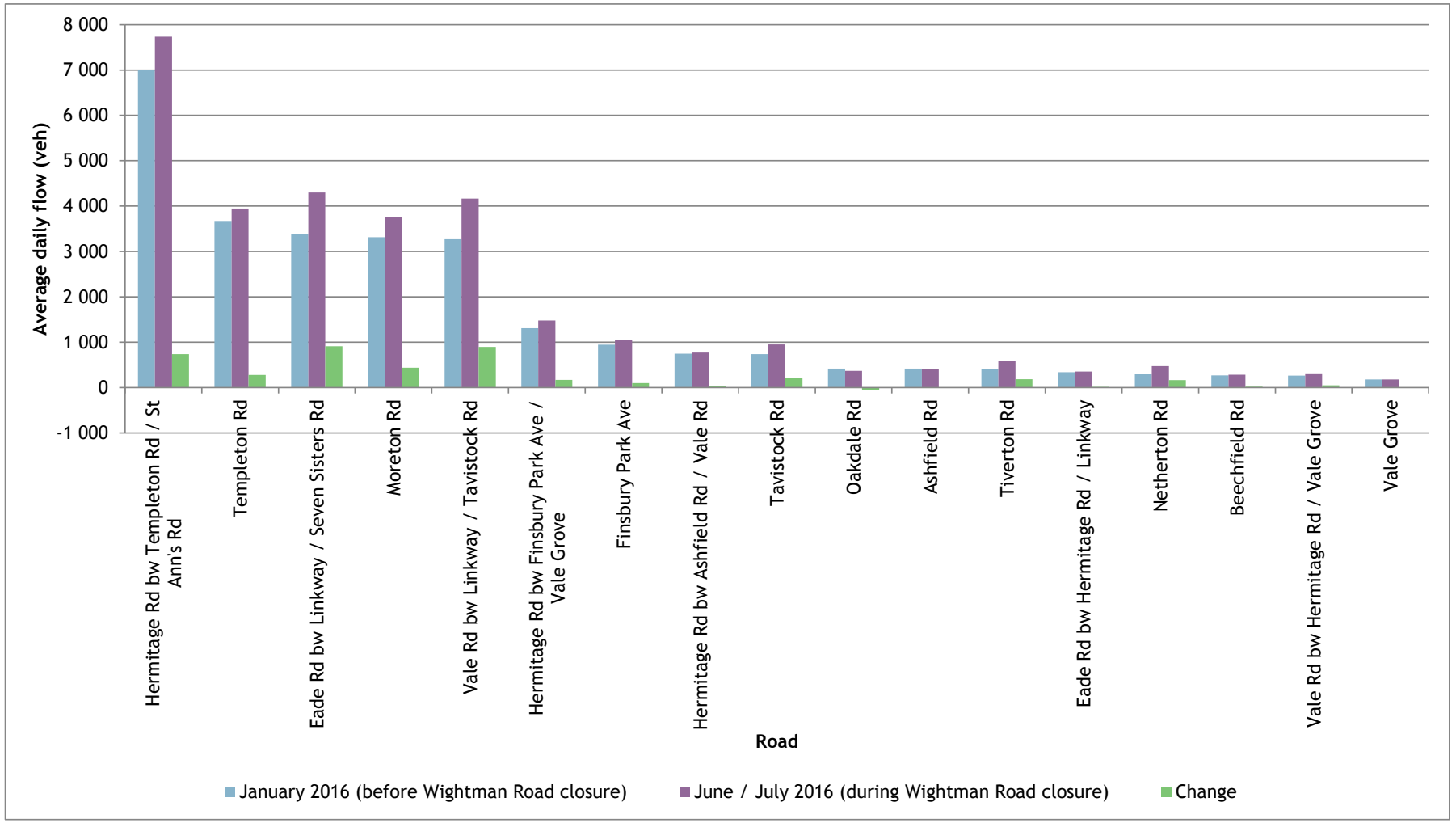
Source: Traffic surveys, January 2016 and June / July 2016

Figure 3.12: Average daily traffic flow, Gardens sub-area



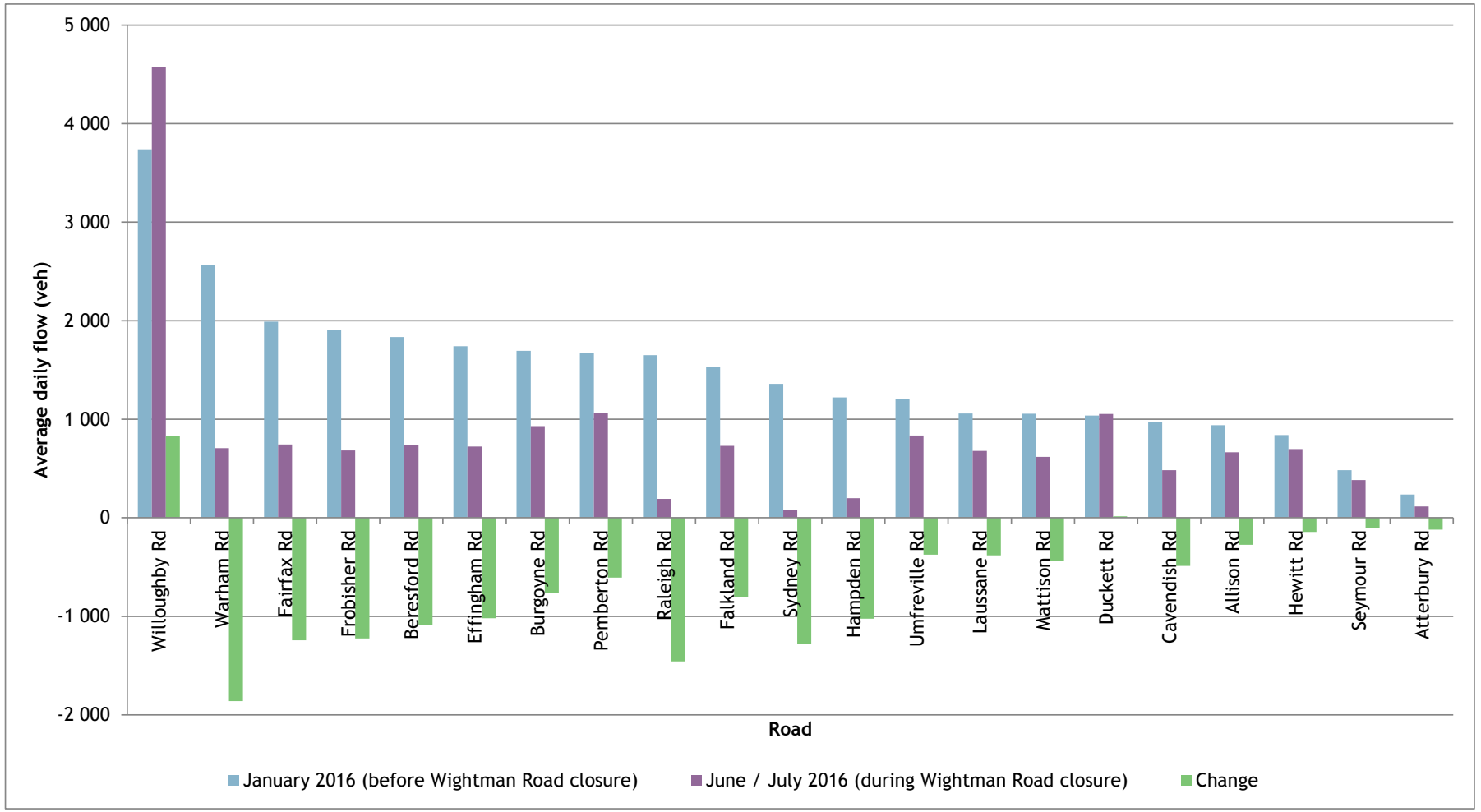
Source: Traffic surveys, January 2016 and June / July 2016

Figure 3.13: Average daily traffic flow, Hermitage sub-area



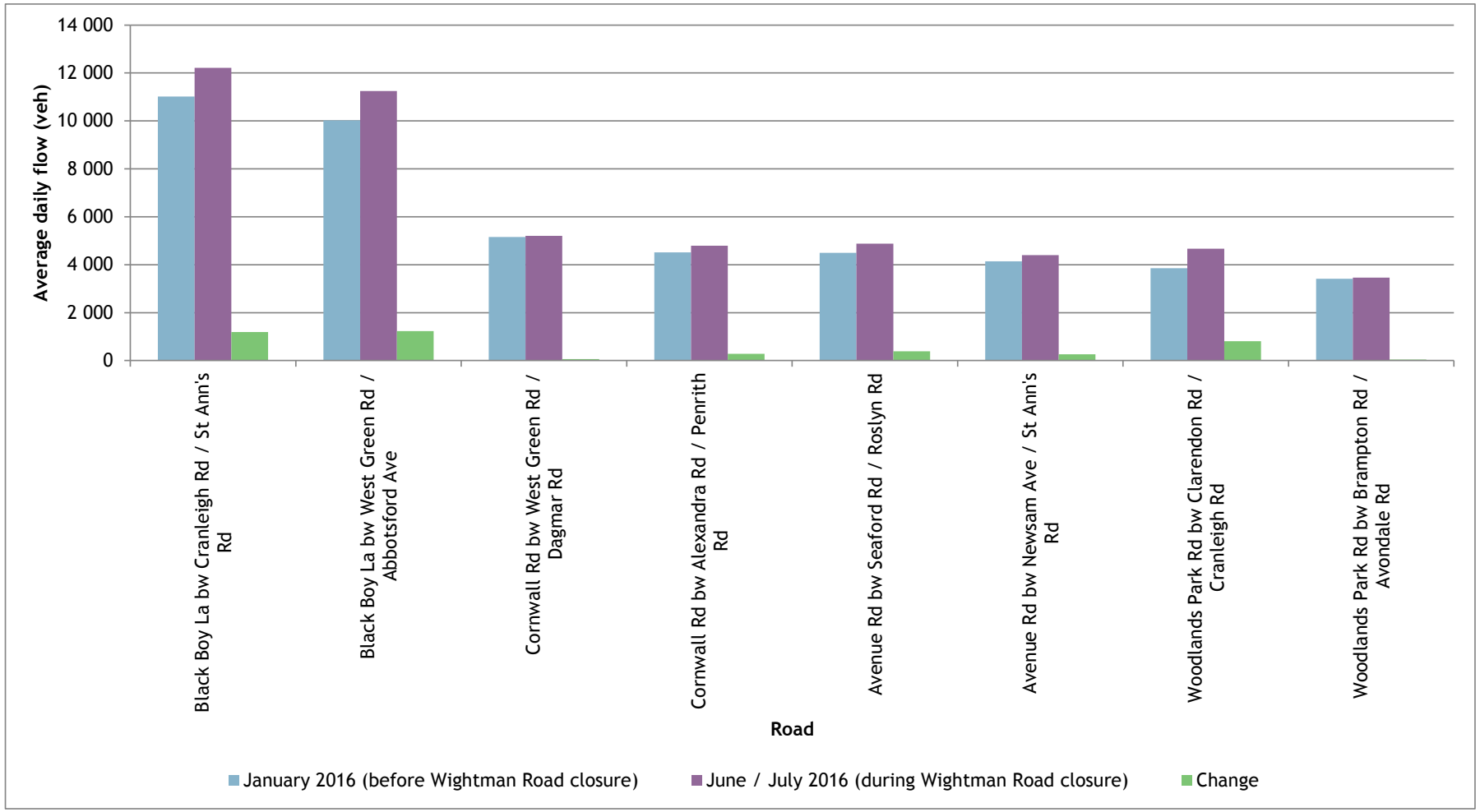
Source: Traffic surveys, January 2016 and June / July 2016

Figure 3.14: Average daily traffic flow, Ladder sub-area



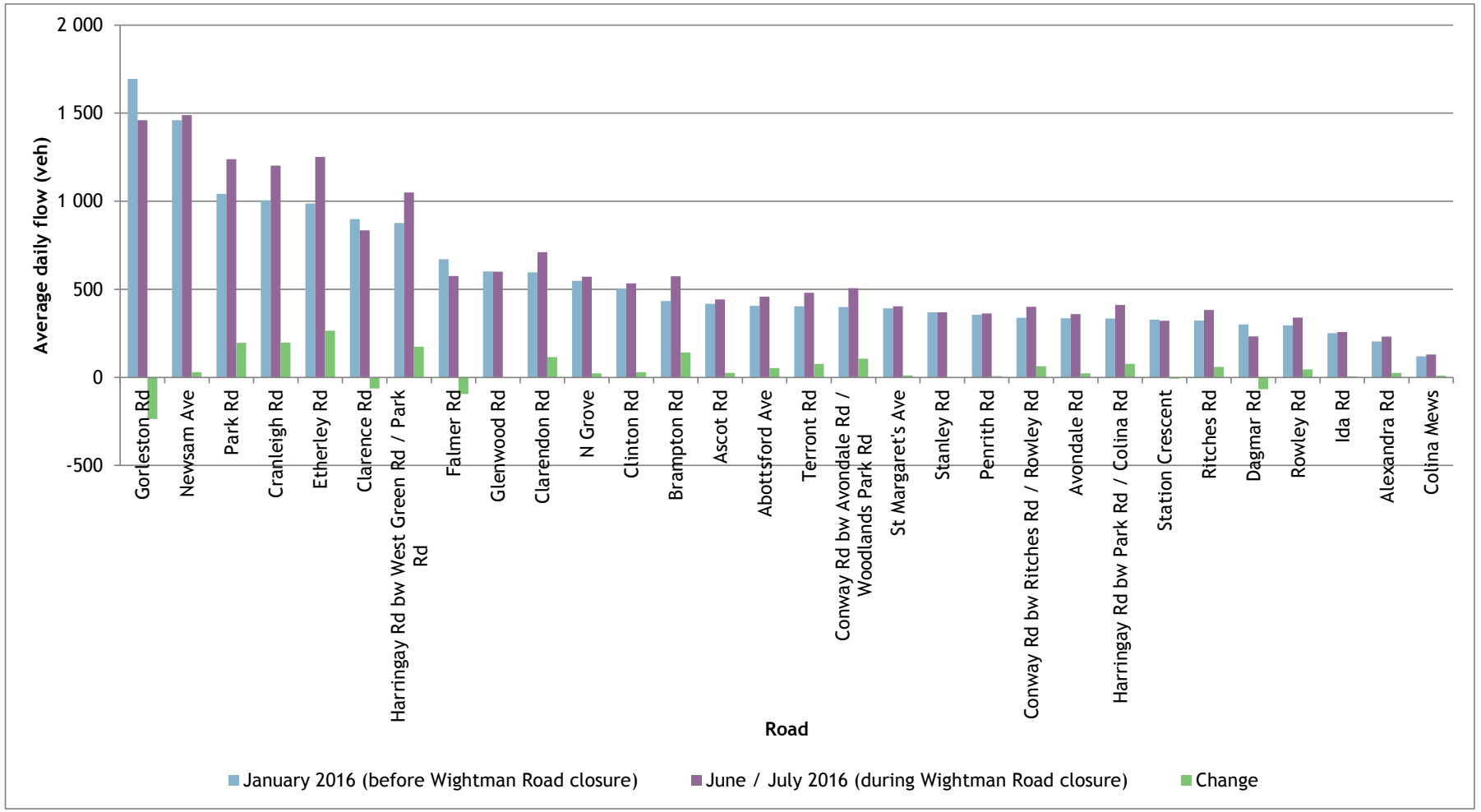
Source: Traffic surveys, January 2016 and June / July 2016

Figure 3.15: Average daily traffic flow, St Ann's sub-area (1 of 2)



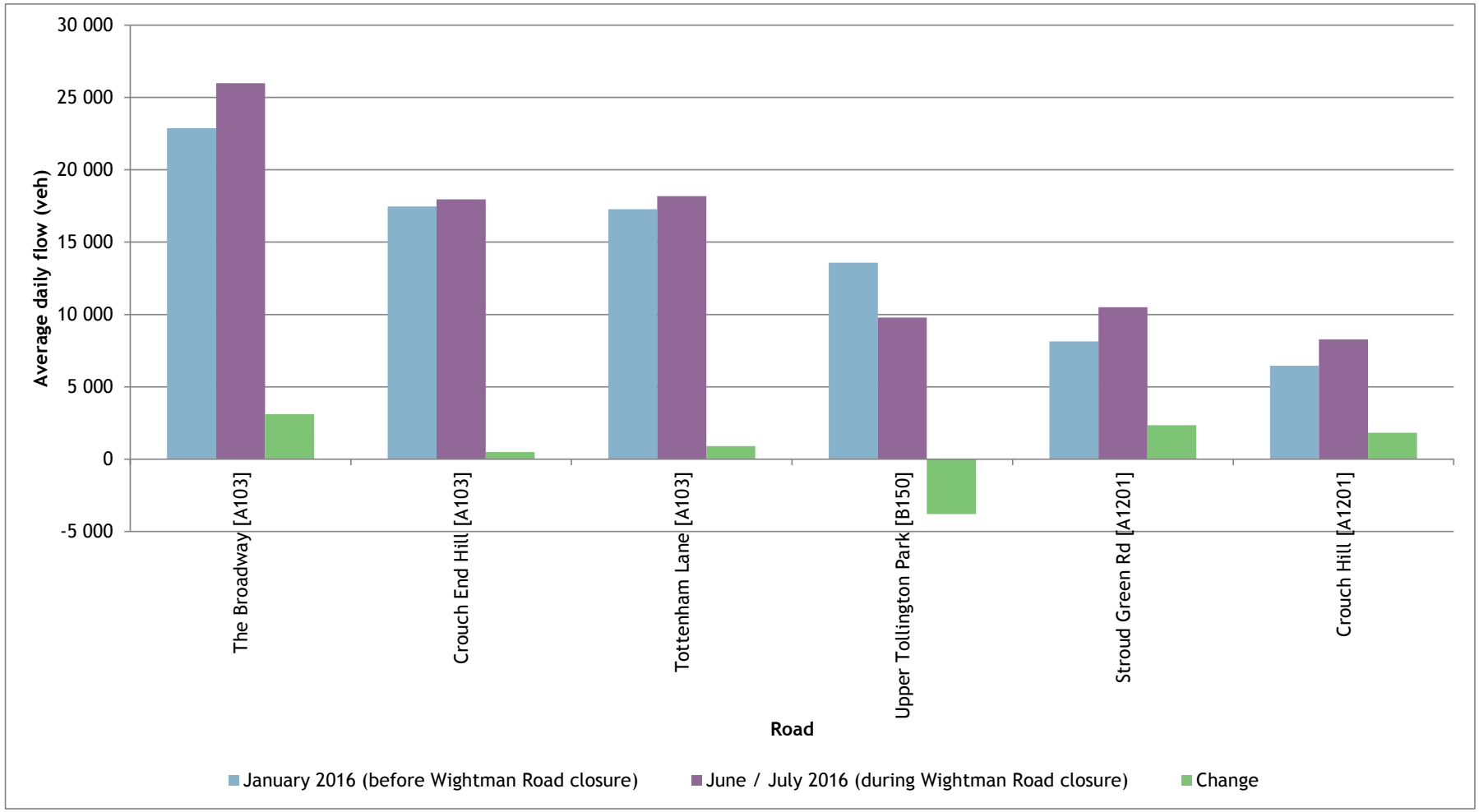
Source: Traffic surveys, January 2016 and June / July 2016

Figure 3.16: Average daily traffic flow, St Ann's sub-area (2 of 2)



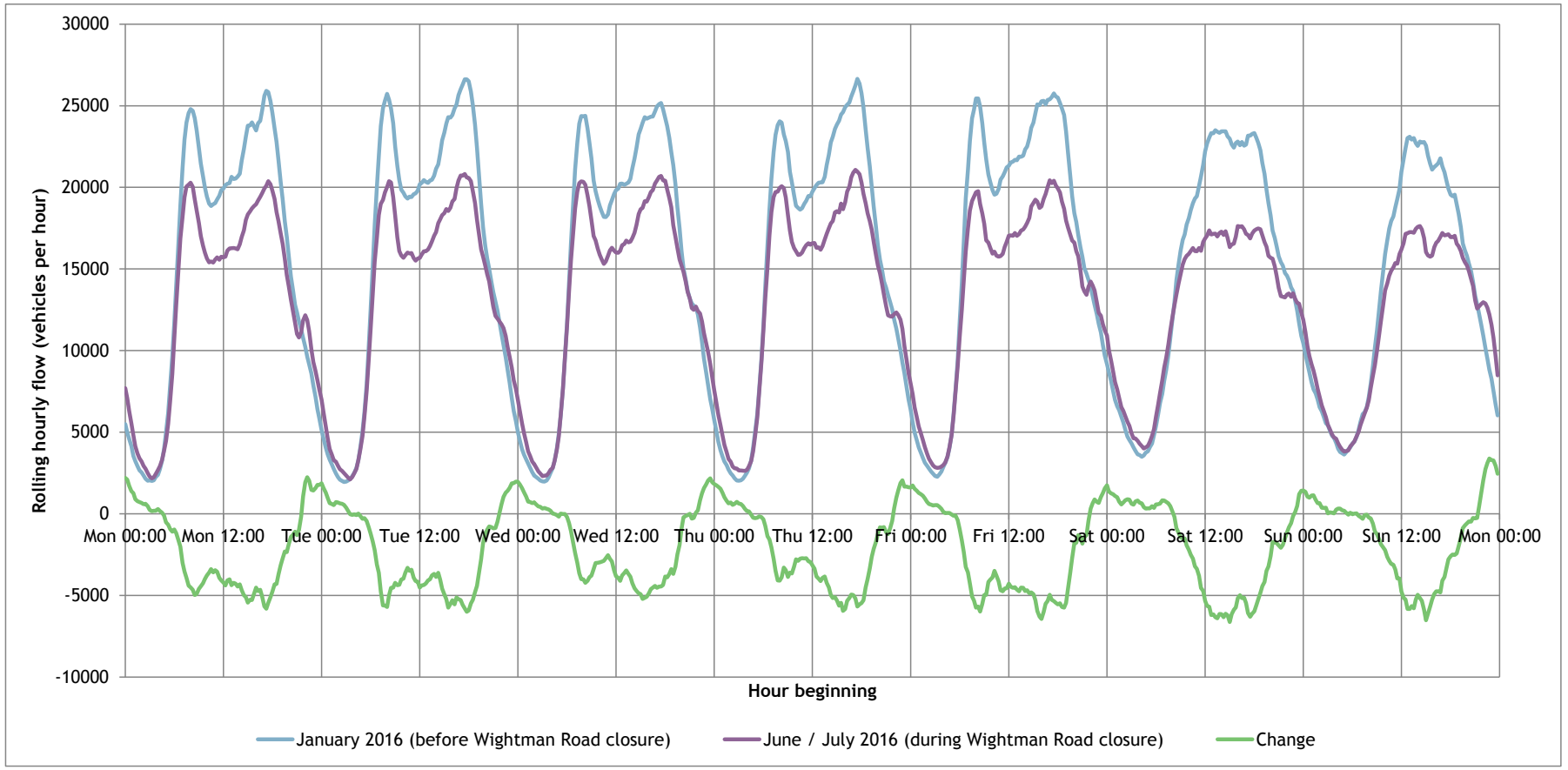
Source: Traffic surveys, January 2016 and June / July 2016

Figure 3.17: Average daily traffic flow, roads outside study area



Source: Traffic surveys, January 2016 and June / July 2016

Figure 3.18: Traffic flow profiles across the week, sum of all roads surveyed in the study area

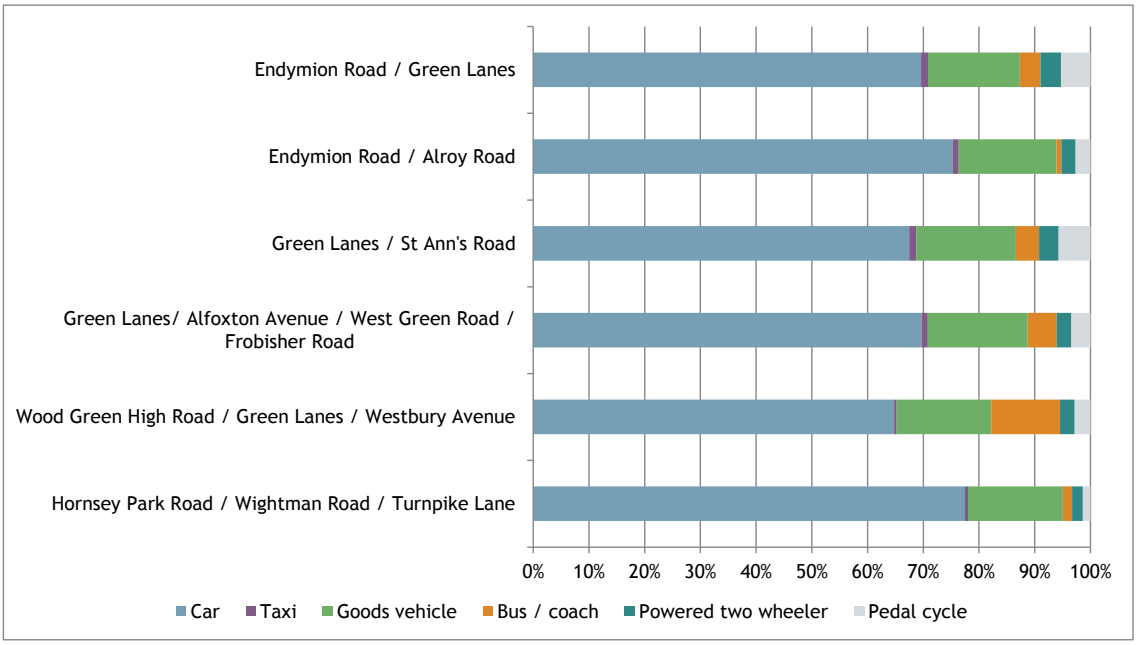


Source: Traffic surveys, January 2016 and June / July 2016

Junction traffic flows

3.28 Figure 3.19 shows the split by vehicle type for key junctions within the study area. These surveys were only undertaken in January 2016, before the Wightman Road closure.

Figure 3.19: Proportion of different vehicle types by junction



Source: Traffic surveys, January 2016

3.29 Cars make up the majority of vehicular movements at around 70% on average, goods vehicles are the next main category.

3.30 The most significant difference between each of the sites arises from the change in bus flows, and by proportion the Wood Green High Road junction with Turnpike Lane / Green Lanes / Westbury Avenue has by far the highest flow of buses. This is as expected due to the number of routes accessing the Turnpike Lane bus station.

3.31 Figure 3.21 shows the daytime (7:00–19:00) flow profile at each of the junctions surveyed. The Hornsey Park Road / Wightman Road / Turnpike Lane intersection generally sees the highest flows of those junctions where movements were recorded.

3.32 Figures 3.22-3.27 show the results of the manual classified counts at the same junctions.

Figure 3.20: Locations of junction traffic counts

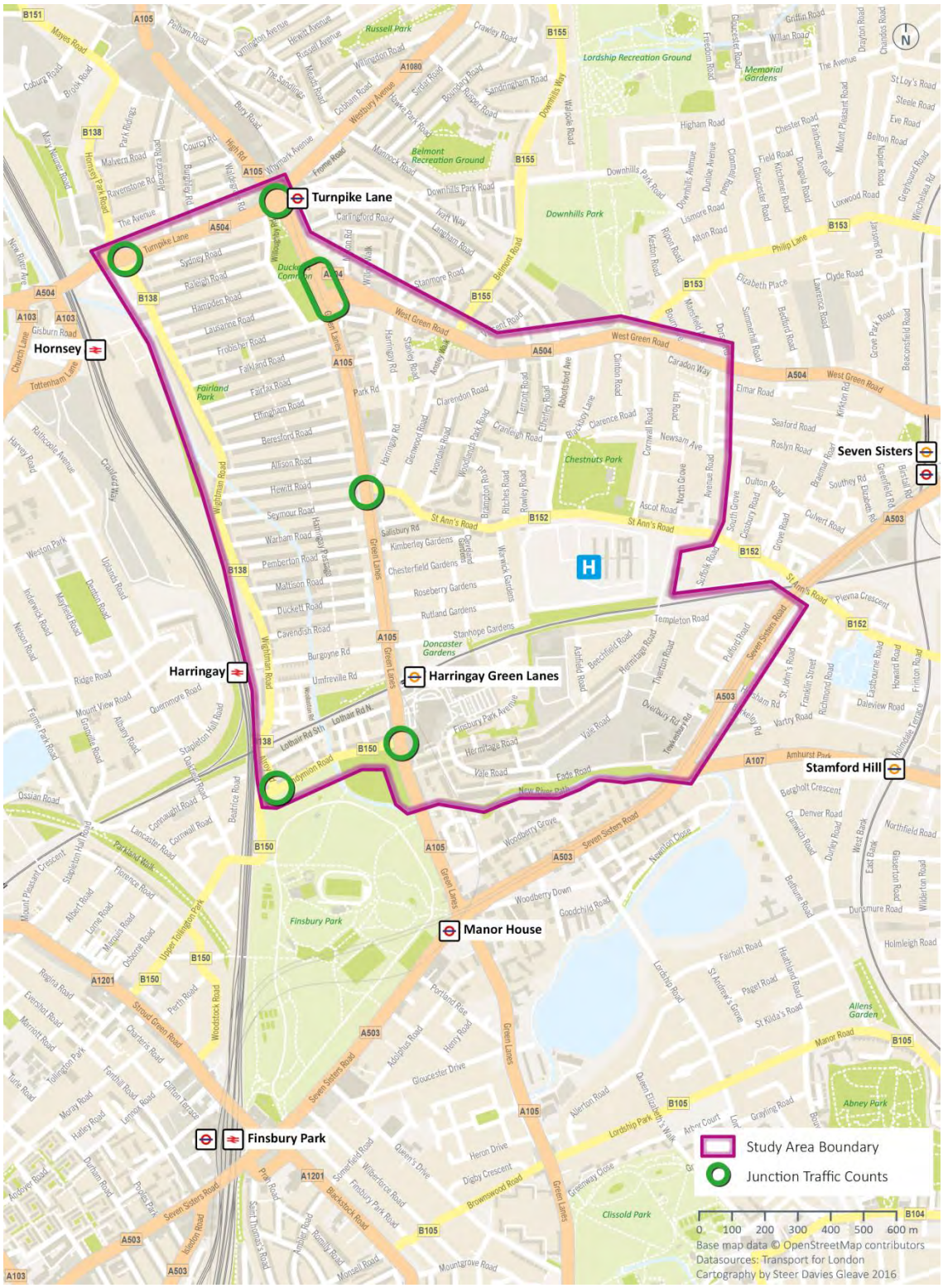
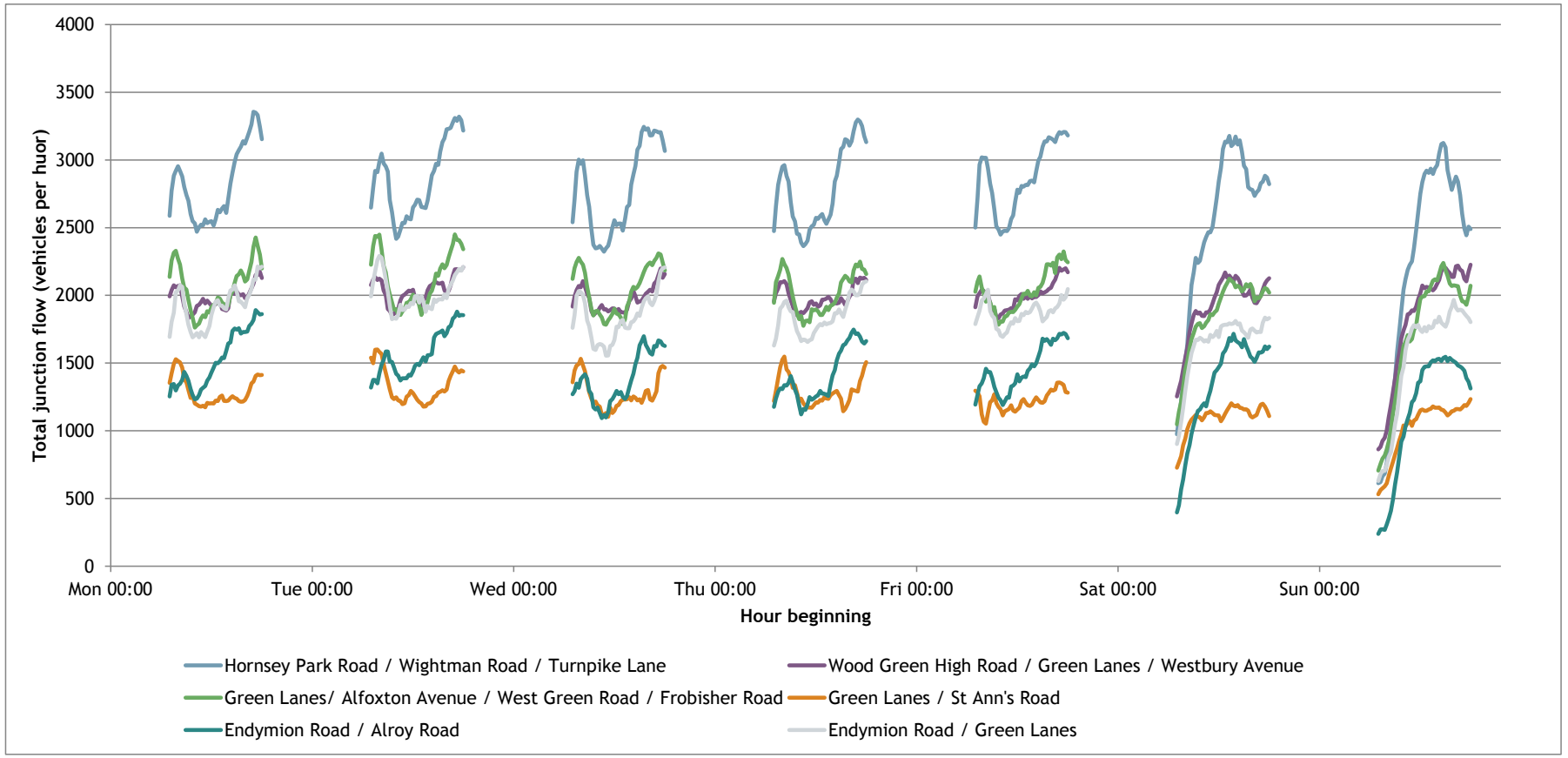
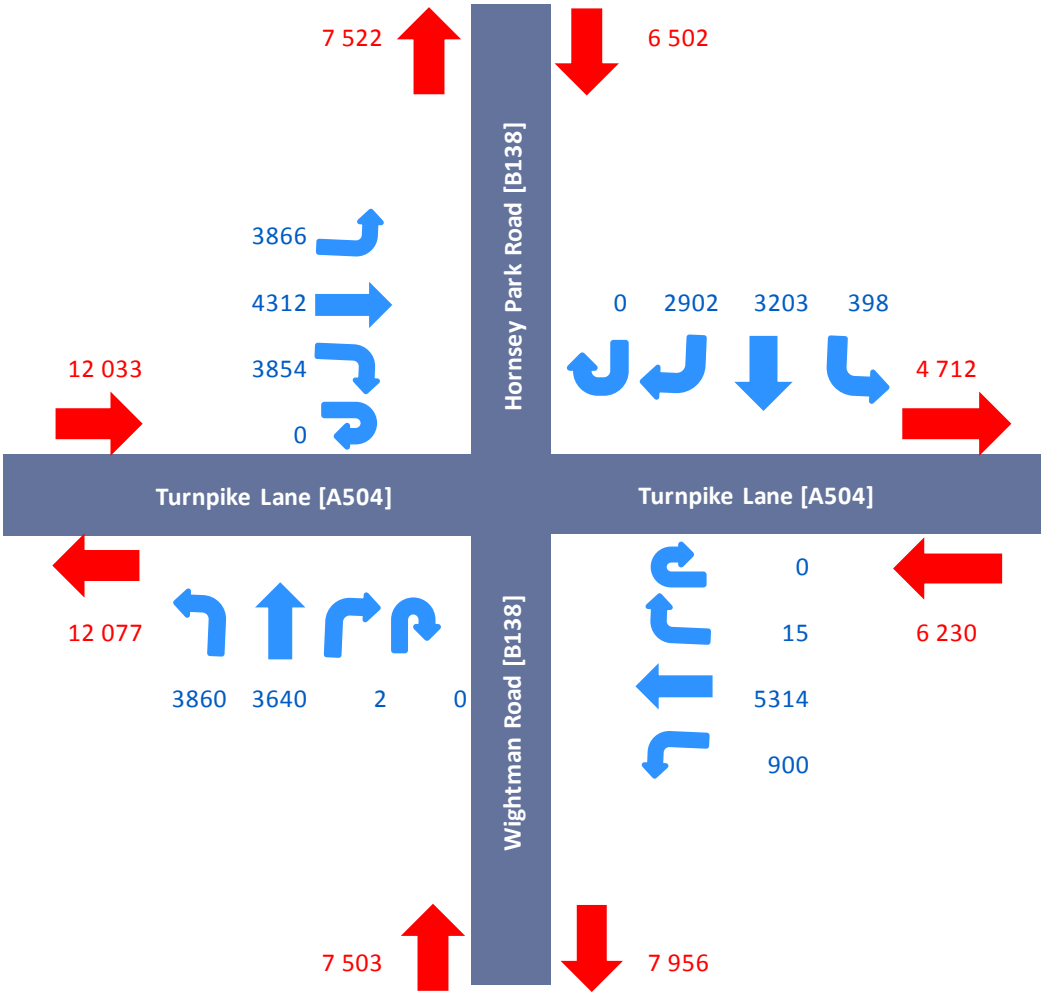


Figure 3.21: Total traffic flows by junction



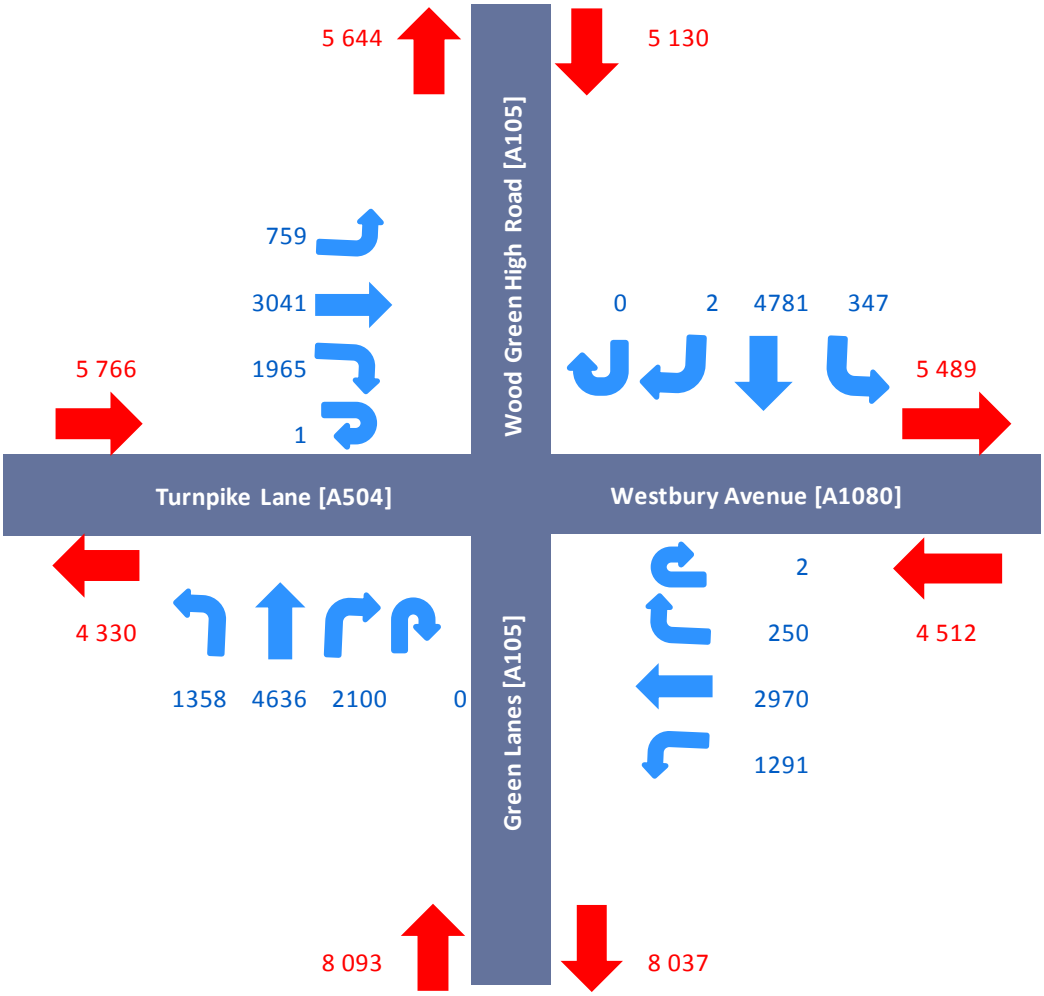
Source: Traffic surveys, January 2016

Figure 3.22: Traffic flows for an average 12 hour day, 07:00–19:00, Hornsey Park Road / Wightman Road / Turnpike Lane



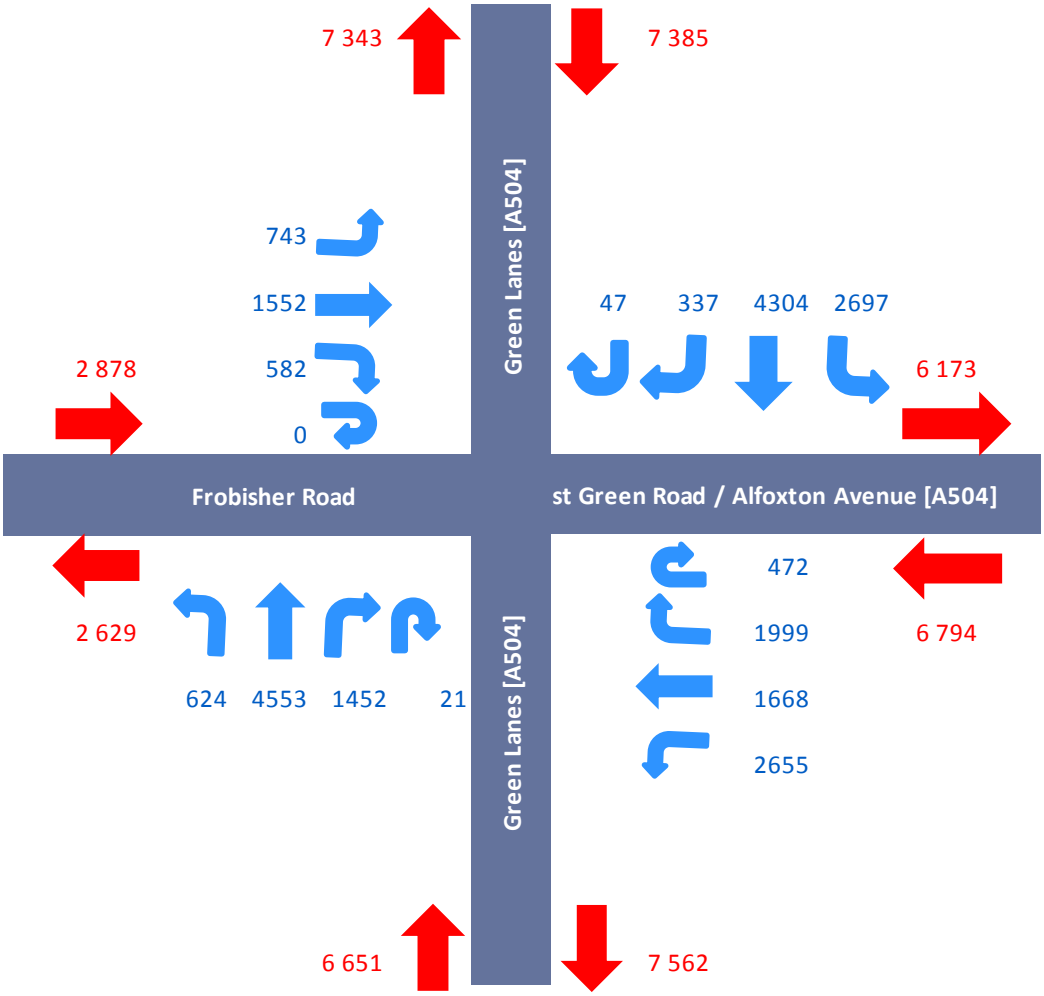
Source: Traffic surveys, January 2016

Figure 3.23: Traffic flows for an average 12 hour day, 07:00–19:00, Wood Green High Road / Green Lanes / Westbury Avenue



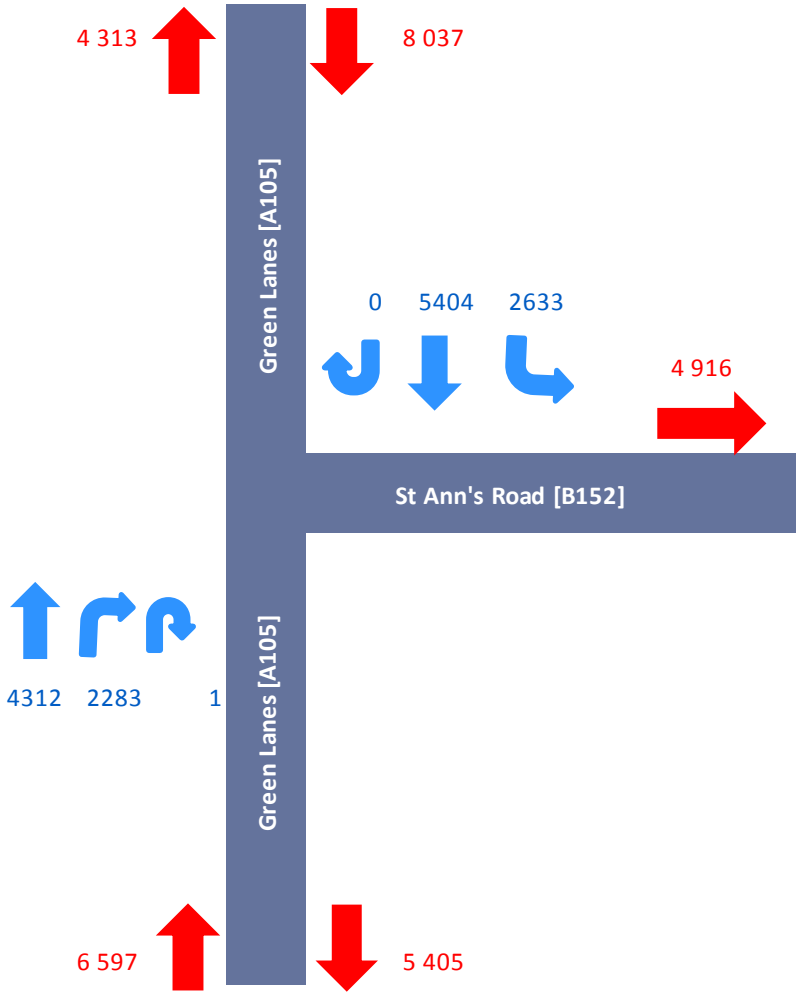
Source: Traffic surveys, January 2016

Figure 3.24: Traffic flows for an average 12 hour day, 07:00–19:00, Green Lanes/ Alfoxton Avenue / West Green Road / Frobisher Road



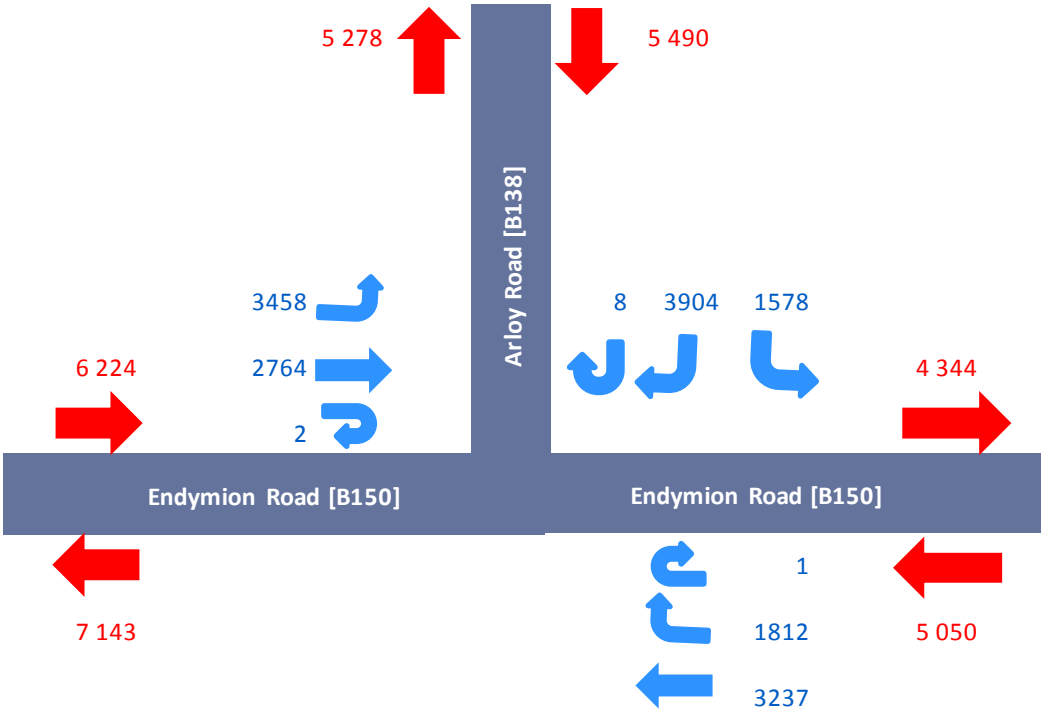
Source: Traffic surveys, January 2016

Figure 3.25: Traffic flows for an average 12 hour day, 07:00–19:00, Green Lanes / St Ann's Road



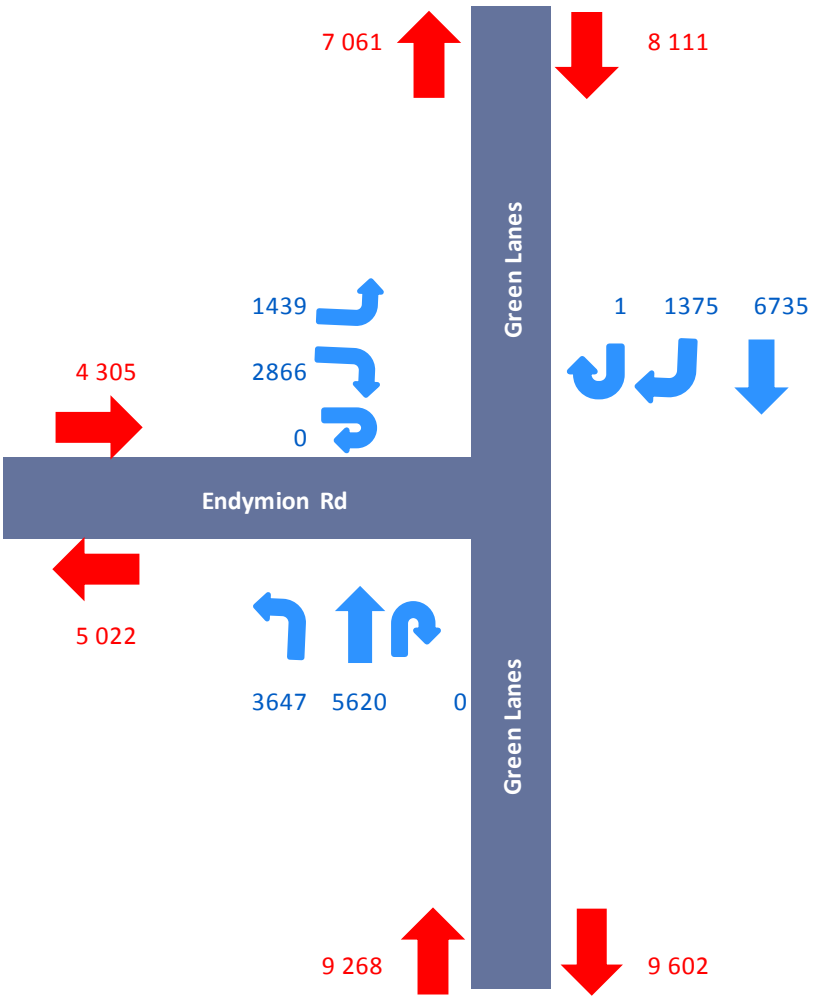
Source: Traffic surveys, January 2016

Figure 3.26: Traffic flows for an average 12 hour day, 07:00–19:00, Endymion Road / Alroy Road



Source: Traffic surveys, January 2016

Figure 3.27: Traffic flows for an average 12 hour day, 07:00–19:00, Endymion Road / Green Lanes



Source: Traffic surveys, January 2016

Vehicle origin destination survey

Overview

3.33 To further understand the flow of traffic through and to/from the area, we have also undertaken a cordon survey which records individual vehicles moving into and out of the study area. This survey was first undertaken for the 16 hour period between 06:00 and 22:00 on Tuesday 22 March 2016, prior to the closure of Wightman Road. The survey was then repeated during the same time period on Wednesday 29 June 2016, during the Wightman Road closure.

3.34 This cordon generally matches the study area, with some differences in order to minimise the number of roads crossing the cordon. Each road crossing the cordon formed a node for the purpose of the survey, with cameras placed at each node to capture vehicle number plates using automated number plate recognition (ANPR) technology. A further node was placed on Williamson Road in order to capture vehicles going to and from the Arena retail park/ Sainsbury's superstore. Figure 3.28 shows the cordon and the locations of the survey nodes.

3.35 The ANPR data collected at different nodes has then been matched in order to provide trip chains for each recorded vehicle, hence describing the route of that vehicle as it crosses the various survey nodes. Along with an indicator of the node at which the vehicle was recorded, the surveys also record the direction of travel and the journey time for each segment of the trip—a journey can be thought of as being made of a series of segments from one site to the next.

3.36 Limitations associated with ANPR technology mean than it is impossible to capture the number plates of 100% of the vehicle crossing the cordon. As such, manual classified counts (MCCs) of vehicles crossing the cordon at each node provide information on the total number of vehicles passing through each survey node, along with the direction of travel. This enables the ANPR data to be 'factored up', in order to match the actual number of vehicles crossing the cordon.

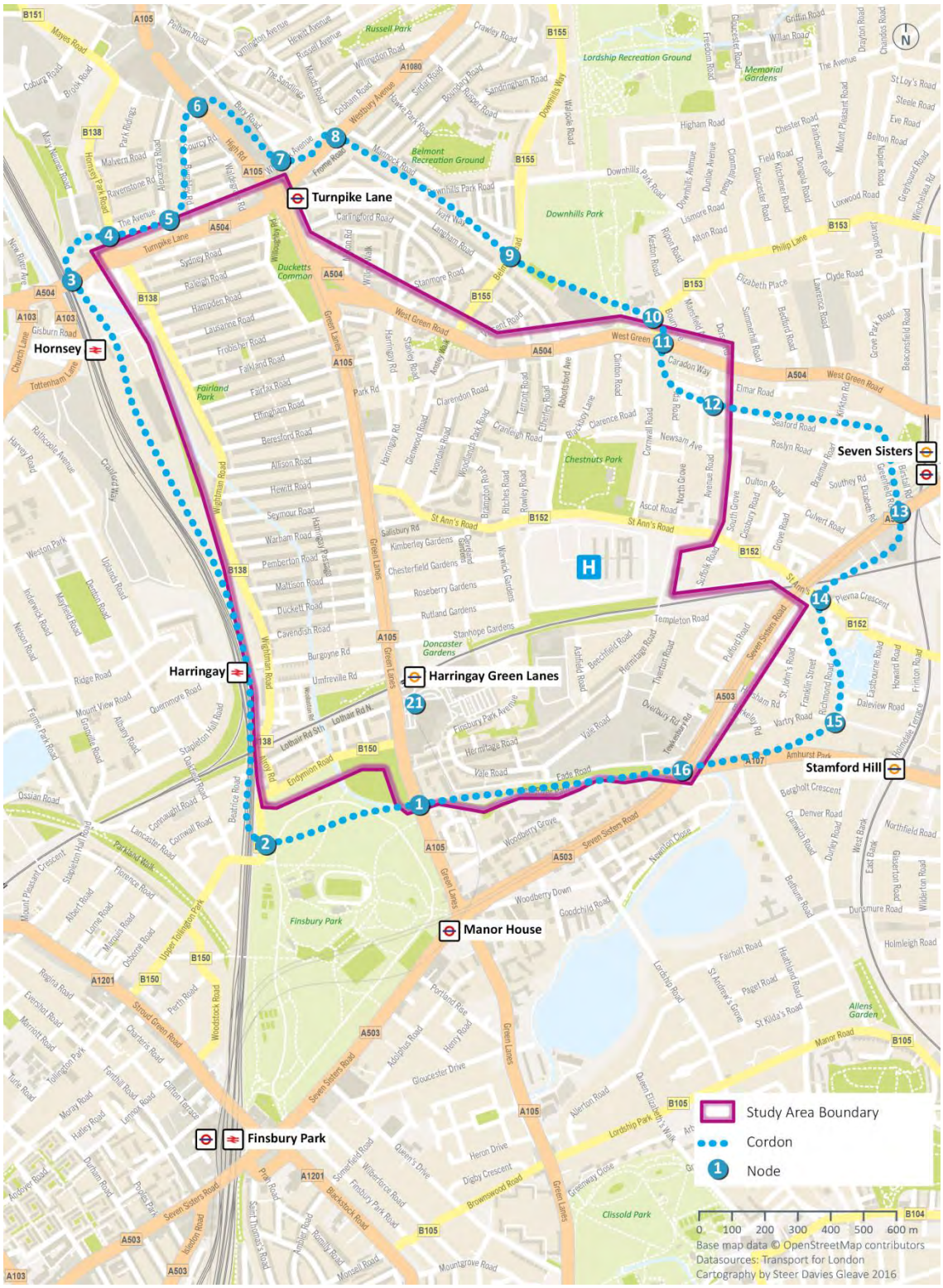
3.37 It should be noted that this factoring up process involves a degree of estimation, which means that the results will not exactly reflect actual conditions. In addition, due to technical issues experienced by the traffic survey contractor during the March 2016 survey, there were some hours of data missing from survey nodes 10 and 12. As such, we have needed to apply an estimation process in order to fill these data gaps.

3.38 It is also important to note that this survey will only capture vehicles that pass each node. **As such, vehicle trips that both start and end within the cordon, without passing any of the nodes, are not captured by this survey.**

3.39 The information included in this section highlights some of the key results and findings from the origin destination survey. A complete set of results has been appended to this report:

- Appendix A contains origin-destination matrices
- Appendix B contains diagrams showing the flows to and from each node

Figure 3.28: Locations of survey sites



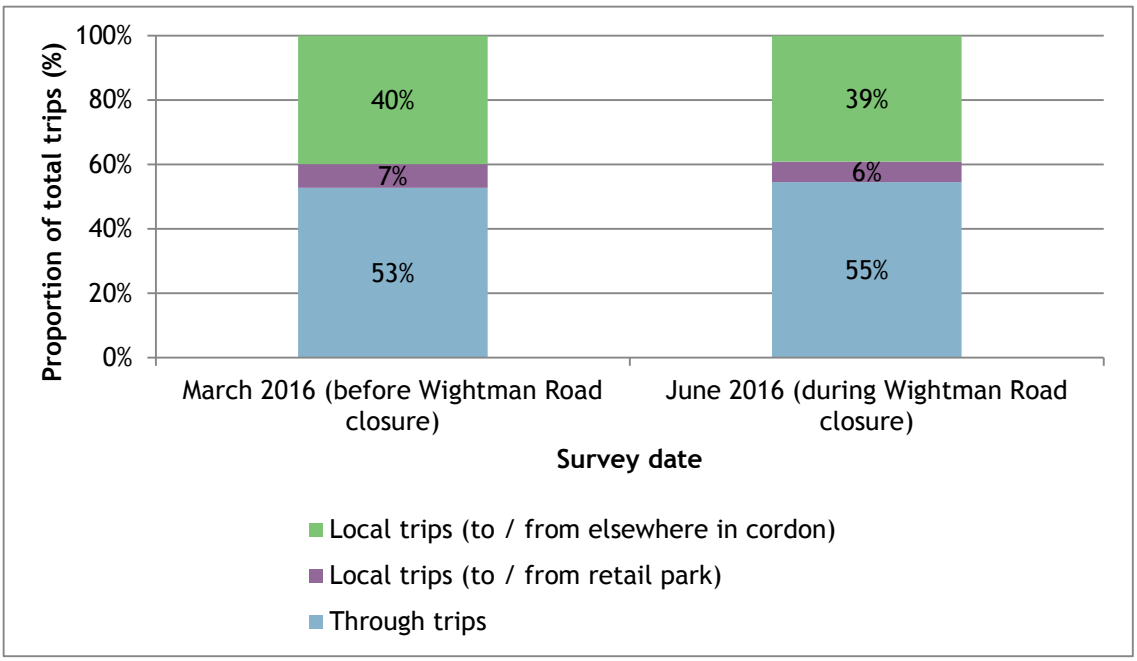
Overall trips and trip types

3.40 The results of the origin destination survey provide useful information on the make-up of trips in the area. For the purposes of this analysis, trips have been classified as follows:

- **Through trips**: Trips that pass through the cordon, without stopping
- **Local trips**: Trips that start and/or end in the study area (note that trips that both start and end in the study area, without passing any of the survey nodes, are not captured by this survey)

3.41 Based on this classification, the proportions of total trips by trip type are shown in Figure 3.29 below. It can be seen that both before and during the closure, slightly more than half of all trips were through trips, and slightly under half were local trips. A noticeable proportion of all trips are to and from the Arena Retail Park—about 6–7%.

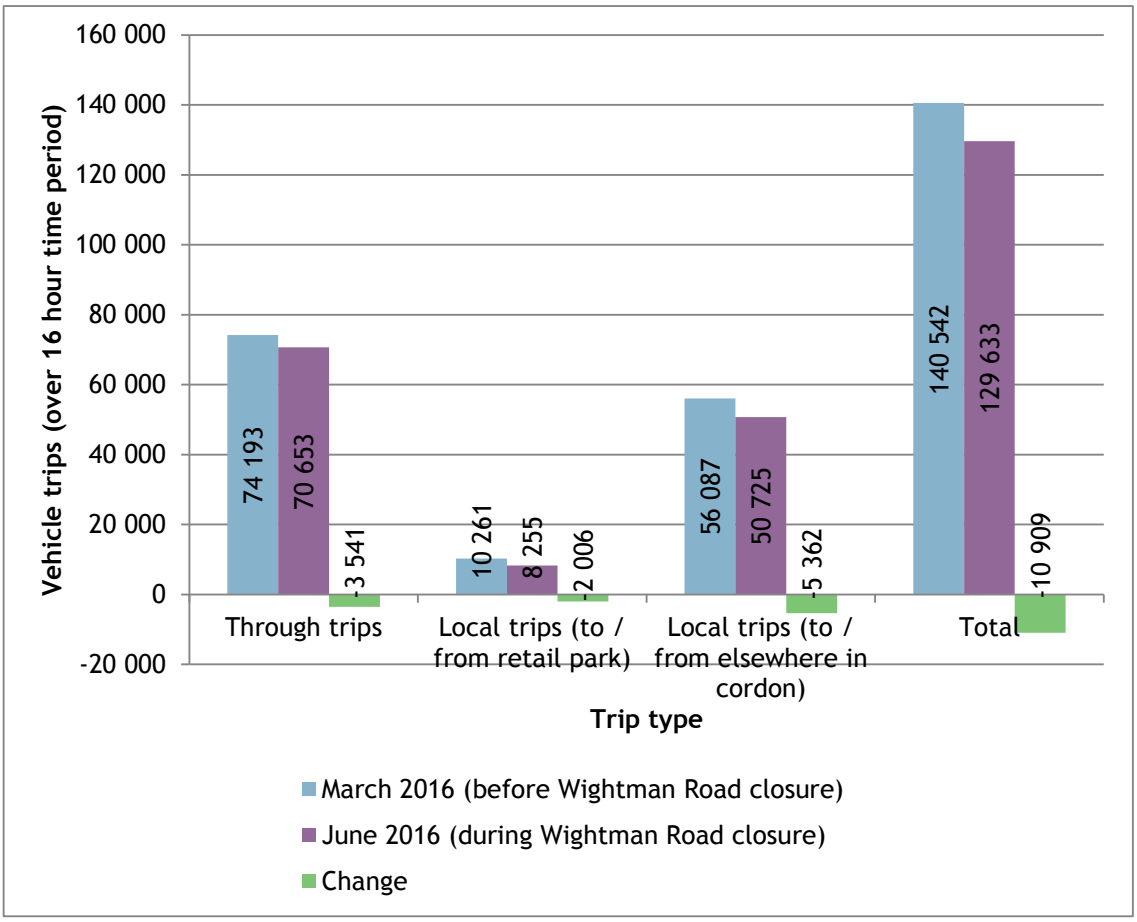
Figure 3.29: Proportion of total vehicle trips by type, March 2016 and June 2016



Source: Origin-destination surveys, March 2016 and June 2016. Surveys based on automatic number plate recognition; pedal cycles and powered two wheelers are not included in these flows. Trips starting and ending within the survey cordon that did not pass any survey nodes not included.

3.42 Figure 3.30 below shows the number of vehicle trips by trip type, before and during the closure. It can be seen that the overall number of trips fell during the closure, by about 10,900 vehicle trips, or approximately 8%. Local trips fell by a higher percentage (about 11%) compared to through trips (5%).

Figure 3.30: Vehicle trips by type, March 2016 and June 2016



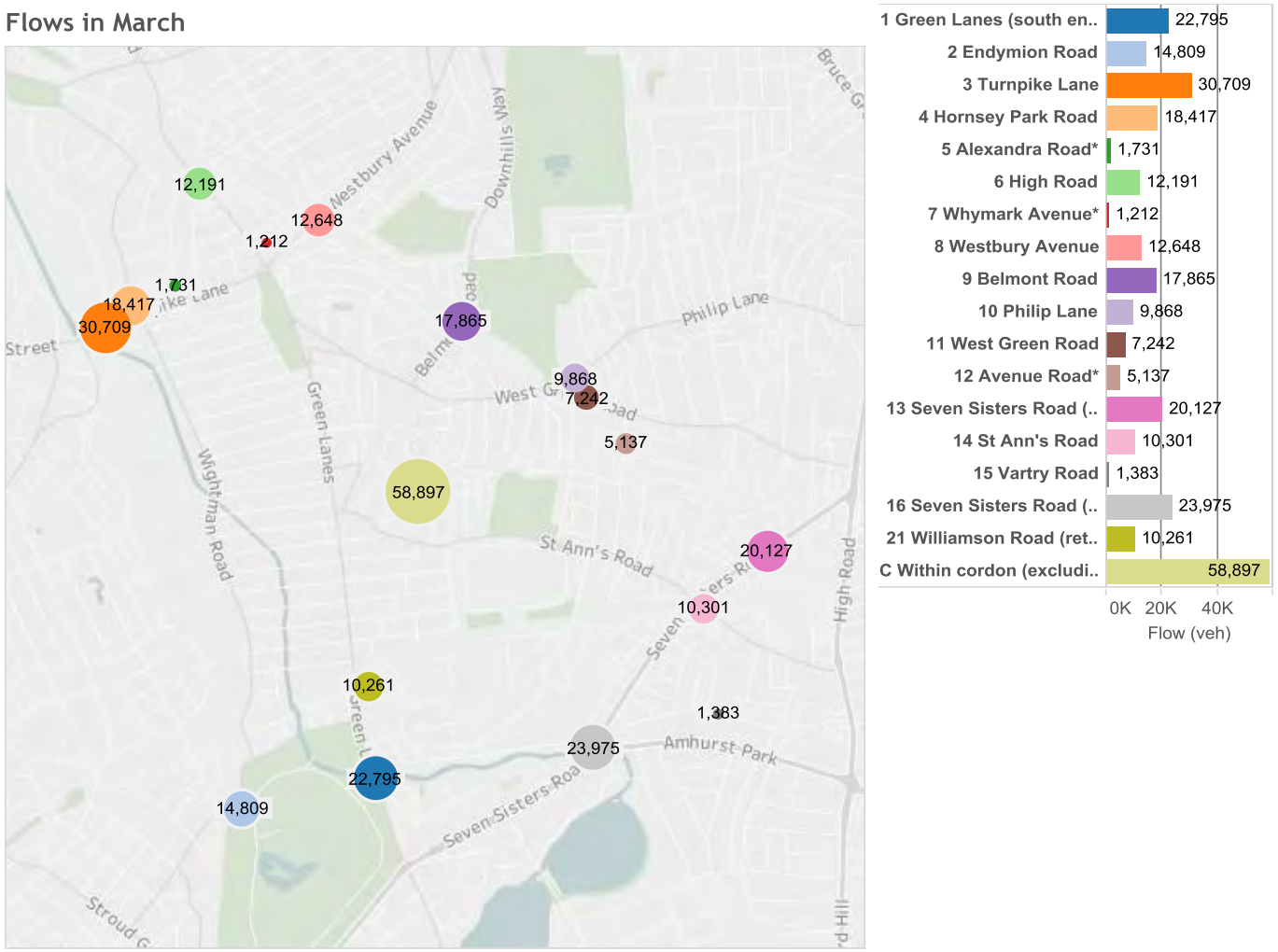
Source: Origin-destination surveys, March 2016 and June 2016. Surveys based on automatic number plate recognition; pedal cycles and powered two wheelers are not included in these flows. Trips starting and ending within the survey cordon that did not pass any survey nodes not included.

Overall flows at each node

3.43 Figure 3.31 below shows the total number of vehicle trips recorded at each of the survey nodes before the Wightman Road closure. It can be seen that the busiest node was Turnpike Lane, with approximately 30,700 vehicles. Other busy nodes with over 20,000 vehicles include Green Lanes (south end), Seven Sisters Road (east end) and Seven Sisters Road (west end).

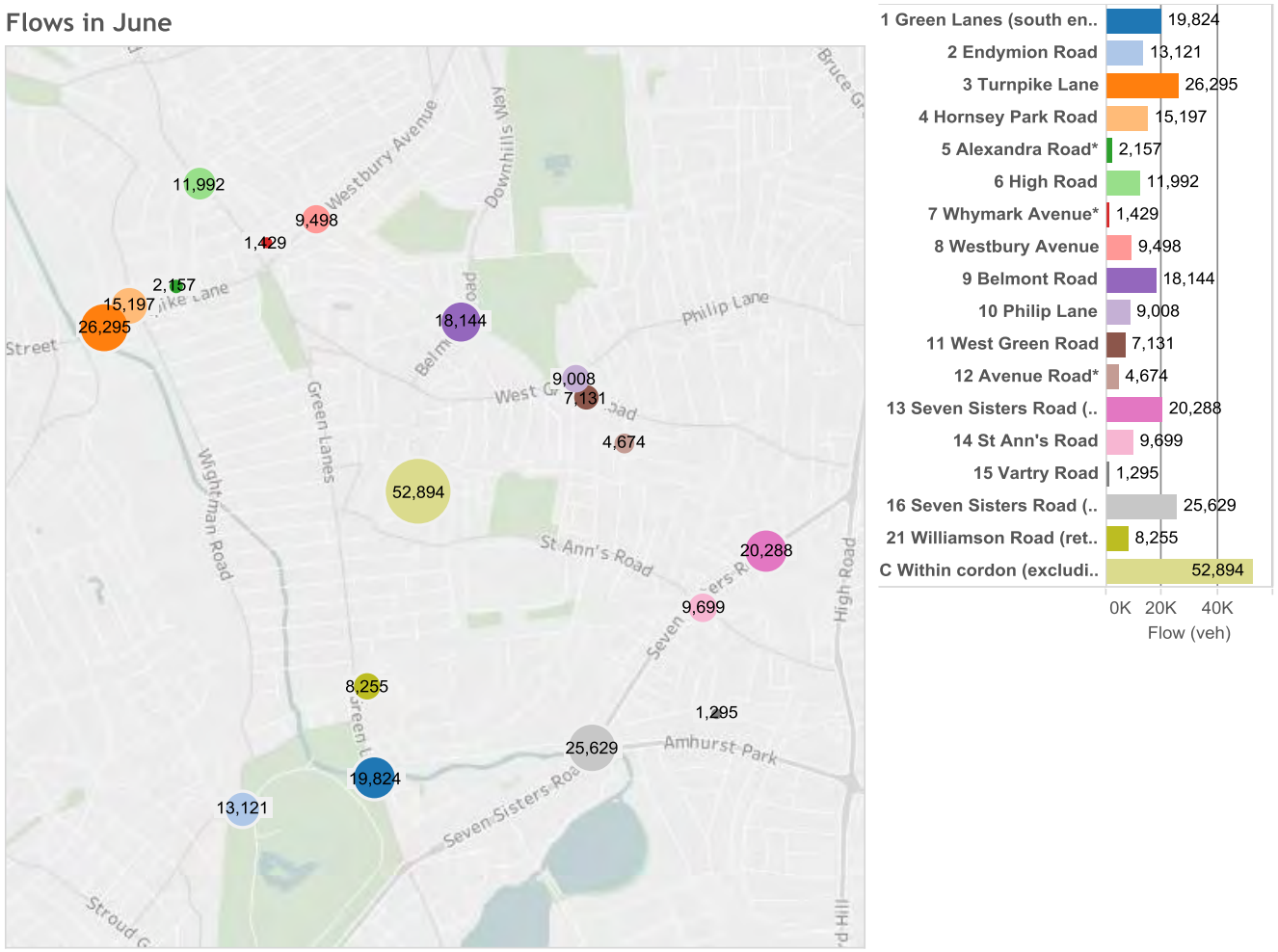
3.44 Figure 3.32 and Figure 3.33 below respectively show vehicles trips at each node during the closure and the change between the two sets of surveys. It can be seen that in general, traffic flows declined at most of the nodes. The biggest absolute decreases occurred at Turnpike Lane (-4,400), Hornsey Park Road (-3,200), Westbury Avenue (-3,200) and Green Lanes (south end) (-3,000). The only node that saw a significant increase was Seven Sisters Road (west end), which had an increase of about 1,700.

Figure 3.31: Total vehicle trips by survey node (March 2016, before Wightman Road closure)



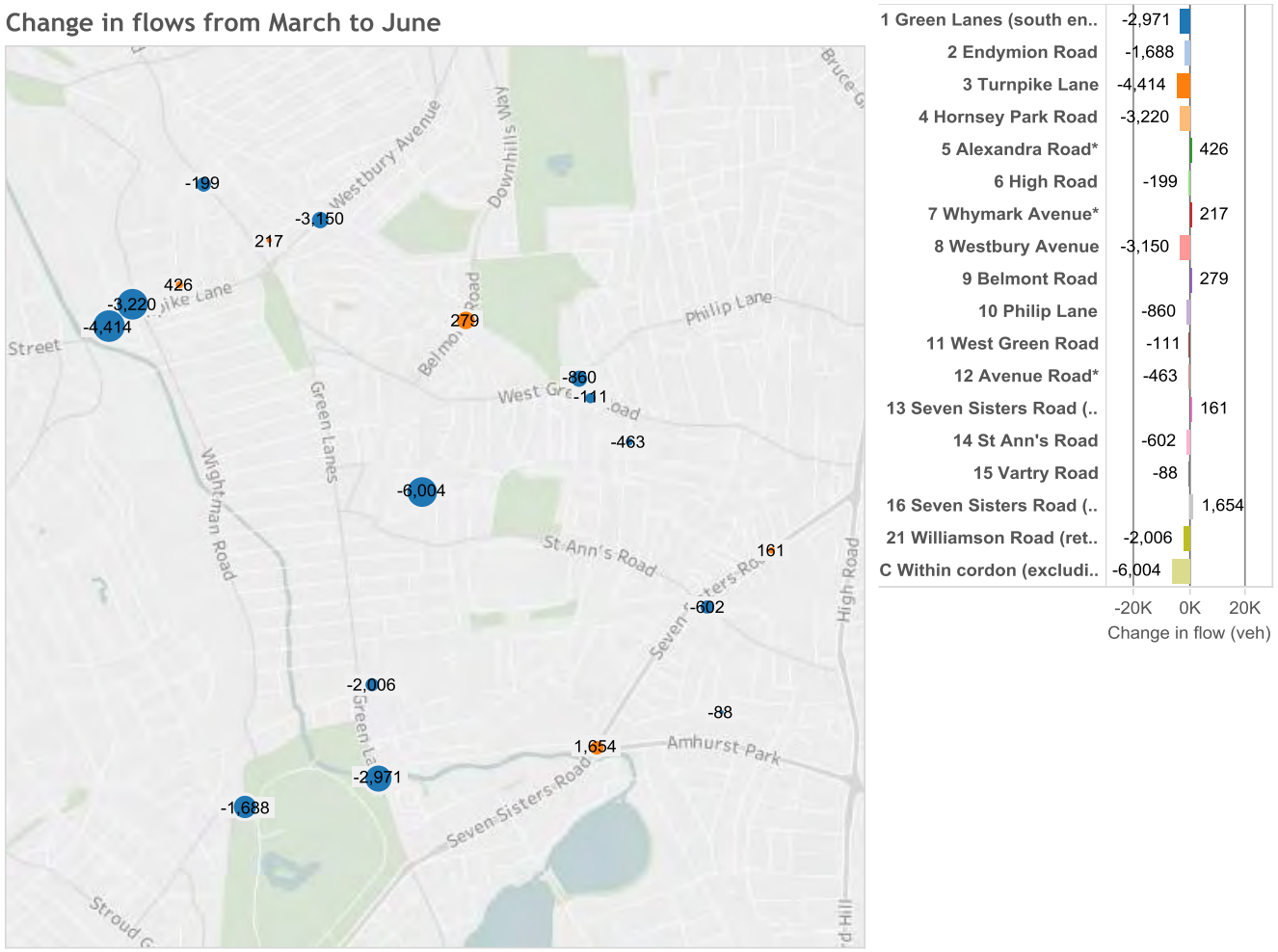
Source: Origin-destination surveys undertaken between 06:00 and 22:00 (16 hours) on Tuesday 22 March 2016. The surveys were based on automatic number plate recognition; pedal cycles and powered two wheelers are not included in these flows.

Figure 3.32: Total vehicle trips by survey node (June 2016, during Wightman Road closure)



Source: Origin-destination surveys undertaken between 06:00 and 22:00 (16 hours) on Wednesday 29 June 2016. The surveys were based on automatic number plate recognition; pedal cycles and powered two wheelers are not included in these flows.

Figure 3.33: Change in total vehicle trips by survey node (March 2016 to June 2016)



Source: Origin-destination surveys undertaken between 06:00 and 22:00 (16 hours) on Tuesday 22 March 2016 and Wednesday 29 June 2016. The surveys were based on automatic number plate recognition; pedal cycles and powered two wheelers are not included in these flows.

Origin destination flows

3.45 Figure 3.34 below shows a graphical summary of origin-destination flows between the external nodes of the survey, in March 2016 before the Wightman Road closure. The width of each line is proportional to the number of vehicles making each movement; full details of these results are included in the appendices to this report.

3.46 A number of patterns are apparent from this diagram:

- Some of the busier movements that are likely to lead to vehicles generally using A and B roads in the study are:
  - The largest movement is between Seven Sisters Road (west end) and Seven Sisters Road (east end), skirting around the southern edge of the study area. There are also many trips between Endymion Road and Green Lanes (south end), again skirting the southern edge of the study area.
  - There are also various trips skirting along the northern edge of the study area. Many of these are between Turnpike Lane and Hornsey Park Road, or between Turnpike Lane and Westbury Avenue.
  - There are many straightforward north-south trips along Wightman Road and Green Lanes, which are respectively between Endymion Road and Hornsey Park Road, or Green Lanes (south end) and Green Lanes (north end).
- There are also various origin and destination pairs that create more 'diagonal' movements across the study area, that are likely to utilise roads that are not A or B roads. These include:
  - Between Seven Sisters Road (west end) on the one hand, and Belmont Road, Avenue Road and Philip Lane on the other hand. These are likely to account for many of the vehicle movements through the eastern half of the Hermitage area and north-south movements through the St Ann's area.
  - Various movements between St Ann's Road and destinations in the north-west (Turnpike Lane, Hornsey Park Road and High Road). These are likely to account for some north-south movements through the St Ann's area and some east-west movements along Ladder rungs, depending on the exact routes used by drivers.
  - South-east to north-west movements between Green Lanes (south end), and Hornsey Park Road or Turnpike Lane. This creates demand for east-west movements across the Ladder.
  - There are also movements between the south-west (Endymion Road and Green Lanes (south end) and the north-east (mostly to Belmont Road, but also to Philip Lane). These are likely to account for some of the north-south movements through the St Ann's area. The trips to and from Endymion Road will also account for some of the east-west movements along Ladder rungs.

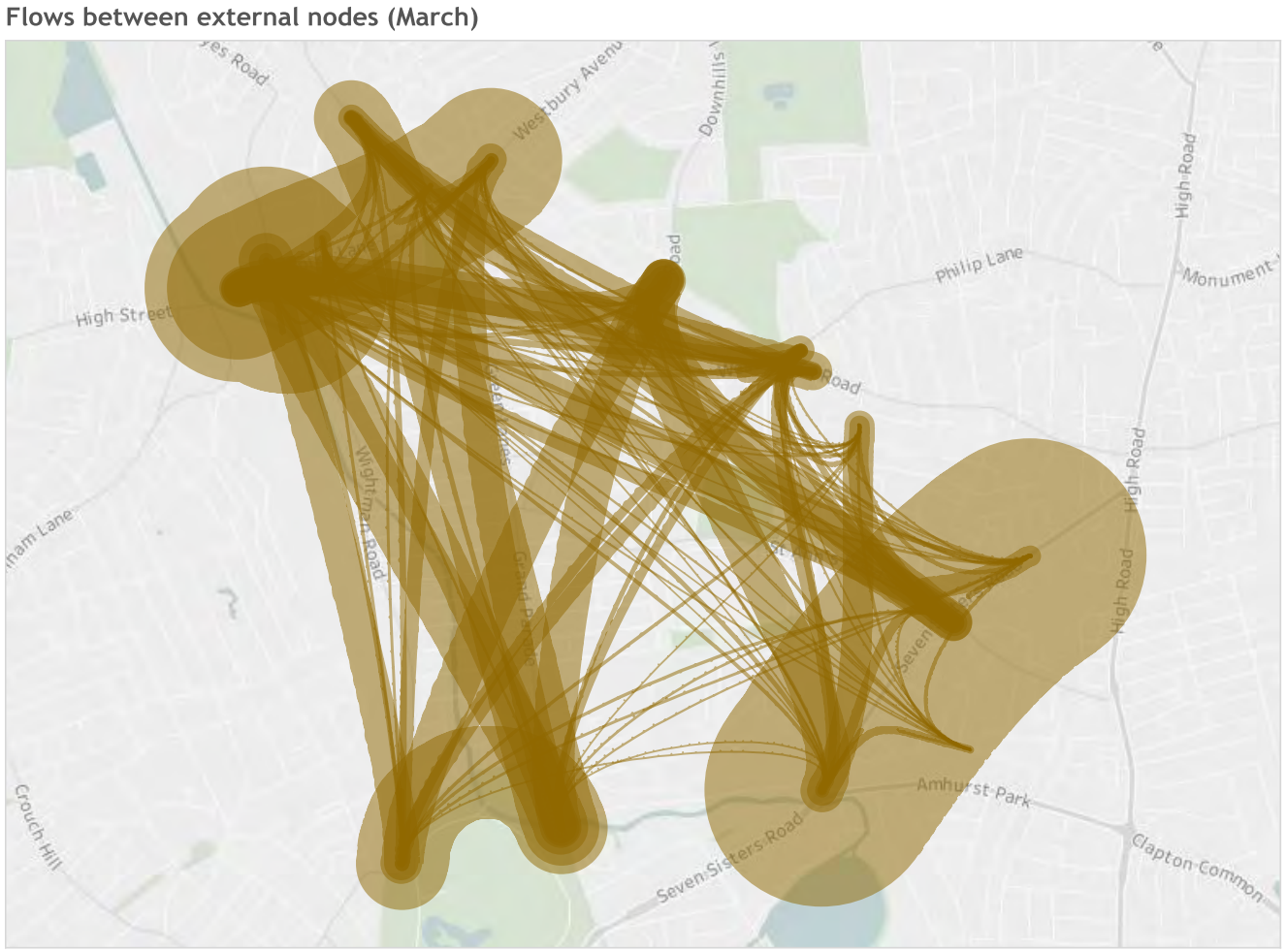
3.47 The same information from the June 2016 survey (during the Wightman Road closure) is shown in Figure 3.35 below. Figure 3.36 below then shows the change between the two surveys. Blue lines denote a decrease in flows, whilst orange lines denote an increase.

3.48 Some of the key changes between the two surveys are as follows:

- As would be expected, there was a very large decrease in the north-south movement along Wightman Road (between Endymion Road and Hornsey Park Road). However, there was also a large decrease in the north-south movement along Green Lanes.

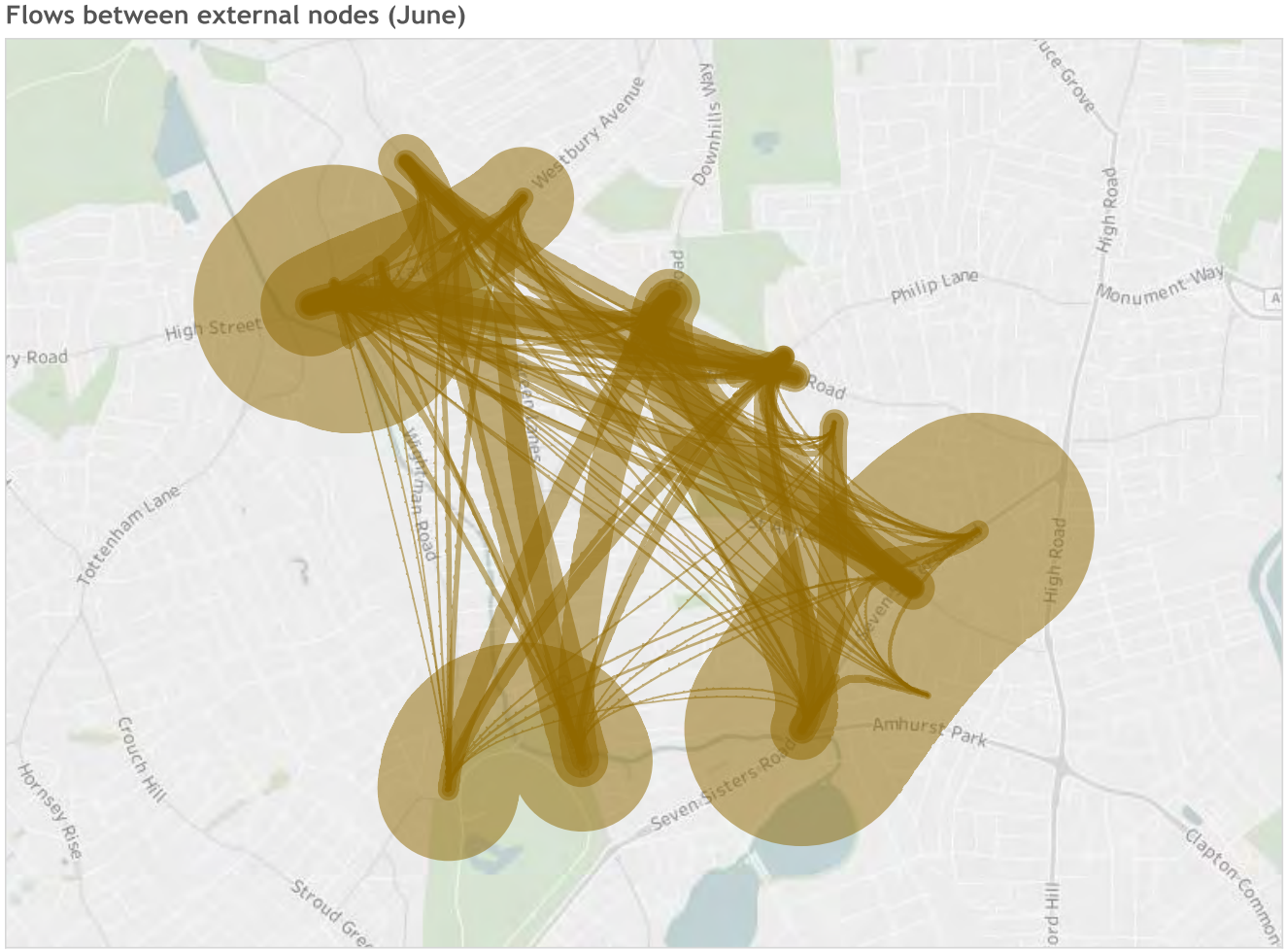
- There was also a large decrease in the east-west movement between Turnpike Lane and Westbury Avenue.
- Demand for diagonal movements, that would involve making east-west crossings across the Ladder area, have all declined, sometimes significantly.
- There was a large increase in movements skirting the north-west corner of the study area, between Turnpike Lane and Hornsey Park Road. This is likely to be due to vehicles that would have formerly used Wightman Road, instead using alternative routes west of the railway line.
- Another large increase also occurred between Endymion Road and Green Lanes (south end). This is likely to be as a result of some vehicles seeking to avoid Wightman Road and Green Lanes, and instead skirting around the southern edge of the study area.
- There were also increases in the movements crossing through the eastern half of the study area. This appears to indicate that some drivers were avoiding Wightman Road and Green Lanes, by instead travelling through the eastern half of the Hermitage area, and making north-south movements through the St Ann's area.

Figure 3.34: Graphical summary of vehicle flows between external nodes (March 2016, before Wightman Road closure)



Source: Origin-destination surveys undertaken between 06:00 and 22:00 (16 hours) on Tuesday 22 March 2016. The surveys were based on automatic number plate recognition; pedal cycles and powered two wheelers are not included in these flows.

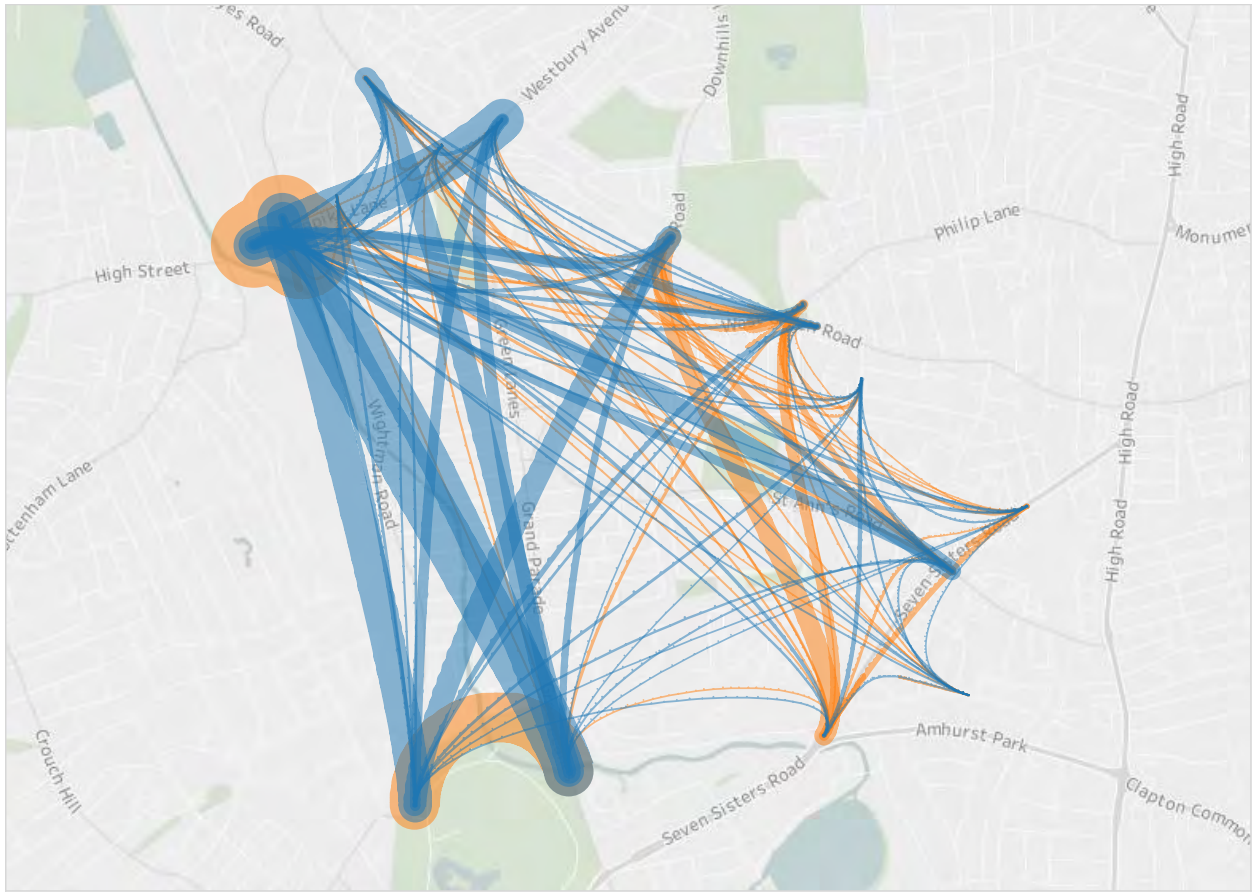
Figure 3.35: Graphical summary of vehicle flows between external nodes (June 2016, during Wightman Road closure)



Source: Origin-destination surveys undertaken between 06:00 and 22:00 (16 hours) on Wednesday 29 June 2016. The surveys were based on automatic number plate recognition; pedal cycles and powered two wheelers are not included in these flows.

Figure 3.36: Graphical summary of change in vehicle flows between external nodes (March 2016 to June 2016)

Change in flows between external nodes (March to June)



Source: Origin-destination surveys undertaken between 06:00 and 22:00 (16 hours) on Tuesday 22 March 2016 and Wednesday 29 June 2016. The surveys were based on automatic number plate recognition; pedal cycles and powered two wheelers are not included in these flows. Blue lines denote decrease and orange lines denote increases.

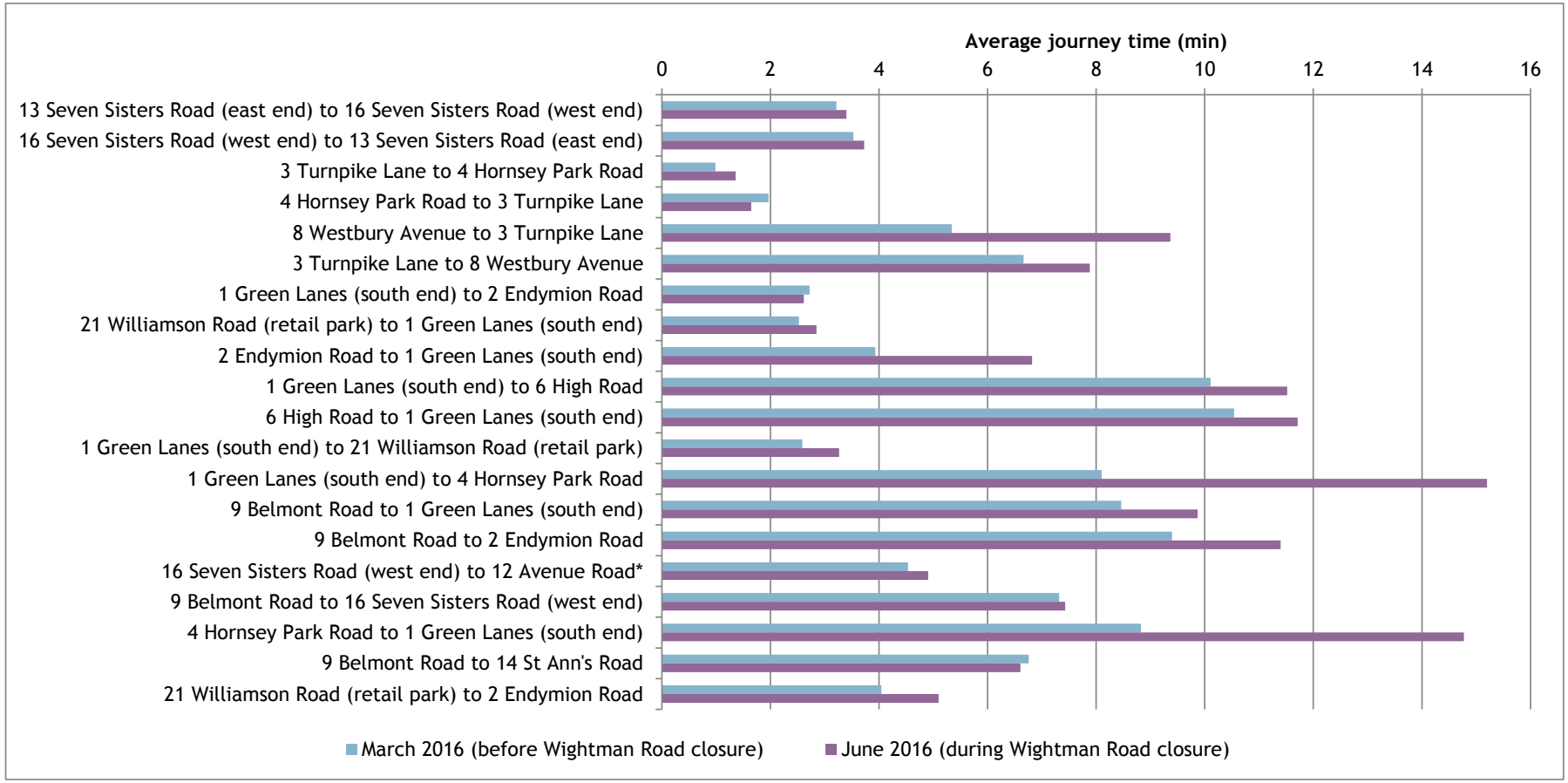
Journey times

3.49 Average journey times for the top 20 origin-destination pairs are shown in Figure 3.37 below for March 2016 and June 2016. Most of these pairs showed an increase of up to approximately 1–2 minutes during the Wightman Road closure. However, there were larger increases for some pairs:

- It can be seen that the east-west movement between Westbury Avenue and Turnpike Lane saw noticeable increases in both directions. In particular, the westbound movement saw an increase of about 4 minutes.
- There were also extremely large increase in journey times between Green Lanes (south end) and Hornsey Park Road in both directions, of between about 6–7 minutes. However, whilst these movements were busy before the closure, during the closure very few vehicles were making them, presumably seeking alternatives in order to avoid increased journey times on their previous route.
- The movement from Endymion Road and Green Lanes (south end) saw an increase of about 3 minutes.

3.50 It is important to emphasise that these results do not necessarily capture the full impacts of the closure on vehicle journey times. This is because there were also instances where queuing and delays occurred outside the OD cordon, which means that they would not be captured by the OD surveys. These changes are also based on average travel times across the entire 16 hour time period that was surveyed. This means that any larger changes in travel times (that may occur during busier times of the day) may be masked by smaller changes during quieter times (for example late at night).

Figure 3.37: Average journey time for top 20 origin destination pairs, March 2016 and June 2016



Source: Origin-destination surveys undertaken between 06:00 and 22:00 (16 hours) on Tuesday 22 March 2016 and Wednesday 29 June 2016. The surveys were based on automatic number plate recognition; pedal cycles and powered two wheelers are not included in these flows.

Traffic origins and destinations (from traffic model)

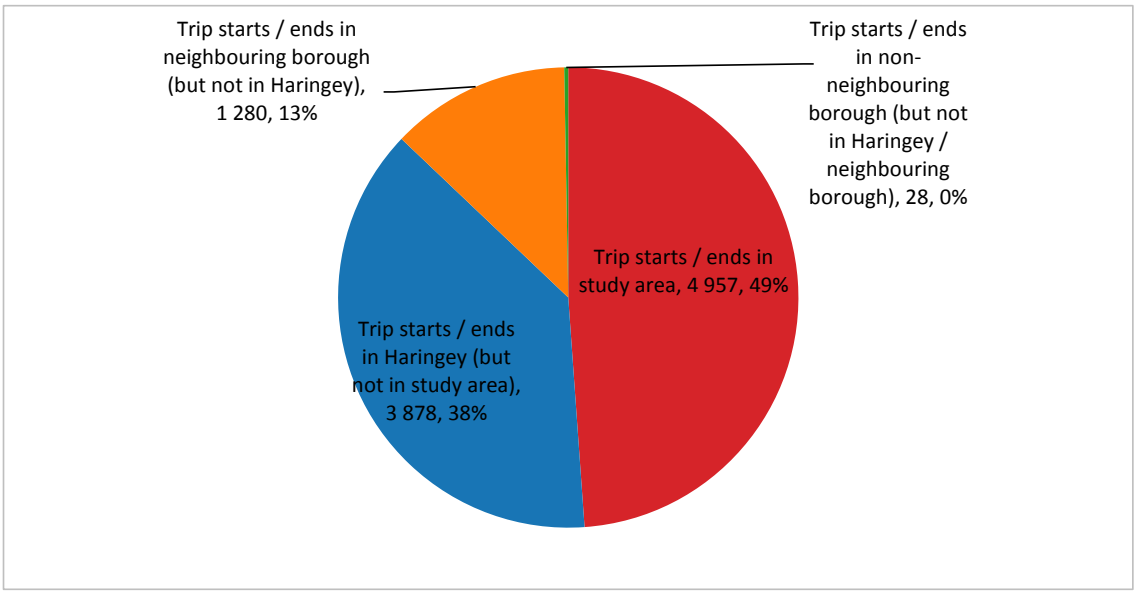
3.51 Transport for London has developed five Highway Assignment Models (HAMs) that cover the whole of London[5], and which predict the routes that drivers choose and the associated congestion and delay impacts on London's roads. Each model covers various subregional areas within London, and for this project, the North London Highway Assignment Model (NoLHAM) has been used.

3.52 Using outputs from NoLHAM, we have analysed the origins and destinations of vehicle trips that use roads in the study area from a further source. These outputs are all based on the 2012 weekday PM peak hour model, as this is the most recently available. It should be noted that NoLHAM is a strategic, rather than detailed traffic model. Therefore, whilst it provides useful insights at a strategic level, the results should be viewed as an indication of overall traffic patterns, rather than a source of detailed information.

3.53 Based on this analysis, vehicle trips have been divided into four overall categories:

- Trip starts and/or ends in study area
- Trip starts and/or ends in Haringey (but does not start and/or end in study area)
- Trip starts and/or ends in neighbouring borough (but does not start and/or in Haringey)
- Trip starts and/or ends in non-neighbouring borough (but does not start and/or end in Haringey or a neighbouring borough)

Figure 3.38: Trip categories for traffic passing through the study area, weekday PM peak hour



Source: TfL NoLHAM traffic model

3.54 Some key points that emerge from this analysis are that, according to the model:

- About half of all vehicle trips passing through the study area start and/or end within the study area. A further 38% of vehicle trips have at least one end within the remainder of

[5] Further information on these models is available at https://tfl.gov.uk/cdn/static/cms/documents/londons-highway-assignment-models.pdf

Haringey. Almost all of the remaining vehicle trips (about 13%) have at least one in a borough that adjoins Haringey.

- About 10% of trips passing through the study area are travelling from east to west (or vice-versa) across Haringey.
- About 2% of trips start and end within the study area.

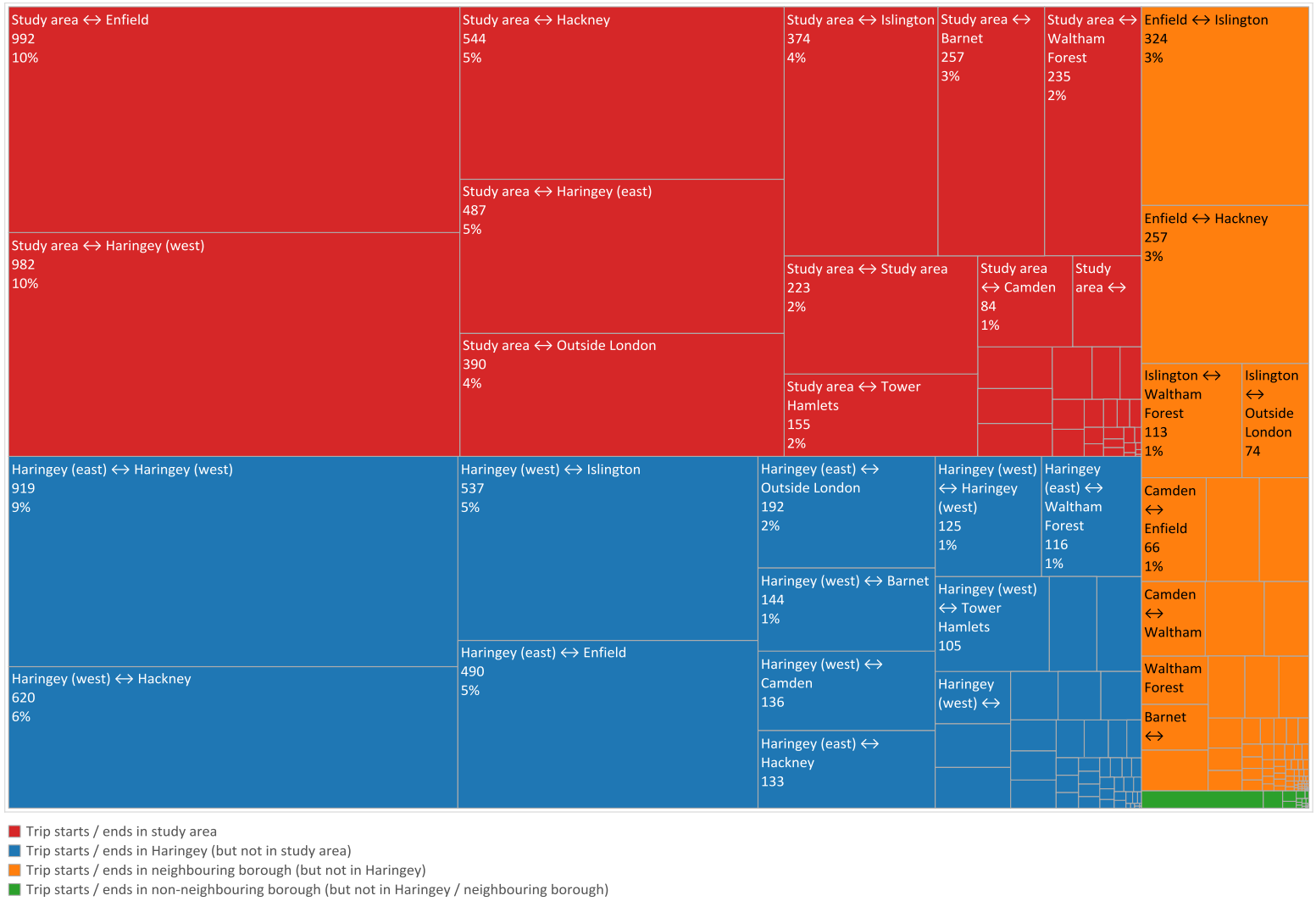
3.55 These results are generally consistent with the results of the origin destination surveys previously discussed, in that both sources of information indicate that roughly half of all vehicle trips in the study area are through trips.

Table 3.1: Origin / destination pairs of traffic passing through the study area, weekday PM peak hour (only pairs with >100 vehicle trips listed individually)

Origin / desintation pair	Vehicle trips	Proportion of all vehicle trips
Study area ↔ Enfield	992	10%
Study area ↔ Haringey (west)	982	10%
Haringey (east) ↔ Haringey (west)	919	9%
Haringey (west) ↔ Hackney	620	6%
Study area ↔ Hackney	544	5%
Haringey (west) ↔ Islington	537	5%
Haringey (east) ↔ Enfield	490	5%
Study area ↔ Haringey (east)	487	5%
Study area ↔ Outside London	390	4%
Study area ↔ Islington	374	4%
Enfield ↔ Islington	324	3%
Enfield ↔ Hackney	257	3%
Study area ↔ Barnet	257	3%
Study area ↔ Waltham Forest	235	2%
Study area ↔ Study area	223	2%
Haringey (east) ↔ Outside London	192	2%
Study area ↔ Tower Hamlets	155	2%
Haringey (west) ↔ Barnet	144	1%
Haringey (west) ↔ Camden	136	1%
Haringey (east) ↔ Hackney	133	1%
Haringey (west) ↔ Haringey (west)	125	1%
Haringey (east) ↔ Waltham Forest	116	1%
Islington ↔ Waltham Forest	113	1%
Haringey (west) ↔ Tower Hamlets	105	1%
All other origin / destination pairs	*1 292*	*13%*

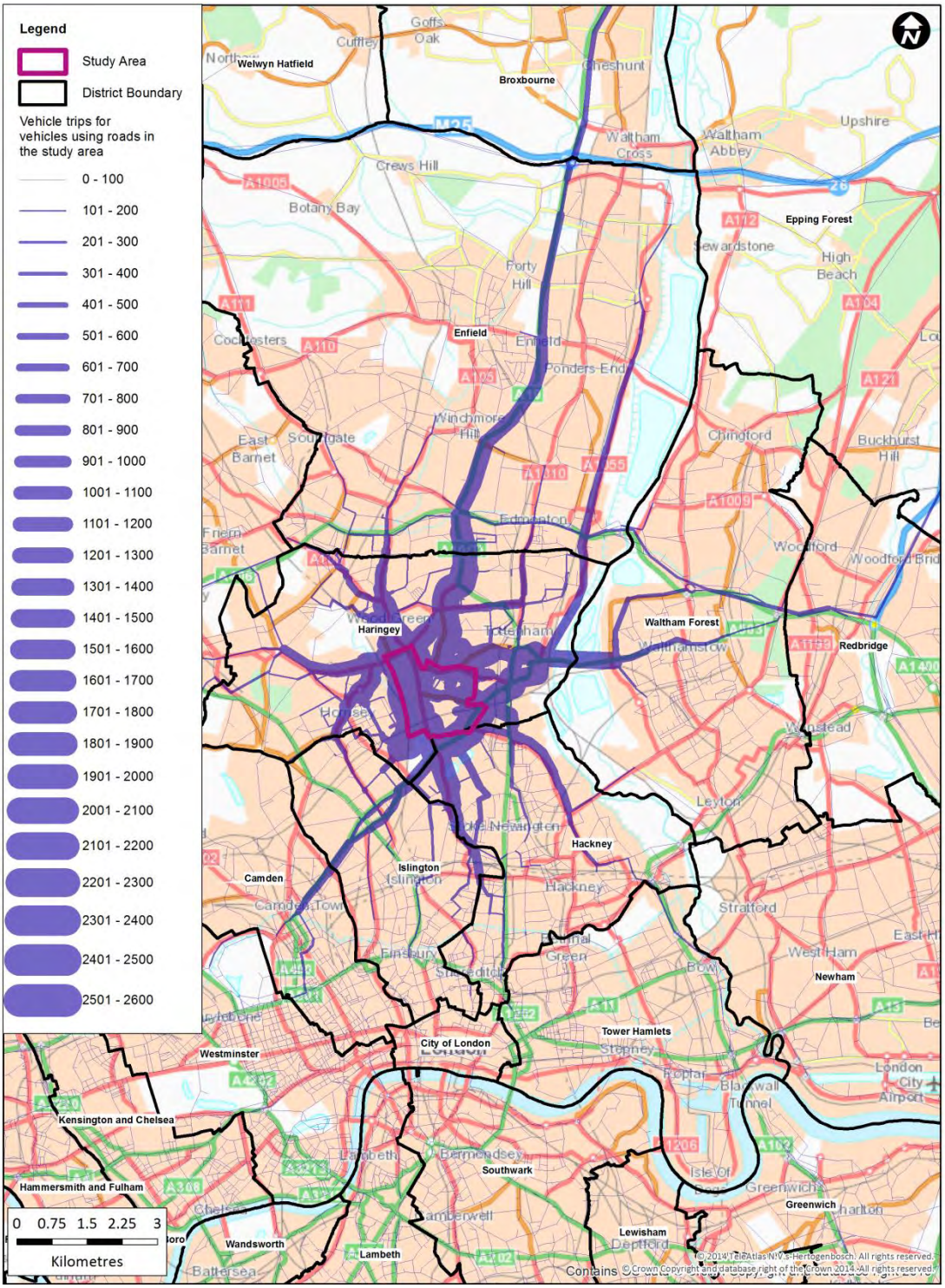
Source: TfL NoLHAM traffic model

Figure 3.39: Origin / destination pairs of traffic passing through the study area, weekday PM peak hour



Source: TfL NoLHAM traffic model

Figure 3.40: Vehicle trips for vehicles using roads in the study area



Traffic speeds

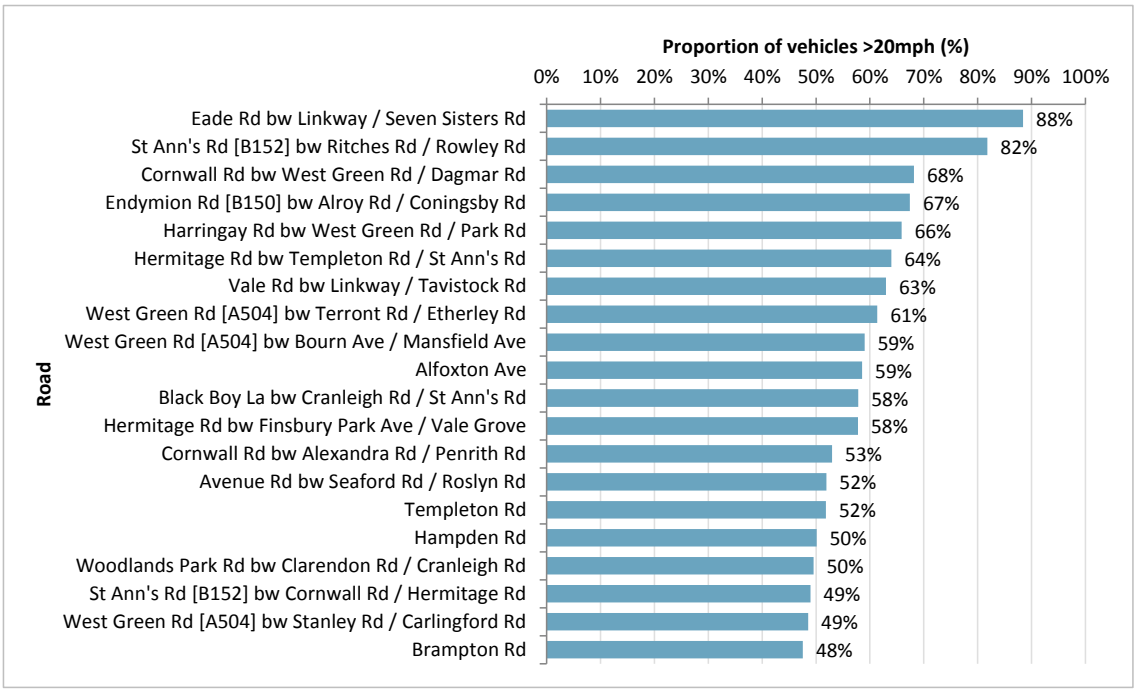
3.56 The traffic surveys undertaken by LB Haringey across the study area in January 2016 also provide information on vehicle speeds. However, the speeds recorded by these surveys should be treated with caution. This is because the results are highly sensitive to the point on each street that the traffic surveys took place on—for example how far away they are from junctions, and how far they are from speed humps (or other traffic calming measures). This means that the recorded speeds may vary significantly from street to street, for reasons unrelated to the actual speeds of vehicles along those streets.

3.57 The graph in Figure 3.41 below shows the top 20 roads in the study area by the proportion of vehicles travelling faster than 20mph. For comparison, across the study area as a whole 40% of vehicles recorded by the traffic surveys were travelling faster than 20mph.

3.58 The route through the eastern portion of the Hermitage sub-area between Seven Sisters Road and St Ann's Road appears to have particularly high vehicle speeds. The relevant section of Eade Road has almost 90% of vehicles travelling faster than 20mph, with Hermitage Road sixth on the link, and Vale Road seventh on the list.

3.59 St Ann's Road and West Green Road also had a number of sections with high proportions of vehicles exceeding 20mph. Apart from these, there were various other roads across the study area with high proportions of vehicles exceeding the speed limit.

Figure 3.41: Top 20 roads by proportion of vehicles travelling faster than 20mph (January 2016)

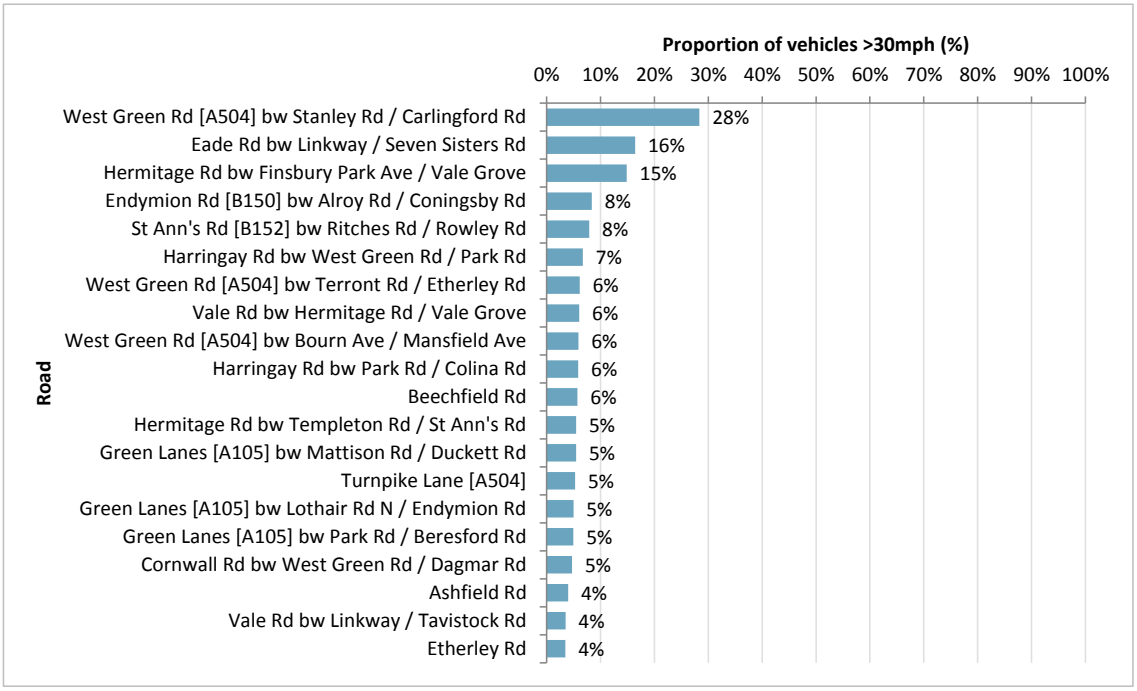


Source: Traffic surveys, January 2016

3.60 The graph in Figure 3.42 below shows the top 20 roads by the proportion of vehicles recording going faster than 30mph. For comparison, about 4% of all vehicles in the study area were recorded as travelling faster than 30mph. It can be seen that the worst section of road by far was West Green Road between Stanley Road and Carlingford Road, where 28% of vehicles were going faster than 30mph. There were also sections of Eade Road and Hermitage Road

with approximately 15% of vehicles going faster than 30mph. Apart from these top three roads, all other roads had fewer than 10% of vehicles travelling faster than 30mph.

Figure 3.42: Top 20 roads by proportion of vehicles travelling faster than 30mph (January 2016)



Source: Traffic surveys, January 2016

Figure 3.43: Proportion of vehicles with a speed greater than 20mph

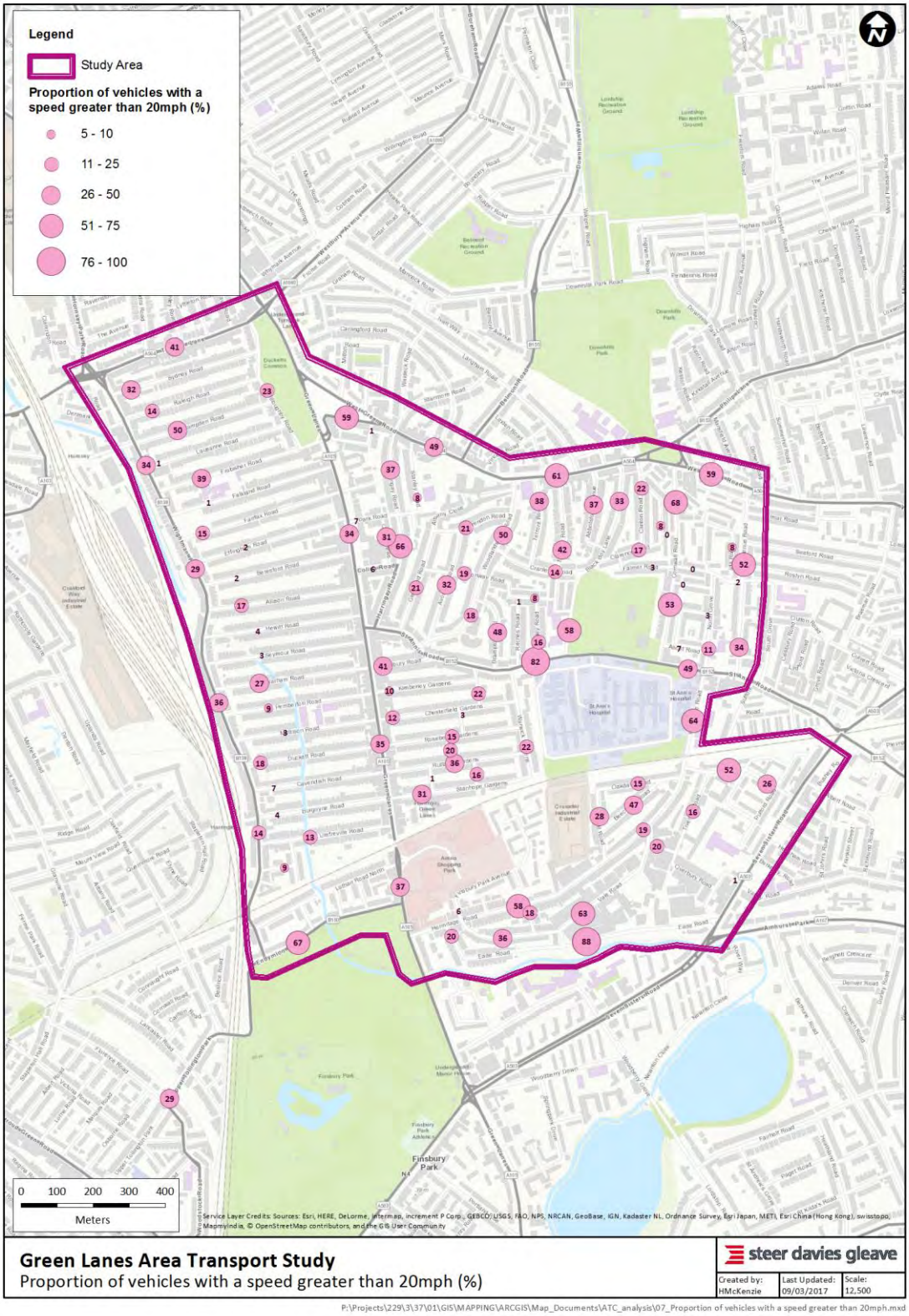
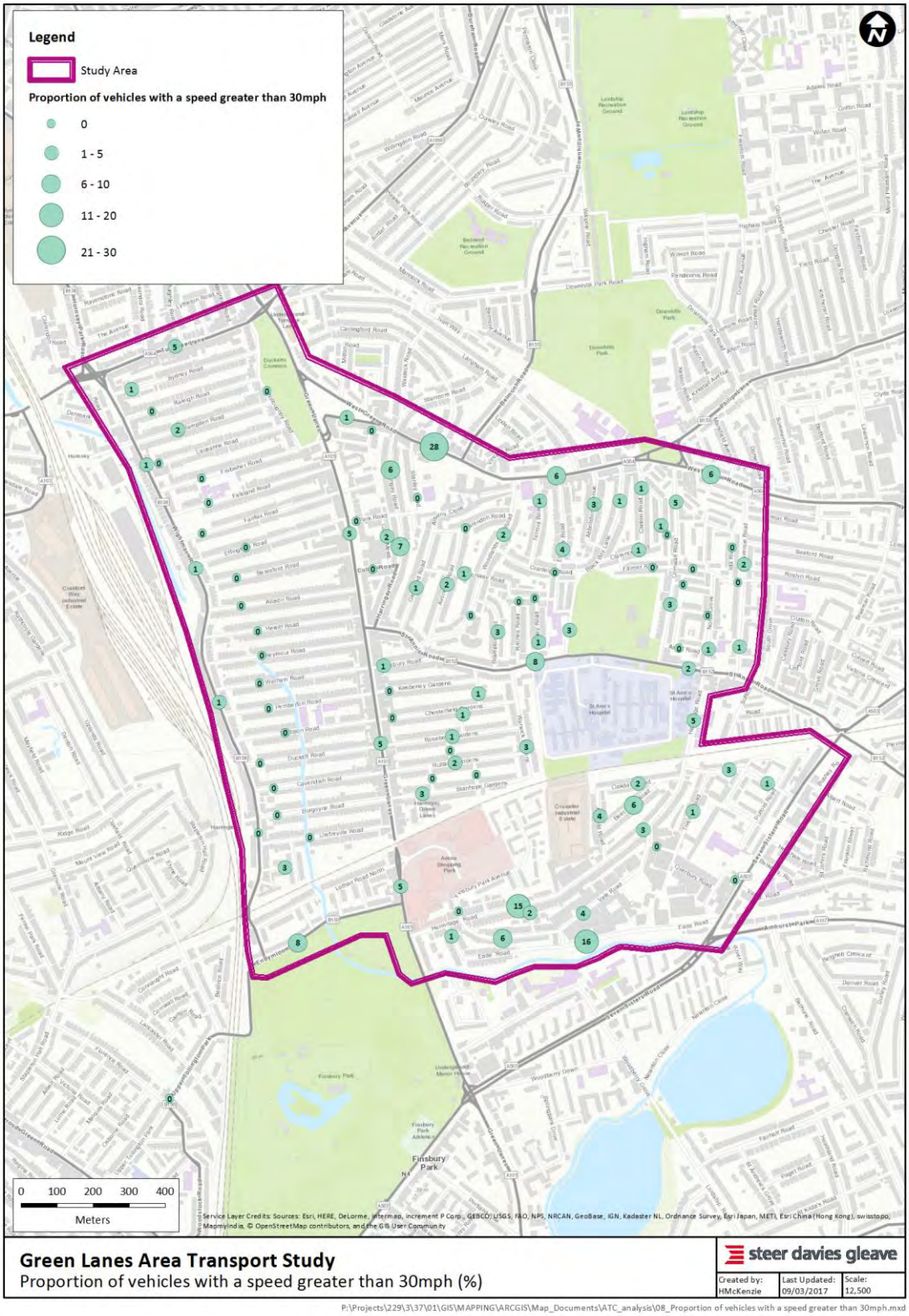


Figure 3.44: Proportion of vehicles with a speed greater than 30mph



Historic changes to traffic flows

TfL Inner Cordon

3.61 TfL have been monitoring traffic levels since 1990 at a number of cordons and screenlines across London. These are surveyed regularly, in order to determine the number of vehicles crossing each across a 24 hour weekday period. TfL's Inner Cordon skirts the southern boundary of the study area (as shown in Figure 3.45), and the data collected as part of this cordon can therefore be used to provide an indication of long-term traffic trends.

3.62 However, it should be noted that this data does not necessarily provide a complete picture of traffic levels in the study area. The Inner Cordon only captures traffic entering and exiting the study area from the south, and not from other directions. Traffic trends on these other sides are not necessarily consistent with those on the south side of the study area. However, data from the Inner Cordon is the only available source that can provide insights into long-term traffic trends specific to the study area. Data relating to the borough as a whole is discussed in the following section.

3.63 Data was therefore obtained for six relevant points on the Inner Cordon:

- Upper Tollington Park [B150]
- Green Lanes [A105]
- Eade Road
- Netherton Road
- Moreton Road
- St Ann's Road [B152]

3.64 This information is available between 1990 and 2014 inclusive, and is shown in Figure 3.46 (which shows the number of vehicles crossing the cordon at these six points by vehicle type), Figure 3.47 (which shows an indexed number of vehicles crossing the cordon by vehicle type), and Figure 3.48 (which shows the proportion of all vehicles that is made up by each vehicle type). This same information is shown in Table 3.2, Table 3.3 and Table 3.4.

3.65 The following are the key changes that can be observed between 1990 and 2014:

- Whilst there are some year-to-year fluctuations, there has been a general downwards trend in overall traffic volumes. This has fallen from about 91,000 vehicles to 77,000 vehicles, which is a decrease of about 16%.
- The largest contribution to this decrease has been a fall in the number of cars. These have decreased by just over a quarter, from about 70,000 to 51,000. As a result, whilst they made up 76% of all vehicles in 1990, they now only comprise 67% of all vehicles.
- On the other hand, there has been an extremely significant in the number of pedal cycles, which has increased by almost 500%, from about 1,100 to 5,300. As a result, pedal cycles made up 7% of all vehicles in 2014. This means that they are now the third most common vehicle type, after cars and goods vehicles.
- The number of goods vehicles has fallen by just over 10%, from about 16,000 to 14,000. However, their share of all vehicles has remained largely constant, and was 18% in 2014.
- The number of powered two wheelers has increased by about a third, from about 2,100 to 2,900. In 2014, they made up 2% of all vehicles.
- There has been a large increase in number of buses and coaches of about 60%, from about 1,200 to 1,900. In 2014, they made up about 2% of all vehicles.

- The number of taxis has stayed relatively flat over this period, and in 2014 they made up about 2% of all vehicles.

Figure 3.45: Transport for London Inner Cordon

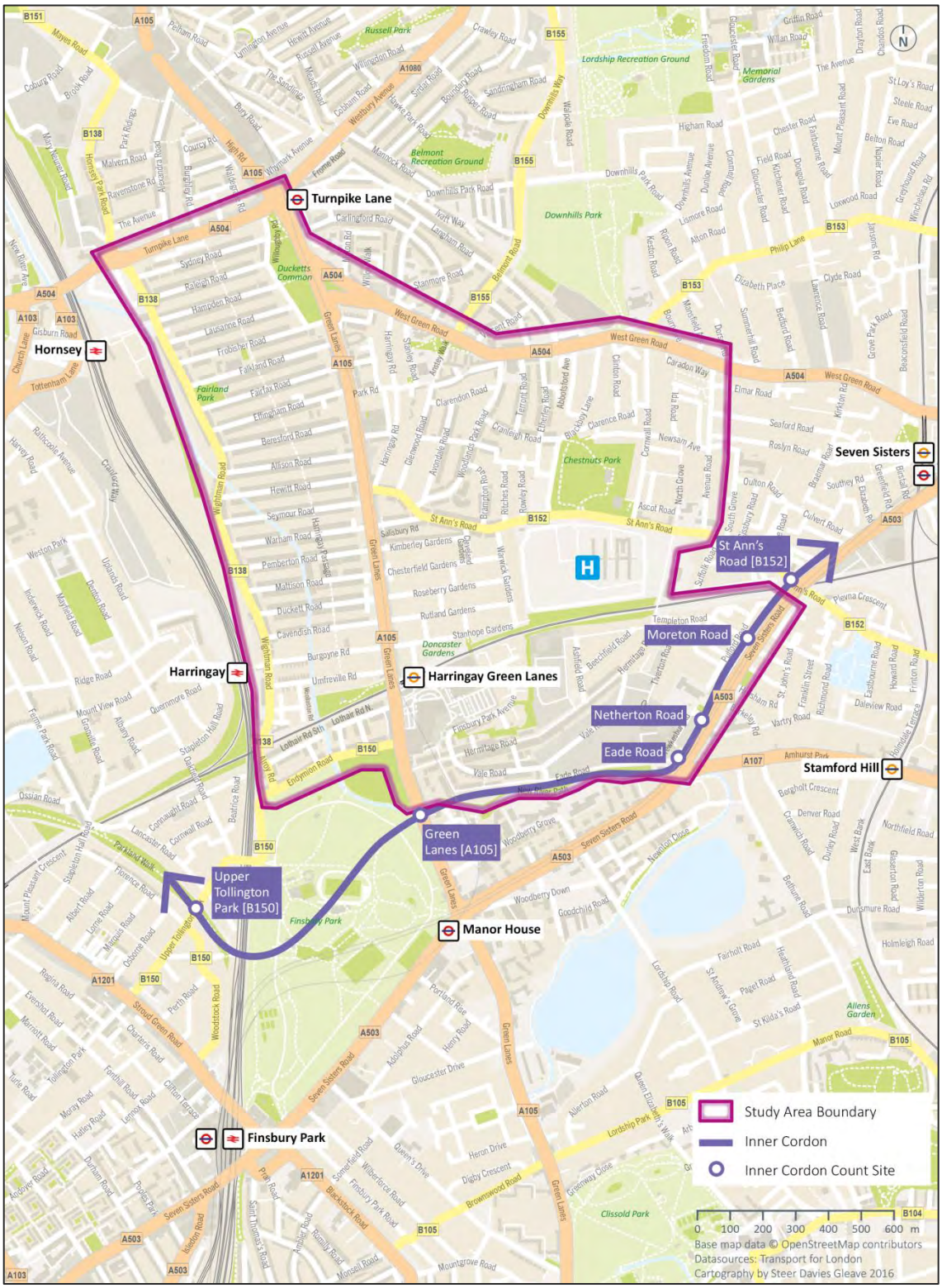
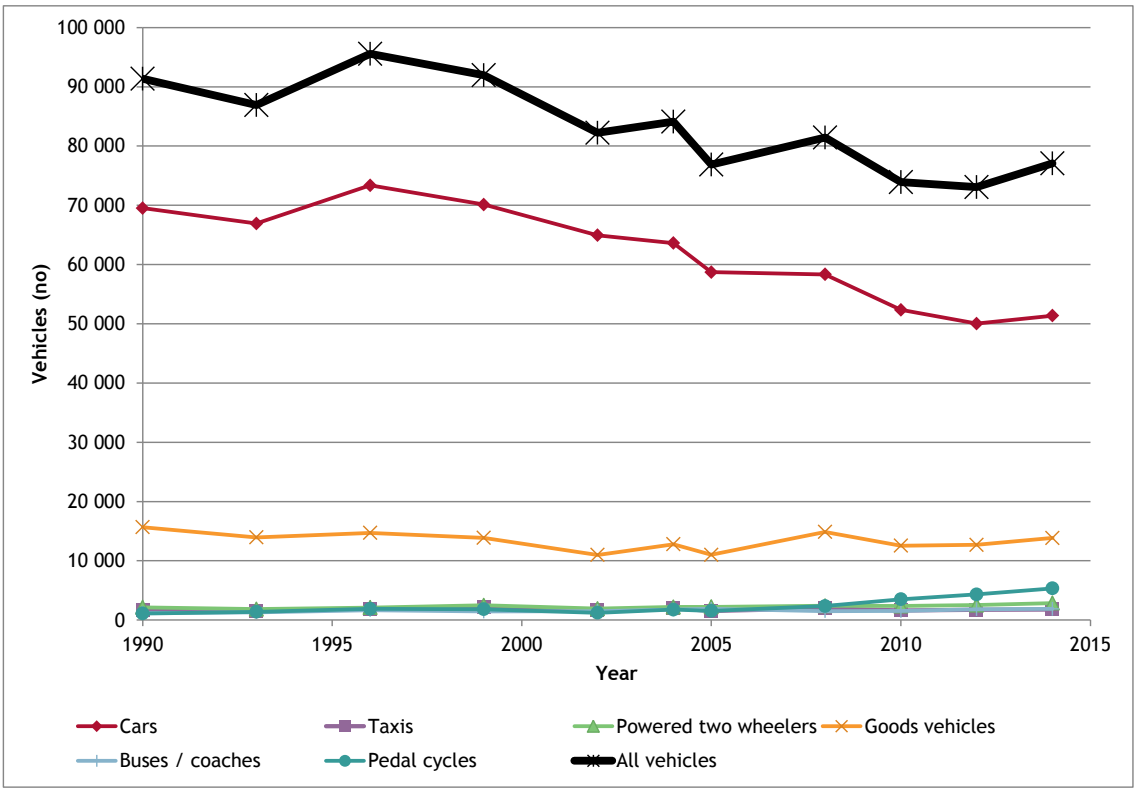


Figure 3.46: Number of vehicles crossing the Inner Cordon adjacent to the study area, 24 hour weekday



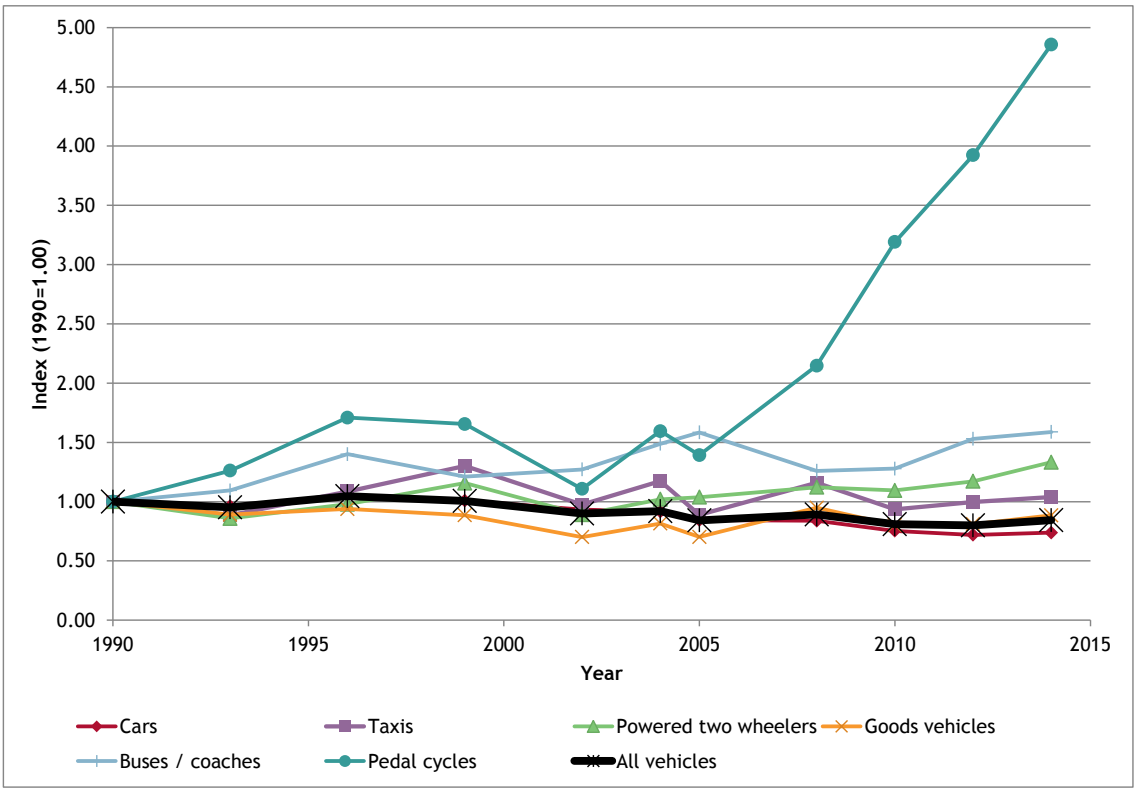
Source: Transport for London traffic data

Table 3.2: Number of vehicles crossing the Inner Cordon adjacent to the study area, 24 hour weekday

Year	Cars	Taxis	Powered two wheelers	Goods vehicles	Buses / coaches	Pedal cycles	All vehicles
1990	69 528	1 716	2 149	15 669	1 186	1 100	91 348
1993	66 915	1 520	1 845	13 950	1 298	1 388	86 916
1996	73 352	1 862	2 102	14 699	1 661	1 880	95 556
1999	70 121	2 233	2 485	13 871	1 436	1 820	91 966
2002	64 928	1 673	1 914	10 983	1 508	1 218	82 224
2004	63 624	2 012	2 192	12 780	1 764	1 754	84 126
2005	58 715	1 524	2 230	10 998	1 879	1 532	76 878
2008	58 323	1 989	2 410	14 869	1 494	2 362	81 447
2010	52 359	1 605	2 352	12 554	1 516	3 510	73 896
2012	50 025	1 712	2 517	12 686	1 814	4 316	73 070
2014	51 361	1 783	2 863	13 851	1 883	5 342	77 083

Source: Transport for London traffic data

Figure 3.47: Indexed number of vehicles crossing the Inner Cordon adjacent to the study area, 24 hour weekday



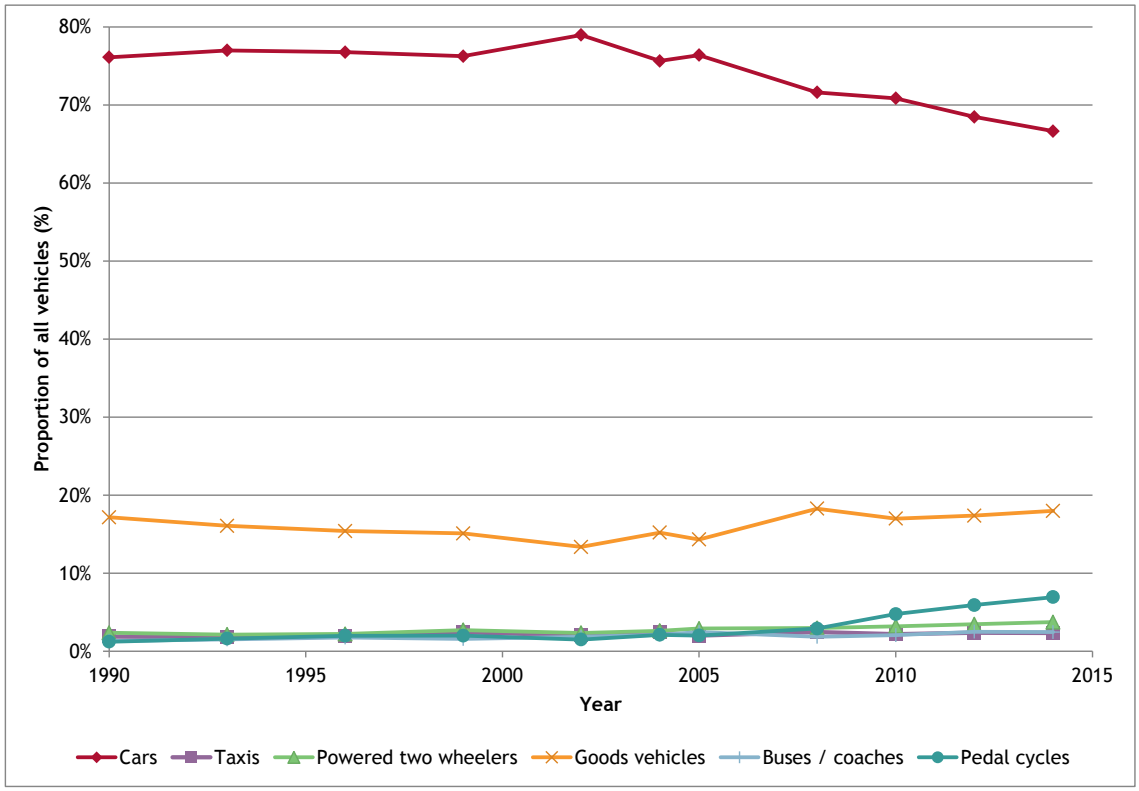
Source: Transport for London traffic data

Table 3.3: Indexed number of vehicles crossing the Inner Cordon adjacent to the study area, 24 hour weekday

Year	Cars	Taxis	Powered two wheelers	Goods vehicles	Buses / coaches	Pedal cycles	All vehicles
1990	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1993	0.96	0.89	0.86	0.89	1.09	1.26	0.95
1996	1.05	1.09	0.98	0.94	1.40	1.71	1.05
1999	1.01	1.30	1.16	0.89	1.21	1.65	1.01
2002	0.93	0.97	0.89	0.70	1.27	1.11	0.90
2004	0.92	1.17	1.02	0.82	1.49	1.59	0.92
2005	0.84	0.89	1.04	0.70	1.58	1.39	0.84
2008	0.84	1.16	1.12	0.95	1.26	2.15	0.89
2010	0.75	0.94	1.09	0.80	1.28	3.19	0.81
2012	0.72	1.00	1.17	0.81	1.53	3.92	0.80
2014	0.74	1.04	1.33	0.88	1.59	4.86	0.84

Source: Transport for London traffic data

Figure 3.48: Proportion of all vehicles by vehicle type crossing the Inner Cordon adjacent to the study area, 24 hour weekday



Source: Transport for London traffic data

Table 3.4: Proportion of all vehicles by vehicle type crossing the Inner Cordon adjacent to the study area, 24 hour weekday

Year	Cars	Taxis	Powered two wheelers	Goods vehicles	Buses / coaches	Pedal cycles	All vehicles
1990	76%	2%	2%	17%	1%	1%	100%
1993	77%	2%	2%	16%	1%	2%	100%
1996	77%	2%	2%	15%	2%	2%	100%
1999	76%	2%	3%	15%	2%	2%	100%
2002	79%	2%	2%	13%	2%	1%	100%
2004	76%	2%	3%	15%	2%	2%	100%
2005	76%	2%	3%	14%	2%	2%	100%
2008	72%	2%	3%	18%	2%	3%	100%
2010	71%	2%	3%	17%	2%	5%	100%
2012	68%	2%	3%	17%	2%	6%	100%
2014	67%	2%	4%	18%	2%	7%	100%

Source: Transport for London traffic data

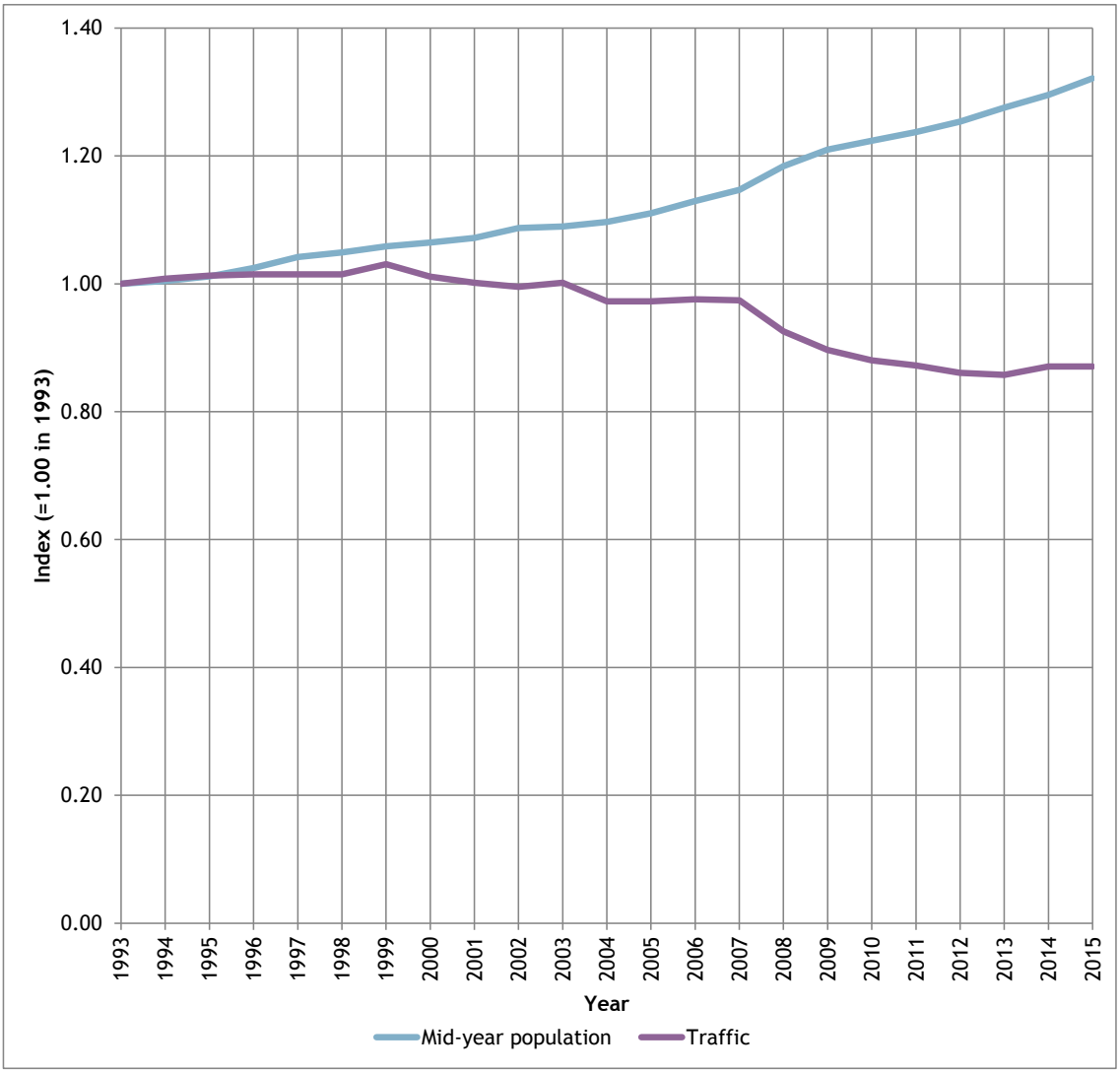
Borough-wide trends

3.66 In addition, historic data on traffic levels and population across the entire borough is available. This may or may not reflect the trends in the study area, but it is worth examining to gain some insights into the wider context of the borough. This information, which covers the period from 1993 to 2015, is shown in Figure 3.49 below.

3.67 It can be seen that over this time period, there has been consistent growth in the number of people living in the borough. In 2015, the population of the borough was 32% higher compared to the population in 1993. On the other hand, traffic levels were relatively static until the early 2000s, when they started to decline significantly. In 2015, overall traffic levels in the borough were about 13% lower than in 1993.

3.68 This clearly indicates that across the borough as a whole, there has been a clear decoupling between population growth and traffic growth. Some of this is likely to be linked to the decoupling between population growth and growth in car ownership, which was discussed previously. However, as always it is uncertain whether these past trends will continue in the future.

Figure 3.49: Comparison of historic changes in population and traffic across Haringey, 1993–2015



Source: Population data from ONS mid-year estimates, traffic data from DfT

Future changes to traffic flows

3.69 Initial traffic modelling has been completed to understand the impacts that planned growth in and around the study area may have on the operation of the road network. This has been completed using the NoLHAM model, as described previously.

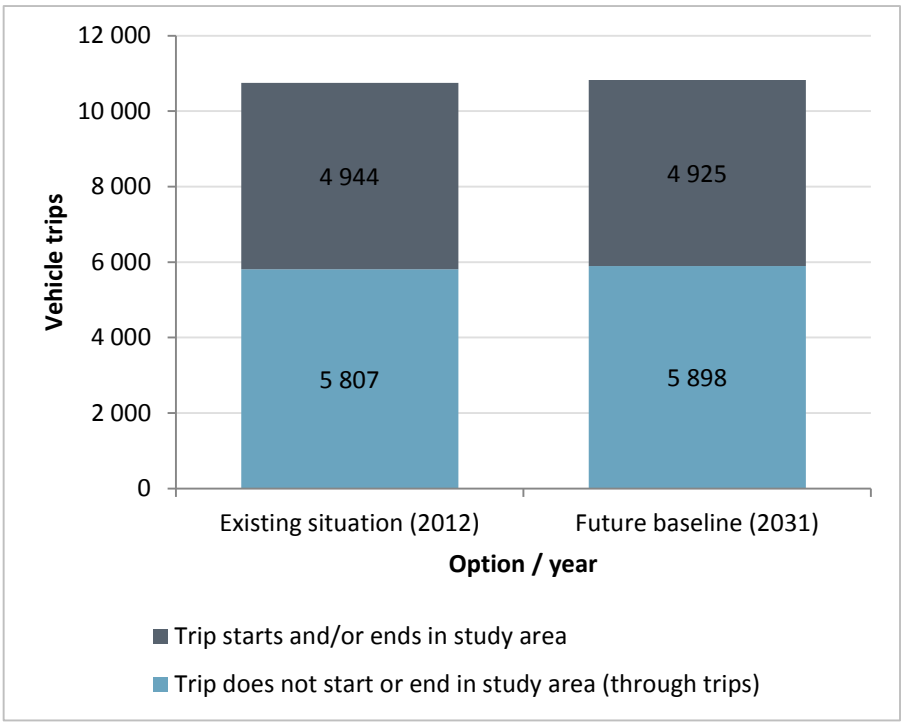
3.70 Transport for London's forecast year reference case model for the year 2031 has been used as the starting point. In this model, growth between the base and forecast year has been obtained from the London Transportation Studies model[6], which is considered by Transport for London to be the most likely growth scenario as it reflects current trends in car ownership in London. This growth has been applied to the calibrated base year matrices either by adding the growth directly or applying the correct multiplicative growth, depending on the user class and model area. Various schemes affecting the highway network are also included in the forecast year reference case model.

3.71 We completed a review of the forecast year reference case model, to rectify any obvious errors in the area most directly affecting the study area. However, given the initial nature of this modelling task, this was not a comprehensive review of the model. We then reviewed the trips in the model against the quantum and location of future developments as detailed in the January 2016 version of Haringey's Site Allocations DPD. Based on this, we adjusted the quantum and locations of vehicle trip origins and destinations in the model. The outcome of this work is a future baseline model relating to the year 2031, that takes into account future development planned in the area.

3.72 Graphs showing vehicle trips in the area for the weekday PM peak hour are included in Figure 3.50 and Figure 3.51 below. It can be seen that there is generally very little change in the number of vehicle trips between the existing situation and the future baseline. When looking at the percentage changes, it can be seen that there is expected to be a slight increase (+1.6%) in the number of through vehicle trips, and a very slight decrease in the number of local vehicle trips (-0.4%). This results in an overall slight increase in the number of vehicle trips in the study area of about +0.7%.

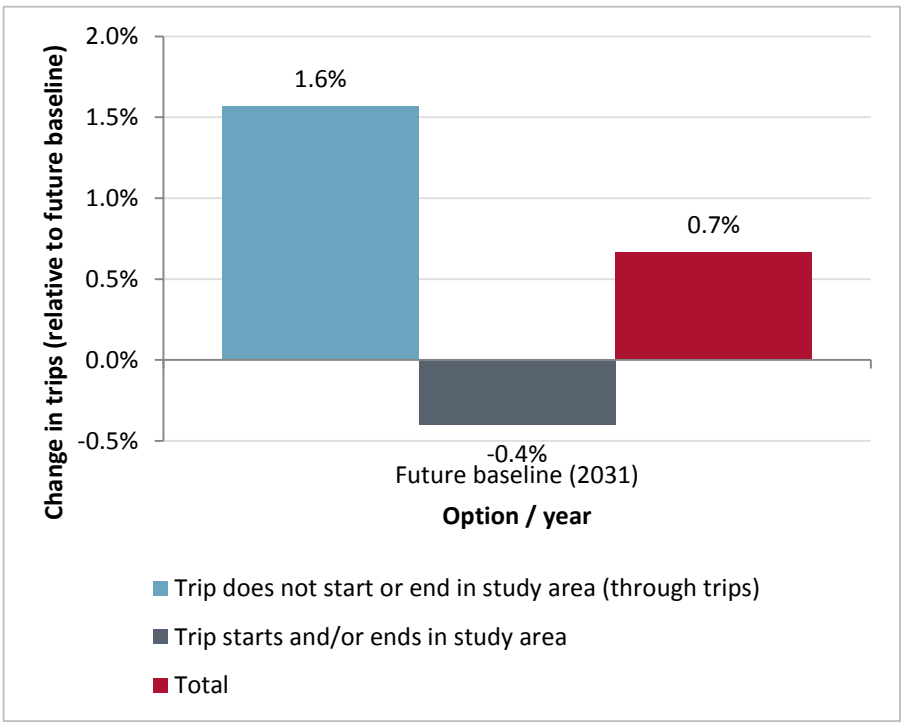
[6] Further information on this model is available at https://tfl.gov.uk/cdn/static/cms/documents/the-london-transportation-studies-model.pdf

Figure 3.50: Vehicle trips in the study area, weekday PM peak hour



Source: TfL NoLHAM traffic model

Figure 3.51: Change in vehicle trips in the study area, weekday PM peak hour



Source: TfL NoLHAM traffic model

3.73 Given the inherent uncertainties of a predicting what may happen in the future, it is appropriate to interpret these results as indicating that based on the assumptions in the model, future traffic levels are likely to be broadly similar to existing traffic levels.

3.74 This may be a surprising conclusion, given the growth in housing, employment and town centre floor space that the Site Allocations DPD document includes. On the other hand, this conclusion makes sense when viewed in the context of historic trends in the borough, where population growth of 32% between 1993 and 2015 was accompanied by a 13% decrease in traffic over the same time period. As such, the results from the traffic model are consistent with what has been observed to occur in the past.

3.75 Nevertheless, given the uncertainty associated with predicting the future, it is also important to note that historic trends may or may not continue in the future, and the level of vehicle traffic may be lower or higher than predicted by the model. In addition, whilst the model predicts that there will be relatively neutral impacts on traffic levels at a strategic level, new developments may cause some localised impacts (for example at their access points), that will still need to be managed and mitigated where necessary.

4 Public transport

Public transport services

Rail

4.1 Two rail lines pass through the study area, and while they provide rail links to other areas, they also create barriers to movement by other modes around the study area. The north-south Great Northern line parallels Wightman Road and borders the study area to the west, thus limiting east-west links. The Gospel Oak to Barking line provides an east-west rail link, but this constrains north-south movement.

4.2 Three rail stations are located within the study area: Hornsey and Harringay are on the Great Northern Line, and are both in Zone 3. Services from these stations run towards Moorgate in the south and towards Hertfordshire in the north, and are operated by Great Northern.

4.3 Harringay Green Lanes (Zone 3) lies on the Gospel Oak to Barking line, and services are operated by London Overground. There are generally four trains an hour in each direction, and services are currently operated by two-car diesel trains. In order to improve services, this line is currently being electrified, and services with new electric four-car trains are expected to commence in early 2018.

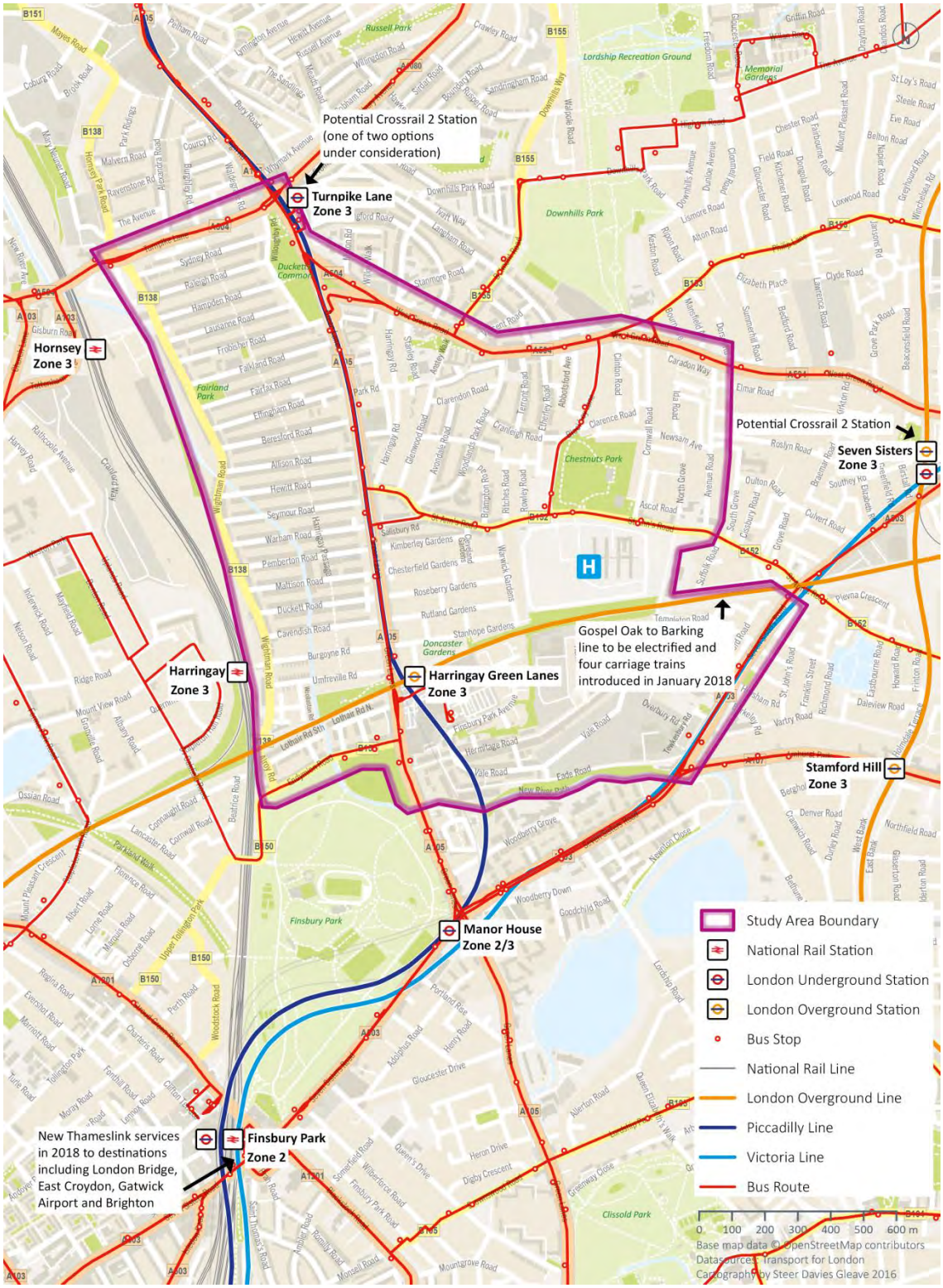
4.4 Turnpike Lane (Zone 3) is the only Underground station in the area (and the most important public transport node), and is on the Piccadilly line. However, many people are drawn to Manor House station, both because it is closer to the southern parts of the study area, and due to its location on Zone 2/3 boundary. One important point to note is that the distance between Turnpike Lane and Manor House stations is particularly long, at 2.3km. This means that parts of the study area can be quite far from an Underground station, even though the Piccadilly line runs directly underneath. This is far greater than the distance between Finsbury Park and Manor House stations (1.0km), or between Turnpike Lane and Wood Green stations (1.0km).

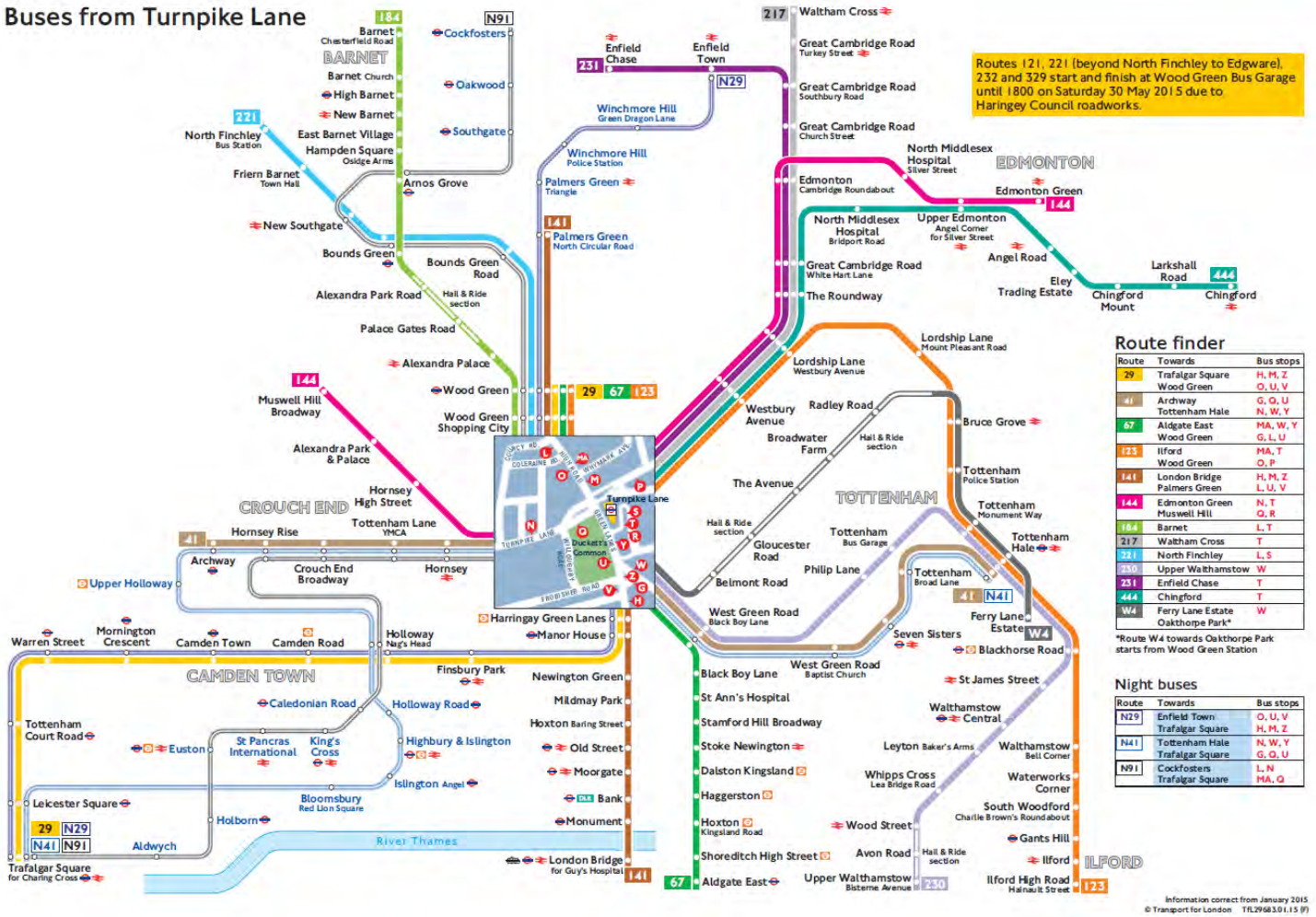
Buses

4.5 Buses provide access to stations (especially because of the particularly large gap between Manor House and Turnpike Lane stations), and also cater for east-west movements that cannot be made by rail. Within the study area, Green Lanes is the key north-south bus corridor, and a peak-time southbound bus lane exists. St Ann's Road and West Green Road are important corridors for bus services towards the east, whilst Turnpike Lane / Westbury Avenue is an important east-west bus corridor.

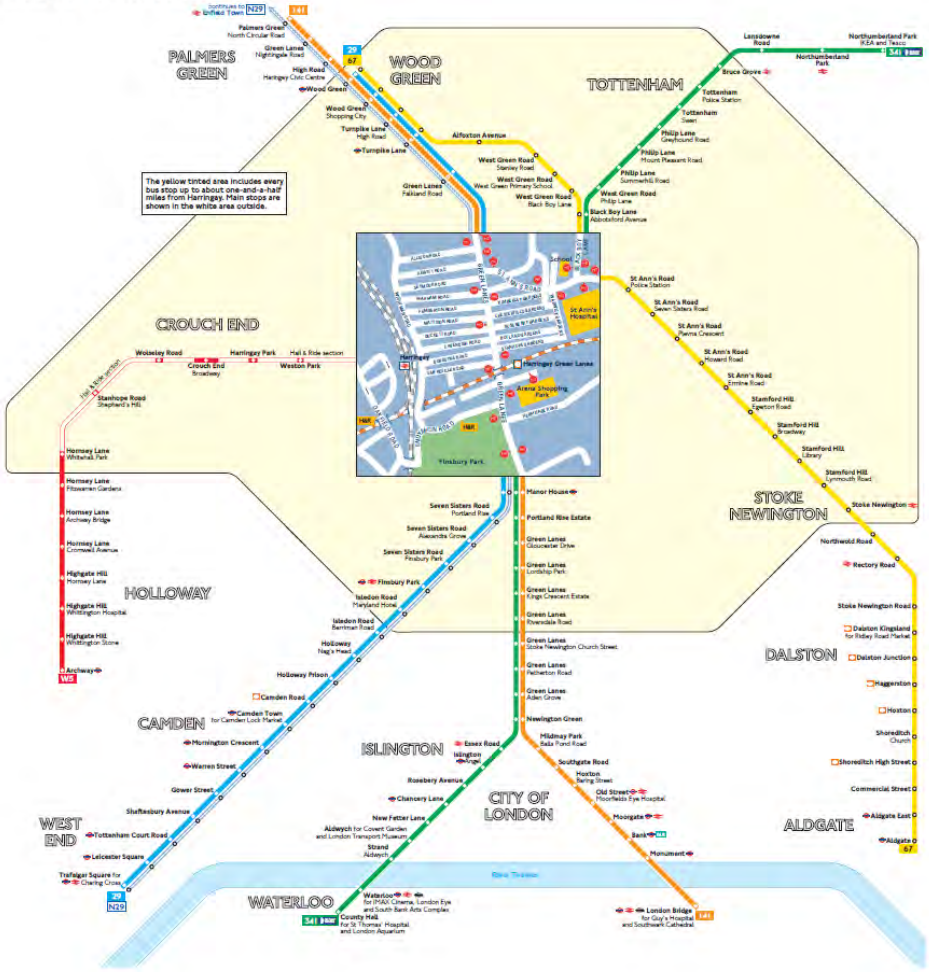
4.6 Figure 4.1 and the accompanying TfL spider-maps summarise the bus network for bus routes serving the study area. It can be seen that Turnpike Lane is a key bus interchange, which is served by numerous routes radiating in all directions.

Figure 4.1: Public transport network




Buses from Turnpike Lane
Routes 121, 221 (beyond North Finchley to Edgware), 232 and 329 start and finish at Wood Green Bus Garage until 1800 on Saturday 30 May 2015 due to Haringey Council roadworks.
Route finder
Route | Towards | Bus stops
29 | Trafalgar Square | H, M, Z
Wood Green | O, U, V
41 | Archway | G, O, U
Tottenham Hale | N, W, Y
67 | Aldgate East | MA, W, Y
Wood Green | G, L, U
123 | Ilford | MA, T
Wood Green | O, P
141 | London Bridge | H, M, Z
Palmers Green | L, U, V
144 | Edmonton Green | N, T
Muswell Hill | O, R
184 | Barnet | L, T
217 | Waltham Cross | T
221 | North Finchley | L, S
232 | Upper Walthamstow | W
251 | Enfield Chase | T
444 | Chingford | T
W4 | Ferry Lane Estate | W
Oakthorpe Park* |
*Route W4 towards Oakthorpe Park starts from Wood Green Station
Night buses
Route | Towards | Bus stops
N29 | Enfield Town | O, U, V
Trafalgar Square | H, M, Z
N41 | Tottenham Hale | N, W, Y
Trafalgar Square | G, Q, U
N91 | Cockfosters | L, N
Trafalgar Square | MA, Q
Information correct from January 2015
© Transport for London TfL29683.01.15 (F)

Buses from Harringay



Route finder

Day buses including 24-hour services

Bus route	Towards	Bus stops
29	Trafalgar Square	
	Wood Green	
67	Aldgate	
	Wood Green	
141	London Bridge	
	Palmers Green	
341 (24 hour service)	County Hall	
	Northumberland Park	
W5	Archway	H&R

Night buses

Bus route	Towards	Bus stops
N29	Enfield Town	
	Trafalgar Square	

Hail & Ride. Route W5 operates as Hail and Ride on the sections of roads marked H&R on the map. Buses stop at any safe point along the road. There are no bus stops at these locations, but please indicate clearly to the driver when you wish to board or alight.

© Transport for London TFL 27885.02.14 (T)
Information correct from February 2014

Bus journey times

4.7 Information on bus journey times has been supplied by Transport for London, from its iBus system. The iBus system is fitted to all of London's buses, and enables them to be tracked in real-time.

4.8 For the purpose of this study, data relating to the following five routes has been analysed, as they provide a representative range of routes that operate on different roads in the study area:

- Route 41 (between Turnpike Lane and Crouch End Broadway)
- Route 141 (between Wood Green and Manor House)
- Route 144 (between Muswell Hill Broadway and Wood Green)
- Route 341 (between Chestnuts Primary School and Manor House)
- Route W5 (between Sainsbury's and Crouch End Broadway)

4.9 This data has been supplied as average travel times across two different months:

- February 2016 (before the Wightman Road closure)
- May 2016 (during the Wightman Road closure)

4.10 A summary of this data is shown on the graphs on the following pages, and Table 4.1 below provides some commentary on the key points that can be observed from this information.

4.11 Under normal conditions, it can be seen that average journey times vary significantly between different time periods. This is likely to be due to a combination of higher passenger demand at certain times (leading to longer dwell times at bus stops), and varying traffic conditions causing delays to buses during certain time periods.

4.12 During the Wightman Road closure, most routes experienced increased journey times to varying degrees. One routes that was severely affect included is route 41 eastbound, which had increased journey times of up to 15 minutes. Route 141 southbound also experienced increases of up to five minutes on weekends, whilst route W5 expereienced increases of up to about 5 minutes during certain time periods.

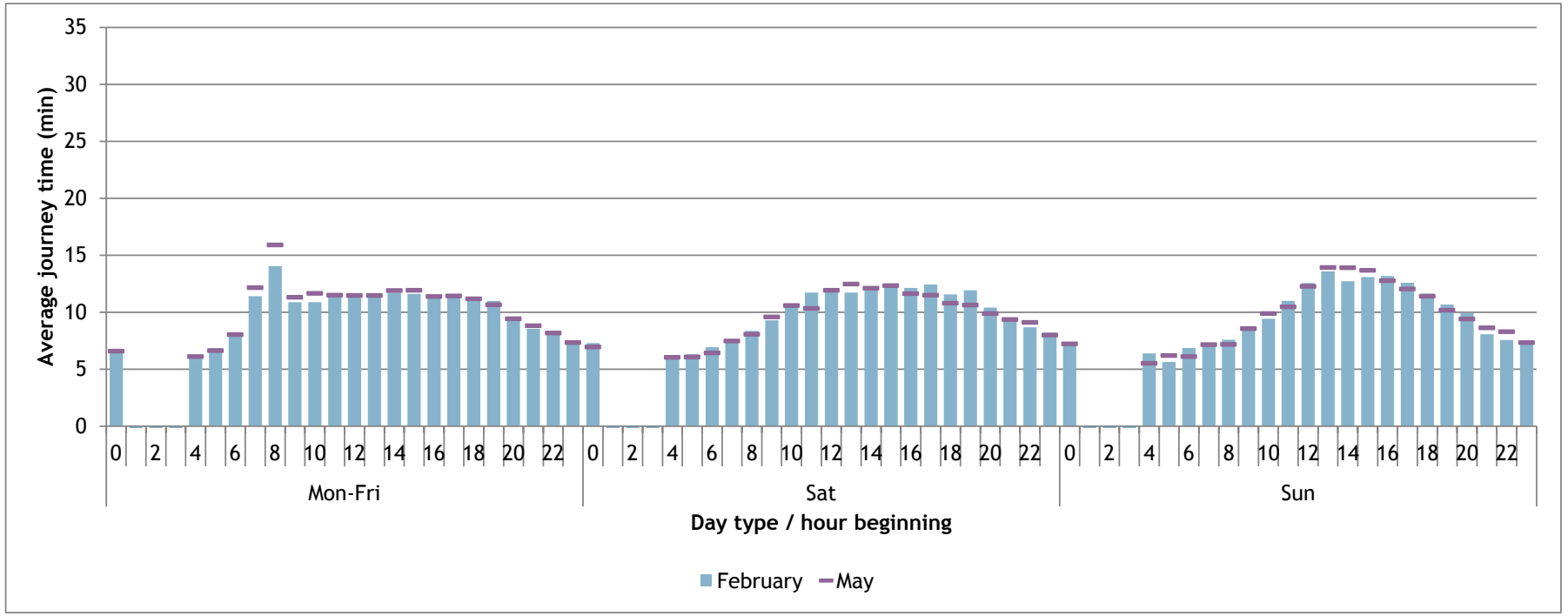
Table 4.1: Commentary on bus journey times

Route	Direction 1	Direction 2
41	Turnpike Lane to Crouch End Broadway (Figure 4.2) • In February, journey times peaked at about 14 minutes on Sundays afternoons. On Saturdays and weekdays, journey times peak at about 12 minutes. • In May, changes in bus journey times were small, with changes of up to about 1 minute.	Crouch End Broadway to Turnpike Lane (Figure 4.3) • In February, journey times peaked at about 15 minutes on weekday afternoons. On Saturdays and Sundays, they peaked at about 12–13 minutes. • There were some extreme changes in bus journey times in this direction. On weekday afternoons, there were increases of between about 12–15 minutes in some time periods. On Saturdays, much of the day also saw increases on 10–15 minutes. There were smaller increases on Sundays, of up to about 2 minutes.

Route	Direction 1	Direction 2
141	Wood Green to Manor House (Figure 4.4) • In February, average journey times during the day on weekdays were about 20 minutes. Journey times are generally longest during the day on Saturdays and Sundays, when they can reach 25 minutes. • In May, some weekday journey times showed slight increases. The largest increase occurred on weekends, with increases of more than 5 minutes at certain times.	Manor House to Wood Green (Figure 4.5) • In February, average bus journey times were highly variable. They peak at about 30 minutes on Saturday afternoons, with weekday and Sundays journey times peaking at about 25 minutes. • In May, increases in journey times were mixed. There were some increase of up to about 3–4 minutes, but only during certain time periods.
144	Muswell Hill Broadway to Wood Green (Figure 4.6) • In February, journey times varied significantly between different time periods. The longest occurred in the afternoon of weekdays (almost 30 minutes), with journey time of up to about 25 minutes occurring on weekend afternoons. • In May, there were generally slight decreases in average journey times of about 2–3 minutes, although increases also occurred during certain time periods.	Wood Green to Muswell Hill Broadway (Figure 4.7) • In February, the longest journey times generally occurred during the day on weekdays and Saturdays (about 22–23 minutes). • In May, there were generally slight increases in average journey times of about 1–4 minutes.
341	Chestnuts Primary School to Manor House (Figure 4.8) • In February, the longest journey times generally occurred during the day on weekdays and weekends (up to about 11 minutes). • In May, journey times generally increased slightly, by between about 1–2 minutes.	Manor House to Chestnuts Primary School (Figure 4.9) • In February, journey times in this direction were more variable. The highest journey times occurred in the afternoon on weekdays (up to about 16–17 minutes), with journey times on weekend afternoons peaking at about 15 minutes. • In May, there were some small increase in journey times (generally about 2 minutes), but only for some time periods.
W5	Sainsbury's to Crouch End Broadway (Figure 4.10) • In February, journey times generally peaked at about 20 minutes, during the afternoon on both weekdays and weekends. • In May, there were noticeable increases in journey times, particularly on Saturdays where there were increases of up to about 4 minutes, with generally smaller increases on weekdays and Sundays.	Crouch End Broadway to Sainsbury's (Figure 4.11) • In February, the highest journey times occurred in the afternoon on weekdays, peaking at about 16–17 minutes. On weekend afternoons, the highest journey times were just over 15 minutes. • In May, there were some large increases in journey times (up to about 6 minutes) late on Sunday afternoons. There were also some increase on weekdays, but changes on Saturdays were more minor.

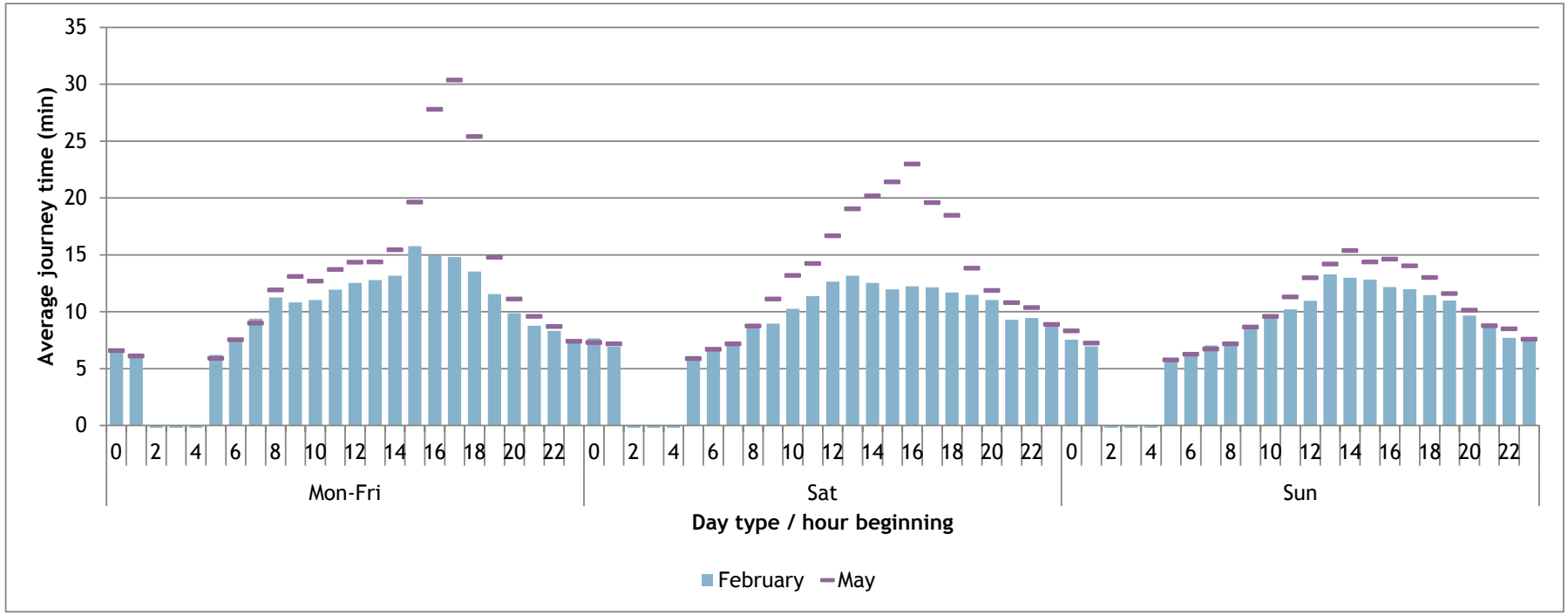
Source: Transport for London iBus data

Figure 4.2: Average bus journey times along route 41, Turnpike Lane to Crouch End Broadway (westbound), February 2016 and May 2016



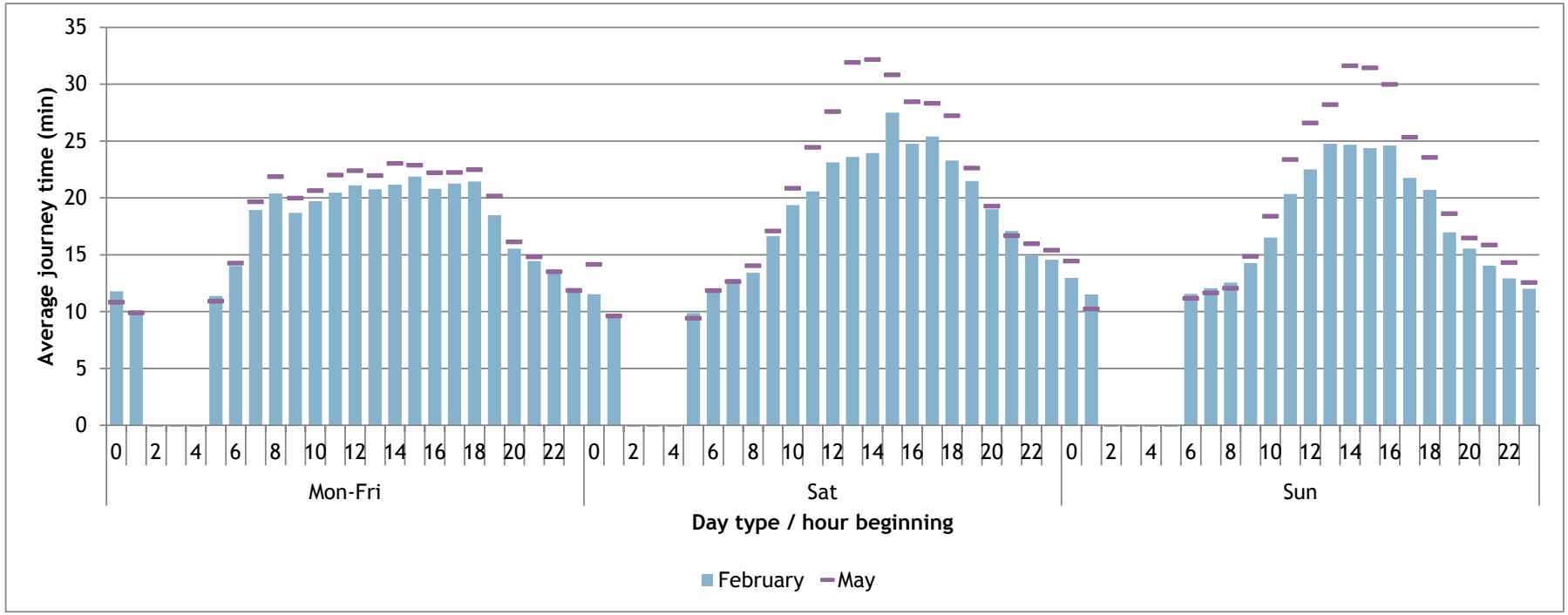
Source: Transport for London iBus data

Figure 4.3: Average bus journey times along route 41, Crouch End Broadway to Turnpike Lane (eastbound), February 2016 and May 2016



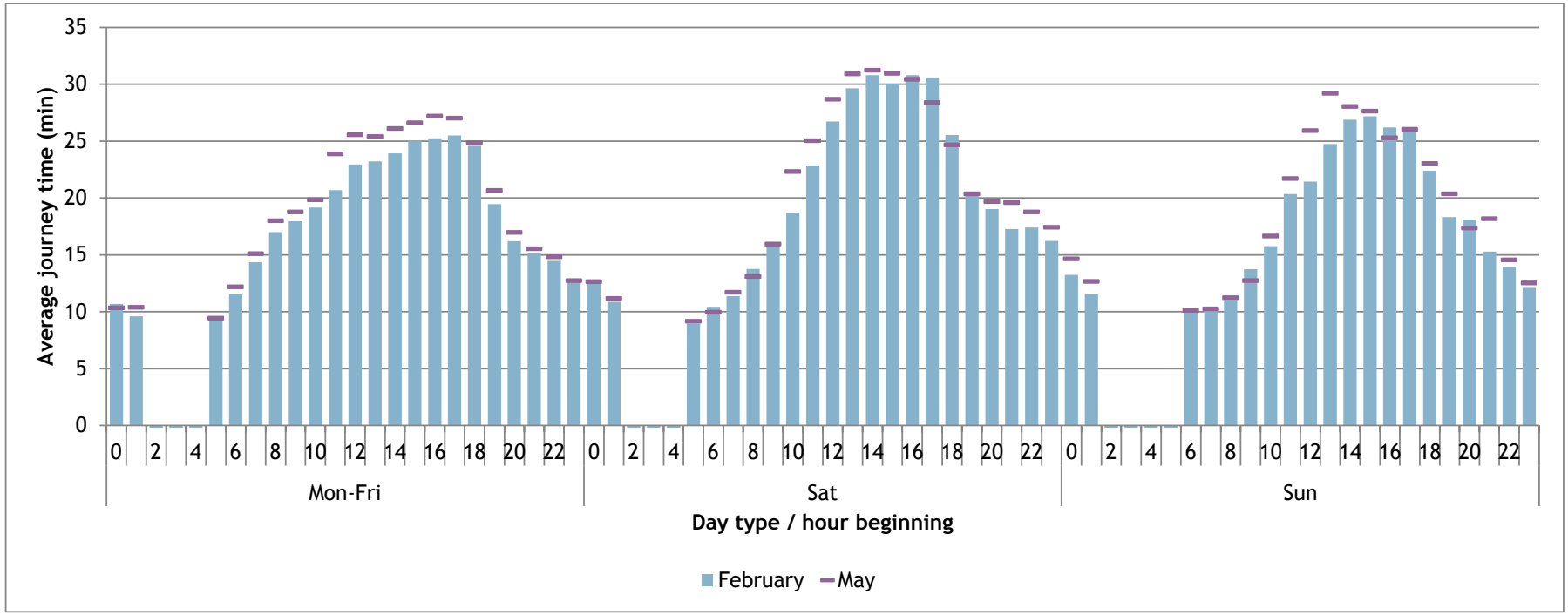
Source: Transport for London iBus data

Figure 4.4: Average bus journey times along route 141, Wood Green to Manor House (southbound), February 2016 and May 2016



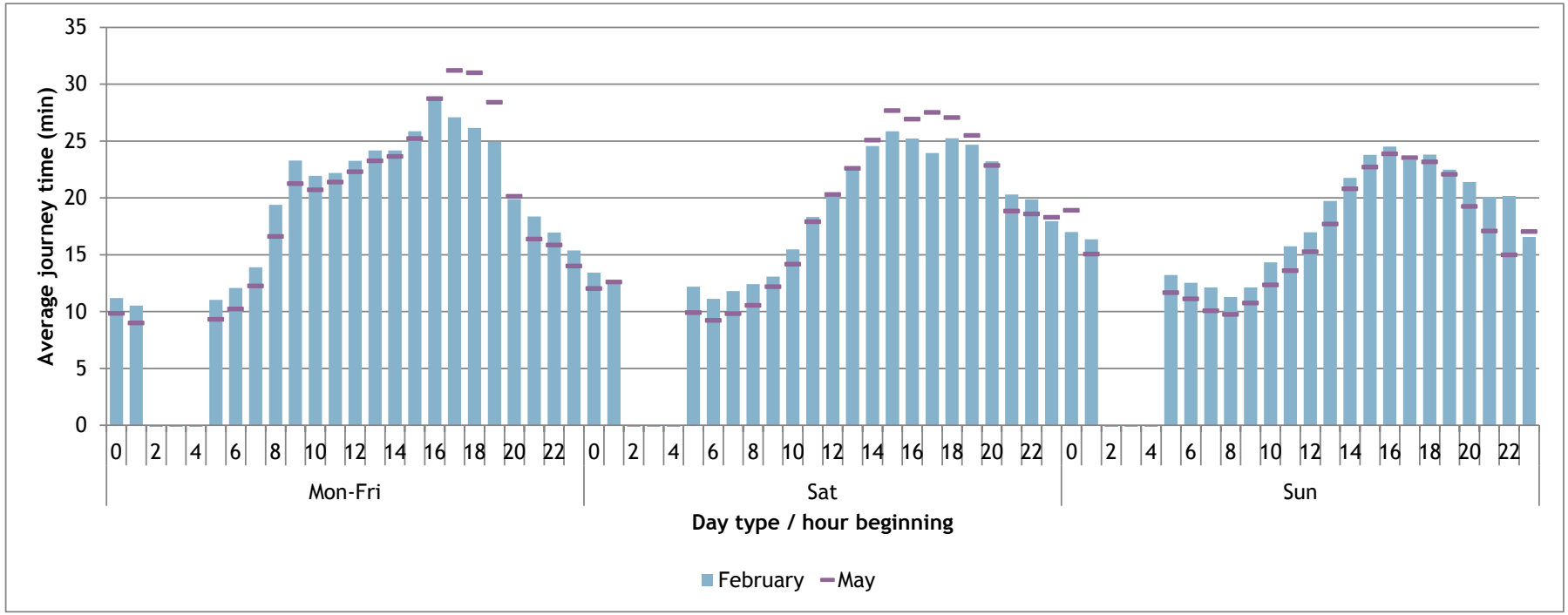
Source: Transport for London iBus data

Figure 4.5: Average bus journey times along route 141 (northbound), Manor House to Good Green, February 2016 and May 2016



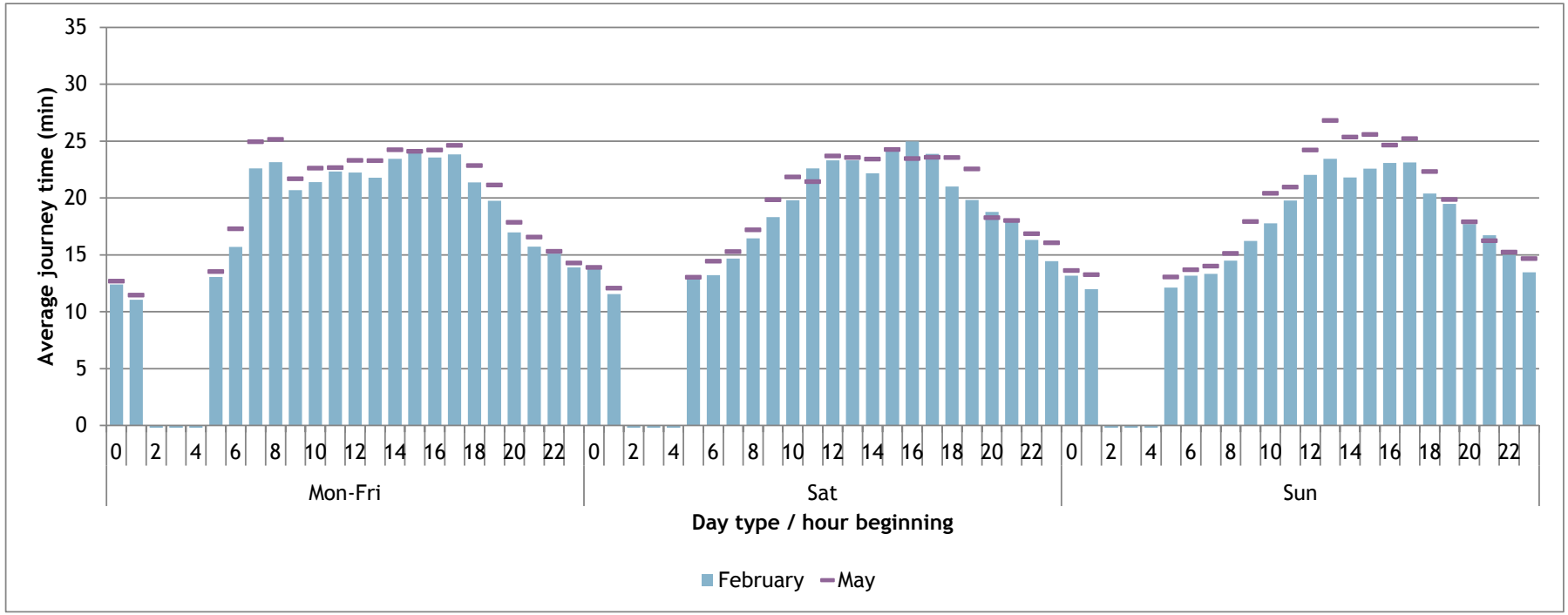
Source: Transport for London iBus data

Figure 4.6: Average bus journey times along route 144, Muswell Hill Broadway to Wood Green (eastbound), February 2016 and May 2016



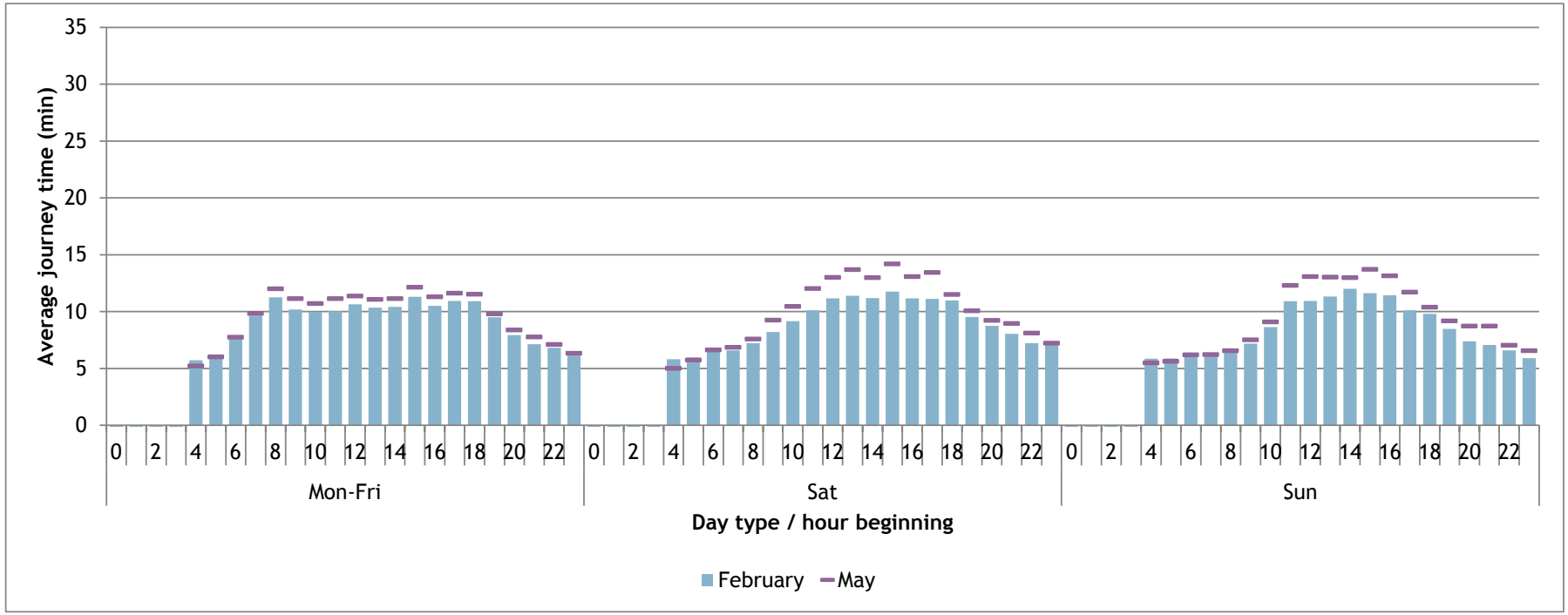
Source: Transport for London iBus data

Figure 4.7: Average bus journey times along route 144, Wood Green to Muswell Hill Broadway (westbound), February 2016 and May 2016



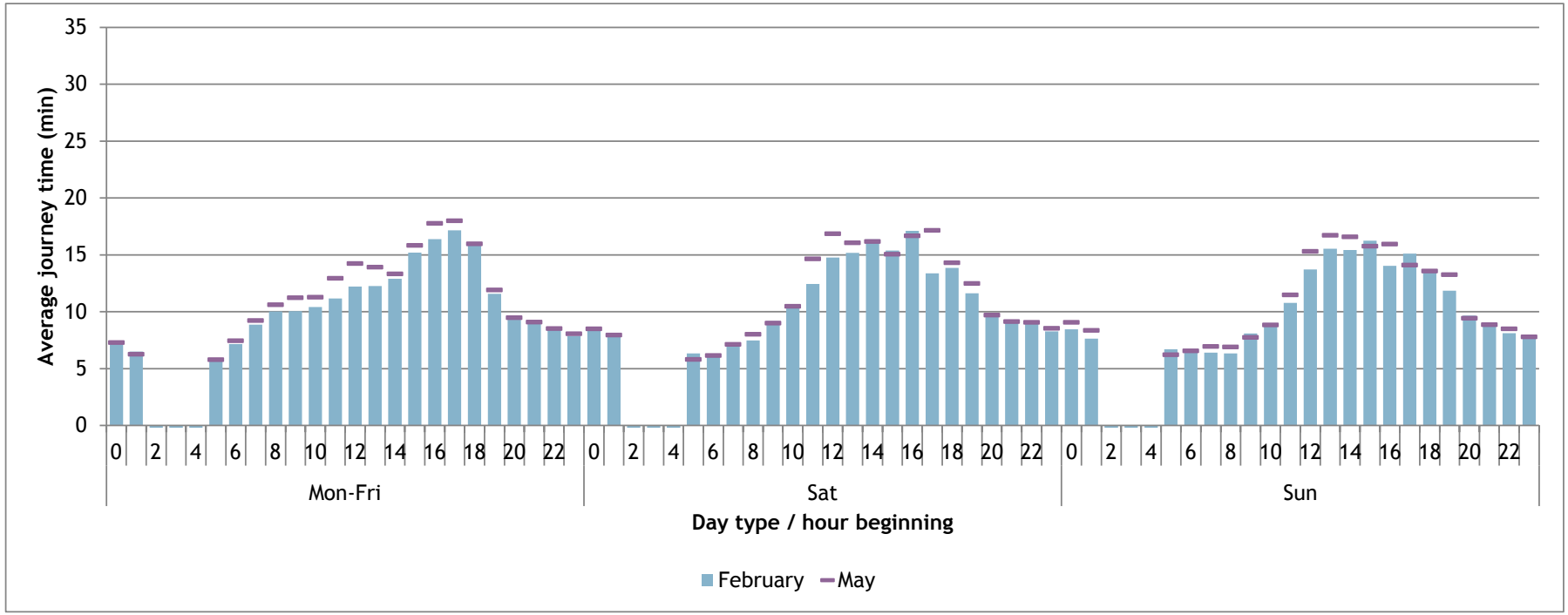
Source: Transport for London iBus data

Figure 4.8: Average bus journey times along route 341, Chestnuts Primary School to Manor House (southbound), February 2016 and May 2016



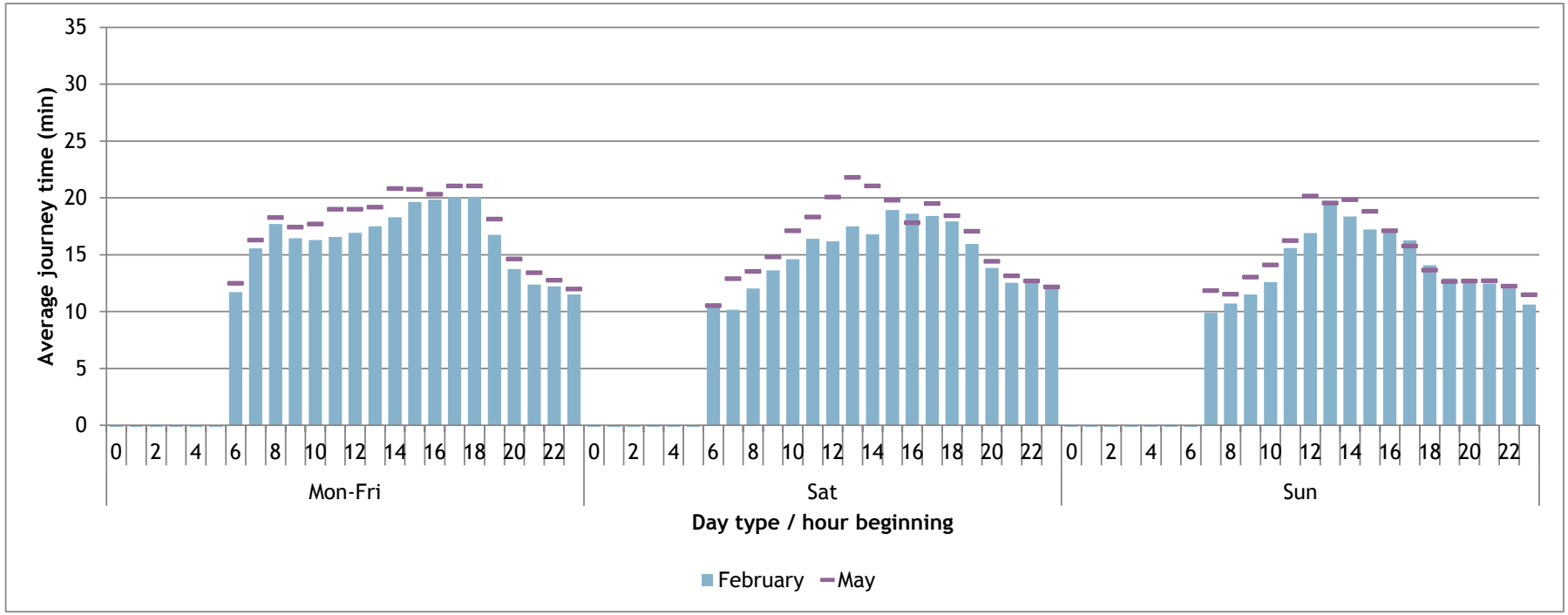
Source: Transport for London iBus data

Figure 4.9: Average bus journey times along route 341, Manor House to Chestnuts Primary School (northbound), February 2016 and May 2016



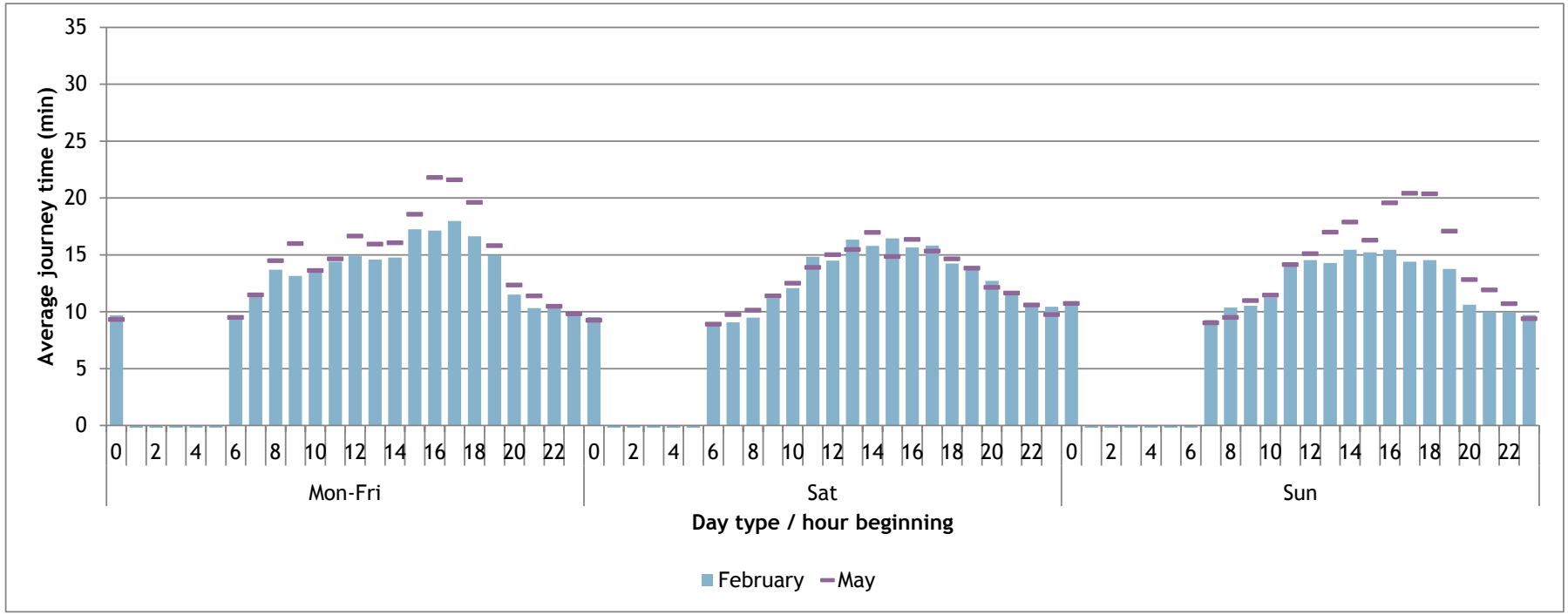
Source: Transport for London iBus data

Figure 4.10: Average bus journey times along route W5, Sainsbury's to Crouch End Broadway (westbound), February 2016 and May 2016



Source: Transport for London iBus data

Figure 4.11: Average bus journey times along route W5, Crouch End Broadway to Sainsbury's (eastbound), February 2016 and May 2016



Source: Transport for London iBus data

5 Walking and cycling

Walking

5.1 As noted in Chapter 2, walking is the most frequently used mode of transport in the study area. 34% of trips starting and/or ending in the study area, for all journey purposes, are made on foot[7], and over 80% of trips that both start and end within the study area are walked.

5.2 Nearly half the trips to and from the study area for shopping, personal business and leisure purposes are made on foot. Walking is a less popular mode of travel for commuting purposes: 6% of residents of the study area walk to work[8]. This is likely due to the locations of residents' jobs, which are concentrated in central London, beyond a generally reasonable walking distance from the study area.

5.3 The walking network in the study area is predominantly provided by the street network. However, there are also additional off-road footways that provide additional links for pedestrians. These include:

- Harringay Passage, which provides a north-south route through the centre of the Ladder
- Pedestrians paths through green spaces, such as Finsbury Park and Chestnuts Park
- New River Path, to the west of Wightman Road between Hampden Road and Allison Road
- New River Path, between Green Lanes and Seven Sisters Road
- Pedestrian bridge over the Great Northern line between Tottenham Lane and Hampden Road (at Hornsey station), providing a link towards Hornsey
- Pedestrian bridge over the Great North line between Quernmore Road and Station Approach (at Harringay station), providing a link towards Stroud Green

Cycling

5.4 The study area is in close proximity to a number of routes on the London Cycle Network, although none of these routes pass through the study area itself. Transport for London has recently completed Cycle Superhighway 1, which connects White Hart Lane in Tottenham with Liverpool Street station. This north-south route is located to the east of the study area. Figure 5.1 shows the location of these nearby existing designated cycling routes.

5.5 The cycling mode share for trips starting or ending in the study area, for all journey purposes, is 3%, which is in-line with the London average. The cycle mode share is slightly higher for trips

[7] LTDS, average of 2010/11 to 2014/15 data

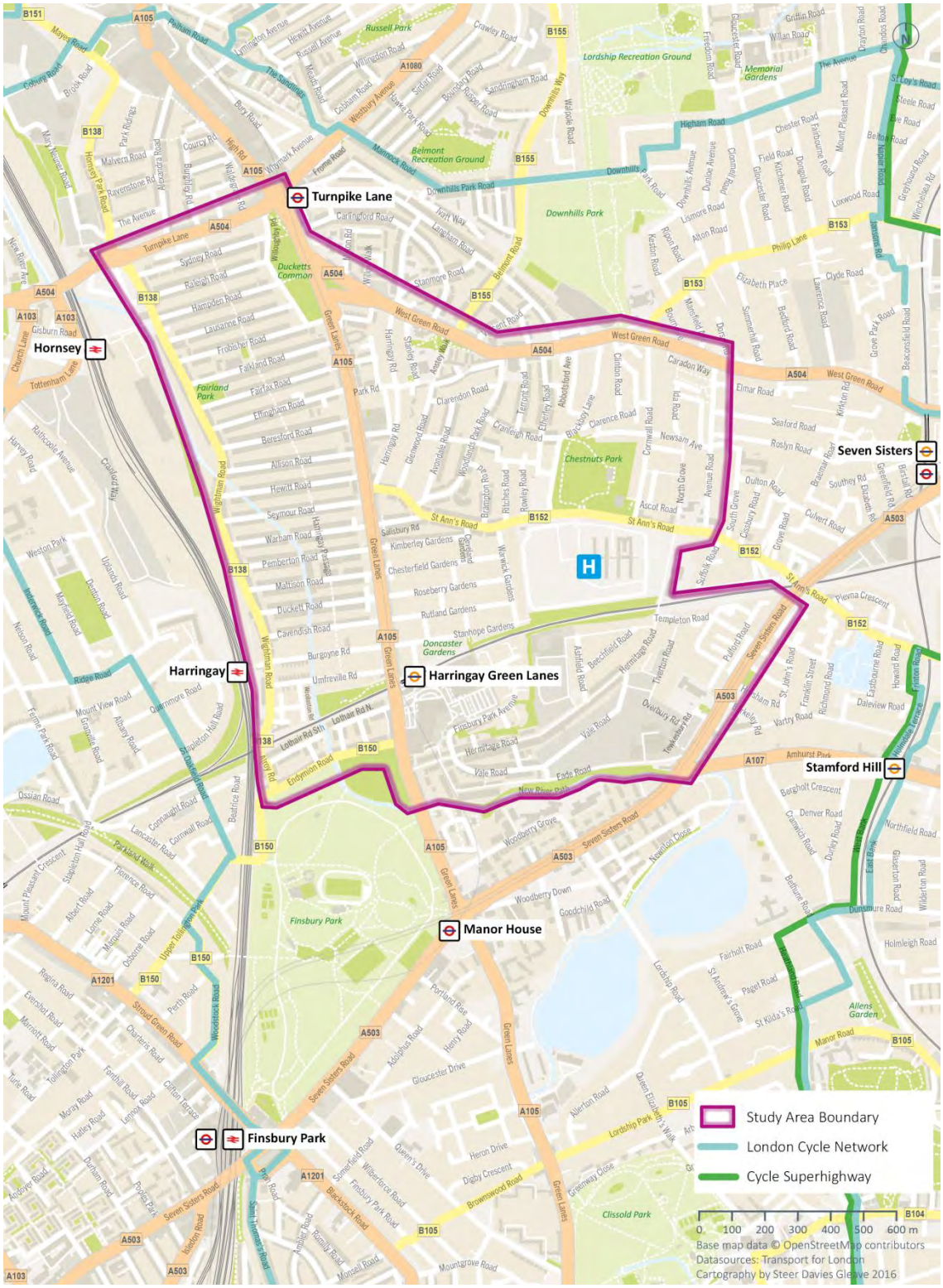
[8] Census, 2011

made within the study area (4% of trips cycled), and trips to or from west Haringey (5% cycled).

5.6 The cycling mode share for commuting trips has increased in recent years from 2% in 1991 and 3% in 2001 to 7% 2011[9]. Only a small proportion of trips made to or from the study area for shopping, personal business and leisure purposes are cycled (1%).

[9] Census, 1991–2011

Figure 5.1: Cycle network



6 Road safety

Collision analysis

6.1 This section outlines the analysis undertaken for the collisions recorded for the 36 month period ending November 2015. Figure 6.1 shows the collision plot for the study area in this period.

Summary

6.2 Table 6.1 below presents a summary of the collisions by casualty severity type.

Table 6.1: Casualties and collisions in the study area by severity (36 months from 1 December 2012 to 30 November 2015)

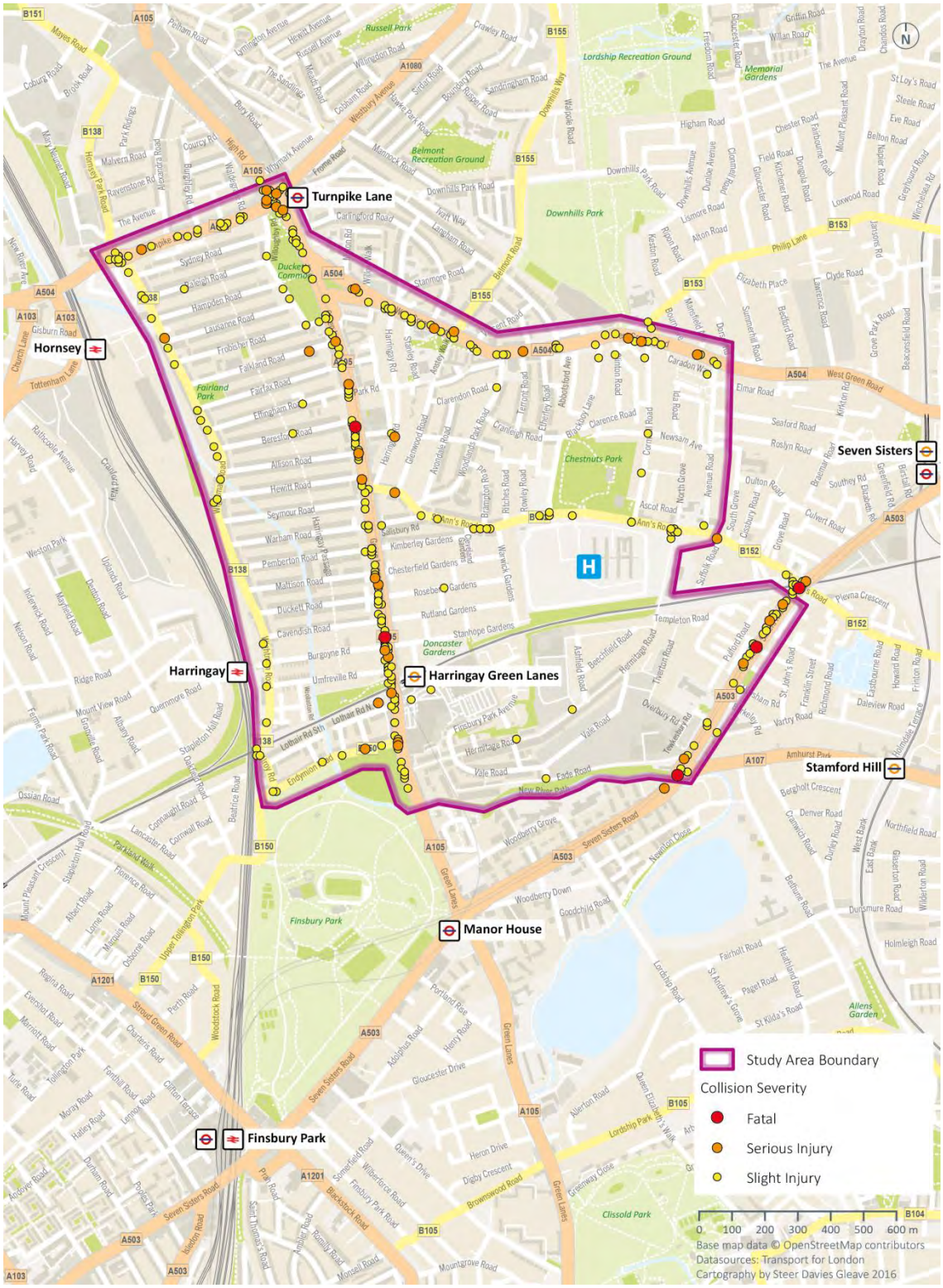
Severity	Collisions		Casualties	
Fatal	5	1%	6	1%
Serious Injury	40	9%	41	8%
Slight Injury	401	90%	491	91%
Grand total	***446***	***100%***	***538***	***100%***

Source: Transport for London

6.3 As shown, the key findings are as follows:

- 90% of the collisions resulted in slight injuries, approximately 10 times the number of serious injury collisions and approximately 80 times the number of fatal collisions that occurred.
- 91% of the casualties involved resulted in slight injuries, approximately 12 times the number of serious accidents and approximately 82 times the number of fatal casualties that occurred.
- Of the 446 collisions, 538 casualties were a result of the incidents. An average of 1.2 individuals were casualties for each collision.
- 10% of all collisions in the study area were fatal or serious. This proportion is lower than for Haringey as a whole, where an average of 11.1% of all collisions is fatal or serious.

Figure 6.1: Collisions (36 months from 1 December 2012 to 30 November 2015)



Collision characteristics

6.4 Table 6.2 below shows the collisions by road surface conditions and severity.

Table 6.2: Collisions by road surface condition and severity

Collision Severity	Road Surface Condition		Total
	Dry	Non-Dry	
Fatal	5 (100%)	0 (0%)	5 (100%)
Serious	29 (73%)	11 (27%)	40 (100%)
Slight	324 (81%)	77 (19%)	401 (100%)
Grand Total	**358 (80%)**	**88 (20%)**	**446 (100%)**

Source: Transport for London

6.5 This data shows that:

- 80% of all collisions occurred during dry road surface conditions, approximately four times the number of collisions that occurred during non-dry road surface conditions. 20% of all collisions resulted during non-dry road surface conditions, which is slightly higher than the Haringey average of 18.1% of collisions occurring in non-dry collisions.

6.6 Table 6.3 below presents a summary of collisions based on light conditions.

Table 6.3: Collisions by light condition and severity

Collision Severity	Light Condition		Total
	Daylight	Dark	
Fatal	4 (80%)	1 (20%)	5 (100%)
Serious	20 (50%)	20 (50%)	40 (100%)
Slight	277 (69%)	124 (31%)	401 (100%)
Grand Total	**301 (67%)**	**145 (33%)**	**446 (100%)**

Source: Transport for London

6.7 This data shows that:

- 67% of all collisions occurred during daylight hours, approximately twice as many as the number of collisions that occurred during the hours of darkness.
- 33% of all collisions occurred during the hours of darkness, 4.1% higher than the average across Haringey of 28.9%. This may reflect higher levels of night time activity that take place in the study area relative to the borough as a whole.

6.8 Table 6.4 and Table 6.5 below show the locations of collision hotspots, initially by casualty severity and then by mode.

Table 6.4: Banded locations of collisions compared by collision severity

Location	Collision Severity			
	Fatal	Serious	Slight	Total
Green Lanes (Seymour Road - Endymion Road)	1	6	71	78
Seven Sisters Road (Eade Road - St Ann's Road)	1	3	35	39
Green Lanes (Hermitage Road - Frobisher Road)	1	2	23	26
Wightman Road	-	1	22	23
High Road (N22) / Turnpike Lane	-	3	18	21
Green Lane (Turnpike Lane - West Green Road)	-	2	15	17
Seven Sisters Road / St Ann's Road	1	2	14	17
West Green Road (Belmont Road - Black Boy Lane)	-	1	15	16
St Ann's Road (Glenwood Road - Cornwall Road)	-	1	15	16
West Green Road (Clinton Road - Dorset Road)	-	2	13	15
West Green Road / Harringay Road	-	-	14	14
Green Lanes (Beresford Road - Seymour Road)	-	2	11	13
Turnpike Lane	-	1	12	13
Turnpike Lane / Wightman Rd	-	-	12	12
Endymion Road / Green Lanes	-	2	9	11

Source: Transport for London

Note: Due to the small number of collisions that occurred in each area, the locations have been banded and only the top 15 locations for the most number of collisions are displayed

Table 6.5: Banded locations of casualties by mode of travel

Location	Mode of Travel								
	Pedestrian	Pedal Cycle	Powered 2 Wheeler	Car	Taxi	Bus/ Coach	Goods Vehicle	Other Vehicle	Total
Green Lanes (Seymour Road - Endymion Road)	28	19	11	29	1	8	1	-	97
Seven Sisters Road (Eade Road - St Ann's Road)	5	8	12	16	1	5	-	-	47
Green Lanes (Hermitage Road - Frobisher Road)	3	5	9	10	-	2	1	-	30
High Road (N22) / Turnpike Lane	5	2	3	13	2	3	-	-	28
Wightman Road	4	6	3	9	2	-	1	-	25
Seven Sisters Road / St Ann's Road	2	1	2	11	3	2	1	-	22
West Green Road (Clinton Road - Dorset Road)	8	2	2	7	-	-	-	-	19
Green Lane (Turnpike Lane - West Green Road)	5	3	5	1	-	5	-	-	19
St Ann's Road (Glenwood Road - Cornwall Road)	3	7	-	4	2	-	1	-	17
West Green Road (Belmont Road - Black Boy Lane)	5	3	3	5	-	1	-	-	17
West Green Road / Harringay Road	4	2	1	5	-	2	1	-	15
Turnpike Lane	5	4	2	1	-	1	1	-	14
Green Lanes (Beresford Road - Seymour Road)	3	2	6	1	-	2	-	-	14
Endymion Road / Green Lanes	1	5	1	3	-	3	-	-	13
Turnpike Lane / Wightman Rd	3	1	1	7	-	1	-	-	13

Source: Transport for London

Note: Due to the small number of collisions that occurred in each area, the locations have been banded and only the top 15 locations for the most number of casualties by mode of travel are displayed

Casualty characteristics

6.9 Table 6.6 below shows casualty severity by vehicle type.

Table 6.6: Casualties by severity and mode of travel

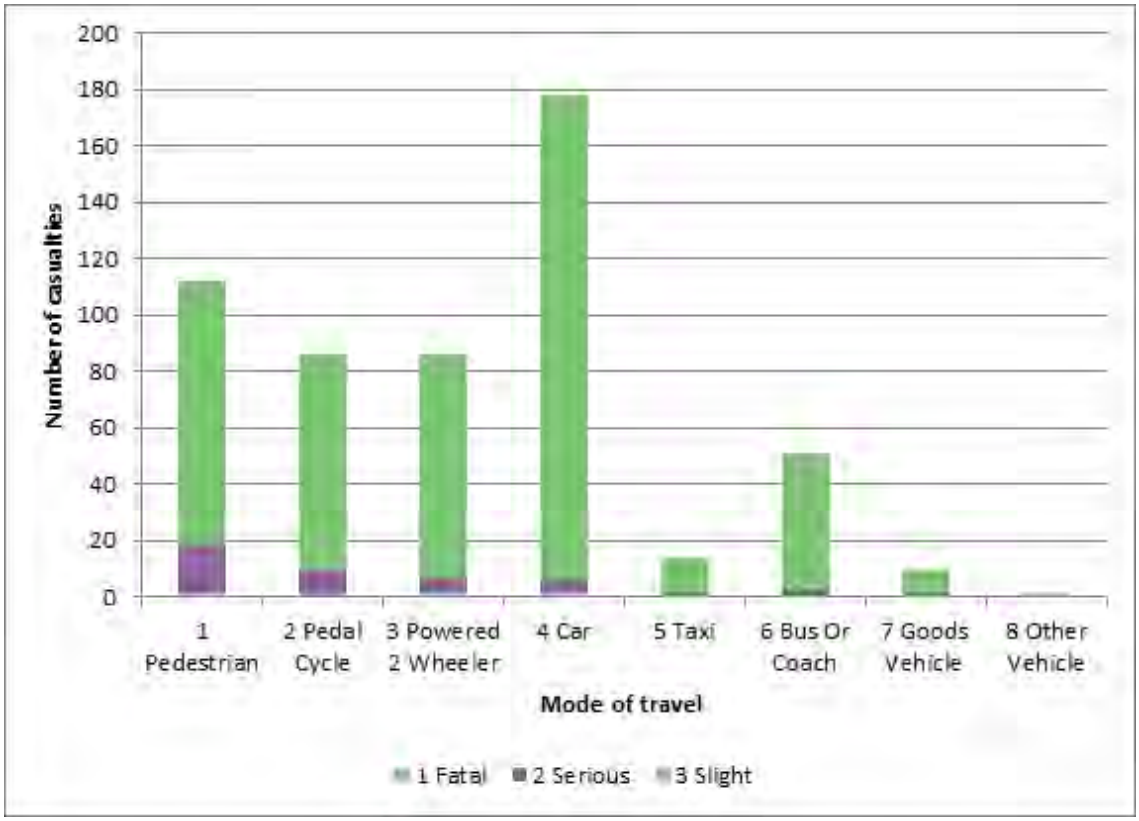
Mode of Travel	Casualty Severity			
	Fatal	Serious	Slight	*Grand Total*
Pedestrian	1 (1%)	18 (16%)	93 (83%)	*112*
Pedal Cycle	1 (1%)	9 (11%)	76 (88%)	*86*
Powered 2 Wheeler	2 (2%)	5 (6%)	79 (92%)	*86*
Car	2 (1%)	4 (2%)	172 (97%)	*178*
Taxi	0 (0%)	1 (7%)	13 (93%)	*14*
Bus Or Coach	0 (0%)	3 (6%)	48 (94%)	*51*
Goods Vehicle	0 (0%)	1 (10%)	9 (90%)	*10*
Other Vehicle	0 (0%)	0 (0%)	1 (100%)	*1*
Grand Total	***6 (1%)***	***41 (8%)***	***491 (91%)***	***538***

Source: Transport for London

6.10 This data shows that:

- In general, pedestrians and pedal cyclists are more likely to be seriously injured than other road users.
- 33% of casualties were a result of travelling by car, however almost all of these casualties were slight. The mode with the second highest number of total casualties was pedestrians. However, this mode accounts for the highest number of serious casualties.

Figure 6.2: Casualties by mode of travel and severity



Source: Transport for London

6.11 Table 6.7 below shows casualties by gender, age band and mode of travel.

Table 6.7: Casualties by gender, age and mode of travel

Mode of Travel	Male						Female						Grand Total
	Age Band						Age Band						
	0-15	16-24	25-59	60+	Unknown	*Male Total*	0-15	16-24	25-59	60+	Unknown	*Female Total*	
Pedestrian	11 (9%)	9 (8%)	35 (31%)	6 (6%)	1 (1%)	*62 (55%)*	9 (8%)	6 (6%)	25 (22%)	9 (8%)	1 (1%)	*50 (45%)*	*112 (100%)*
Pedal Cycle	1 (1%)	14 (17%)	45 (53%)	2 (2%)	3 (3%)	*65 (76%)*	0 (0%)	2 (2%)	17 (20%)	0 (0%)	2 (2%)	*21 (24%)*	*86 (100%)*
Powered 2 Wheeler	0 (0%)	22 (26%)	56 (65%)	1 (1%)	3 (3%)	*82 (95%)*	0 (0%)	1 (1%)	3 (4%)	0 (0%)	0 (0%)	*4 (5%)*	*86 (100%)*
Car	5 (3%)	25 (14%)	63 (35%)	7 (4%)	5 (3%)	*105 (59%)*	5 (3%)	8 (5%)	53 (30%)	4 (2%)	3 (1%)	*73 (41%)*	*178 (100%)*
Taxi	0 (0%)	1 (7%)	9 (65%)	2 (14%)	0 (0%)	*12 (86%)*	0 (0%)	0 (0%)	1 (7%)	0 (0%)	1 (7%)	*2 (14%)*	*14 (100%)*
Bus Or Coach	7 (13%)	1 (2%)	5 (10%)	5 (10%)	1 (2%)	*19 (37%)*	2 (4%)	0 (0%)	18 (35%)	10 (20%)	2 (4%)	*32 (63%)*	*51 (100%)*
Goods Vehicle	0 (0%)	1 (10%)	8 (80%)	0 (0%)	0 (0%)	*9 (90%)*	0 (0%)	1 (10%)	0 (0%)	0 (0%)	0 (0%)	*1 (10%)*	*10 (100%)*
Other Vehicle	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	*0 (0%)*	0 (0%)	0 (0%)	1 (100%)	0 (0%)	0 (0%)	*1 (100%)*	*1 (100%)*
Grand Total	***24 (5%)***	***73 (14%)***	***221 (41%)***	***23 (4%)***	***13 (2%)***	***354 (66%)***	***16 (3%)***	***18 (3%)***	***118 (22%)***	***23 (4%)***	***9 (2%)***	***184 (34%)***	***538 (100%)***

Source: Transport for London

6.12 Some of the key findings that emerge from the data are:

- The number of male casualties was almost twice as high as female casualties. This difference is particularly noticeable in the 16–24 age band, within which there were 73 male casualties but only 18 female casualties.
- Males are form a disproportionate number of casualties for certain modes. There is an extreme difference for powered two wheeler casualties, with 82 male casualties compared to only 4 female casualties. Other modes where there are a significantly higher number of male casualties compared to female casualties are pedal cycles, taxis and goods vehicles.

7 Air quality

7.1 Air quality in a particular location is not solely determined by emissions in the immediate vicinity. As explained by King's College London on the London Air website:

> While it is we who produce the pollution, it is primarily the weather that dictates what will happen once it is released into the air. During wet or windy conditions pollution concentrations remain low, either blown away, or removed from the air by rain. During still hot weather pollution is able to build up to harmful amounts, leading to what are known as pollution episodes. Concentrations also increase in winter when low winds lead to a build up of traffic pollution in London.

7.2 Air quality is therefore a particularly complex issue that is affected by various factors, not all of which will fall within the remit of this study. Transport contributes to a significant proportion of emissions, and therefore air quality is relevant to this study. However, there are also other sources of airborne pollutants that contribute to poor air quality. Further, reducing transport emissions is also dependent (to a large degree) on London-wide and national policy.

Existing situation

7.3 In order to understand the existing air quality situation in the study area, we have drawn on information from the London Atmospheric Emissions Inventory 2013, which has been prepared by the Greater London Authority and Transport for London. It relates to the year 2013, as this is the latest year for which an accurate model is available.

Nitrogen dioxide (NO_2) concentrations

7.4 Nitrogen dioxide (NO_2) is a pollutant that is harmful to health, which can lead to respiratory symptoms. It is one of a group of gases called nitrogen oxides (NO_x). Road transport is responsible for a significant proportion of NO_x, which means that NO_2 concentrations are generally highest close to busy roads and in large urban areas.

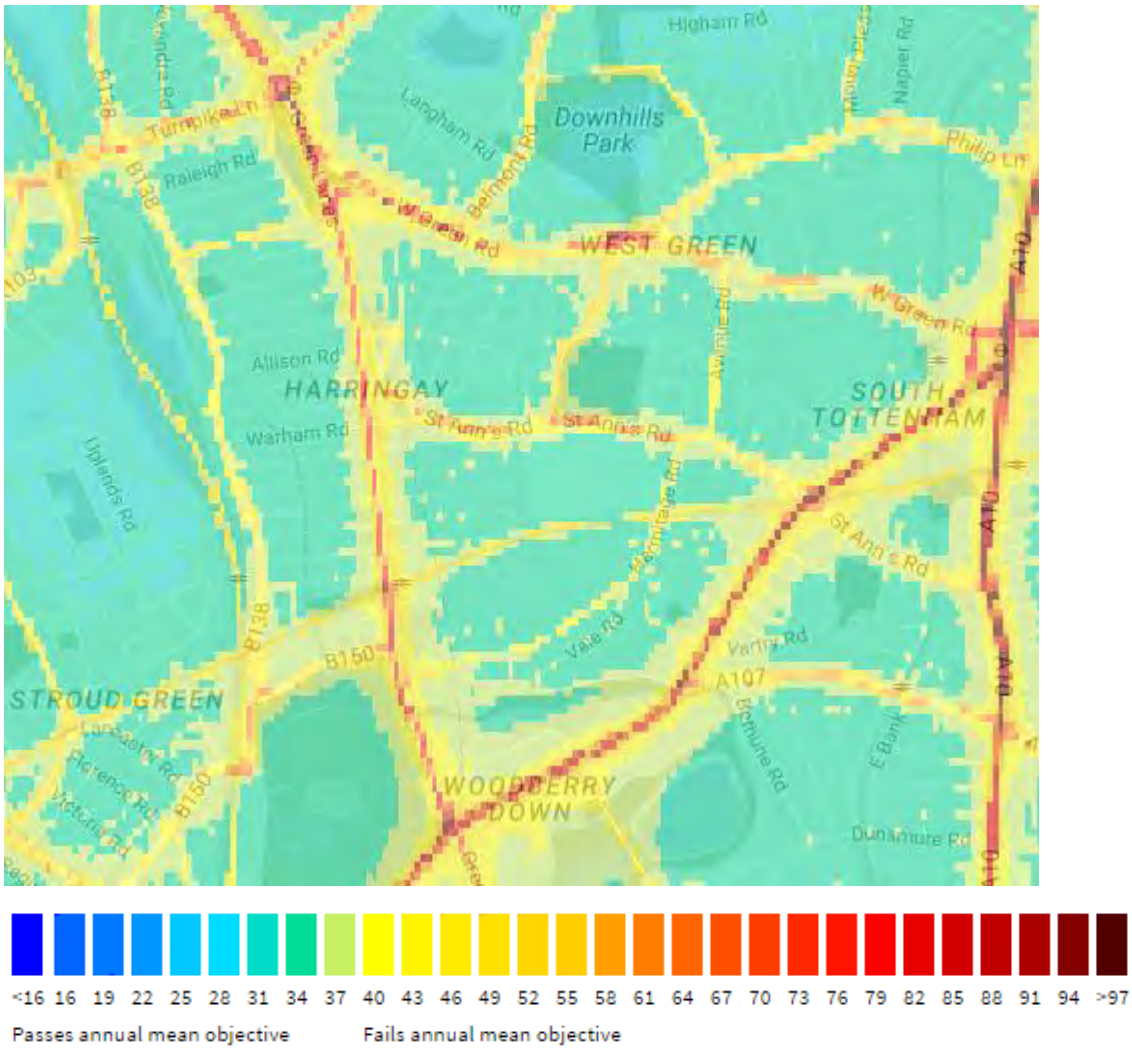
7.5 A map that shows modelled annual mean NO_2 concentrations 2013 in the study area is included in Figure 7.1 below. The EU limit for annual mean NO_2 concentrations is 40µg/m^3, and areas shown on the map in yellow or red exceed this limit. There is also an hourly objective, which is for a concentration of 200µg/m^3 not to be exceeded more than 18 times per year; there have been no exceedances of this objective in Haringey.

7.6 It can be seen that in terms of area, NO_2 concentrations across most of the study area are below the EU limit value. However, there are areas along busier roads and railway lines that

exceed the limit. Areas along the following roads generally have the highest concentrations of NO_2 in the study area:

- Green Lanes
- West Green Road
- Turnpike Lane
- St Ann's Road
- Endymion Road

Figure 7.1: Modelled annual mean NO_2 air pollution in 2013 (µg/m^3)



Source: London Atmospheric Emissions Inventory 2013

Nitrogen oxide (NO_x) sources

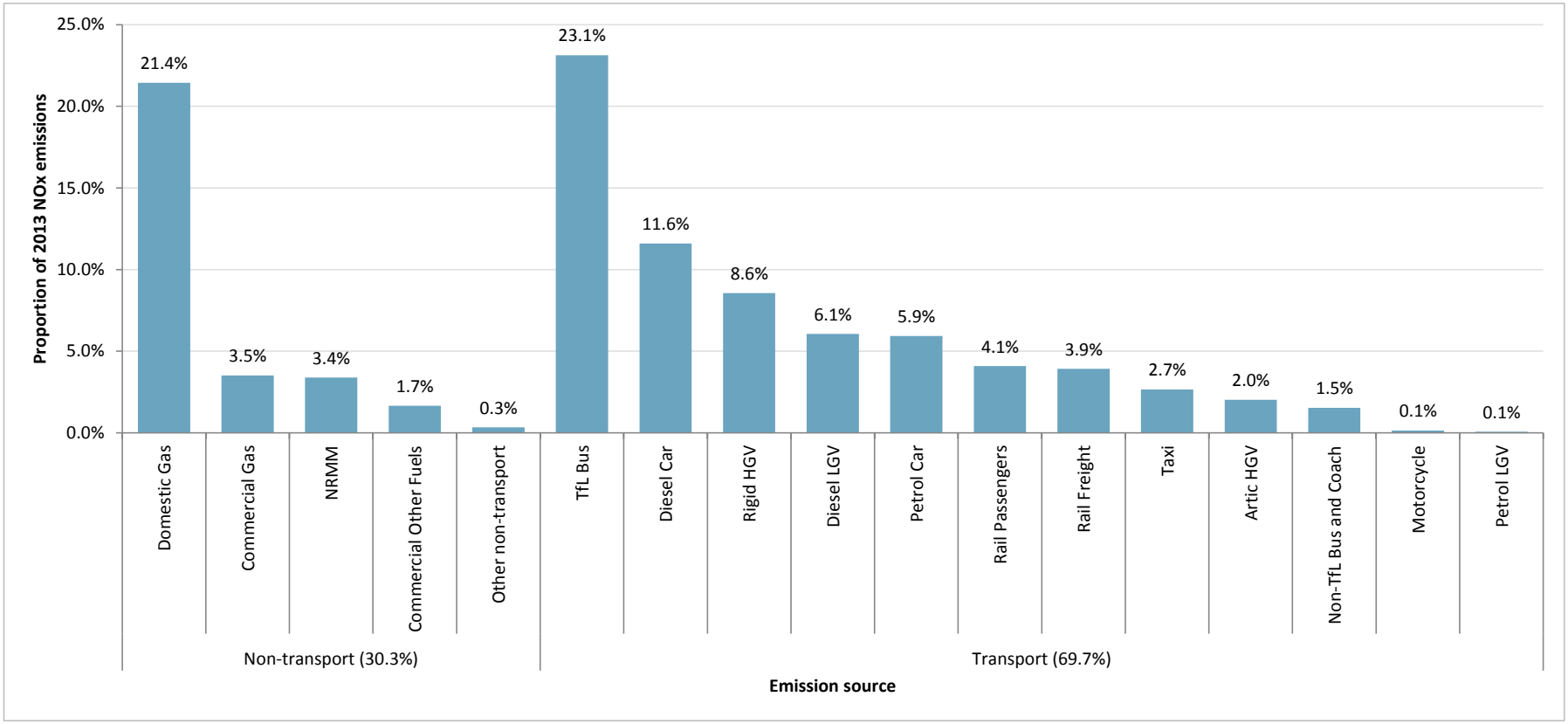
7.7 In order to understand how air quality can be improved, it is important to understand what emissions sources are contributing to the problem. Information on the sources of NO_x emissions in the study area is shown in Figure 7.2 below.

7.8 It can be seen that approximately 30% of emissions come from non-transport sources, with domestic gas use accounting for just over 20% of emissions.

7.9 The remaining 70% is emitted by transport sources, most of which comes from road transport. The biggest single component comes from TfL buses, which emit about 23% of NO_x in the study area. Other diesel vehicles (cars, heavy goods vehicles and light goods vehicles) together make up a significant proportion of emissions.

7.10 There are also diesel rail services that operate through the study area. In total, passenger and freight rail services are responsible for about 7% of emissions. This is likely to decline in the future, due to the electrification of the Gospel Oak to Barking line, which is currently in progress.

Figure 7.2: Sources of NO_x emissions in the study area, 2013



Source: London Atmospheric Emissions Inventory 2013
Note: Data is based on grid squares 691, 1381, 2030 and 2749, which generally (but not exactly) correspond to the boundaries of the study area

Impacts of Wightman Road closure

7.11 Air quality monitoring was undertaken before and during the Wightman Road closure. However, in order to understand the impact that the closure had on local air quality, it important to firstly understand changes in the level of 'ambient' air pollution. LB Haringey has compared NO_2 concentrations for July 2015 and July 2016 from the LB Haringey monitoring sites that operated for both years (Figure 7.3). The data is shown in the chart below (diffusion tube data included in the chart is unadjusted as the factor for 2016 is not available; this is a process that is undertaken to take into account the difference between continuous and diffusion tube methods of monitoring). The majority of the sites showed a reduction in levels between the two years (one of the two sites that showed an increase is next to a construction site). It is therefore likely that, generally speaking, ambient concentrations of NO_2 in the borough were lower in July 2016 relative to July 2015. As such, even in the absence of any changes to traffic, it is likely that NO_2 concentrations in the Wightman Road area would have also declined.

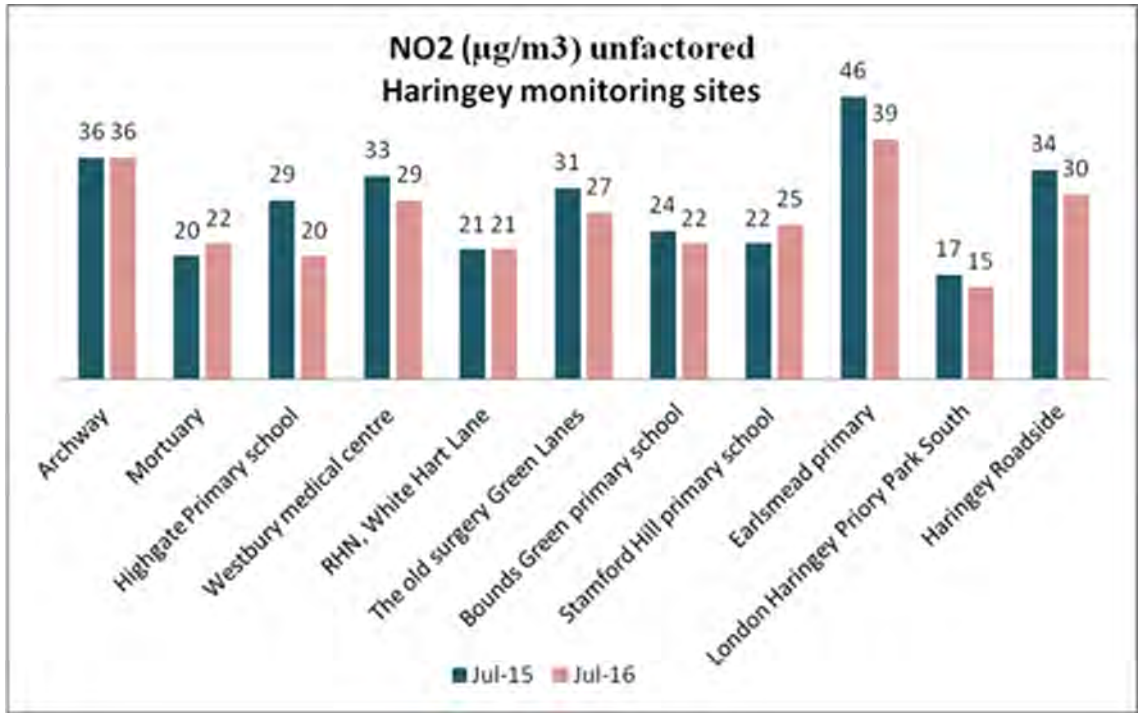
7.12 Monitoring was also undertaken by the Harringay Community Group (HCG) in July 2015 and July 2016 in the Wightman Road area, as shown in the second chart (Figure 7.4). The July 2015 surveys were undertaken whilst Wightman Road was open (as is normally the case) and the July 2016 surveys were undertaken during the closure of Wightman Road. It can be seen that there was a decline in NO_2 concentrations at most sites, and some of these declines appear to be over and above the reduction in ambient concentrations across the borough. However, increased concentrations were observed at two sites (Duckett Road and Willoughby Road).

7.13 However, there are a number of limitations associated with this monitoring:

- The HCG monitoring sites do not necessarily capture the full impact of changed traffic patterns due to the Wightman Road closure, which extended quite far outwards (for example, towards Crouch End and the Hermitage area).
- Only one of the Green Lanes sites was operational both in 2015 and 2016. This was one of the roads that experienced considerable congestion following the closure. Furthermore the other Green Lanes site sampled in 2016 was carried out at 3rd floor level (this location does not appear in the 2015 sites). Sampling at height will generally give lower results than at the same position on ground floor.
- Willoughby Road (NW corner of Frobisher) appears in the chart for the first sampling exercise in 2015, but this description does not appear in the datasheet for 2015. However two sites with effectively the same description—Willoughby Road (North East corner of Frobisher) are listed in the 2016 sampling both. These inconsistencies make it difficult to assess the impact on the sites on the periphery of area.

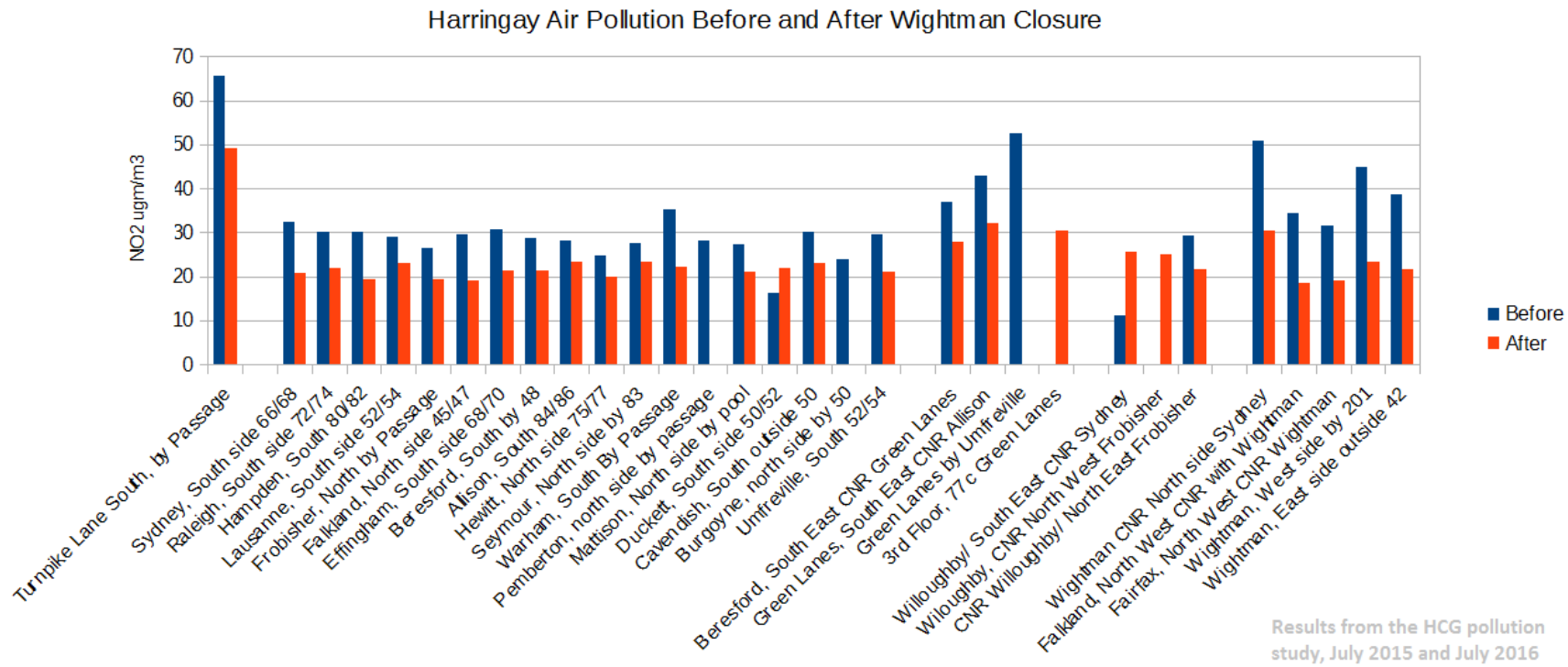
7.14 **In any case it is important to note that caution should be applied in drawing conclusions from this data, due to the short term nature of the monitoring and the limited number of sites outside of the immediate road closure area.**

Figure 7.3: NO_2 concentrations at LB Haringey monitoring sites, July 2015 and July 2016



Source: LB Haringey
Note: Diffusion tube date is unadjusted as the factor for 2016 is not available

Figure 7.4: NO_2 concentrations at HCG monitoring sites, July 2015 and July 2016



Source: HCG

steer davies gleave

Appendices

A Origin destination matrices

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London Borough of Haringey
22933701 Green Lanes Area Transport Study
OD survey analysis

Comparison of results before Wightman Road closure and during Wightman Road closure, vehicle flows between survey nodes

Tuesday 22/03/2016 (vehicles, 16 hour time period from 06:00 to 22:00)

FROM \ TO	C	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	21	
	Within cordon (excluding retail park)	Green Lanes (south end)	Endymion Road	Turnpike Lane	Hornsey Park Road	Alexandra Road*	High Road	Whymark Avenue*	Westbury Avenue	Belmont Road	Philip Lane	West Green Road	Avenue Road*	Seven Sisters Road (east end)	St Ann's Road	Vartry Road	Seven Sisters Road (west end)	Williamson Road (retail park)	*Total*
C Within cordon (excluding retail park)		2 030	2 466	3 718	2 500		2 655		1 575	3 121	2 288	777	2 425	1 551	1 202	373	2 308	1 633	***30 622***
1 Green Lanes (south end)	2 516	118	2 188	810	1 246		1 620		757	467	177	41	8	10	23	0	2	1 544	***11 527***
2 Endymion Road	1 579	1 714	57	69	776		113		314	489	341	118	78	30	25	0	3	757	***6 464***
3 Turnpike Lane	3 745	664	51	109	4 717		312		2 799	537	703	821	62	65	760	18	75	211	***15 650***
4 Hornsey Park Road	2 100	1 048	633	3 299	154		57		155	79	104	106	21	25	302	14	54	202	***8 354***
5 Alexandra Road*	462	42	68	651	29		100		248	17	20	41	4	1	24	1	3	19	***1 731***
6 High Road	1 670	1 552	89	219	21		265		310	152	222	346	11	32	553	3	48	165	***5 658***
7 Whymark Avenue*	431	146	52	60	19		25		169	23	38	82	7	7	84	4	11	55	***1 212***
8 Westbury Avenue	1 252	553	239	3 289	48		214		212	34	23	21	3	0	22	0	5	96	***6 012***
9 Belmont Road	4 327	1 243	1 236	701	53		120		61	172	133	300	75	59	885	47	1 055	266	***10 735***
10 Philip Lane	2 621	129	208	471	56		265		20	124	67	127	133	34	304	16	370	101	***5 048***
11 West Green Road	1 425	94	212	752	112		295		32	409	408	35	65	20	197	7	240	78	***4 379***
12 Avenue Road*																			
13 Seven Sisters Road (east end)	1 640	16	23	63	22		30		4	53	10	8	110	137	742	43	7 968	28	***10 898***
14 St Ann's Road	1 410	21	46	715	274		524		31	701	54	15	802	94	45	20	324	41	***5 116***
15 Vartry Road	384	0	0	16	5		4		2	26	6	0	58	47	6	18	135	4	***713***
16 Seven Sisters Road (west end)	1 538	6	9	55	36		34		4	746	164	21	1 235	7 234	29	123	126	7	***11 369***
21 Williamson Road (retail park)	1 177	2 010	824	172	146		165		154	153	129	38	39	20	25	0	3	0	***5 054***
Total	***28 275***	***11 386***	***8 402***	***15 168***	***10 217***		***6 798***		***6 848***	***7 302***	***4 888***	***2 898***	***5 137***	***9 366***	***5 230***	***688***	***12 732***	***5 207***	***140 542***

Wednesday 29/06/2016 (vehicles, 16 hour time period from 06:00 to 22:00)

FROM \ TO	C	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	21	
	Within cordon (excluding retail park)	Green Lanes (south end)	Endymion Road	Turnpike Lane	Hornsey Park Road	Alexandra Road*	High Road	Whymark Avenue*	Westbury Avenue	Belmont Road	Philip Lane	West Green Road	Avenue Road*	Seven Sisters Road (east end)	St Ann's Road	Vartry Road	Seven Sisters Road (west end)	Williamson Road (retail park)	*Total*
C Within cordon (excluding retail park)		2 222	1 741	2 672	1 064		3 085		1 472	3 287	1 329	756	2 247	1 494	1 215	352	1 904	1 012	***25 854***
1 Green Lanes (south end)	2 573	200	3 361	126	37		1 004		417	375	149	39	5	11	8	0	3	1 429	***9 737***
2 Endymion Road	1 840	2 649	79	9	2		81		123	183	203	48	18	24	8	0	0	778	***6 046***
3 Turnpike Lane	2 204	74	0	123	6 373		232		1 612	79	287	544	10	7	244	3	21	41	***11 855***
4 Hornsey Park Road	1 001	136	7	5 358	399		24		101	11	67	84	3	2	144	1	28	63	***7 428***
5 Alexandra Road*	708	67	9	629	48		92		250	47	54	105	3	0	93	5	20	28	***2 157***
6 High Road	2 132	1 247	79	225	6		434		250	122	218	263	11	20	413	6	79	171	***5 675***
7 Whymark Avenue*	535	169	27	70	3		41		190	47	58	64	8	5	107	2	40	63	***1 429***
8 Westbury Avenue	1 135	397	39	2 690	32		205		234	33	11	5	4	2	13	0	8	51	***4 861***
9 Belmont Road	4 457	1 093	634	724	15		159		50	448	210	419	80	54	1 017	56	1 463	305	***11 184***
10 Philip Lane	2 033	222	295	613	32		274		24	150	116	191	163	46	475	38	725	116	***5 513***
11 West Green Road	1 442	95	124	724	31		328		27	505	550	67	115	27	179	5	233	86	***4 538***
12 Avenue Road*																			
13 Seven Sisters Road (east end)	1 715	13	23	41	2		43		2	65	13	2	84	272	720	31	8 297	20	***11 344***
14 St Ann's Road	1 514	14	27	493	93		541		37	796	98	17	758	117	70	16	384	55	***5 030***
15 Vartry Road	349	0	0	7	1		4		1	30	5	0	34	58	2	40	139	1	***672***
16 Seven Sisters Road (west end)	2 245	11	1	24	25		57		10	1 124	185	30	1 114	7 065	23	105	254	9	***12 282***
21 Williamson Road (retail park)	1 157	1 676	707	35	4		147		70	107	58	26	17	11	7	1	4	0	***4 028***
Total	***27 040***	***10 287***	***7 154***	***14 563***	***8 168***		***6 751***		***4 871***	***7 408***	***3 611***	***2 660***	***4 674***	***9 216***	***4 739***	***663***	***13 601***	***4 227***	***129 633***

Change (absolute) (change in vehicles, 16 hour time period from 06:00 to 22:00)

FROM \ TO	C	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	21	
	Within cordon (excluding retail park)	Green Lanes (south end)	Endymion Road	Turnpike Lane	Hornsey Park Road	Alexandra Road*	High Road	Whymark Avenue*	Westbury Avenue	Belmont Road	Philip Lane	West Green Road	Avenue Road*	Seven Sisters Road (east end)	St Ann's Road	Vartry Road	Seven Sisters Road (west end)	Williamson Road (retail park)	*Total*
C Within cordon (excluding retail park)		192	-725	-1 046	-1 436		431		-102	167	-959	-22	-178	-57	13	-21	-404	-622	***-4 768***
1 Green Lanes (south end)	57	82	1 173	-684	-1 209		-615		-341	-93	-28	-2	-2	1	-15	0	1	-115	***-1 790***
2 Endymion Road	261	935	22	-60	-774		-31		-191	-306	-138	-70	-61	-5	-17	0	-3	21	***-418***
3 Turnpike Lane	-1 541	-589	-51	14	1 656		-80		-1 187	-458	-416	-277	-53	-59	-516	-14	-54	-170	***-3 795***
4 Hornsey Park Road	-1 098	-912	-626	2 059	245		-34		-54	-68	-38	-22	-19	-23	-159	-13	-27	-138	***-926***
5 Alexandra Road*	245	25	-58	-22	19		-8		2	30	34	64	-1	-1	69	4	17	9	***426***
6 High Road	463	-305	-10	6	-16		169		-60	-30	-4	-83	0	-12	-140	3	30	6	***17***
7 Whymark Avenue*	103	24	-25	11	-16		15		21	23	20	-18	1	-1	23	-1	28	8	***217***
8 Westbury Avenue	-117	-156	-200	-599	-16		-9		22	-1	-12	-15	1	2	-9	0	2	-45	***-1 151***
9 Belmont Road	130	-150	-602	23	-39		39		-11	276	77	119	4	-5	132	9	407	39	***449***
10 Philip Lane	-588	93	86	142	-24		9		4	26	48	64	30	12	171	21	355	14	***465***
11 West Green Road	17	1	-87	-28	-81		33		-4	96	142	32	50	6	-18	-2	-6	8	***159***
12 Avenue Road*																			
13 Seven Sisters Road (east end)	75	-4	0	-22	-20		13		-2	12	3	-6	-26	135	-22	-11	329	-7	***446***
14 St Ann's Road	105	-6	-19	-222	-182		17		6	95	44	2	-44	23	25	-4	60	14	***-86***
15 Vartry Road	-35	0	0	-9	-4		-1		-1	4	-2	0	-24	11	-3	22	4	-3	***-41***
16 Seven Sisters Road (west end)	707	5	-8	-31	-11		23		6	378	21	8	-121	-169	-6	-19	128	2	***913***
21 Williamson Road (retail park)	-20	-334	-116	-136	-142		-18		-84	-46	-71	-12	-21	-9	-18	1	0	0	***-1 026***
Total	***-1 235***	***-1 099***	***-1 248***	***-605***	***-2 049***		***-47***		***-1 977***	***106***	***-1 277***	***-238***	***-463***	***-150***	***-491***	***-25***	***869***	***-980***	***-10 909***

Change (percentage) (percentage change, 16 hour time period from 06:00 to 22:00)

FROM \ TO	C	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	21	
	Within cordon (excluding retail park)	Green Lanes (south end)	Endymion Road	Turnpike Lane	Hornsey Park Road	Alexandra Road*	High Road	Whymark Avenue*	Westbury Avenue	Belmont Road	Philip Lane	West Green Road	Avenue Road*	Seven Sisters Road (east end)	St Ann's Road	Vartry Road	Seven Sisters Road (west end)	Williamson Road (retail park)	*Total*
C Within cordon (excluding retail park)		9%	-29%	-28%	-57%		16%		-7%	5%	-42%	-3%	-7%	-4%	1%	-6%	-18%	-38%	***-16%***
1 Green Lanes (south end)	2%	69%	54%	-84%	-97%		-38%		-45%	-20%	-16%	-6%	-30%	14%	-65%		53%	-7%	***-16%***
2 Endymion Road	17%	55%	38%	-87%	-100%		-28%		-61%	-63%	-40%	-59%	-77%	-18%	-67%		-100%	3%	***-6%***
3 Turnpike Lane	-41%	-89%	-100%	13%	35%		-26%		-42%	-85%	-59%	-34%	-85%	-90%	-68%	-81%	-72%	-81%	***-24%***
4 Hornsey Park Road	-52%	-87%	-99%	62%	159%		-59%		-35%	-86%	-36%	-21%	-87%	-91%	-52%	-92%	-49%	-69%	***-11%***
5 Alexandra Road*	53%	60%	-86%	-3%	64%		-8%		1%	184%	169%	155%	-30%	-100%	283%	311%	516%	46%	***25%***
6 High Road	28%	-20%	-11%	3%	-73%		64%		-19%	-20%	-2%	-24%	0%	-38%	-25%	82%	62%	4%	***0%***
7 Whymark Avenue*	24%	16%	-49%	18%	-83%		61%		13%	101%	54%	-22%	20%	-19%	27%	-35%	250%	14%	***18%***
8 Westbury Avenue	-9%	-28%	-84%	-18%	-33%		-4%		11%	-3%	-53%	-73%	56%		-42%		42%	-47%	***-19%***
9 Belmont Road	3%	-12%	-49%	3%	-72%		32%		-18%	160%	58%	40%	6%	-8%	15%	20%	39%	15%	***4%***
10 Philip Lane	-22%	72%	41%	30%	-43%		3%		19%	21%	72%	51%	23%	35%	56%	130%	96%	14%	***9%***
11 West Green Road	1%	1%	-41%	-4%	-72%		11%		-13%	23%	35%	91%	77%	31%	-9%	-31%	-3%	10%	***4%***
12 Avenue Road*																			
13 Seven Sisters Road (east end)	5%	-22%	-1%	-35%	-90%		45%		-48%	23%	31%	-74%	-24%	99%	-3%	-27%	4%	-27%	***4%***
14 St Ann's Road	7%	-31%	-41%	-31%	-66%		3%		18%	14%	81%	14%	-6%	25%	55%	-18%	19%	33%	***-2%***
15 Vartry Road	-9%			-56%	-75%		-12%		-49%	14%	-25%		-41%	22%	-58%	121%	3%	-70%	***-6%***
16 Seven Sisters Road (west end)	46%	76%	-88%	-56%	-31%		67%		135%	51%	13%	40%	-10%	-2%	-21%	-15%	102%	25%	***8%***
21 Williamson Road (retail park)	-2%	-17%	-14%	-80%	-98%		-11%		-54%	-30%	-55%	-32%	-56%	-43%	-71%		8%		***-20%***
Total	***-4%***	***-10%***	***-15%***	***-4%***	***-20%***		***-1%***		***-29%***	***1%***	***-26%***	***-8%***	***-9%***	***-2%***	***-9%***	***-4%***	***7%***	***-19%***	***-8%***

END

steer davies gleave

London Borough of Haringey
22933701 Green Lanes Area Transport Study
OD survey analysis

Comparison of results before Wightman Road closure and during Wightman Road closure, average vehicle journey times between survey nodes

Tuesday 22/03/2016 (minutes, 16 hour time period from 06:00 to 22:00)

FROM	TO	Within cordon (excluding retail park)	Green Lanes (south end)	Endymion Road	Turnpike Lane	Hornsey Park Road	Alexandra Road*	High Road	Whymark Avenue*	Westbury Avenue	Belmont Road	Philip Lane	West Green Road	Avenue Road*	Seven Sisters Road (east end)	St Ann's Road	Vartry Road	Seven Sisters Road (west end)	Williamson Road (retail park)	*Total*
C	Within cordon (excluding retail park)																			
1	Green Lanes (south end)		14.7	2.7	8.5	8.1		10.1		8.8	9.2	11.4	10.5	11.9	11.2	13.0		10.7	2.6	
2	Endymion Road		3.9	14.6	10.2	6.7		12.0		9.7	10.0	11.3	10.7	11.2	11.5	12.0		13.3	4.6	
3	Turnpike Lane		8.9	9.1	14.0	1.0		8.9		6.7	7.2	8.7	9.8	10.4	11.5	9.8	11.5	11.5	8.3	
4	Hornsey Park Road		8.8	6.8	2.0	7.9		11.5		7.9	9.8	9.8	9.0	12.0	12.1	9.6	11.0	11.2	8.3	
5	Alexandra Road*		11.0	8.2	2.7	8.8		9.3		6.3	10.6	10.1	9.9	14.4	11.9	12.1	14.0	9.8	9.8	
6	High Road		10.5	10.5	9.5	11.7		15.2		5.5	8.4	7.8	6.8	12.2	12.3	10.8	11.3	11.5	8.6	
7	Whymark Avenue*		8.4	9.6	6.6	8.7		7.4		2.7	8.4	6.2	6.4	15.0	13.4	9.3	11.8	9.3	8.5	
8	Westbury Avenue		9.5	10.1	5.3	8.7		5.7		14.5	10.2	12.5	9.0	11.6		10.3		11.6	8.8	
9	Belmont Road		8.5	9.4	6.8	10.1		9.6		12.3	14.3	6.8	3.6	10.0	10.3	6.8	9.2	7.3	7.9	
10	Philip Lane		10.4	9.4	8.1	8.9		8.5		12.3	6.3	14.8	2.6	9.6	8.8	4.7	7.6	5.6	7.3	
11	West Green Road		10.4	9.9	9.0	8.5		7.7		9.4	3.7	1.3	14.1	10.1	9.0	5.9	5.7	6.7	8.1	
12	Avenue Road*																			
13	Seven Sisters Road (east end)		14.0	10.6	11.2	11.6		11.4		13.4	8.9	9.6	11.7	9.0	14.4	2.3	5.6	3.2	9.5	
14	St Ann's Road		12.6	9.1	8.5	8.3		10.3		11.3	5.5	5.4	10.0	2.6	6.2	14.3	10.3	2.6	8.2	
15	Vartry Road				11.5	11.3		9.9		10.5	8.2	6.7		5.3	6.2	8.4	13.9	3.2	10.7	
16	Seven Sisters Road (west end)		14.8	16.0	12.0	11.6		11.9		12.8	7.2	7.0	7.2	4.5	3.5	7.5	3.6	14.4	14.8	
21	Williamson Road (retail park)		2.5	4.0	8.4	8.0		9.2		8.7	9.1	8.9	8.9	9.6	11.3	10.2		11.5	15.3	
	Total																			

Wednesday 29/06/2016 (minutes, 16 hour time period from 06:00 to 22:00)

FROM	TO	Within cordon (excluding retail park)	Green Lanes (south end)	Endymion Road	Turnpike Lane	Hornsey Park Road	Alexandra Road*	High Road	Whymark Avenue*	Westbury Avenue	Belmont Road	Philip Lane	West Green Road	Avenue Road*	Seven Sisters Road (east end)	St Ann's Road	Vartry Road	Seven Sisters Road (west end)	Williamson Road (retail park)	*Total*
C	Within cordon (excluding retail park)																			
1	Green Lanes (south end)		10.8	2.6	13.3	15.2		11.5		11.2	11.6	13.1	12.1	11.4	12.7	13.6		15.5	3.3	
2	Endymion Road		6.8	9.5	16.9	19.9		14.5		13.9	13.9	13.8	14.6	14.2	14.3	14.7			8.5	
3	Turnpike Lane		13.6		10.6	1.4		10.7		7.9	10.8	11.8	12.5	15.7	15.9	14.0	16.1	15.9	14.3	
4	Hornsey Park Road		14.8	17.9	1.6	2.2		12.7		9.0	14.2	12.0	11.4	15.3	13.2	14.3	8.6	14.9	13.6	
5	Alexandra Road*		14.2	16.0	3.3	7.2		9.9		6.8	11.8	9.9	9.8	17.2		12.9	13.0	13.9	13.1	
6	High Road		11.7	12.4	11.4	12.0		14.0		5.6	9.5	8.6	6.9	13.0	12.1	11.6	13.8	12.2	9.9	
7	Whymark Avenue*		10.7	11.5	9.7	12.7		9.4		3.6	8.7	6.6	6.1	14.9	10.8	9.6	10.7	11.9	10.7	
8	Westbury Avenue		12.9	14.4	9.4	13.2		10.4		13.1	11.8	10.0	12.6	13.1	17.7	13.8		13.9	12.7	
9	Belmont Road		9.9	11.4	9.4	12.4		11.1		13.1	10.8	6.9	3.1	10.5	9.0	6.6	9.5	7.4	9.1	
10	Philip Lane		11.7	11.9	10.8	11.8		10.8		12.5	6.4	10.7	2.1	10.2	9.3	5.1	5.5	6.1	9.0	
11	West Green Road		11.0	11.3	11.2	12.7		10.2		11.2	3.5	1.1	10.8	10.5	9.5	5.5	10.3	6.2	9.2	
12	Avenue Road*																			
13	Seven Sisters Road (east end)		14.5	12.3	14.5	18.2		13.1		14.6	8.7	10.7	8.0	8.0	10.4	2.1	6.8	3.4	9.8	
14	St Ann's Road		13.8	13.1	12.8	12.1		12.2		13.1	6.3	6.3	11.4	3.0	5.6	11.1	8.7	3.7	9.0	
15	Vartry Road				16.1	15.6		13.5		11.4	9.0	6.4		4.9	5.3	11.9	8.1	3.7	12.2	
16	Seven Sisters Road (west end)		13.6	14.3	14.1	14.3		12.9		14.0	7.7	7.1	9.2	4.9	3.7	8.6	3.8	10.5	12.5	
21	Williamson Road (retail park)		2.8	5.1	12.7	12.5		11.4		12.4	11.5	11.2	12.1	10.8	12.4	10.9	13.1	9.7	6.2	
	Total																			

Change (absolute) (change in minutes, 16 hour time period from 06:00 to 22:00)

FROM	TO	Within cordon (excluding retail park)	Green Lanes (south end)	Endymion Road	Turnpike Lane	Hornsey Park Road	Alexandra Road*	High Road	Whymark Avenue*	Westbury Avenue	Belmont Road	Philip Lane	West Green Road	Avenue Road*	Seven Sisters Road (east end)	St Ann's Road	Vartry Road	Seven Sisters Road (west end)	Williamson Road (retail park)	*Total*
C	Within cordon (excluding retail park)																			
1	Green Lanes (south end)		-3.9	-0.1	4.8	7.1		1.4		2.4	2.4	1.7	1.6	-0.5	1.5	0.5	0.0	4.8	0.7	
2	Endymion Road		2.9	-5.2	6.6	13.1		2.5		4.2	3.9	2.5	3.9	3.0	2.8	2.7	0.0	-13.3	3.9	
3	Turnpike Lane		4.6	-9.1	-3.4	0.4		1.8		1.2	3.6	3.1	2.7	5.4	4.4	4.2	4.6	4.4	6.0	
4	Hornsey Park Road		5.9	11.0	-0.3	-5.6		1.2		1.1	4.4	2.2	2.5	3.3	1.1	4.7	-2.4	3.7	5.3	
5	Alexandra Road*		3.2	7.8	0.6	-1.6		0.5		0.5	1.2	-0.1	-0.1	2.8	-11.9	0.7	-1.0	4.1	3.2	
6	High Road		1.2	1.9	1.9	0.3		-1.2		0.1	1.1	0.8	0.2	0.8	-0.2	0.8	2.5	0.6	1.3	
7	Whymark Avenue*		2.4	2.0	3.1	4.0		2.0		0.9	0.4	0.4	-0.3	0.0	-2.6	0.4	-1.0	2.6	2.2	
8	Westbury Avenue		3.4	4.3	4.0	4.6		4.6		-1.4	1.7	-2.5	3.5	1.6	17.7	3.4	0.0	2.3	3.8	
9	Belmont Road		1.4	2.0	2.6	2.3		1.5		0.8	-3.5	0.1	-0.5	0.5	-1.3	-0.2	0.3	0.1	1.1	
10	Philip Lane		1.4	2.6	2.6	2.9		2.4		0.2	0.1	-4.2	-0.5	0.6	0.6	0.4	-2.0	0.5	1.7	
11	West Green Road		0.6	1.4	2.2	4.2		2.5		1.8	-0.2	-0.2	-3.3	0.3	0.5	-0.4	4.6	-0.5	1.0	
12	Avenue Road*																			
13	Seven Sisters Road (east end)		0.4	1.7	3.3	6.7		1.6		1.2	-0.2	1.1	-3.7	-1.0	-4.0	-0.3	1.2	0.2	0.3	
14	St Ann's Road		1.2	4.0	4.3	3.8		1.9		1.9	0.8	0.9	1.5	0.4	-0.6	-3.2	-1.6	1.1	0.8	
15	Vartry Road		0.0	0.0	4.6	4.4		3.6		0.9	0.8	-0.3	0.0	-0.4	-0.9	3.6	-5.8	0.5	1.5	
16	Seven Sisters Road (west end)		-1.2	-1.6	2.1	2.7		1.1		1.2	0.5	0.1	2.0	0.4	0.2	1.1	0.2	-3.9	-2.3	
21	Williamson Road (retail park)		0.3	1.1	4.3	4.4		2.2		3.7	2.4	2.3	3.2	1.3	1.1	0.8	13.1	-1.8	-9.0	
	Total																			

Change (percentage) (percentage change, 16 hour time period from 06:00 to 22:00)

FROM	TO	Within cordon (excluding retail park)	Green Lanes (south end)	Endymion Road	Turnpike Lane	Hornsey Park Road	Alexandra Road*	High Road	Whymark Avenue*	Westbury Avenue	Belmont Road	Philip Lane	West Green Road	Avenue Road*	Seven Sisters Road (east end)	St Ann's Road	Vartry Road	Seven Sisters Road (west end)	Williamson Road (retail park)	*Total*
C	Within cordon (excluding retail park)																			
1	Green Lanes (south end)		-27%	-4%	57%	88%		14%		28%	26%	14%	15%	-4%	14%	4%		44%	26%	
2	Endymion Road		73%	-35%	65%	195%		21%		43%	39%	22%	36%	27%	24%	22%		-100%	85%	
3	Turnpike Lane		52%	-100%	-24%	37%		20%		18%	50%	36%	27%	52%	38%	43%	40%	39%	72%	
4	Hornsey Park Road		67%	162%	-16%	-72%		11%		14%	45%	23%	28%	27%	9%	49%	-22%	33%	63%	
5	Alexandra Road*		30%	95%	21%	-19%		5%		9%	11%	-1%	-1%	19%	-100%	6%	-7%	42%	33%	
6	High Road		11%	18%	20%	2%		-8%		1%	13%	10%	3%	6%	-1%	7%	22%	5%	16%	
7	Whymark Avenue*		28%	21%	47%	47%		27%		34%	4%	7%	-5%	0%	-19%	4%	-9%	28%	26%	
8	Westbury Avenue		36%	43%	75%	53%		80%		-9%	16%	-20%	39%	13%		33%		20%	43%	
9	Belmont Road		17%	21%	38%	22%		16%		7%	-25%	1%	-13%	5%	-13%	-2%	3%	1%	15%	
10	Philip Lane		13%	27%	32%	33%		28%		1%	1%	-28%	-19%	6%	6%	9%	-27%	9%	23%	
11	West Green Road		6%	14%	24%	49%		32%		19%	-5%	-18%	-24%	3%	6%	-7%	81%	-8%	13%	
12	Avenue Road*																			
13	Seven Sisters Road (east end)		3%	16%	30%	58%		14%		9%	-2%	11%	-32%	-11%	-28%	-11%	22%	6%	3%	
14	St Ann's Road		9%	43%	51%	46%		19%		16%	15%	16%	15%	14%	-10%	-22%	-15%	42%	10%	
15	Vartry Road				39%	39%		36%		9%	10%	-4%		-8%	-14%	43%	-42%	16%	14%	
16	Seven Sisters Road (west end)		-8%	-10%	18%	23%		9%		9%	7%	1%	28%	8%	6%	15%	5%	-27%	-16%	
21	Williamson Road (retail park)		13%	26%	51%	55%		24%		42%	26%	26%	35%	13%	10%	7%		-15%	-59%	
	Total																			

END

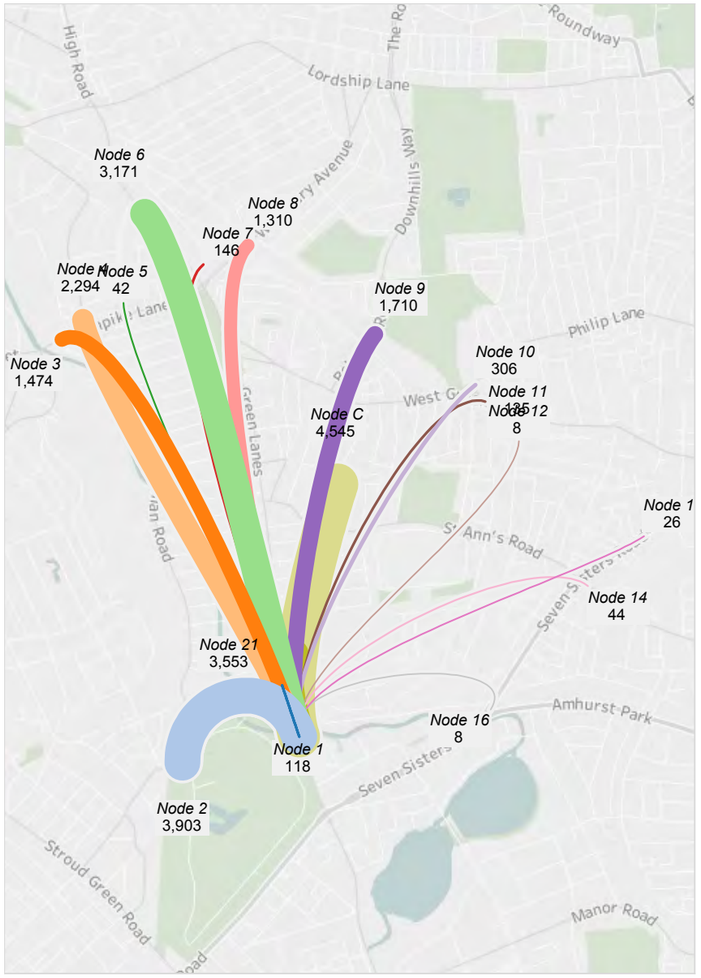
B Origin destination flow diagrams

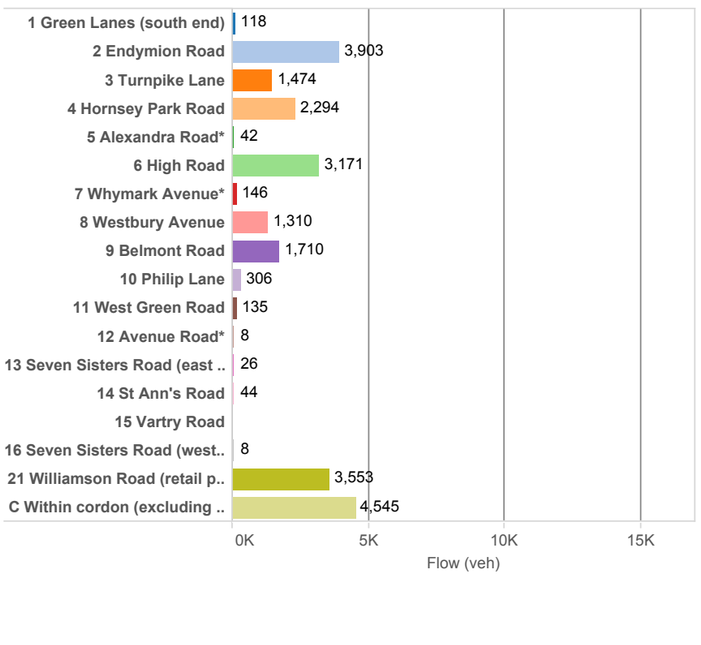
B.1 The diagrams included in this appendix graphically show the results of the origin-destination survey. Each page relates to one node, and shows the two-way flows to and from each node. All flows are shown as the number of vehicles over the 16 hour time period (06:00–22:00) that was surveyed.

B.2 The map and graph on the left of each page show the results of the March survey (before the Wightman Road closure), whilst the map and graph in the middle show the results of the June survey (during the Wightman Road closure). The map and graph on the right of each page show the change in vehicle flows between the March survey and the June survey.

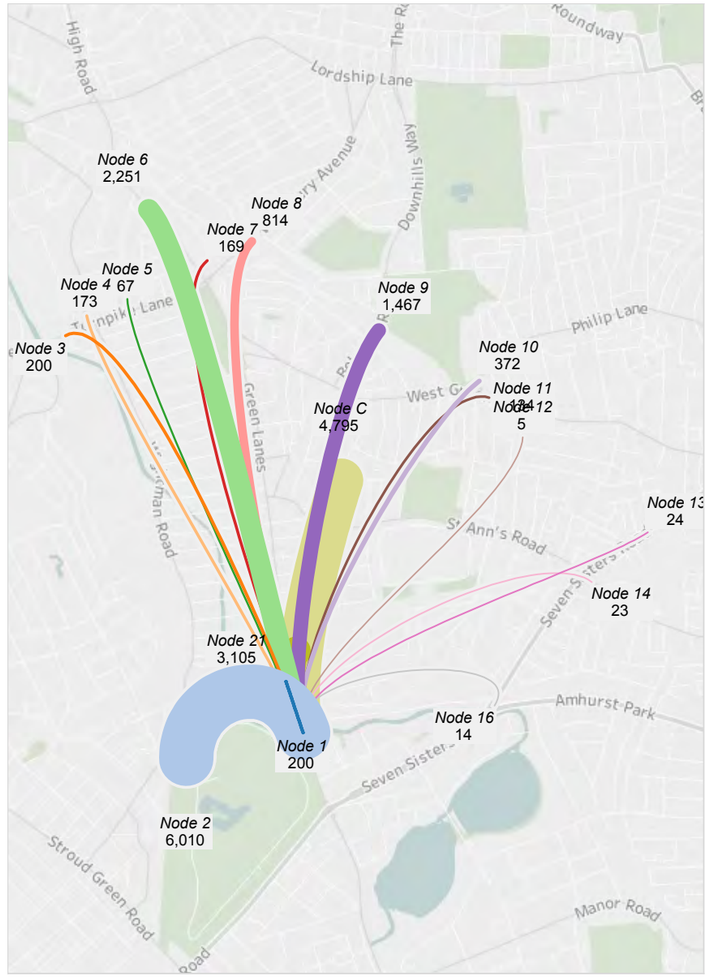
Flows to/from 1 Green Lanes (south end)

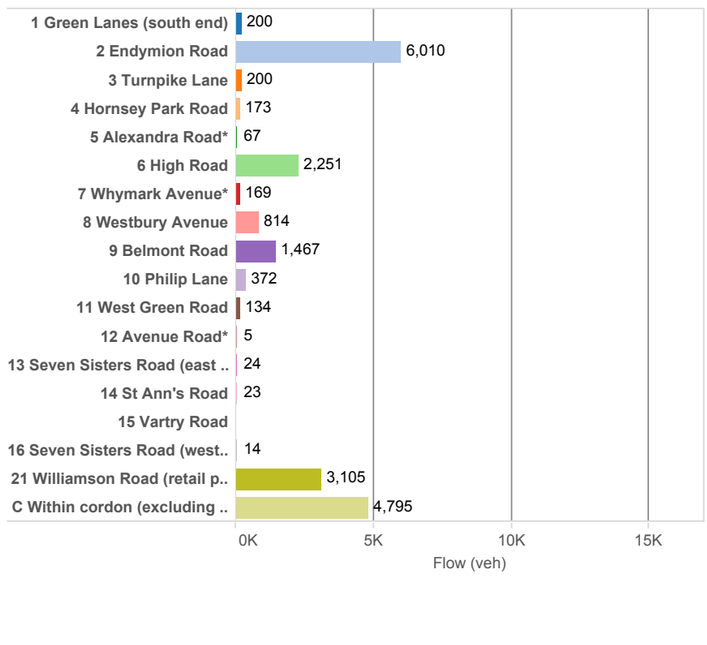
Flows in March



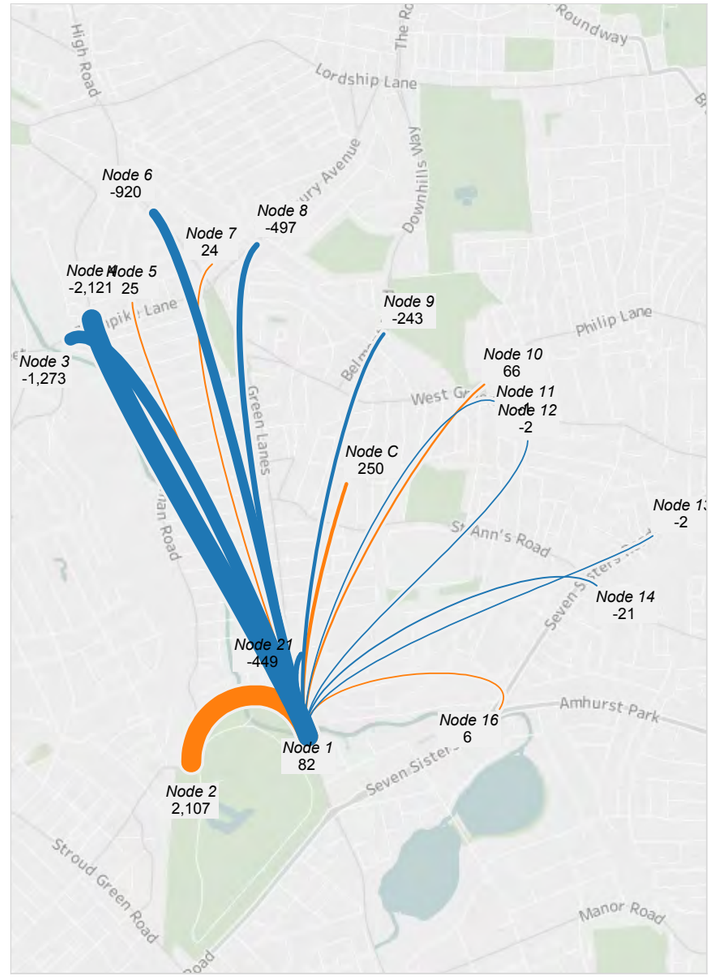


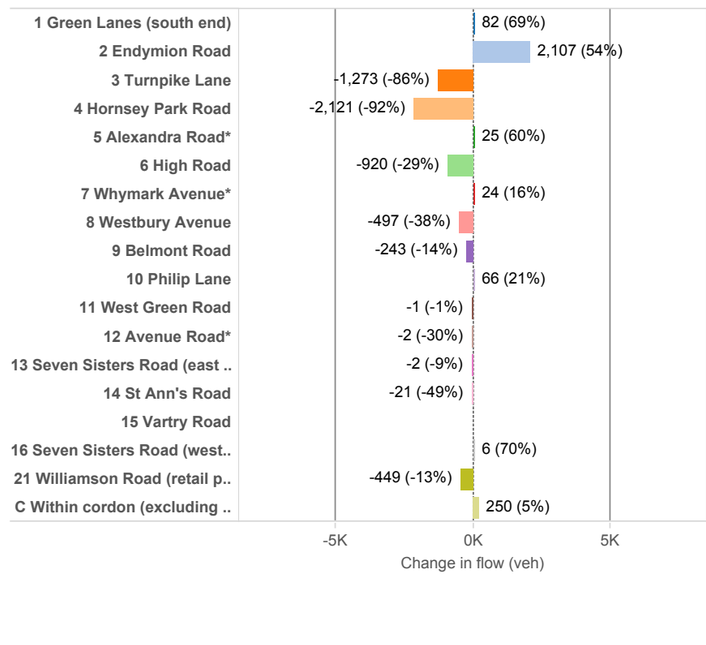
Flows in June





Change in flows from March to June





Selected node
1 Green Lanes (south end)

Flow (veh)
0
2,000
4,000
6,000
8,000
10,000

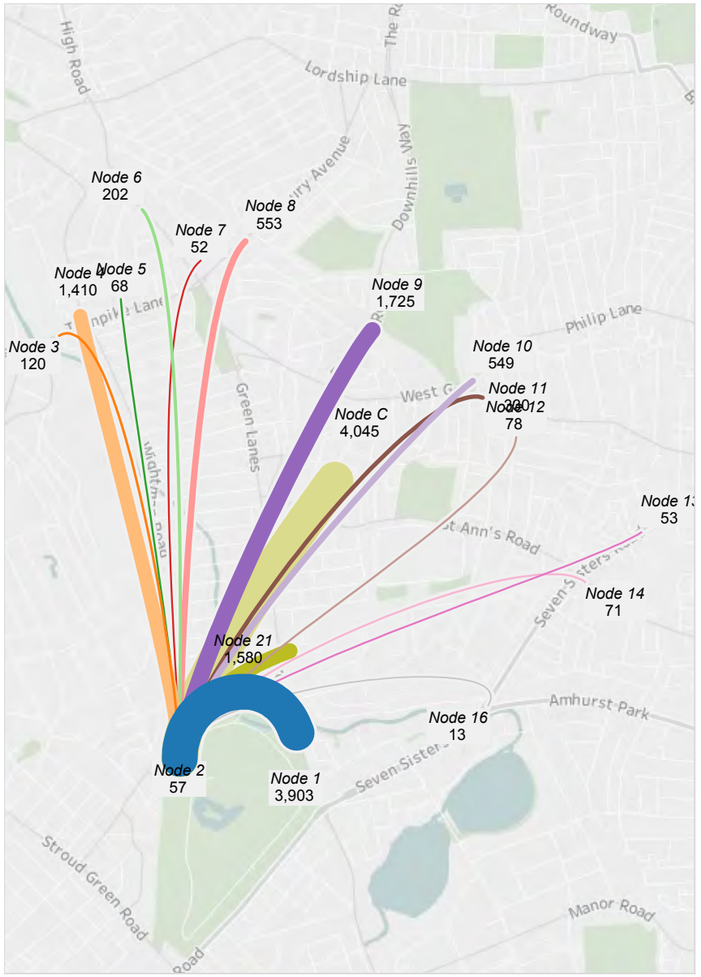
Direction of change
Decrease
Increase

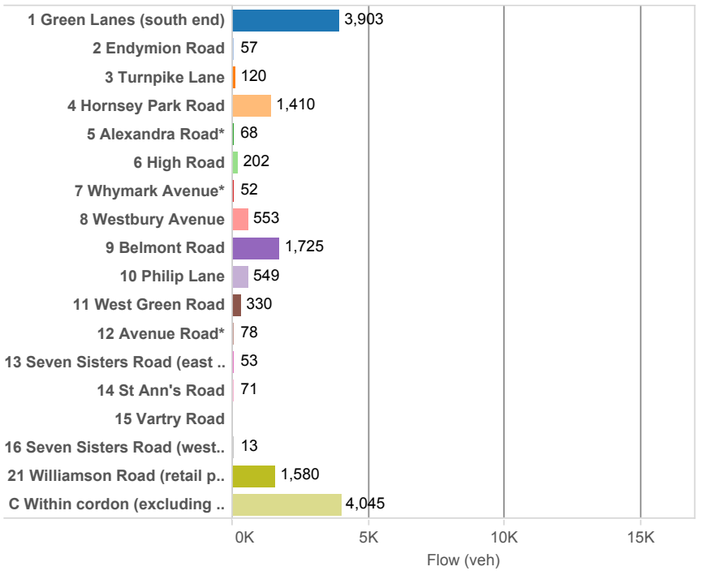
Colour legend
1 Green Lanes (south e..
2 Endymion Road
3 Turnpike Lane
4 Hornsey Park Road
5 Alexandra Road*
6 High Road
7 Whymark Avenue*
8 Westbury Avenue
9 Belmont Road
10 Philip Lane
11 West Green Road
12 Avenue Road*
13 Seven Sisters Road (..
14 St Ann's Road
15 Vartry Road
16 Seven Sisters Road (..
21 Williamson Road (ret..
C Within cordon (excludi..

Source: Origin-destination surveys undertaken between 06:00 and 22:00 (16 hours) on Tuesday 22 March 2016 and Wednesday 29 June 2016. The surveys were based on automatic number plate recognition; pedal cycles and powered two wheelers are not included in these flows.

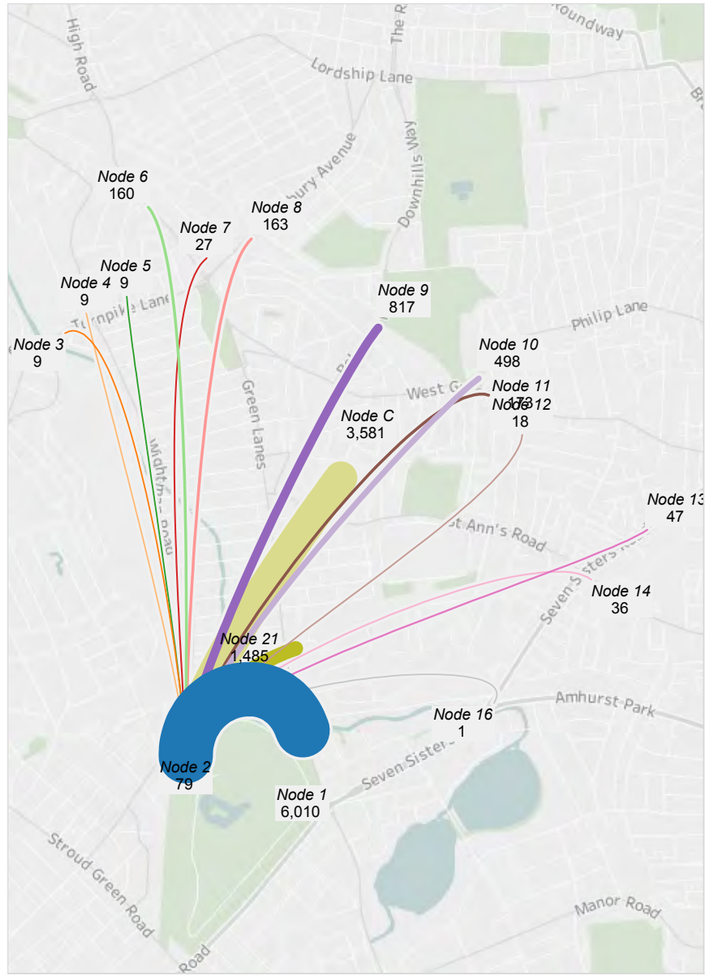
Flows to/from 2 Endymion Road

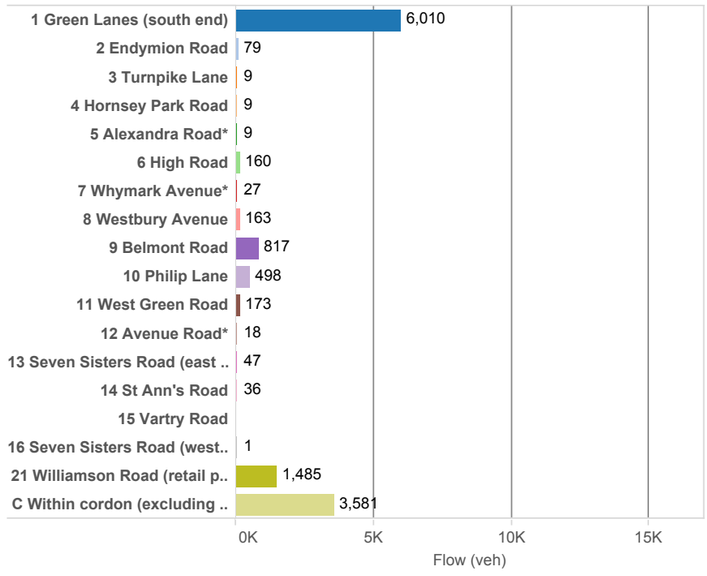
Flows in March



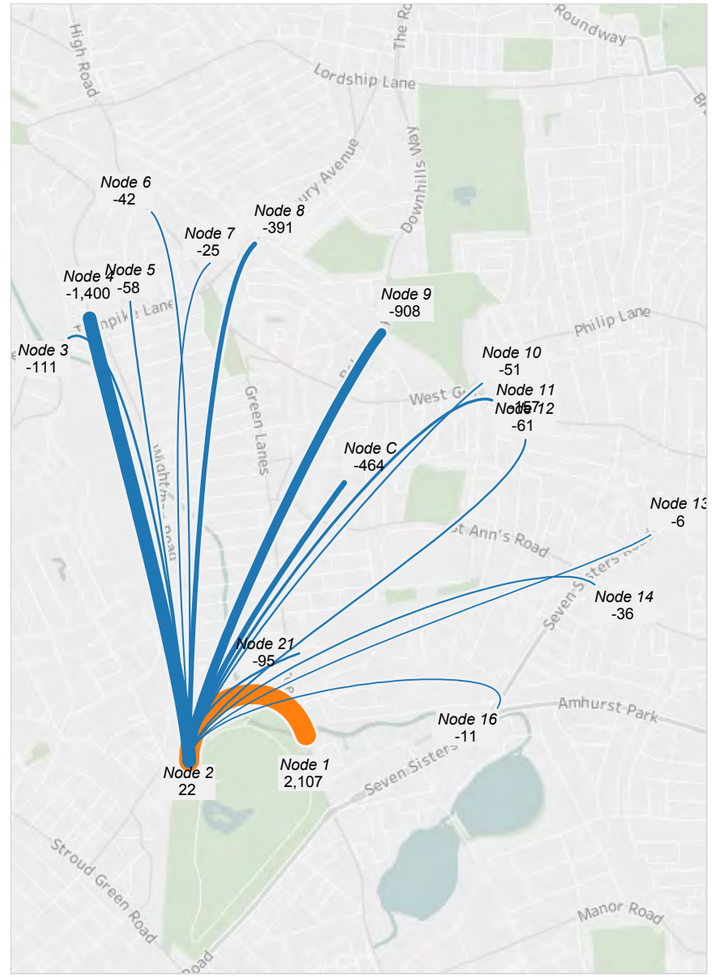


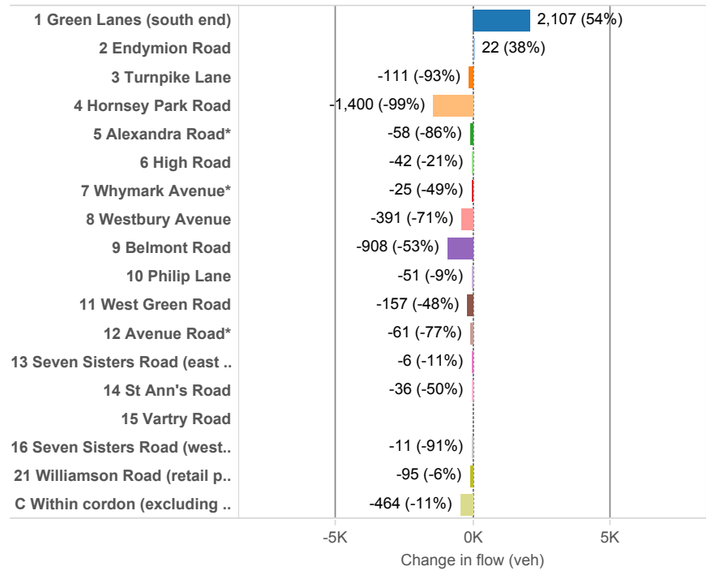
Flows in June





Change in flows from March to June





Selected node
2 Endymion Road

Flow (veh)
0
2,000
4,000
6,000
8,000
10,000

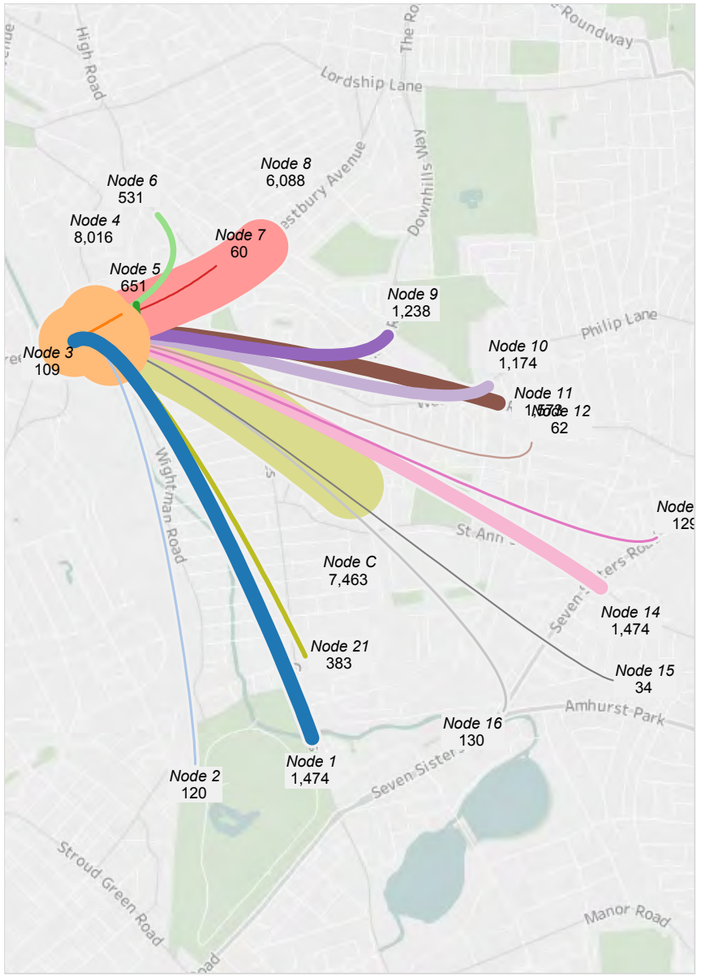
Direction of change
Decrease
Increase

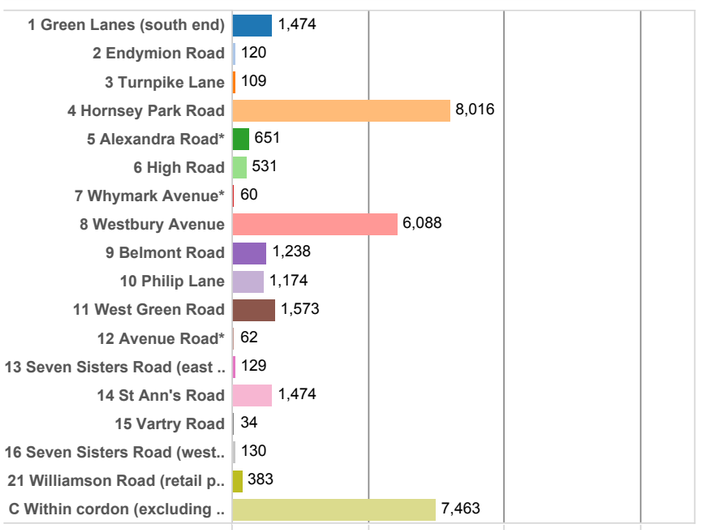
Colour legend
1 Green Lanes (south e..
2 Endymion Road
3 Turnpike Lane
4 Hornsey Park Road
5 Alexandra Road*
6 High Road
7 Whymark Avenue*
8 Westbury Avenue
9 Belmont Road
10 Philip Lane
11 West Green Road
12 Avenue Road*
13 Seven Sisters Road (..
14 St Ann's Road
15 Vartry Road
16 Seven Sisters Road (..
21 Williamson Road (ret..
C Within cordon (excludi..

Source: Origin-destination surveys undertaken between 06:00 and 22:00 (16 hours) on Tuesday 22 March 2016 and Wednesday 29 June 2016. The surveys were based on automatic number plate recognition; pedal cycles and powered two wheelers are not included in these flows.

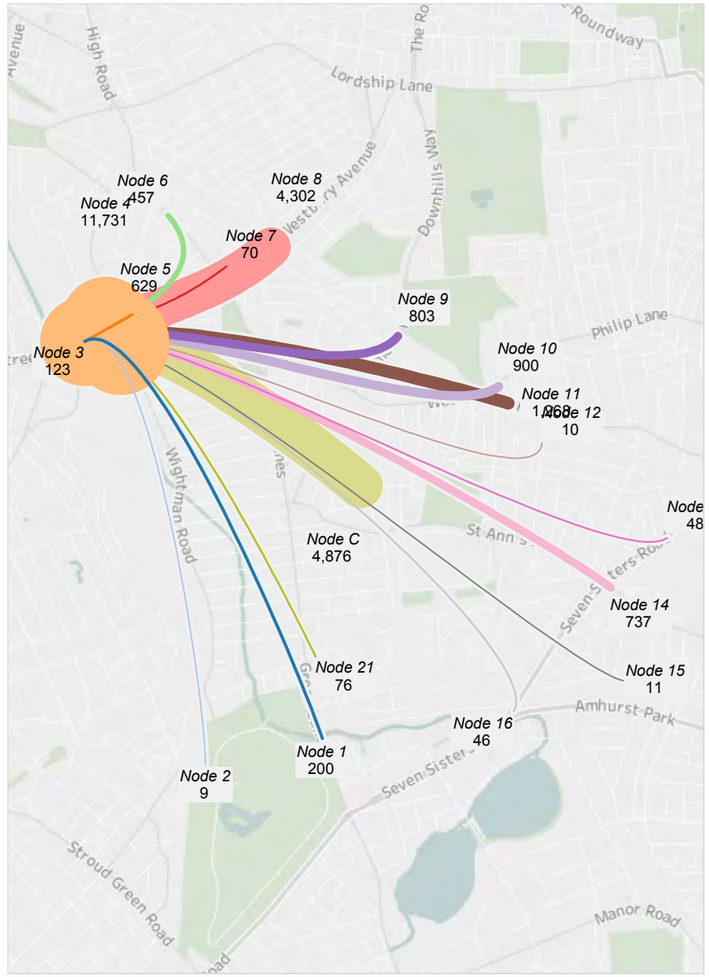
Flows to/from 3 Turnpike Lane

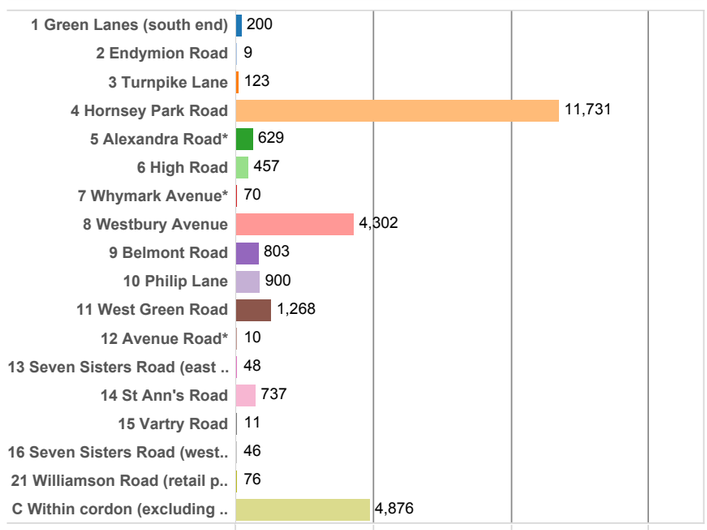
Flows in March



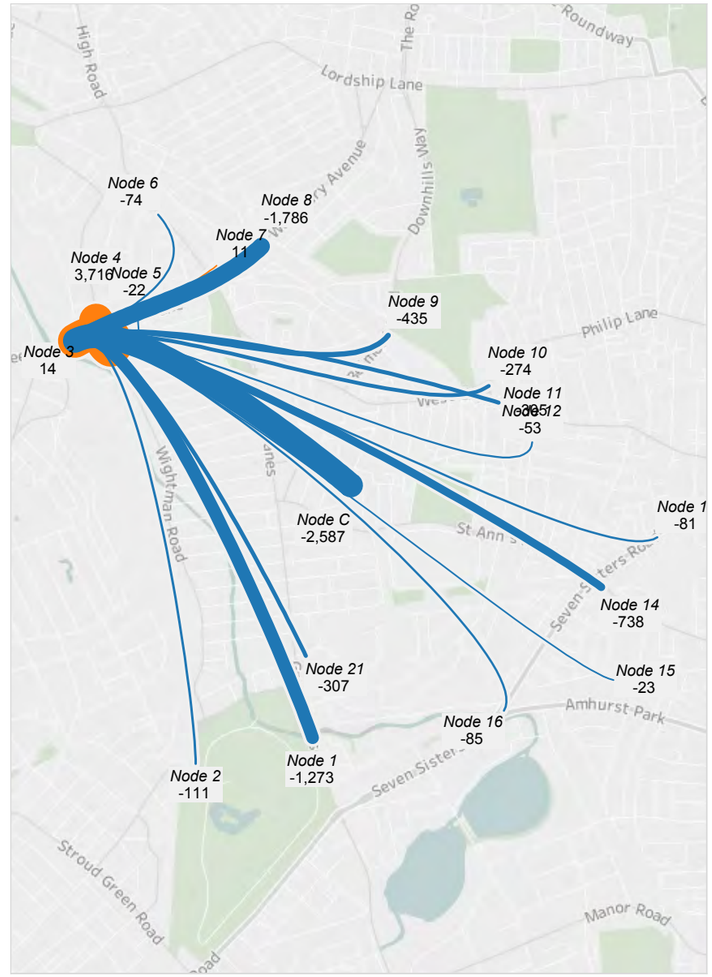


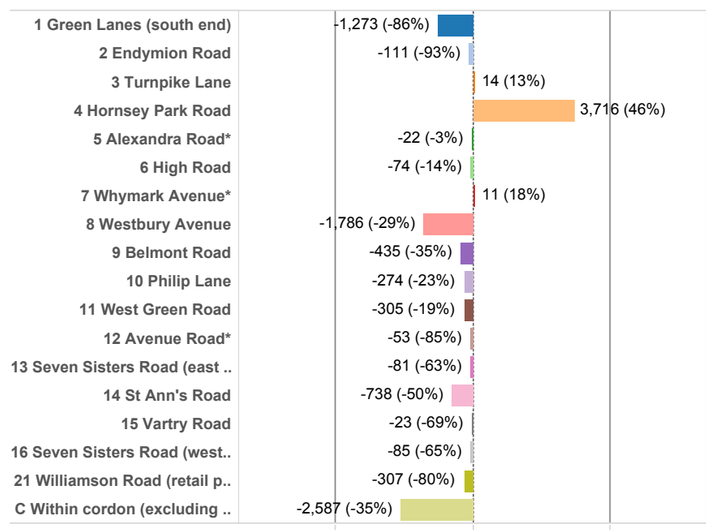
Flows in June





Change in flows from March to June





Selected node
3 Turnpike Lane

Flow (veh)
0
2,000
4,000
6,000
8,000
10,000

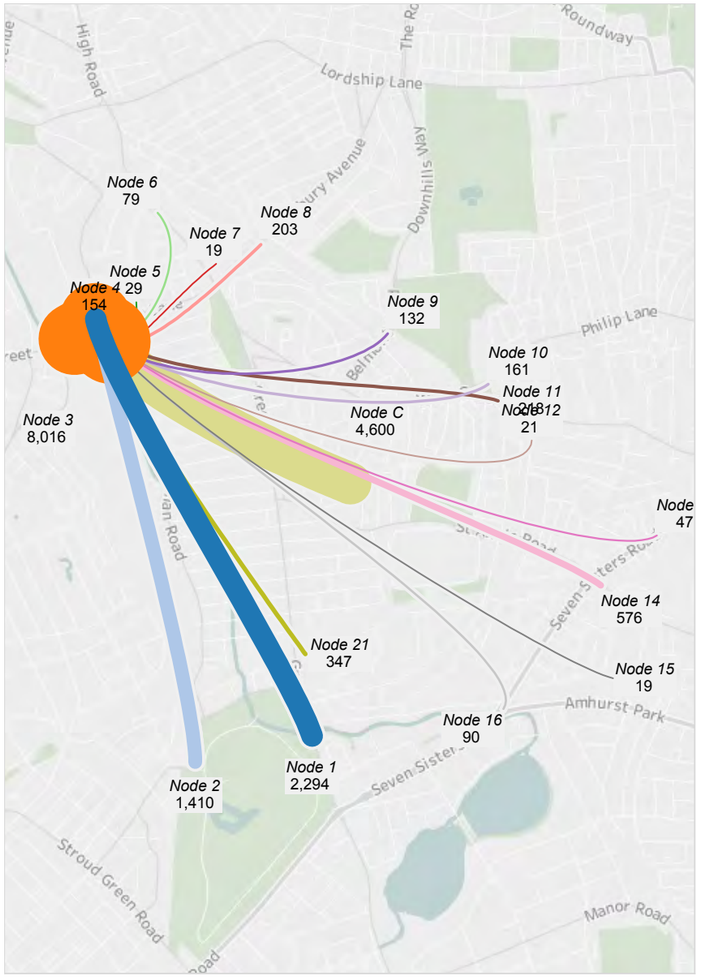
Direction of change
- Decrease
- Increase

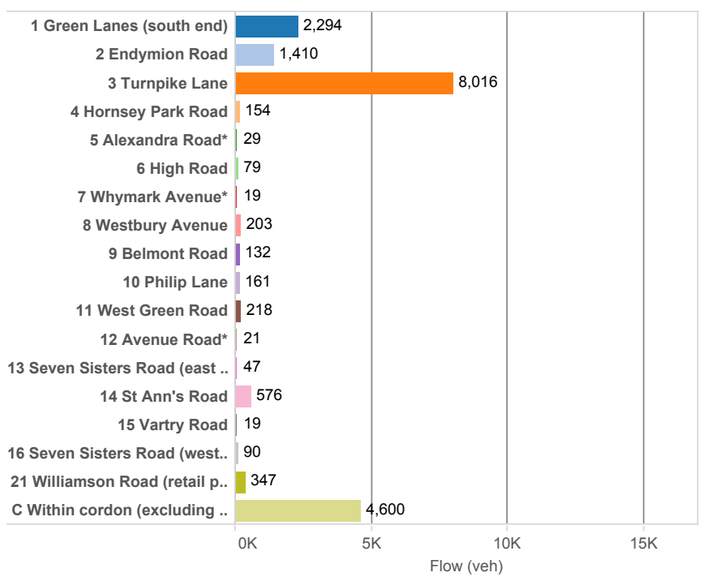
Colour legend
- 1 Green Lanes (south e..
- 2 Endymion Road
- 3 Turnpike Lane
- 4 Hornsey Park Road
- 5 Alexandra Road*
- 6 High Road
- 7 Whymark Avenue*
- 8 Westbury Avenue
- 9 Belmont Road
- 10 Philip Lane
- 11 West Green Road
- 12 Avenue Road*
- 13 Seven Sisters Road (..
- 14 St Ann's Road
- 15 Vartry Road
- 16 Seven Sisters Road (..
- 21 Williamson Road (ret..
- C Within cordon (excludi..

Source: Origin-destination surveys undertaken between 06:00 and 22:00 (16 hours) on Tuesday 22 March 2016 and Wednesday 29 June 2016. The surveys were based on automatic number plate recognition; pedal cycles and powered two wheelers are not included in these flows.

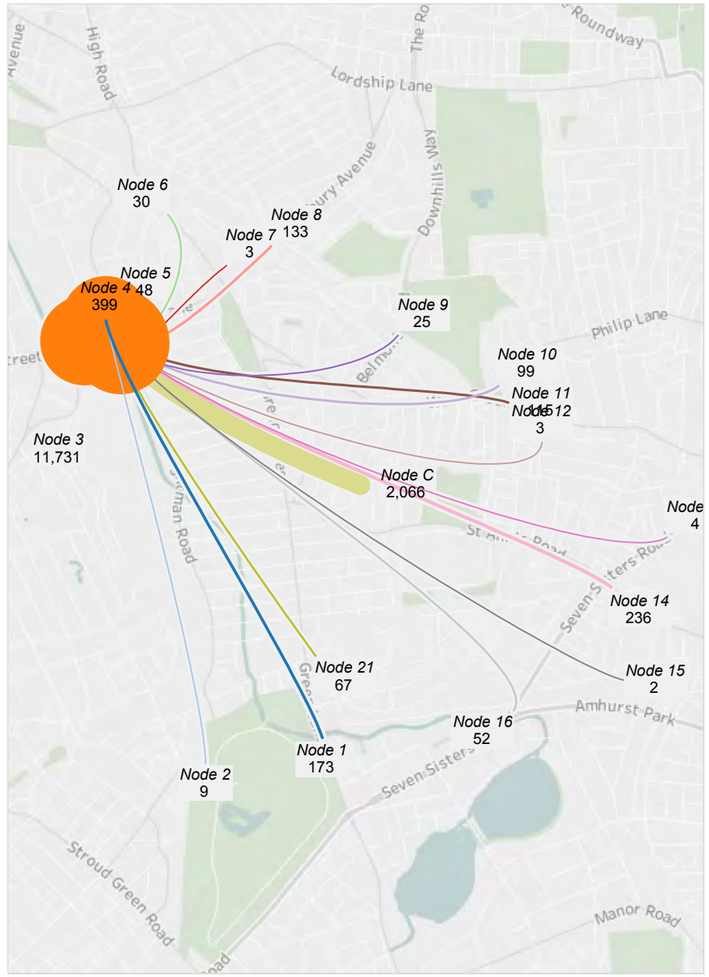
Flows to/from 4 Hornsey Park Road

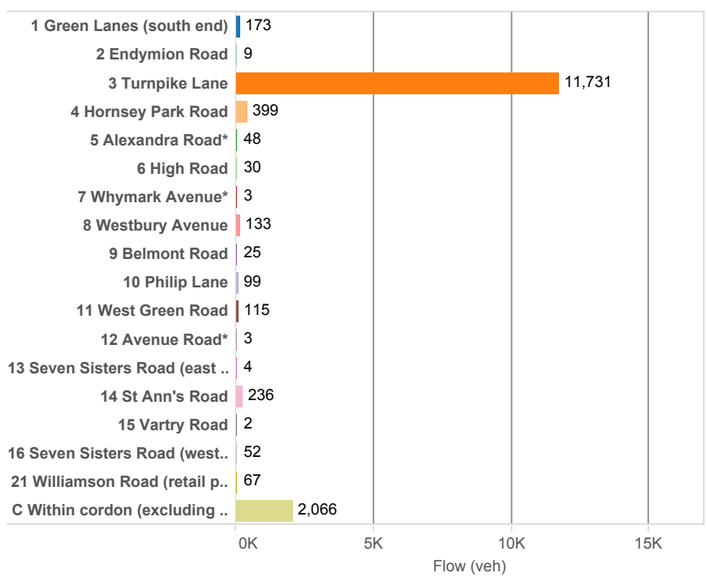
Flows in March



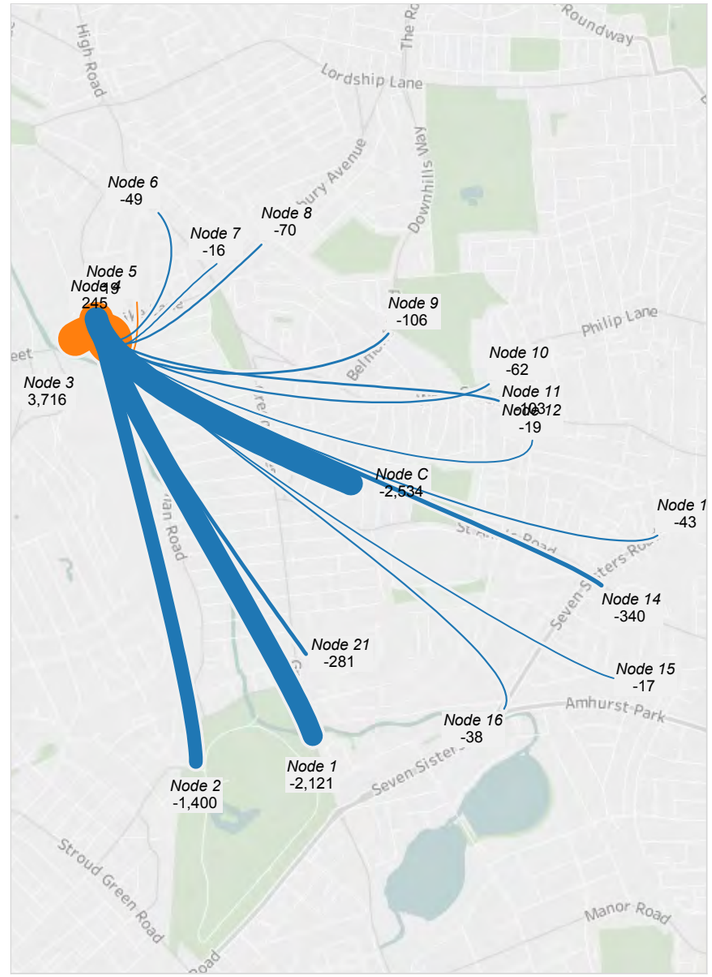


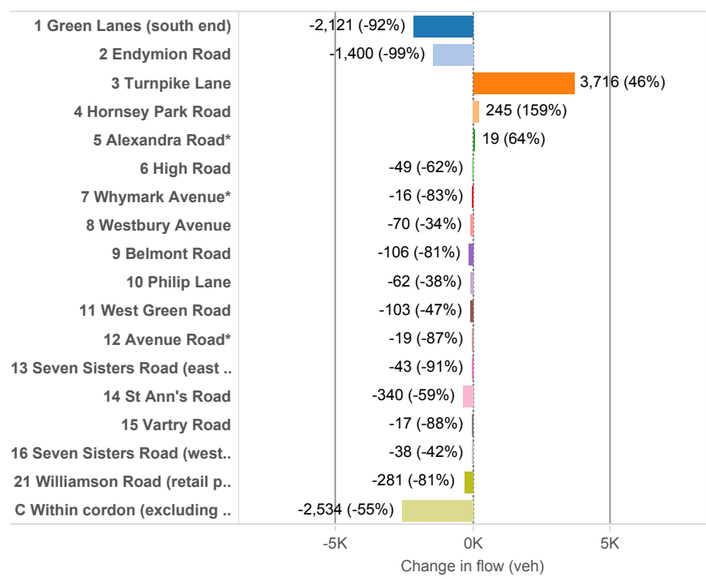
Flows in June





Change in flows from March to June





Selected node
4 Hornsey Park Road

Flow (veh)
0
2,000
4,000
6,000
8,000
10,000

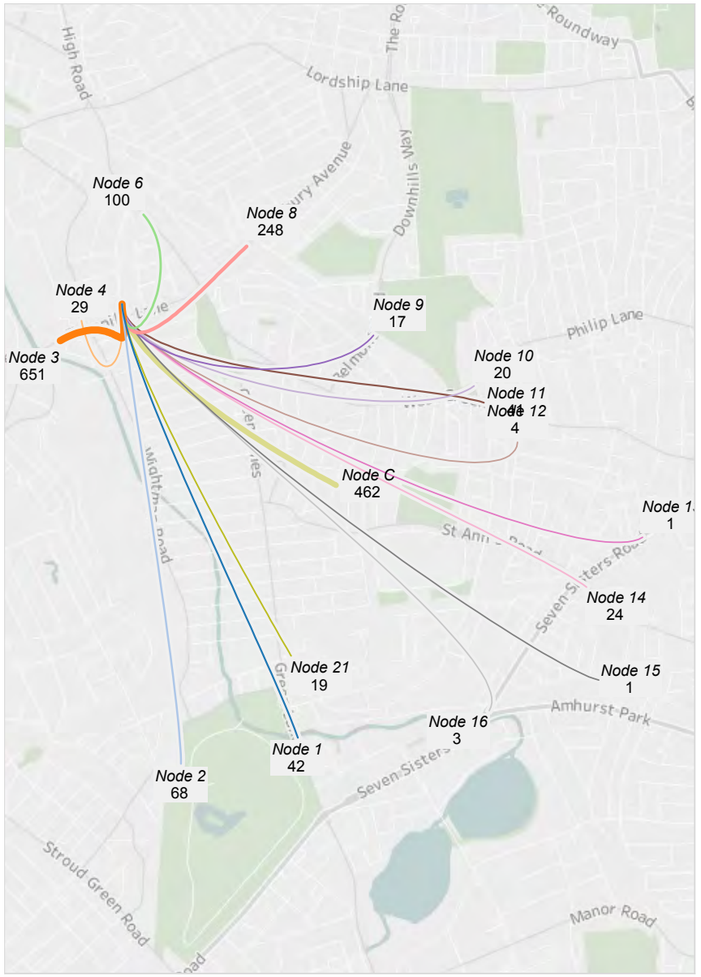
Direction of change
Decrease
Increase

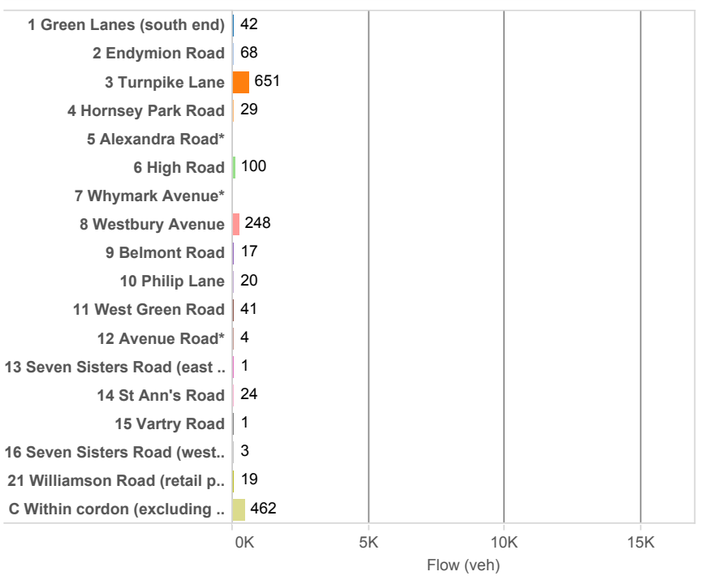
Colour legend
1 Green Lanes (south e..
2 Endymion Road
3 Turnpike Lane
4 Hornsey Park Road
5 Alexandra Road*
6 High Road
7 Whymark Avenue*
8 Westbury Avenue
9 Belmont Road
10 Philip Lane
11 West Green Road
12 Avenue Road*
13 Seven Sisters Road (..
14 St Ann's Road
15 Vartry Road
16 Seven Sisters Road (..
21 Williamson Road (ret..
C Within cordon (excludi..

Source: Origin-destination surveys undertaken between 06:00 and 22:00 (16 hours) on Tuesday 22 March 2016 and Wednesday 29 June 2016. The surveys were based on automatic number plate recognition; pedal cycles and powered two wheelers are not included in these flows.

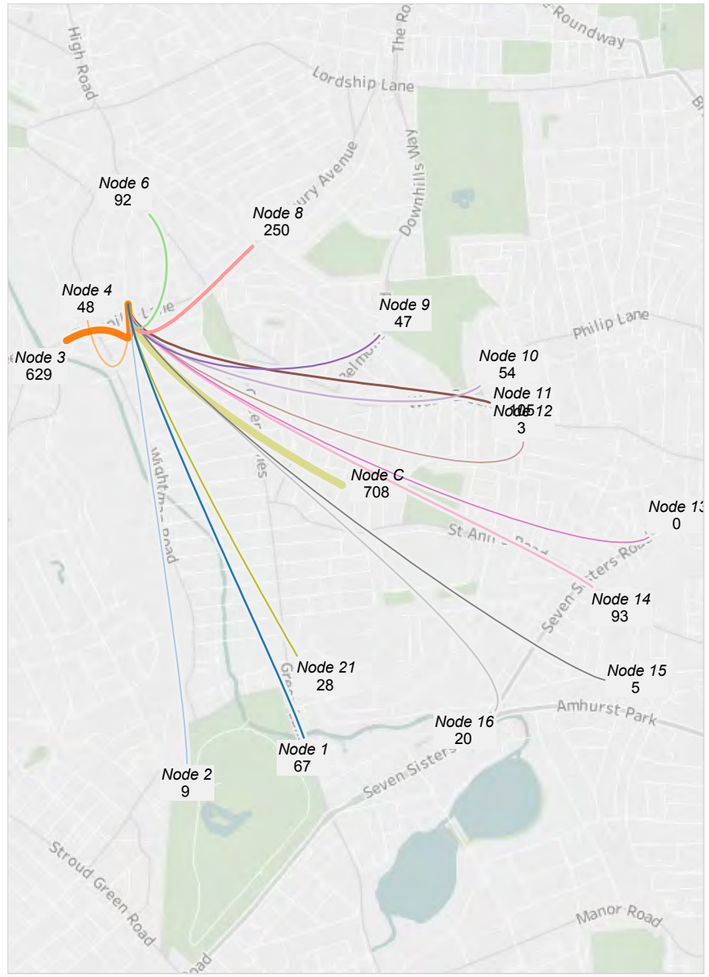
Flows to/from 5 Alexandra Road*

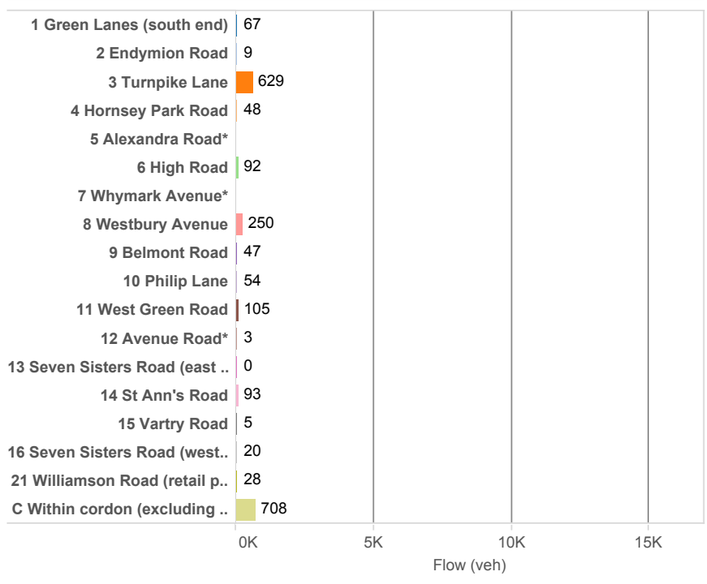
Flows in March



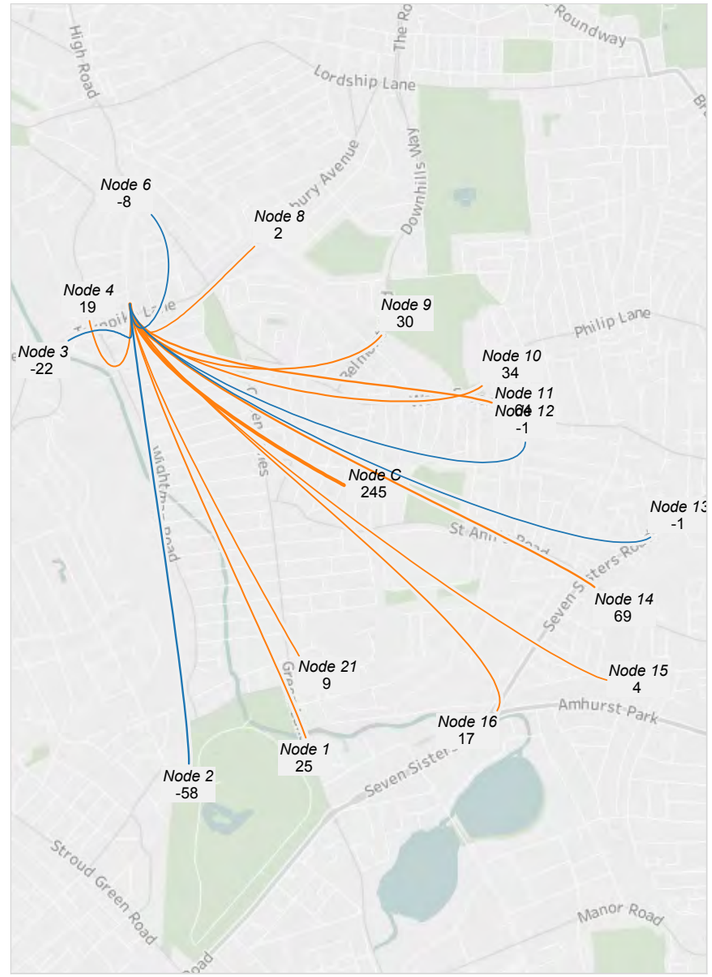


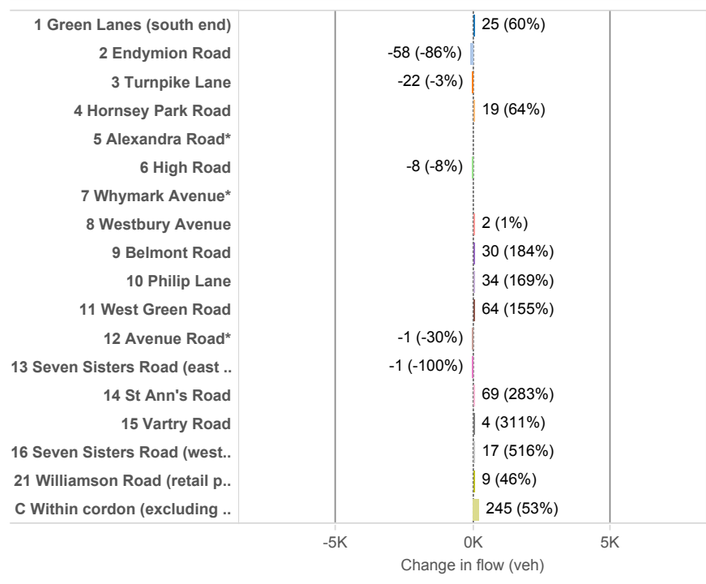
Flows in June





Change in flows from March to June





Selected node
5 Alexandra Road*

Flow (veh)
0
2,000
4,000
6,000
8,000
10,000

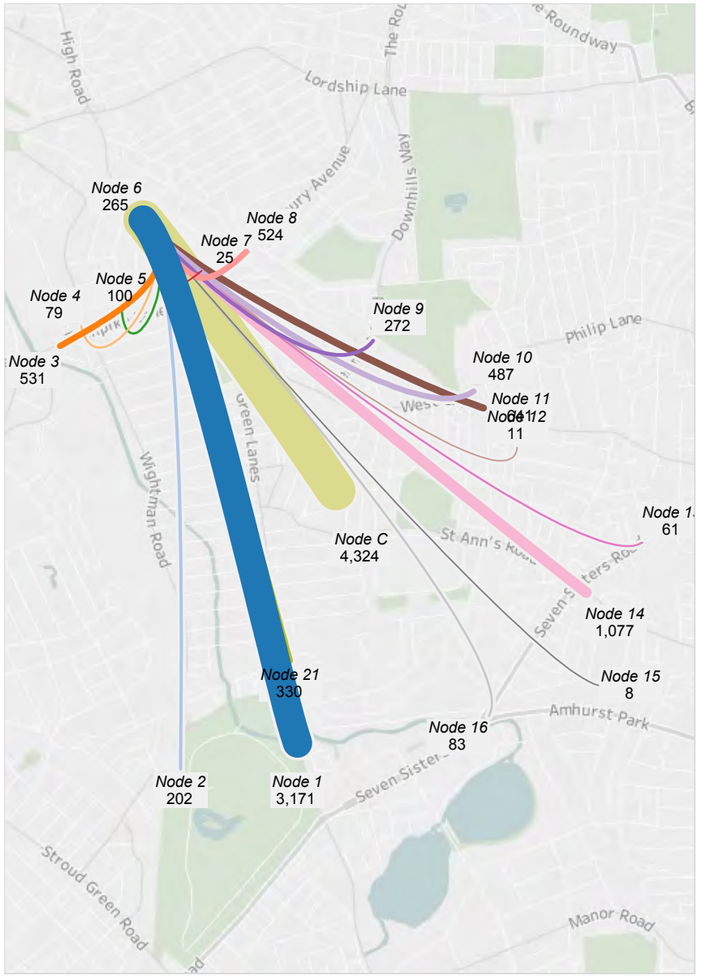
Direction of change
Decrease
Increase

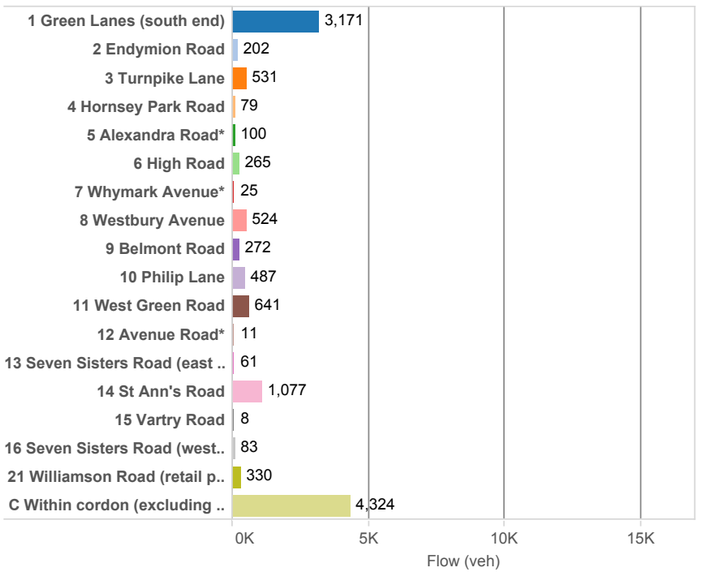
Colour legend
1 Green Lanes (south e..
2 Endymion Road
3 Turnpike Lane
4 Hornsey Park Road
5 Alexandra Road*
6 High Road
7 Whymark Avenue*
8 Westbury Avenue
9 Belmont Road
10 Philip Lane
11 West Green Road
12 Avenue Road*
13 Seven Sisters Road (..
14 St Ann's Road
15 Vartry Road
16 Seven Sisters Road (..
21 Williamson Road (ret..
C Within cordon (excludi..

Source: Origin-destination surveys undertaken between 06:00 and 22:00 (16 hours) on Tuesday 22 March 2016 and Wednesday 29 June 2016. The surveys were based on automatic number plate recognition; pedal cycles and powered two wheelers are not included in these flows.

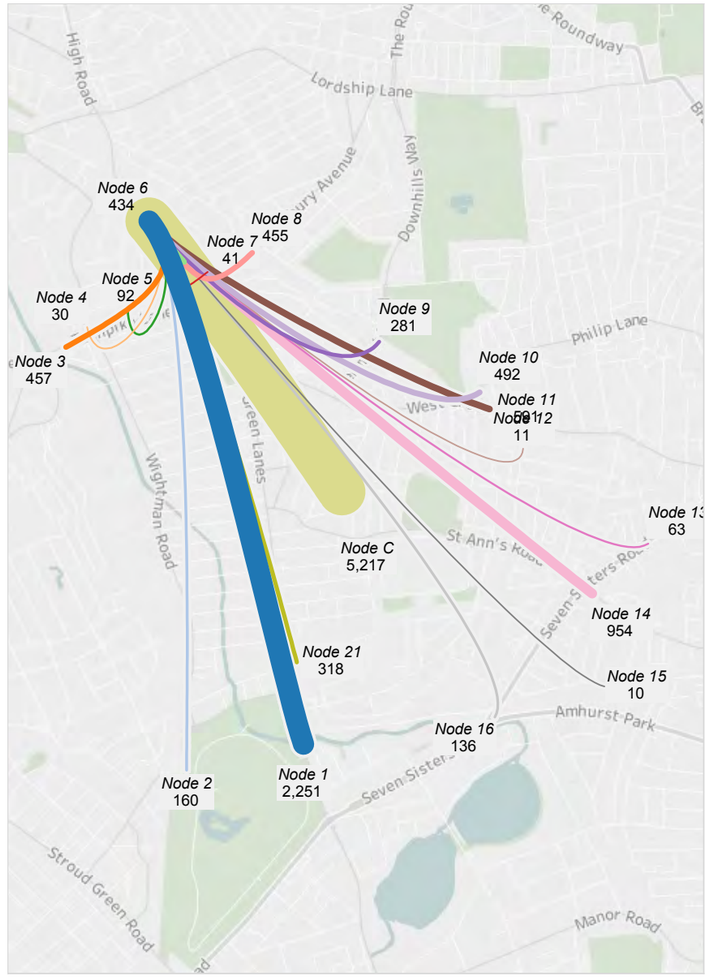
Flows to/from 6 High Road

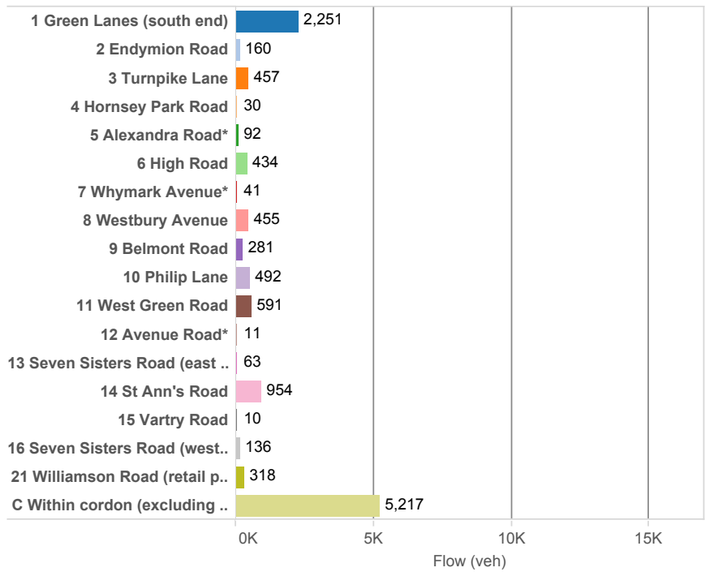
Flows in March



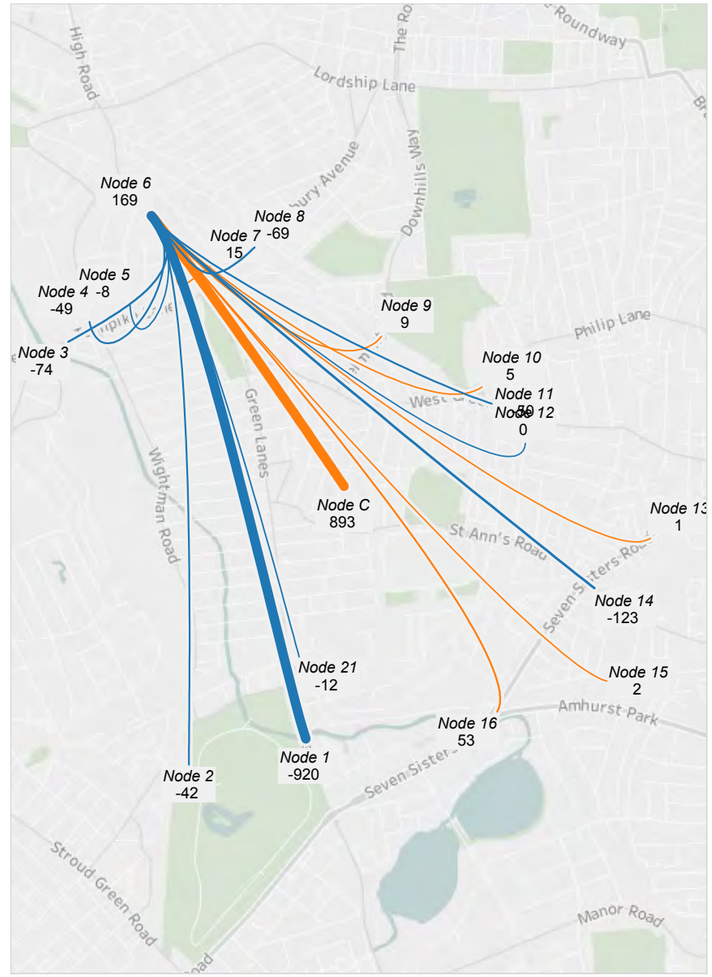


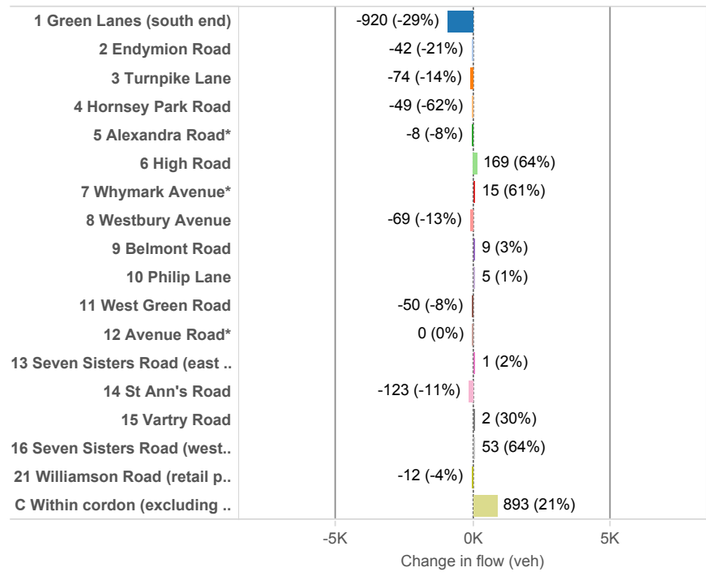
Flows in June





Change in flows from March to June





Selected node
6 High Road

Flow (veh)
0
2,000
4,000
6,000
8,000
10,000

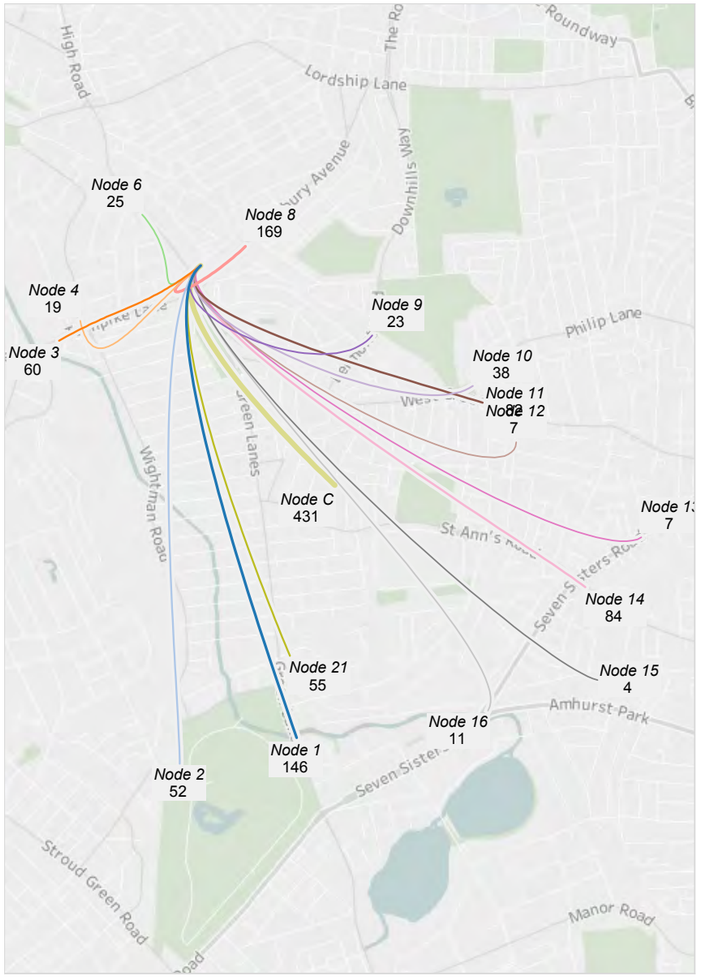
Direction of change
Decrease
Increase

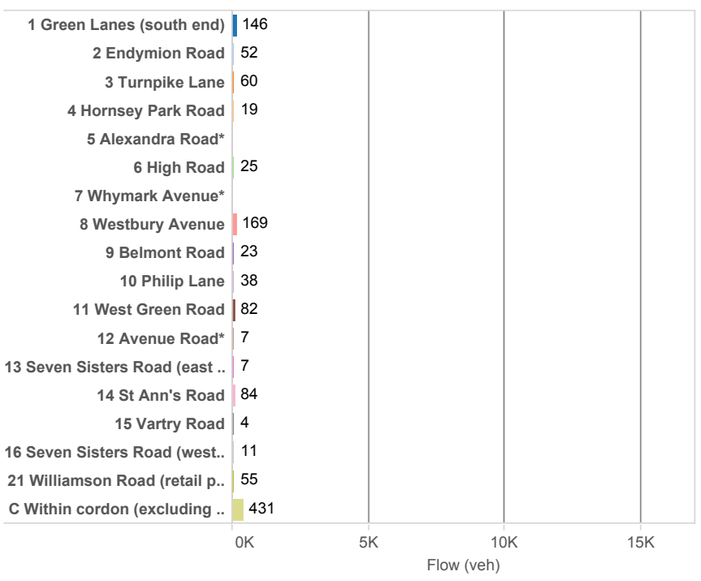
Colour legend
1 Green Lanes (south e..
2 Endymion Road
3 Turnpike Lane
4 Hornsey Park Road
5 Alexandra Road*
6 High Road
7 Whymark Avenue*
8 Westbury Avenue
9 Belmont Road
10 Philip Lane
11 West Green Road
12 Avenue Road*
13 Seven Sisters Road (..
14 St Ann's Road
15 Vartry Road
16 Seven Sisters Road (..
21 Williamson Road (ret..
C Within cordon (excludi..

Source: Origin-destination surveys undertaken between 06:00 and 22:00 (16 hours) on Tuesday 22 March 2016 and Wednesday 29 June 2016. The surveys were based on automatic number plate recognition; pedal cycles and powered two wheelers are not included in these flows.

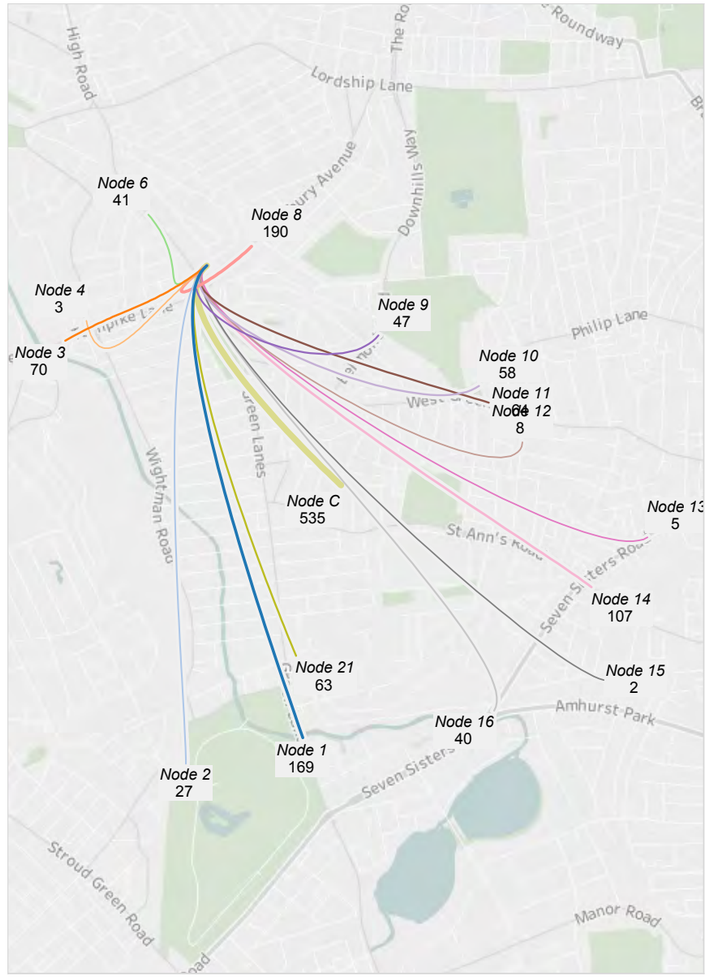
Flows to/from 7 Whymark Avenue*

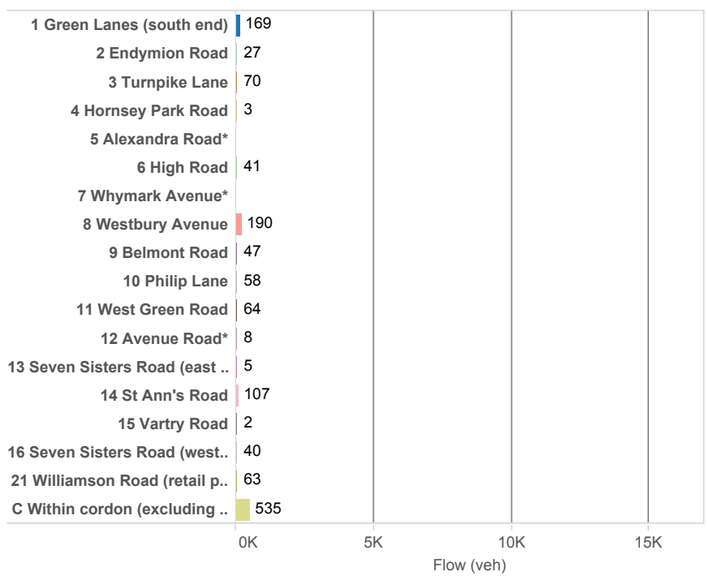
Flows in March



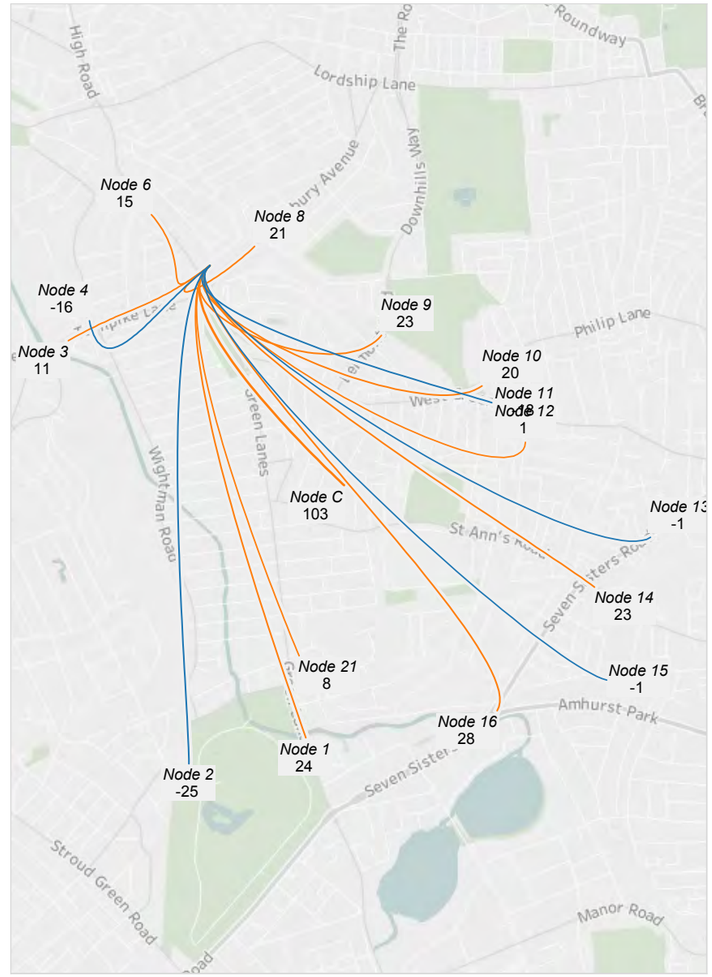


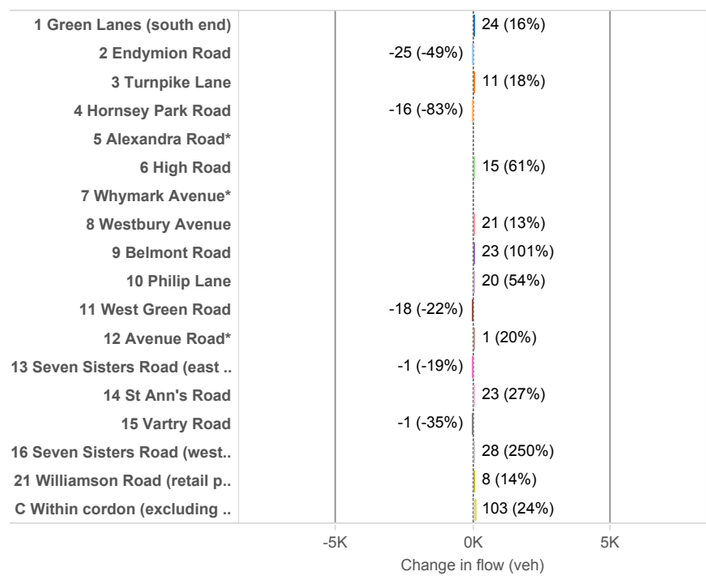
Flows in June





Change in flows from March to June





Selected node
7 Whymark Avenue*

Flow (veh)
0
2,000
4,000
6,000
8,000
10,000

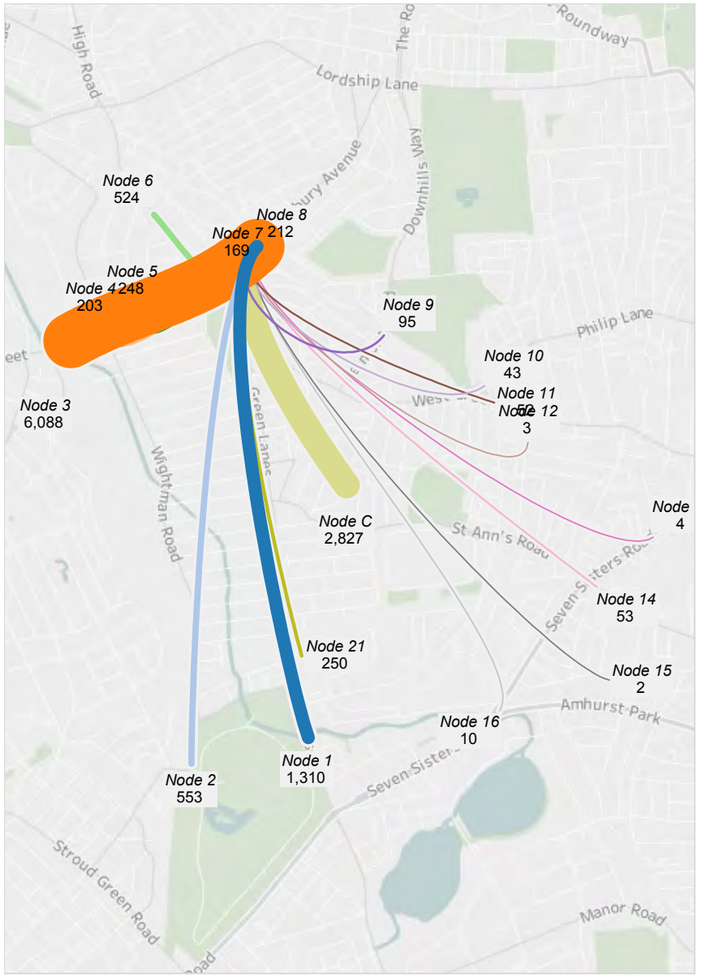
Direction of change
Decrease
Increase

Colour legend
1 Green Lanes (south e..
2 Endymion Road
3 Turnpike Lane
4 Hornsey Park Road
5 Alexandra Road*
6 High Road
7 Whymark Avenue*
8 Westbury Avenue
9 Belmont Road
10 Philip Lane
11 West Green Road
12 Avenue Road*
13 Seven Sisters Road (..
14 St Ann's Road
15 Vartry Road
16 Seven Sisters Road (..
21 Williamson Road (ret..
C Within cordon (excludi..

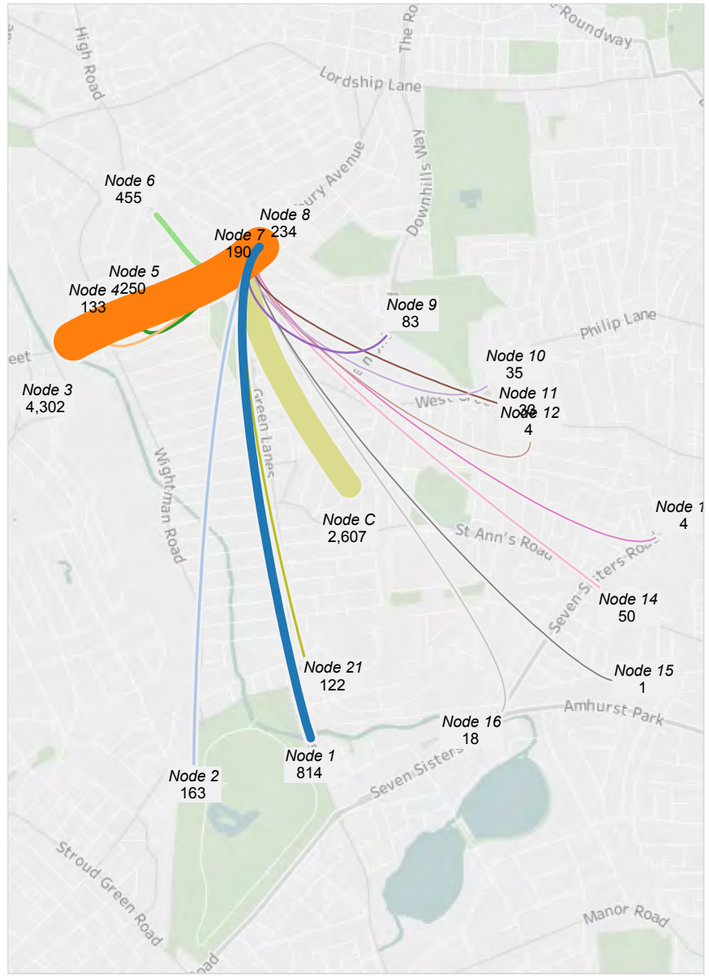
Source: Origin-destination surveys undertaken between 06:00 and 22:00 (16 hours) on Tuesday 22 March 2016 and Wednesday 29 June 2016. The surveys were based on automatic number plate recognition; pedal cycles and powered two wheelers are not included in these flows.

Flows to/from 8 Westbury Avenue

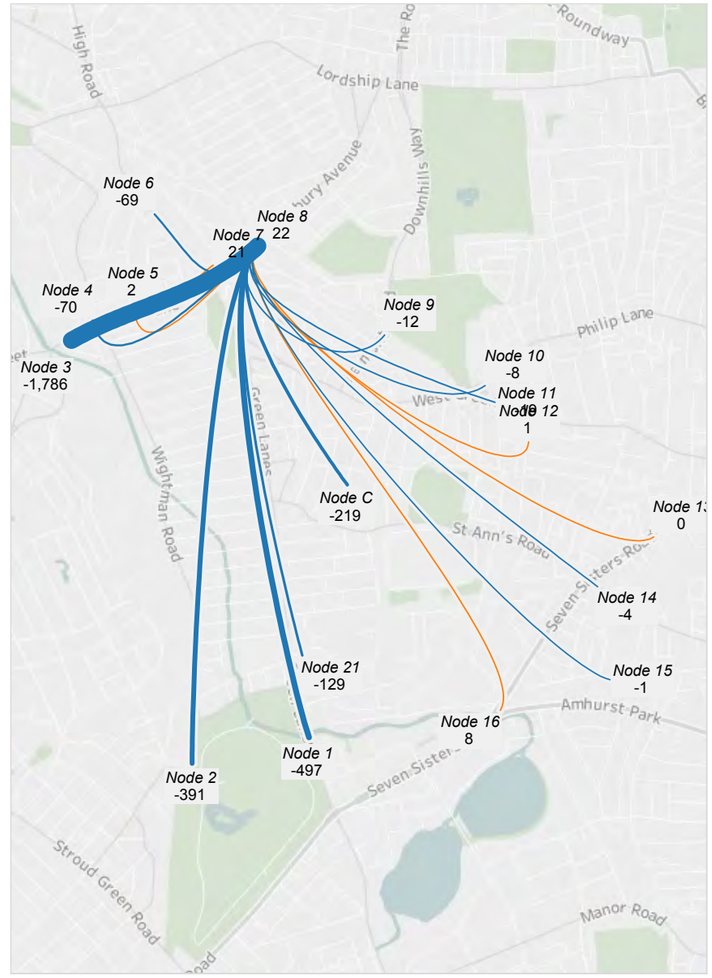
Flows in March

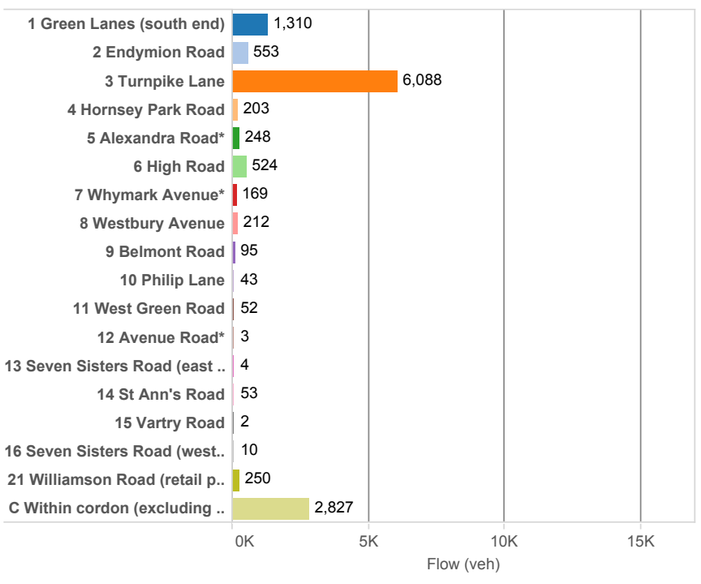


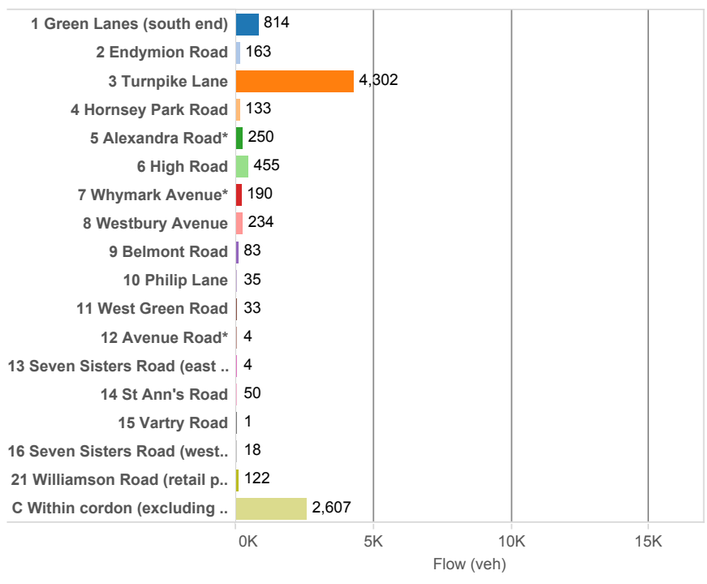
Flows in June

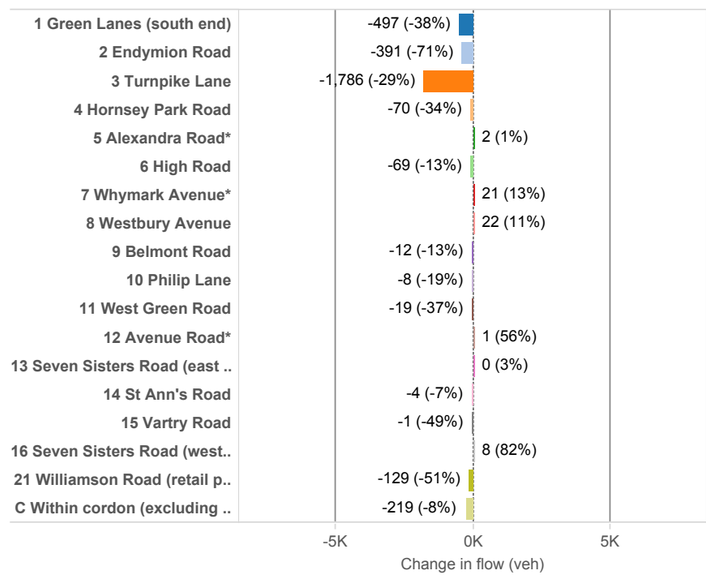


Change in flows from March to June









Selected node
8 Westbury Avenue

Flow (veh)
0
2,000
4,000
6,000
8,000
10,000

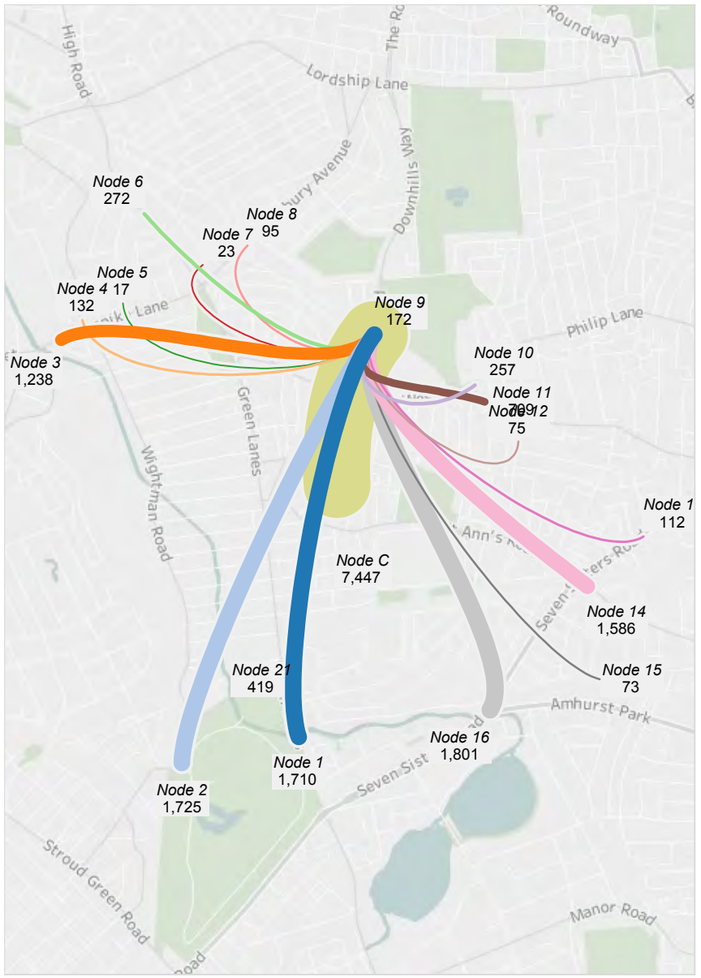
Direction of change
Decrease
Increase

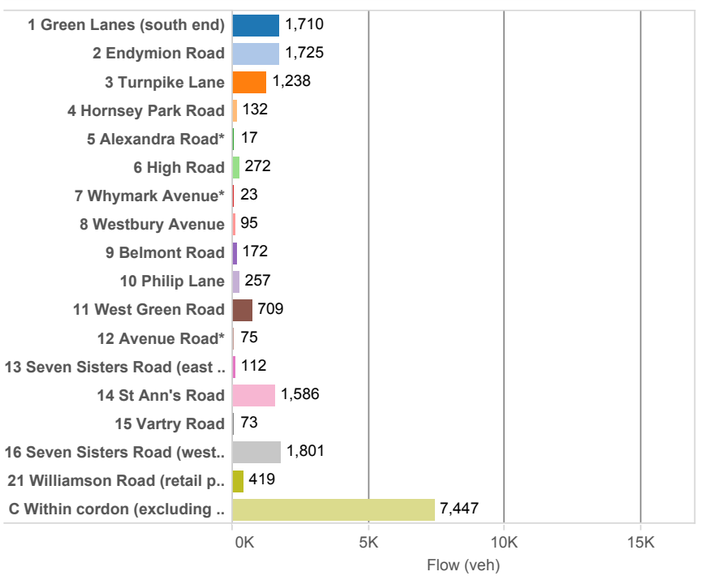
Colour legend
1 Green Lanes (south e..
2 Endymion Road
3 Turnpike Lane
4 Hornsey Park Road
5 Alexandra Road*
6 High Road
7 Whymark Avenue*
8 Westbury Avenue
9 Belmont Road
10 Philip Lane
11 West Green Road
12 Avenue Road*
13 Seven Sisters Road (..
14 St Ann's Road
15 Vartry Road
16 Seven Sisters Road (..
21 Williamson Road (ret..
C Within cordon (excludi..

Source: Origin-destination surveys undertaken between 06:00 and 22:00 (16 hours) on Tuesday 22 March 2016 and Wednesday 29 June 2016. The surveys were based on automatic number plate recognition; pedal cycles and powered two wheelers are not included in these flows.

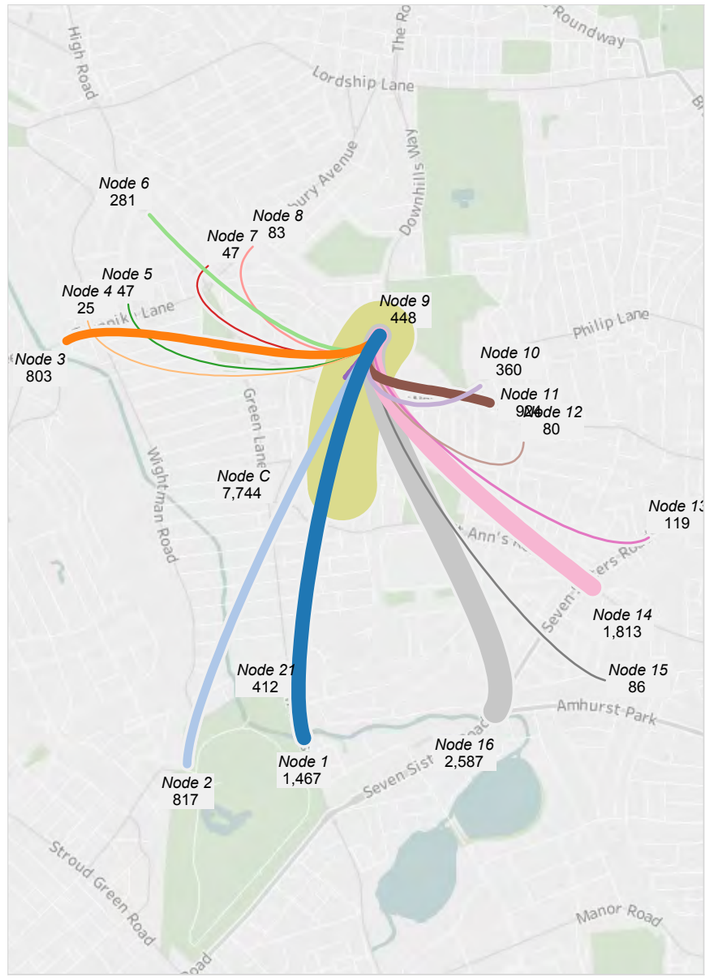
Flows to/from 9 Belmont Road

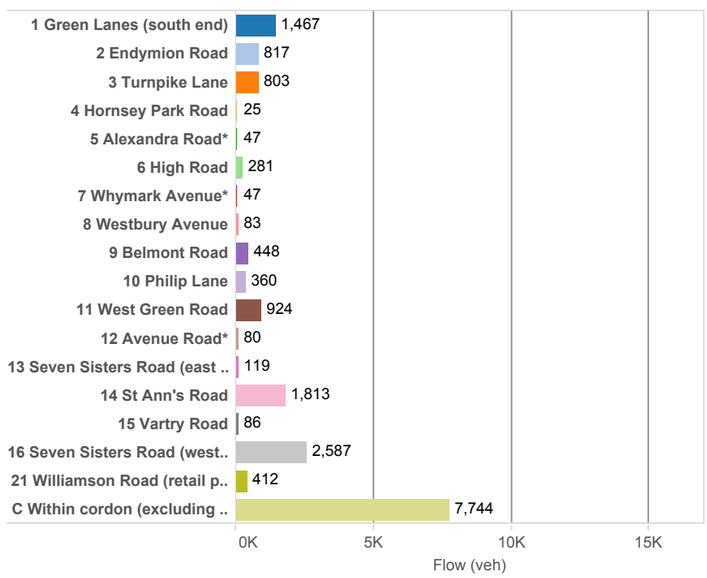
Flows in March



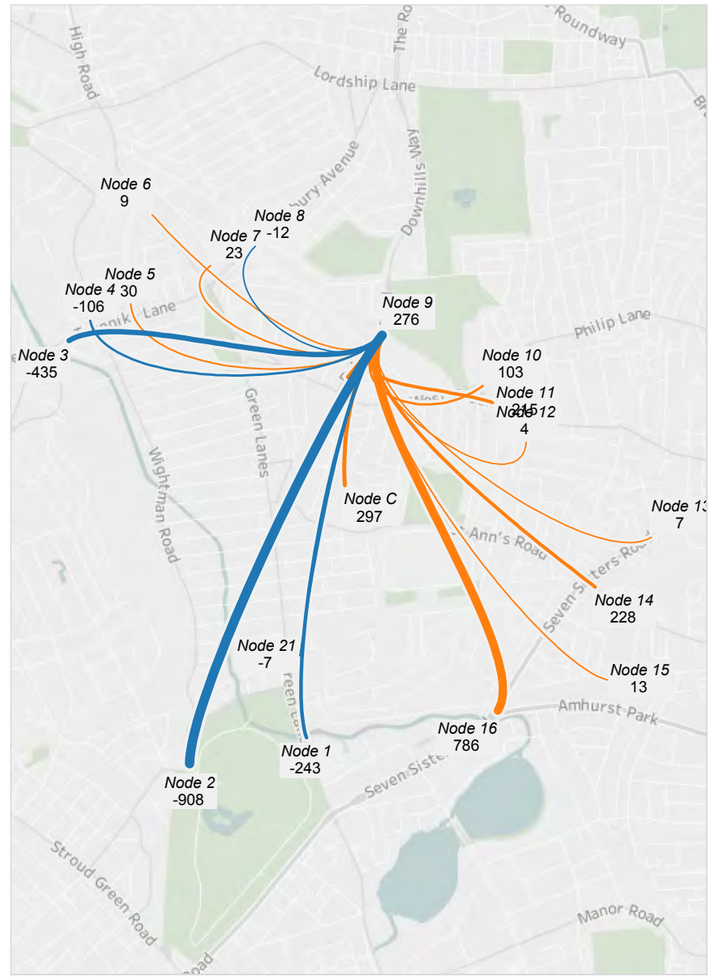


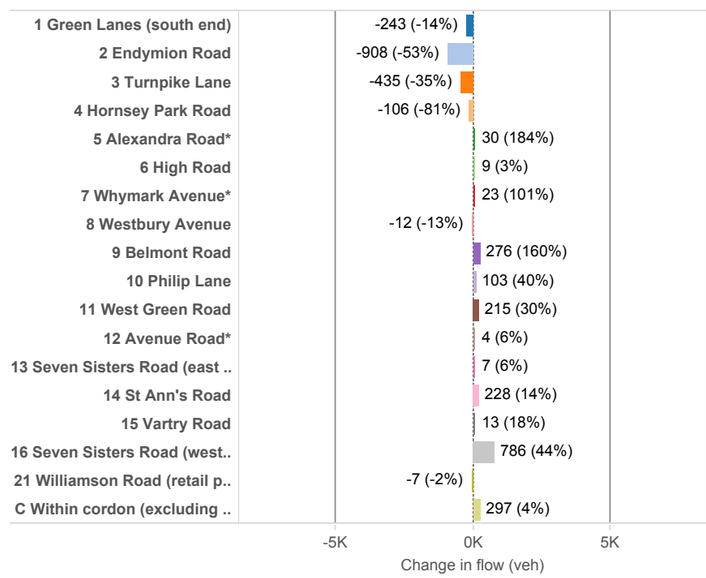
Flows in June





Change in flows from March to June





Selected node
9 Belmont Road

Flow (veh)
0
2,000
4,000
6,000
8,000
10,000

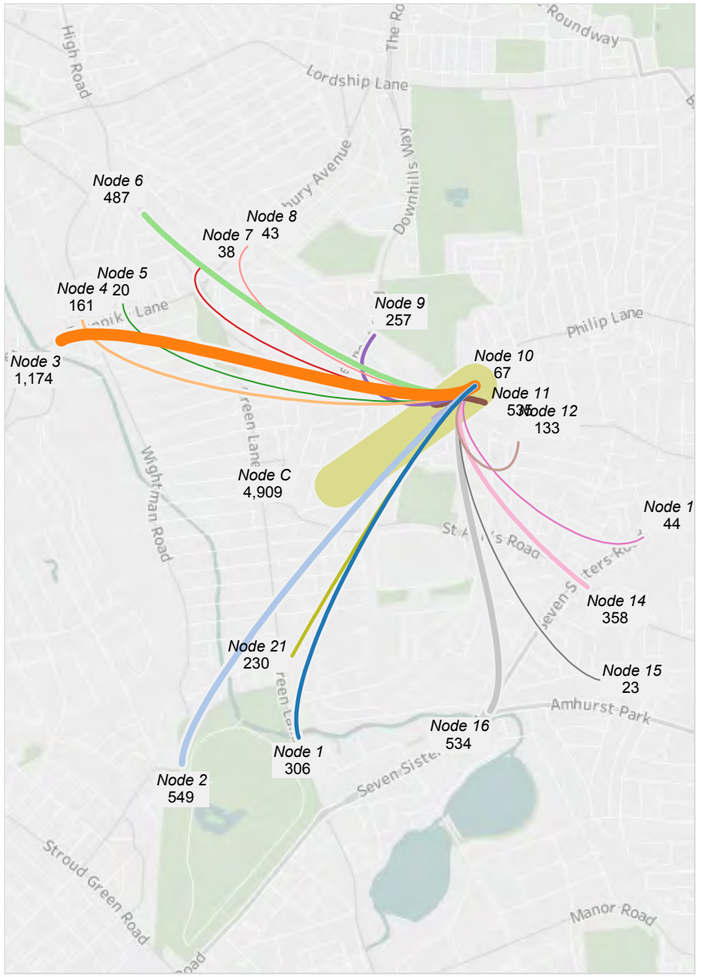
Direction of change
- Decrease
- Increase

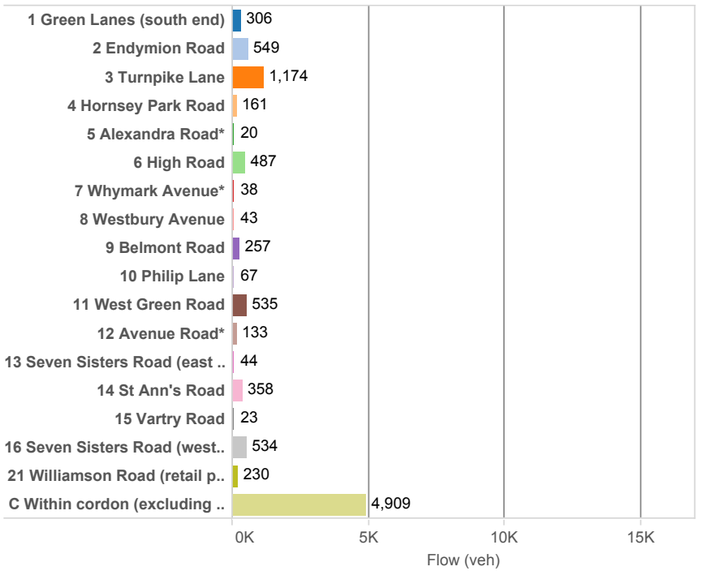
Colour legend
- 1 Green Lanes (south e..
- 2 Endymion Road
- 3 Turnpike Lane
- 4 Hornsey Park Road
- 5 Alexandra Road*
- 6 High Road
- 7 Whymark Avenue*
- 8 Westbury Avenue
- 9 Belmont Road
- 10 Philip Lane
- 11 West Green Road
- 12 Avenue Road*
- 13 Seven Sisters Road (..
- 14 St Ann's Road
- 15 Vartry Road
- 16 Seven Sisters Road (..
- 21 Williamson Road (ret..
- C Within cordon (excludi..

Source: Origin-destination surveys undertaken between 06:00 and 22:00 (16 hours) on Tuesday 22 March 2016 and Wednesday 29 June 2016. The surveys were based on automatic number plate recognition; pedal cycles and powered two wheelers are not included in these flows.

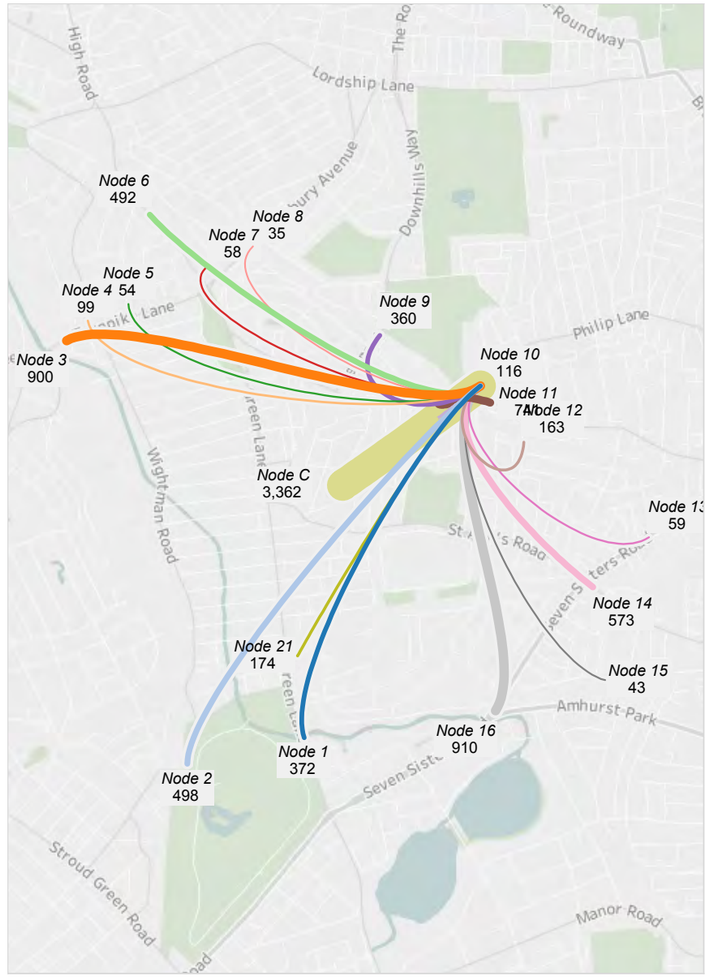
Flows to/from 10 Philip Lane

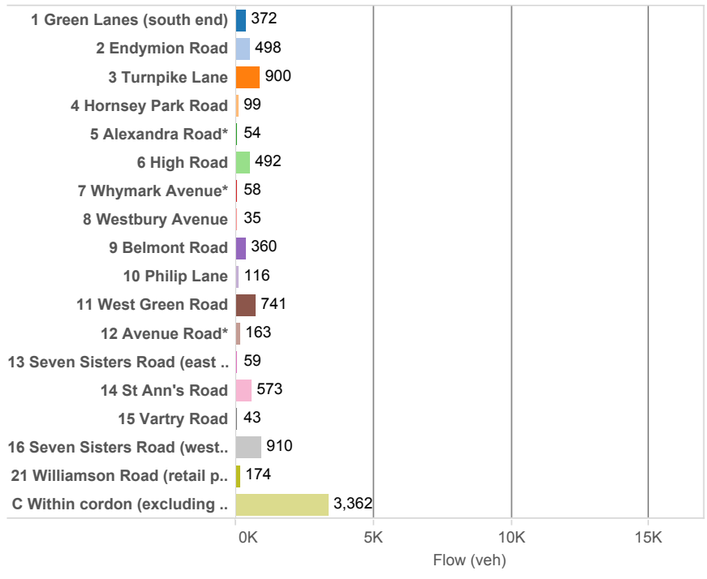
Flows in March



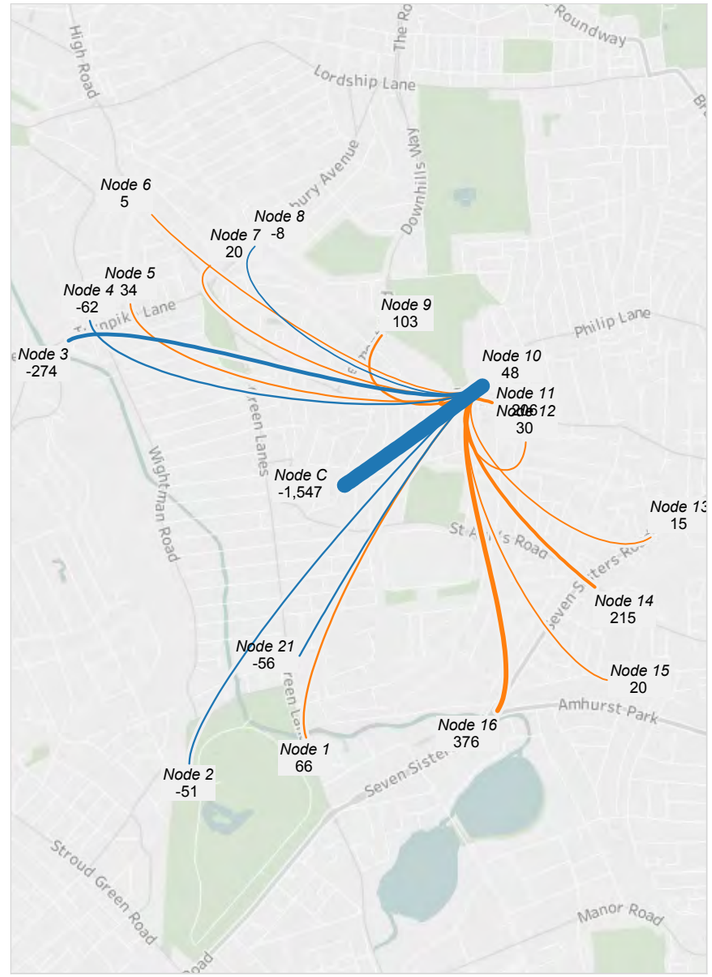


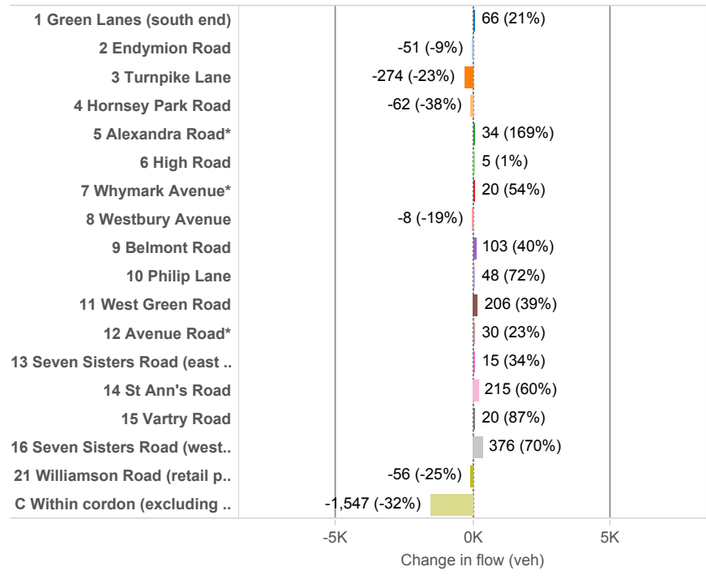
Flows in June





Change in flows from March to June





Selected node
10 Philip Lane

Flow (veh)
0
2,000
4,000
6,000
8,000
10,000

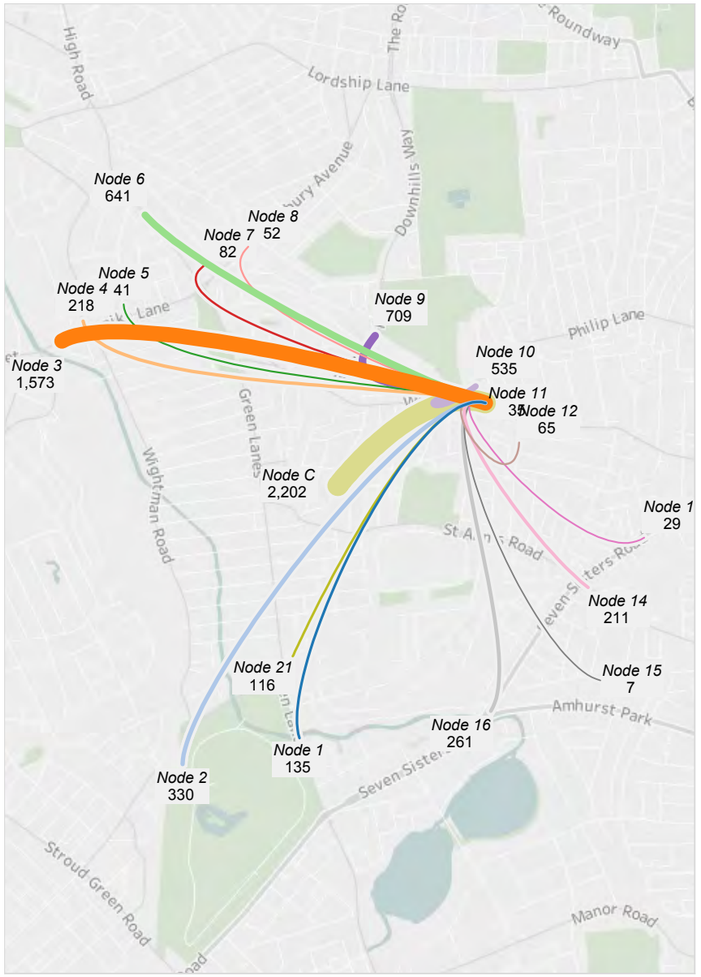
Direction of change
Decrease
Increase

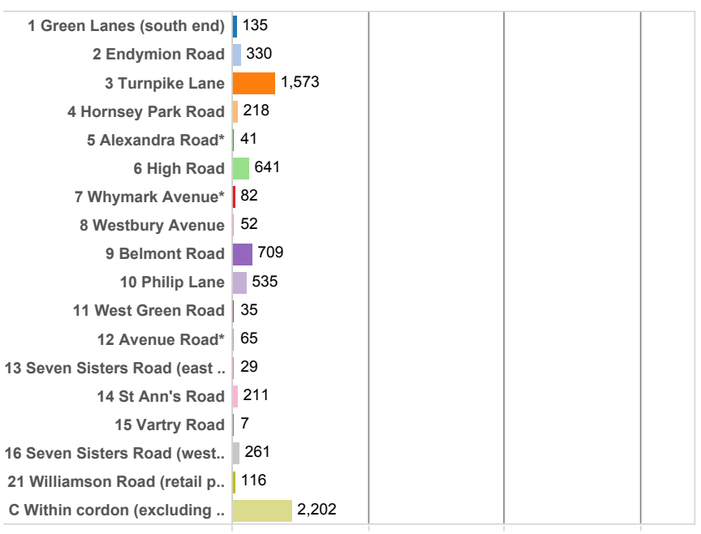
Colour legend
1 Green Lanes (south e..
2 Endymion Road
3 Turnpike Lane
4 Hornsey Park Road
5 Alexandra Road*
6 High Road
7 Whymark Avenue*
8 Westbury Avenue
9 Belmont Road
10 Philip Lane
11 West Green Road
12 Avenue Road*
13 Seven Sisters Road (..
14 St Ann's Road
15 Vartry Road
16 Seven Sisters Road (..
21 Williamson Road (ret..
C Within cordon (excludi..

Source: Origin-destination surveys undertaken between 06:00 and 22:00 (16 hours) on Tuesday 22 March 2016 and Wednesday 29 June 2016. The surveys were based on automatic number plate recognition; pedal cycles and powered two wheelers are not included in these flows.

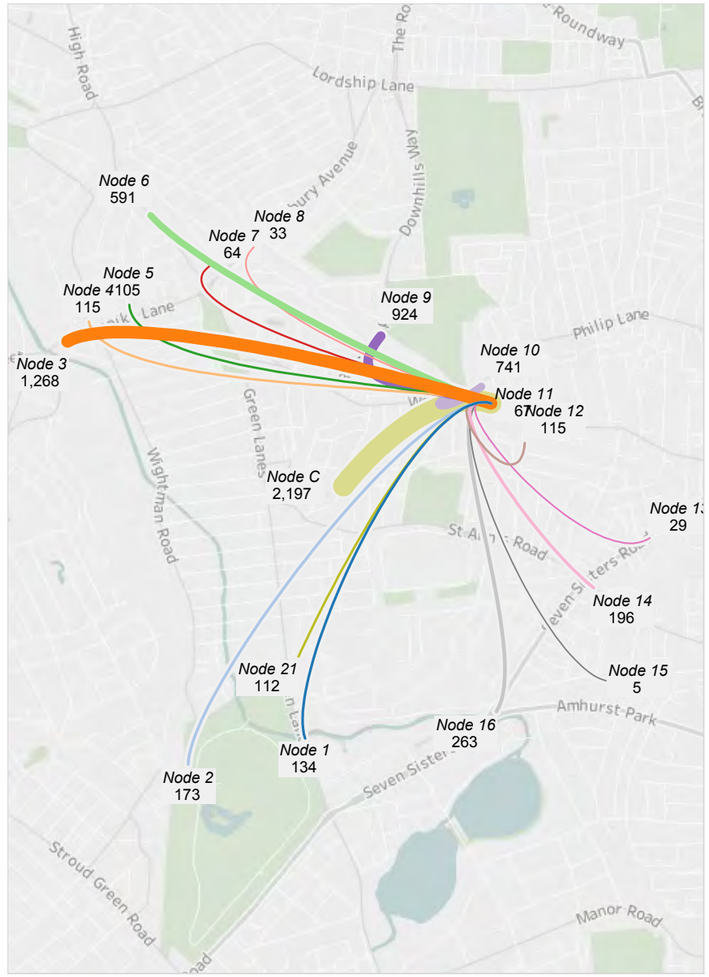
Flows to/from 11 West Green Road

Flows in March

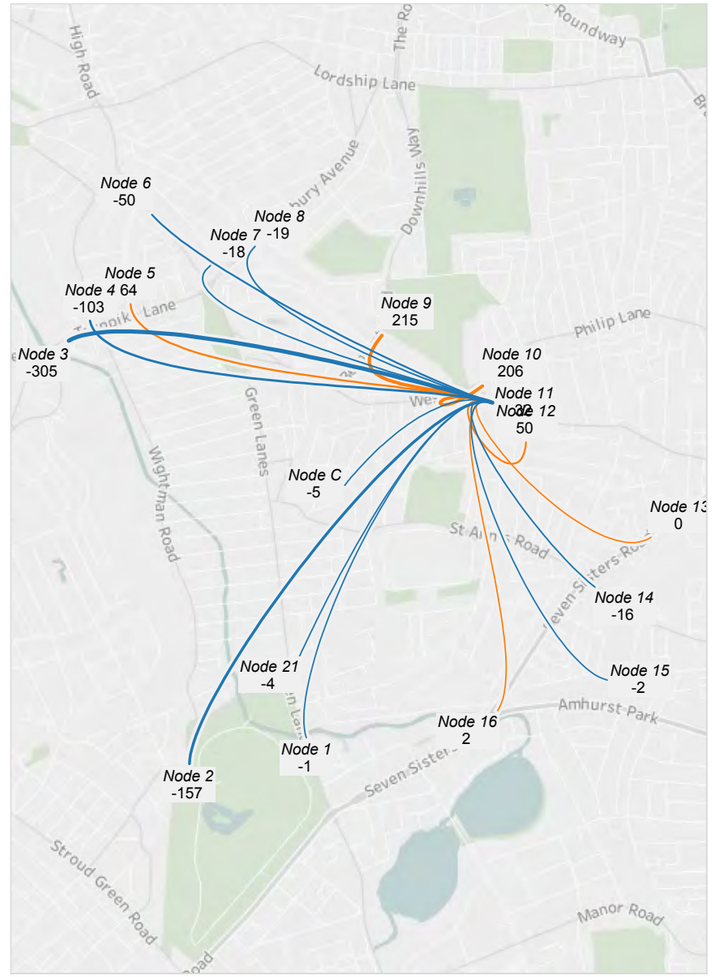


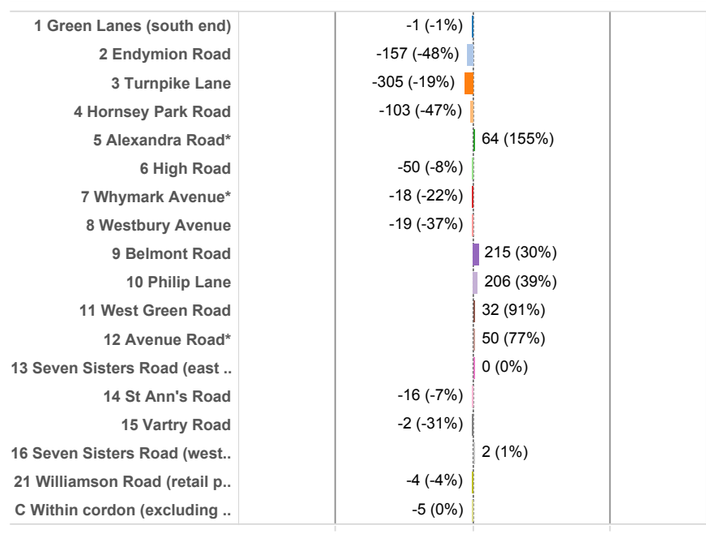


Flows in June



Change in flows from March to June





Selected node
11 West Green Road

Flow (veh)
0
2,000
4,000
6,000
8,000
10,000

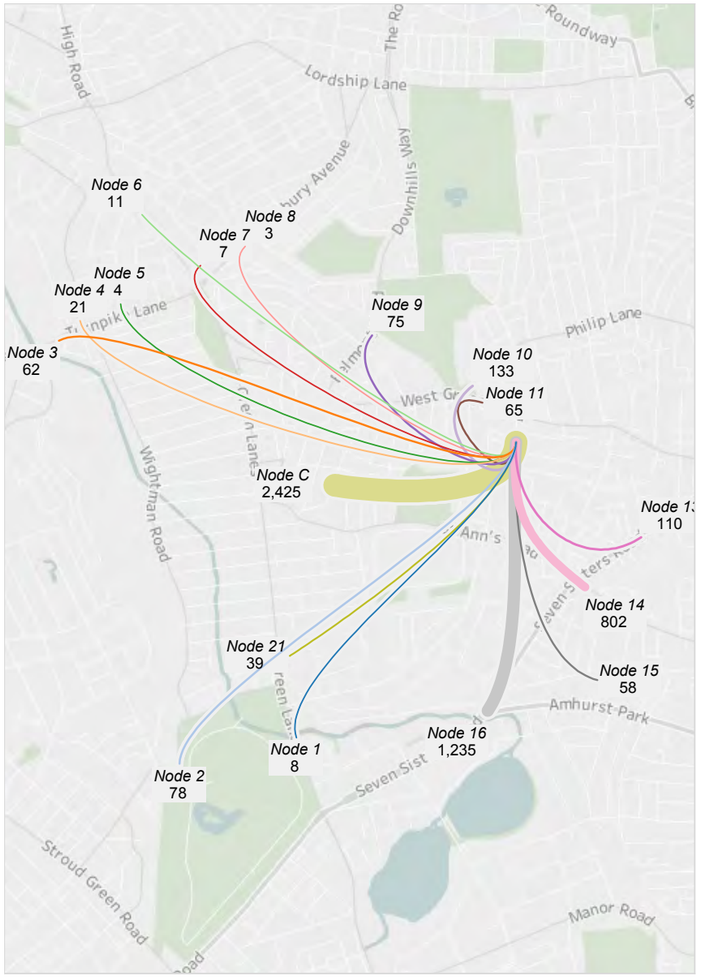
Direction of change
Decrease
Increase

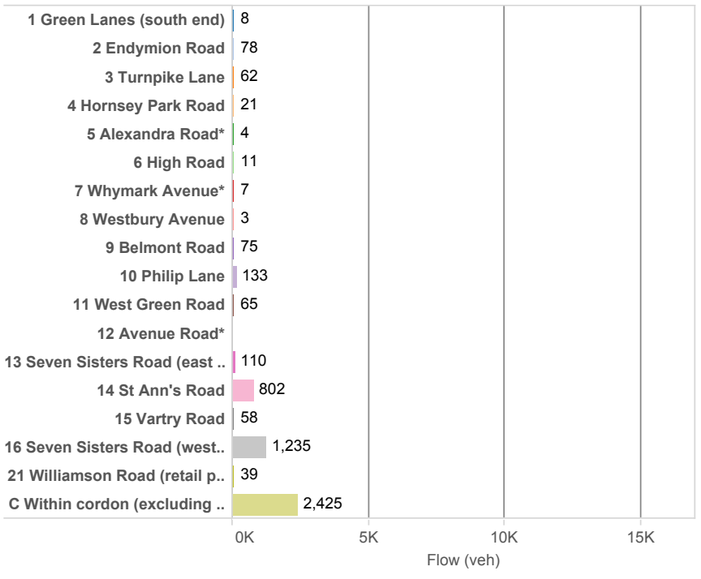
Colour legend
1 Green Lanes (south e..
2 Endymion Road
3 Turnpike Lane
4 Hornsey Park Road
5 Alexandra Road*
6 High Road
7 Whymark Avenue*
8 Westbury Avenue
9 Belmont Road
10 Philip Lane
11 West Green Road
12 Avenue Road*
13 Seven Sisters Road (..
14 St Ann's Road
15 Vartry Road
16 Seven Sisters Road (..
21 Williamson Road (ret..
C Within cordon (excludi..

Source: Origin-destination surveys undertaken between 06:00 and 22:00 (16 hours) on Tuesday 22 March 2016 and Wednesday 29 June 2016. The surveys were based on automatic number plate recognition; pedal cycles and powered two wheelers are not included in these flows.

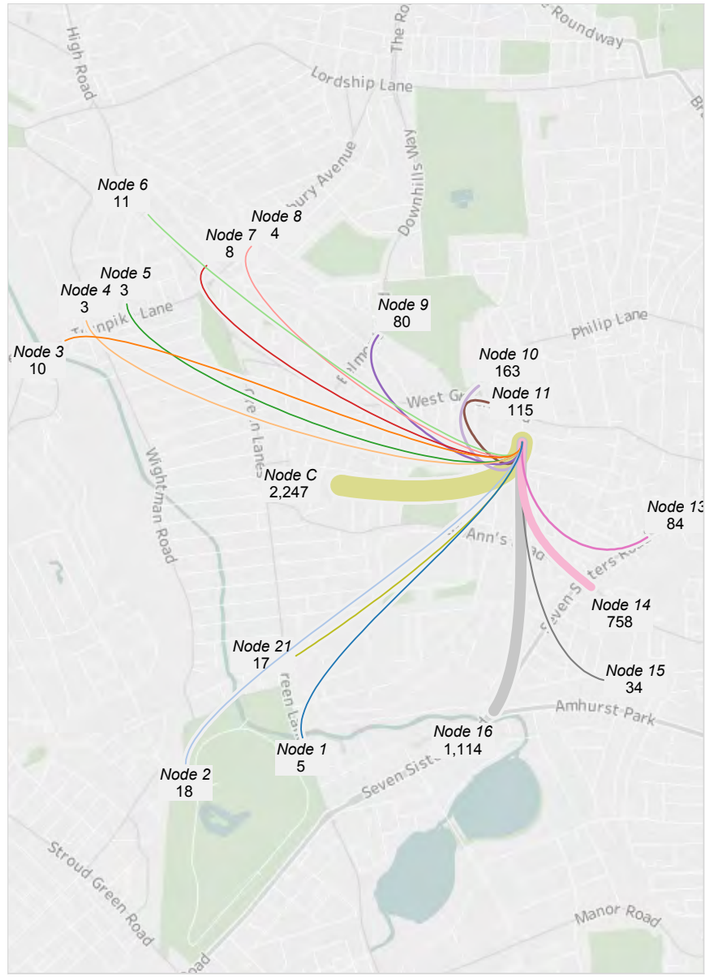
Flows to/from 12 Avenue Road*

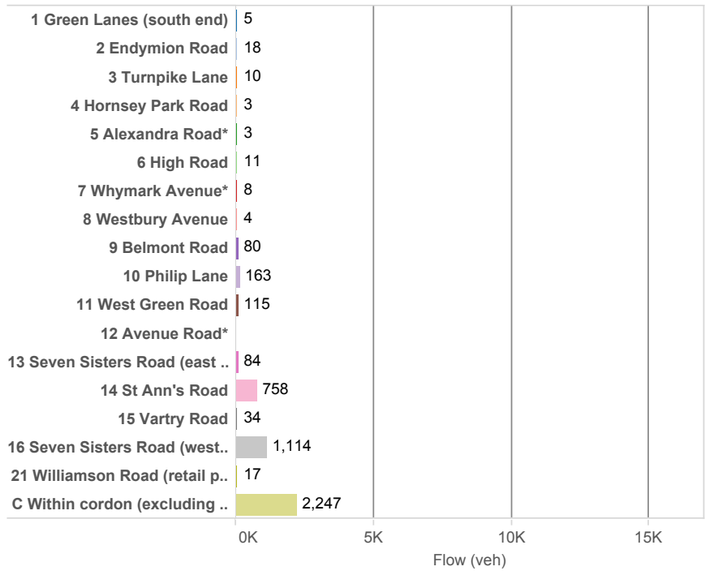
Flows in March



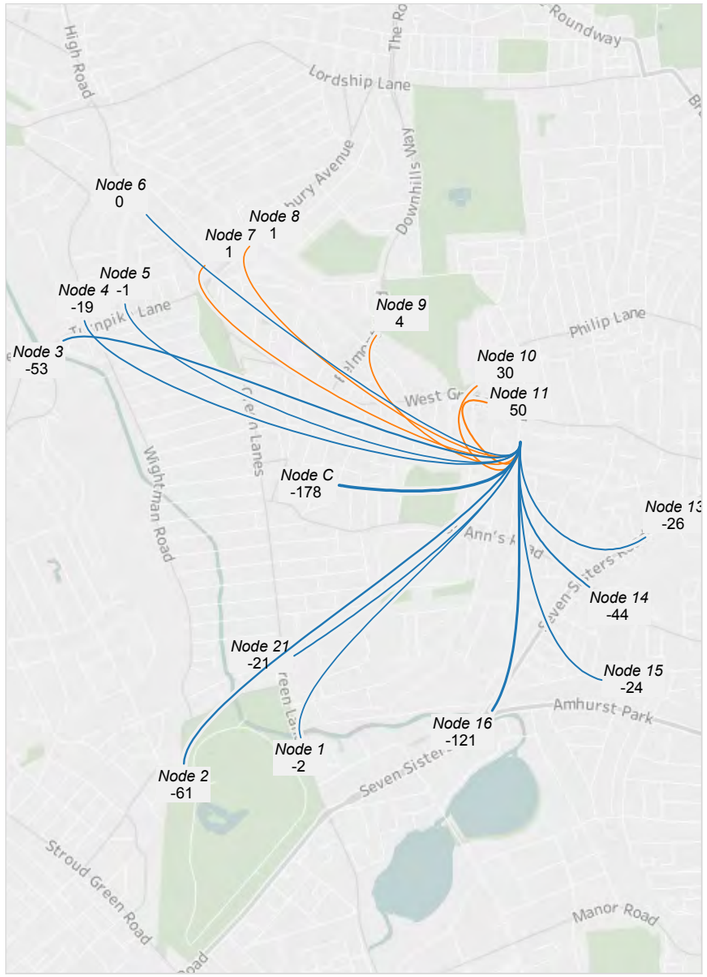


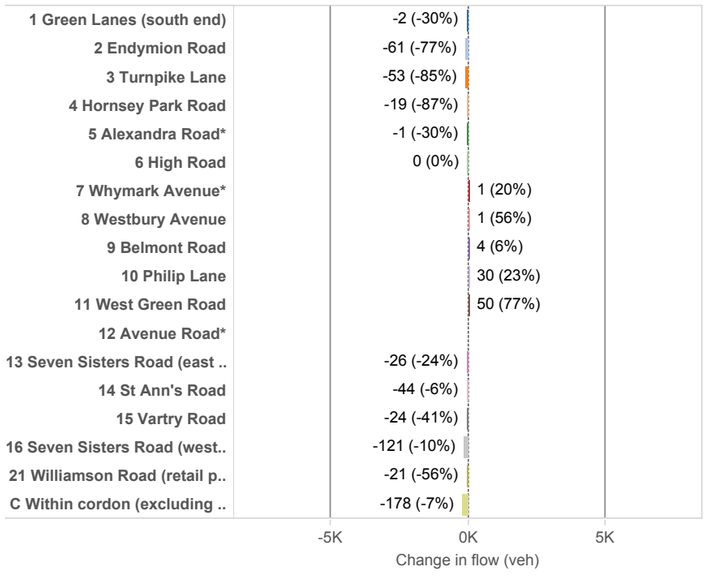
Flows in June





Change in flows from March to June





Selected node
12 Avenue Road*

Flow (veh)
0
2,000
4,000
6,000
8,000
10,000

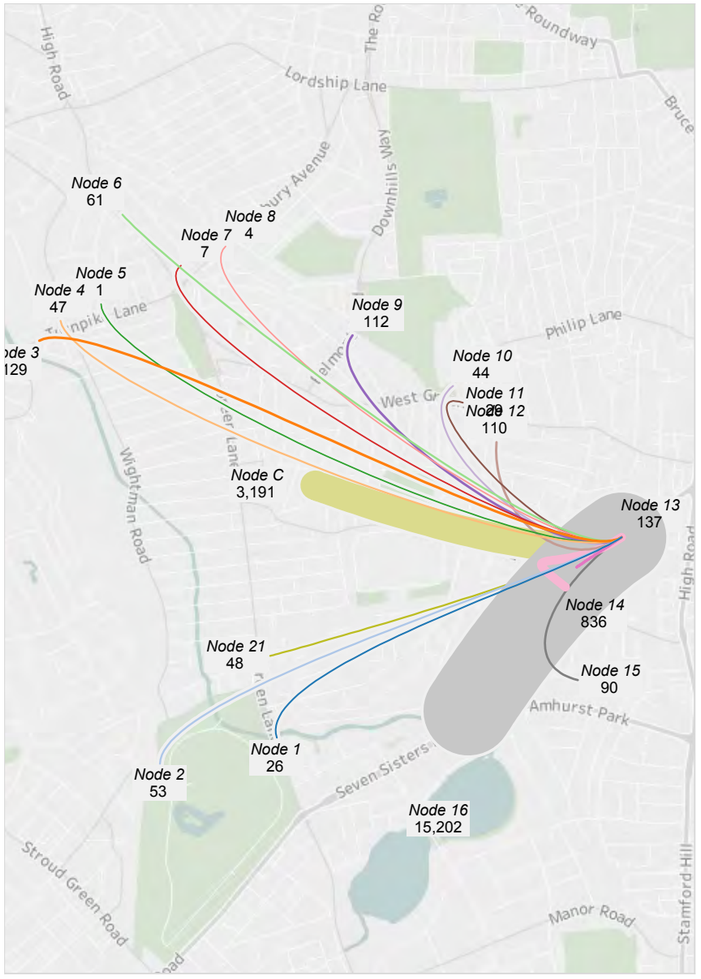
Direction of change
Decrease
Increase

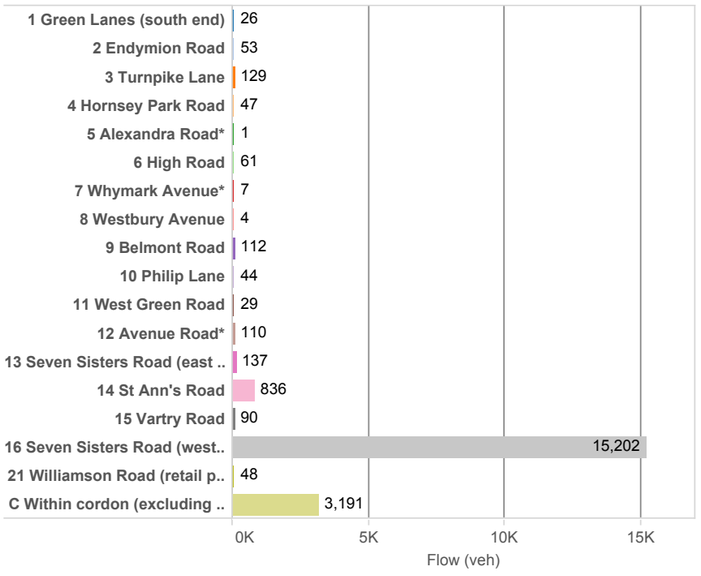
Colour legend
1 Green Lanes (south e..
2 Endymion Road
3 Turnpike Lane
4 Hornsey Park Road
5 Alexandra Road*
6 High Road
7 Whymark Avenue*
8 Westbury Avenue
9 Belmont Road
10 Philip Lane
11 West Green Road
12 Avenue Road*
13 Seven Sisters Road (..
14 St Ann's Road
15 Vartry Road
16 Seven Sisters Road (..
21 Williamson Road (ret..
C Within cordon (excludi..

Source: Origin-destination surveys undertaken between 06:00 and 22:00 (16 hours) on Tuesday 22 March 2016 and Wednesday 29 June 2016. The surveys were based on automatic number plate recognition; pedal cycles and powered two wheelers are not included in these flows.

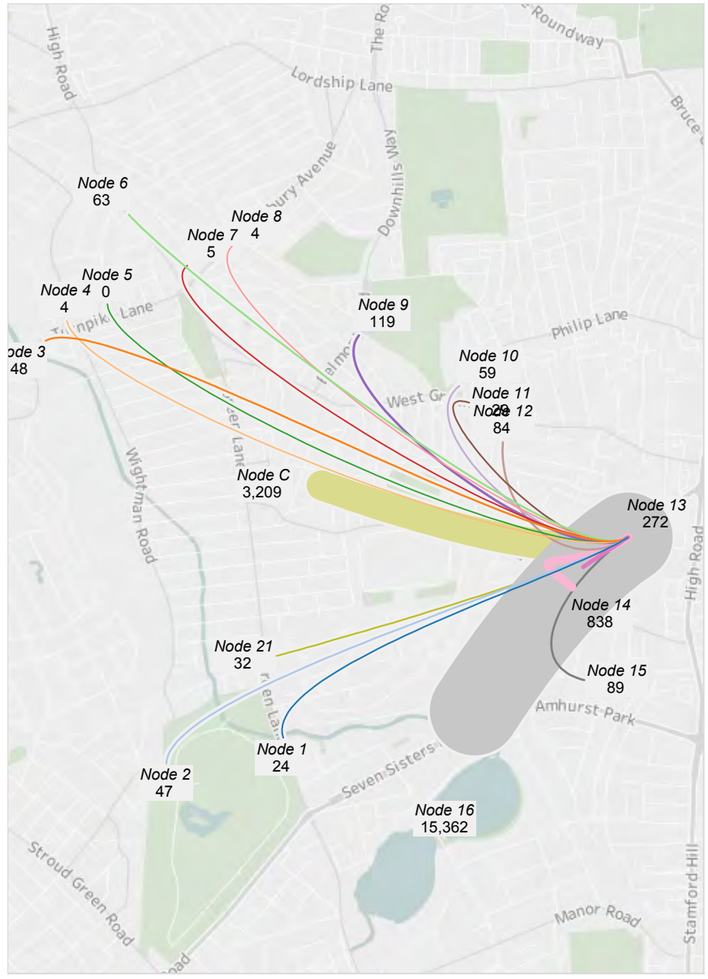
Flows to/from 13 Seven Sisters Road (east end)

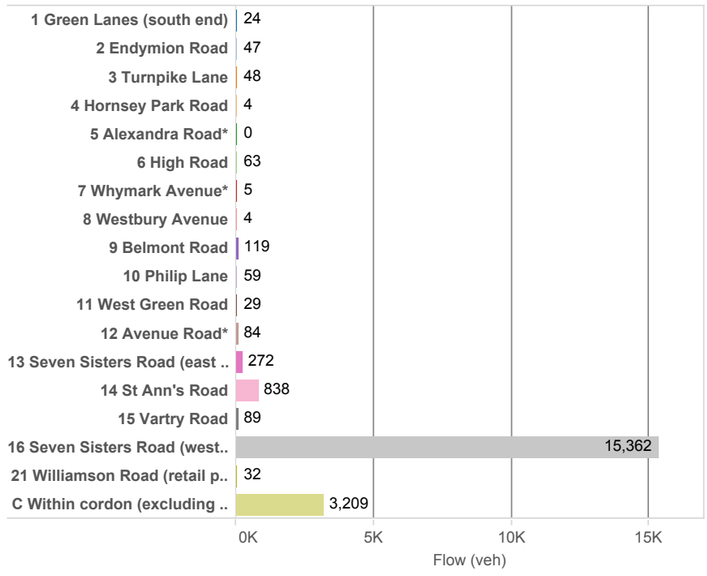
Flows in March



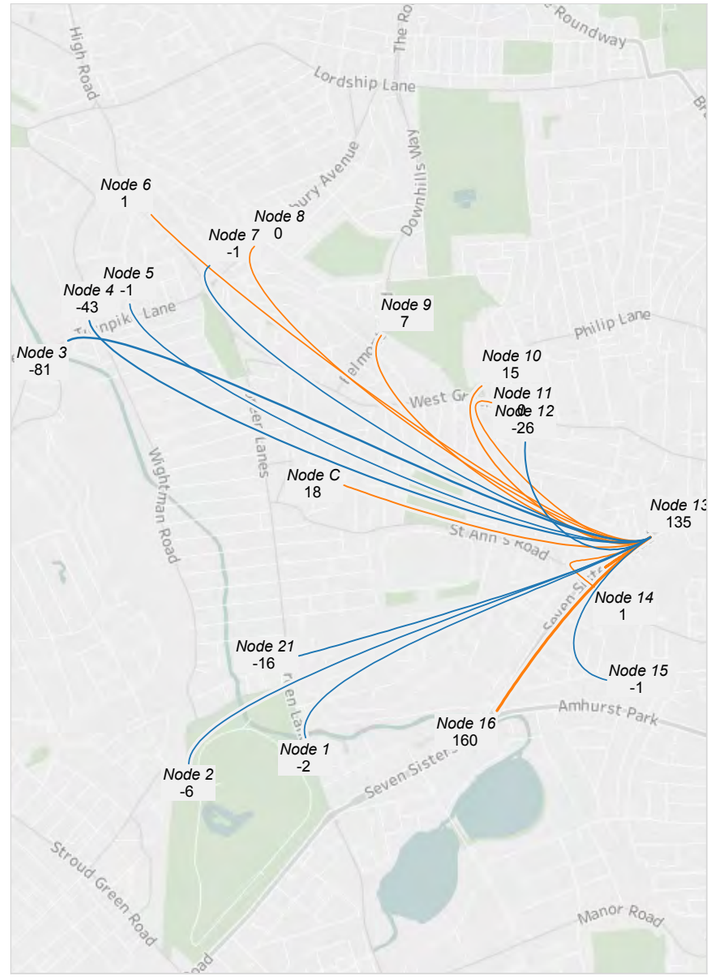


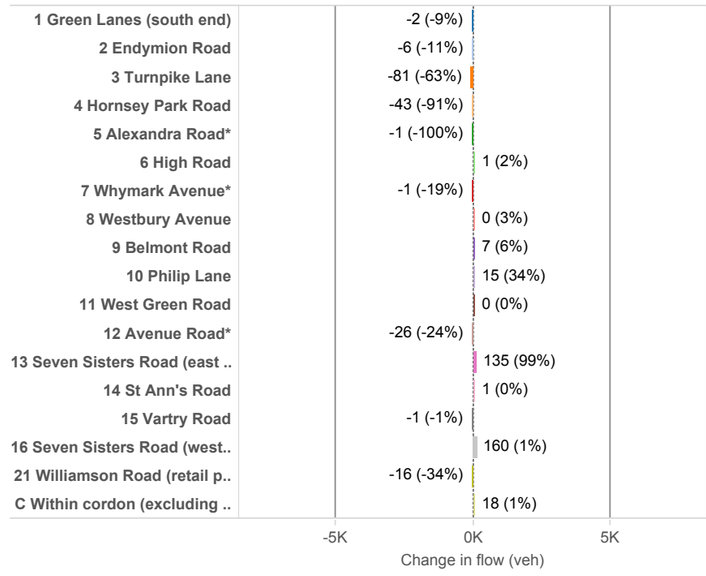
Flows in June





Change in flows from March to June





Selected node
13 Seven Sisters Road (east end)

Flow (veh)
0
2,000
4,000
6,000
8,000
≥ 10,000

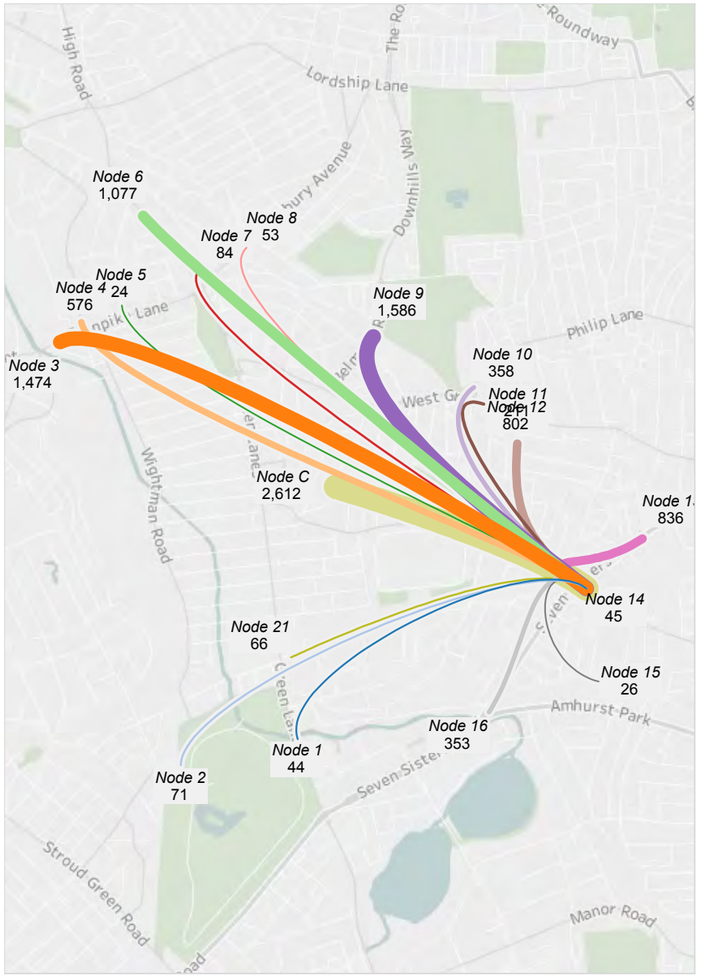
Direction of change
Decrease
Increase

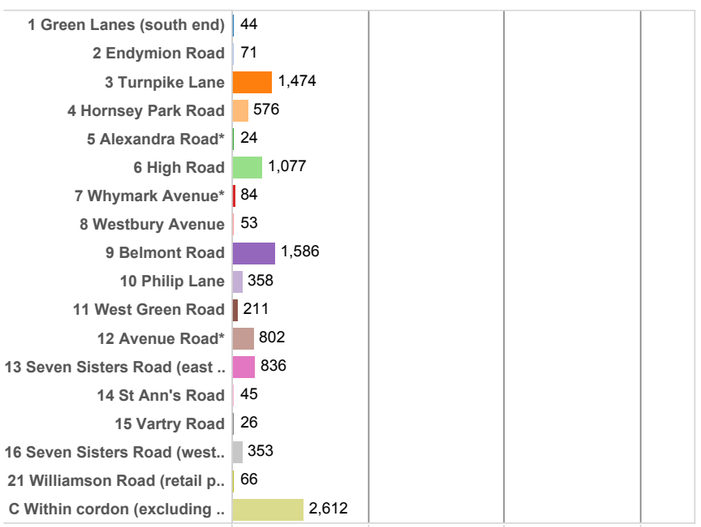
Colour legend
1 Green Lanes (south e..
2 Endymion Road
3 Turnpike Lane
4 Hornsey Park Road
5 Alexandra Road*
6 High Road
7 Whymark Avenue*
8 Westbury Avenue
9 Belmont Road
10 Philip Lane
11 West Green Road
12 Avenue Road*
13 Seven Sisters Road (..
14 St Ann's Road
15 Vartry Road
16 Seven Sisters Road (..
21 Williamson Road (ret..
C Within cordon (excludi..

Source: Origin-destination surveys undertaken between 06:00 and 22:00 (16 hours) on Tuesday 22 March 2016 and Wednesday 29 June 2016. The surveys were based on automatic number plate recognition; pedal cycles and powered two wheelers are not included in these flows.

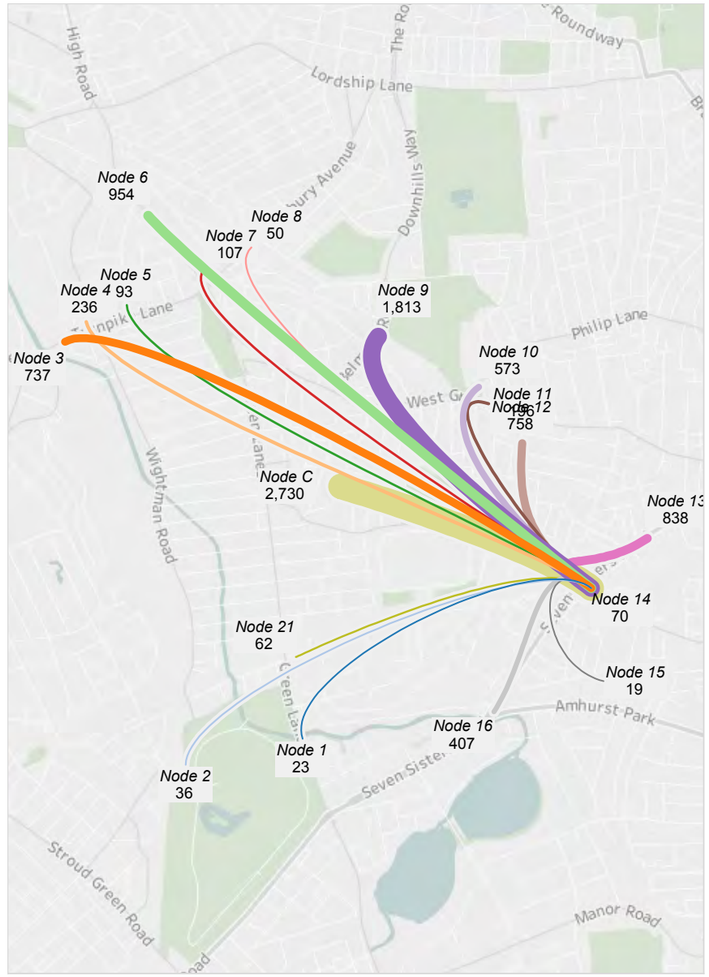
Flows to/from 14 St Ann's Road

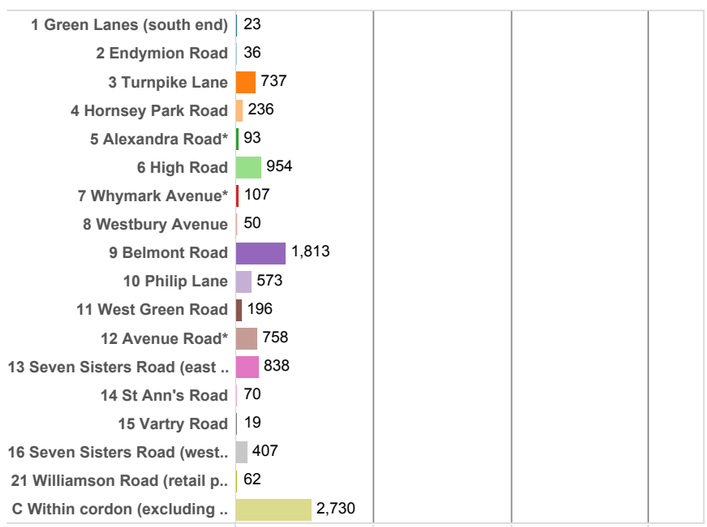
Flows in March



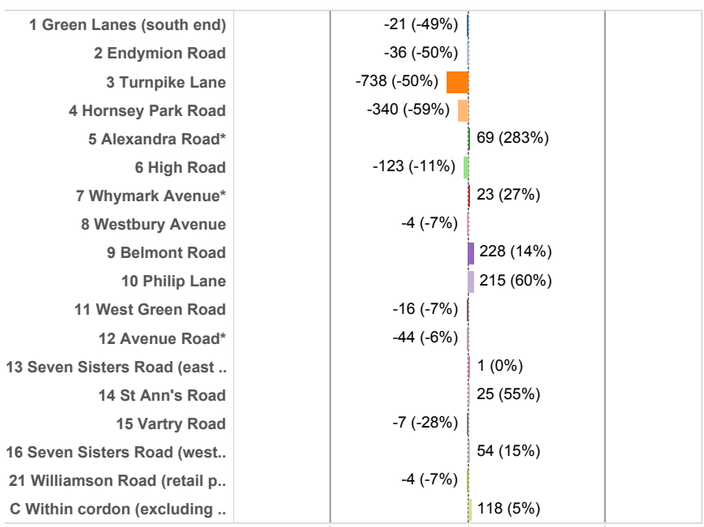


Flows in June





Change in flows from March to June



Selected node
14 St Ann's Road

Flow (veh)
0
2,000
4,000
6,000
8,000
10,000

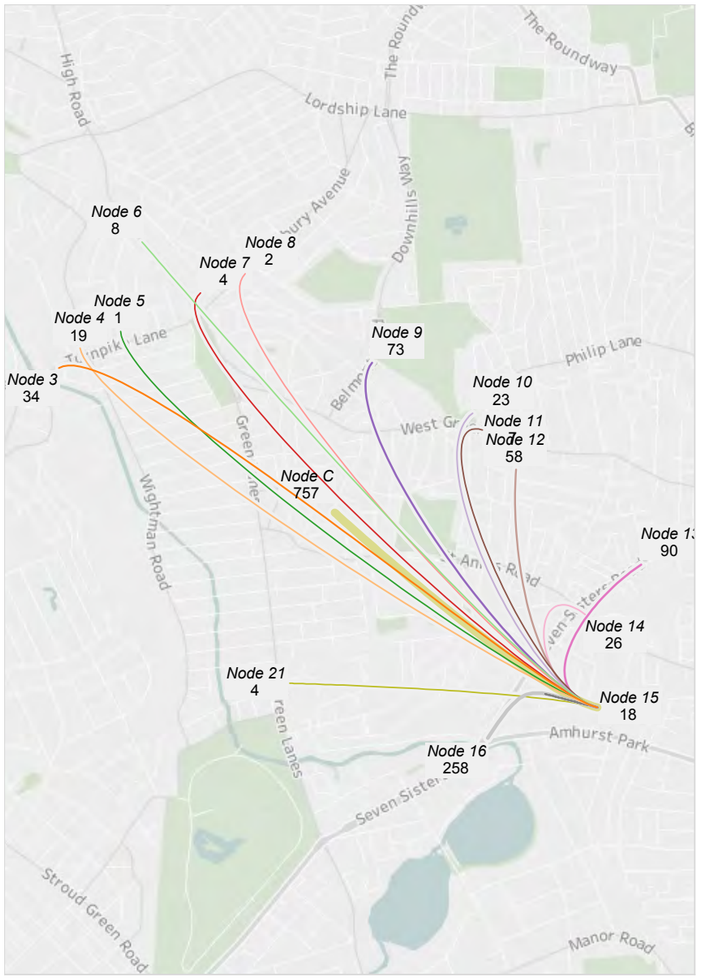
Direction of change
Decrease
Increase

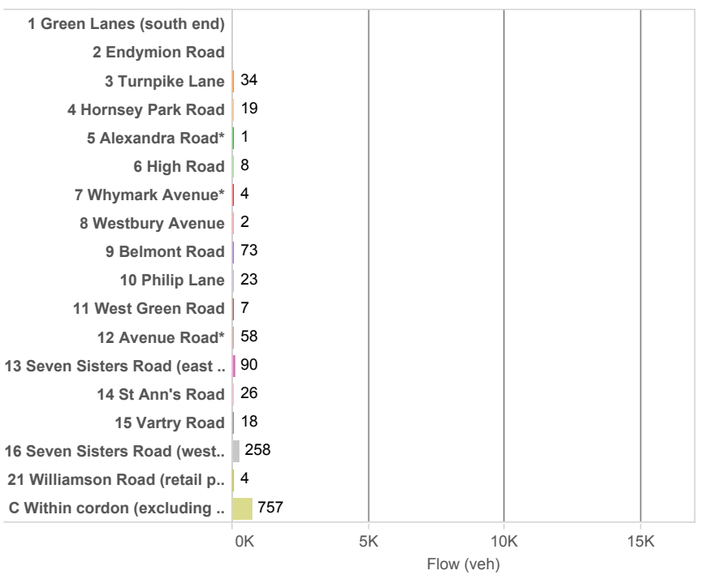
Colour legend
1 Green Lanes (south e..
2 Endymion Road
3 Turnpike Lane
4 Hornsey Park Road
5 Alexandra Road*
6 High Road
7 Whymark Avenue*
8 Westbury Avenue
9 Belmont Road
10 Philip Lane
11 West Green Road
12 Avenue Road*
13 Seven Sisters Road (..
14 St Ann's Road
15 Vartry Road
16 Seven Sisters Road (..
21 Williamson Road (ret..
C Within cordon (excludi..

Source: Origin-destination surveys undertaken between 06:00 and 22:00 (16 hours) on Tuesday 22 March 2016 and Wednesday 29 June 2016. The surveys were based on automatic number plate recognition; pedal cycles and powered two wheelers are not included in these flows.

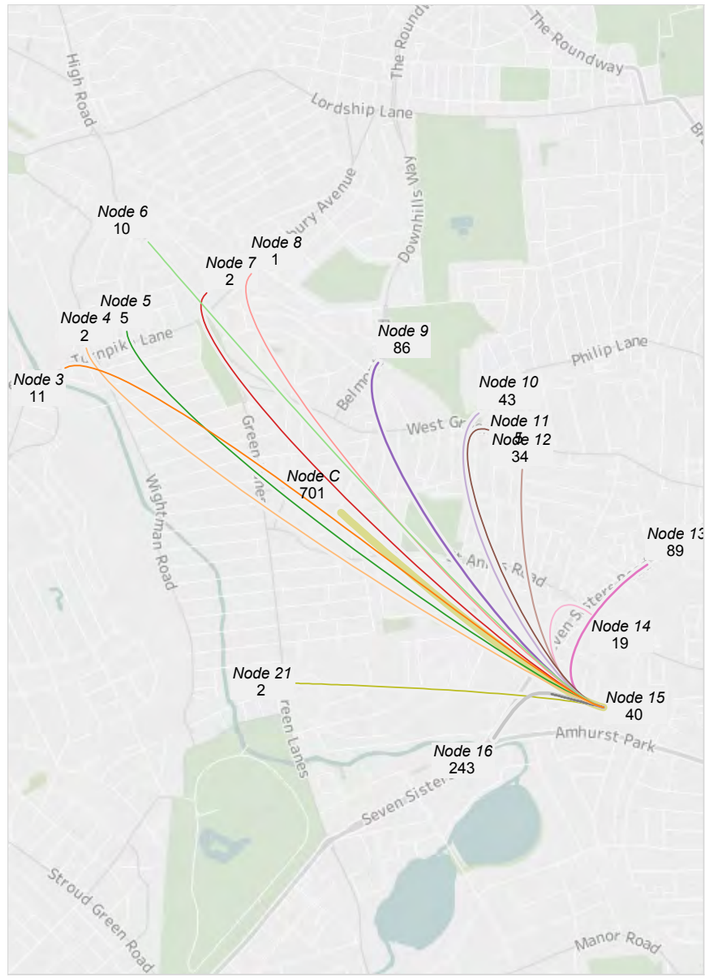
Flows to/from 15 Vartry Road

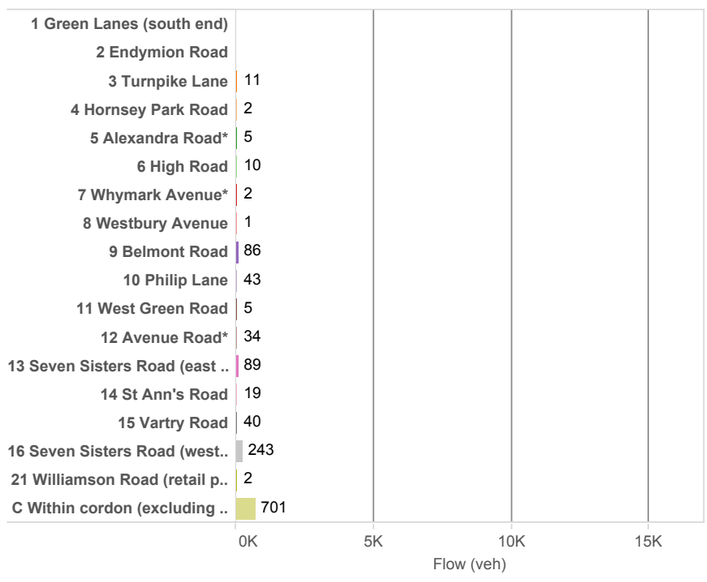
Flows in March



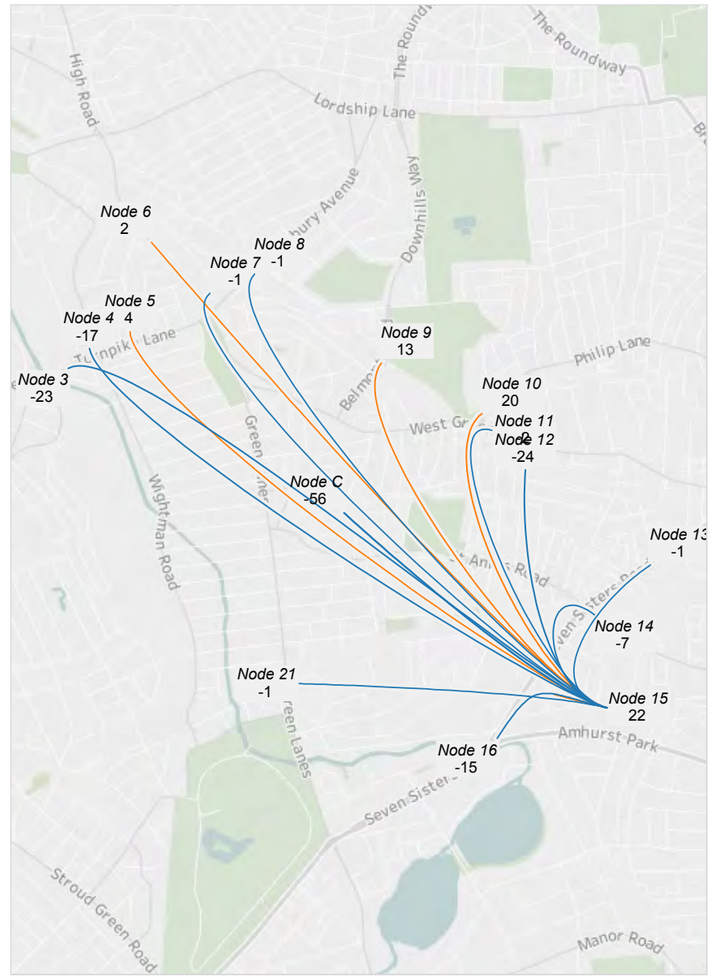


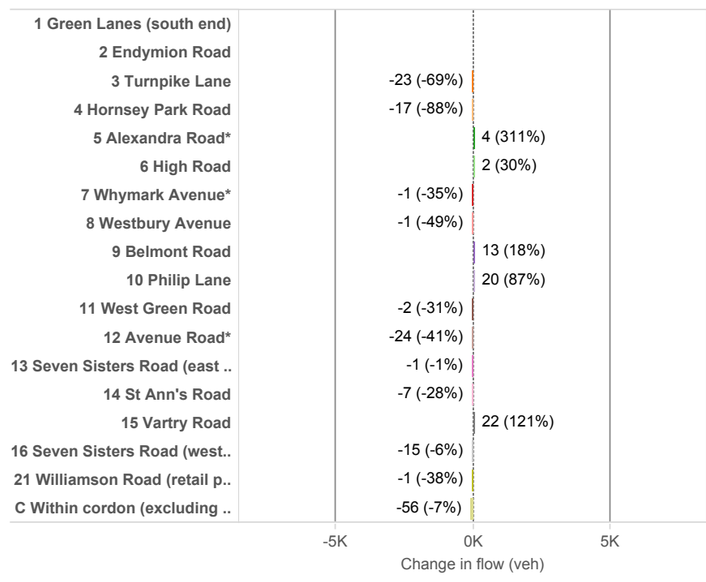
Flows in June





Change in flows from March to June





Selected node
15 Vartry Road

Flow (veh)
0
2,000
4,000
6,000
8,000
10,000

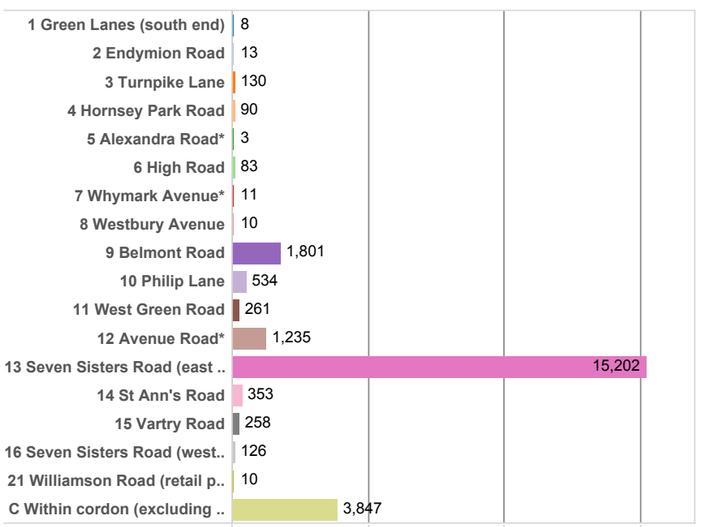
Direction of change
Decrease
Increase

Colour legend
1 Green Lanes (south e..
2 Endymion Road
3 Turnpike Lane
4 Hornsey Park Road
5 Alexandra Road*
6 High Road
7 Whymark Avenue*
8 Westbury Avenue
9 Belmont Road
10 Philip Lane
11 West Green Road
12 Avenue Road*
13 Seven Sisters Road (..
14 St Ann's Road
15 Vartry Road
16 Seven Sisters Road (..
21 Williamson Road (ret..
C Within cordon (excludi..

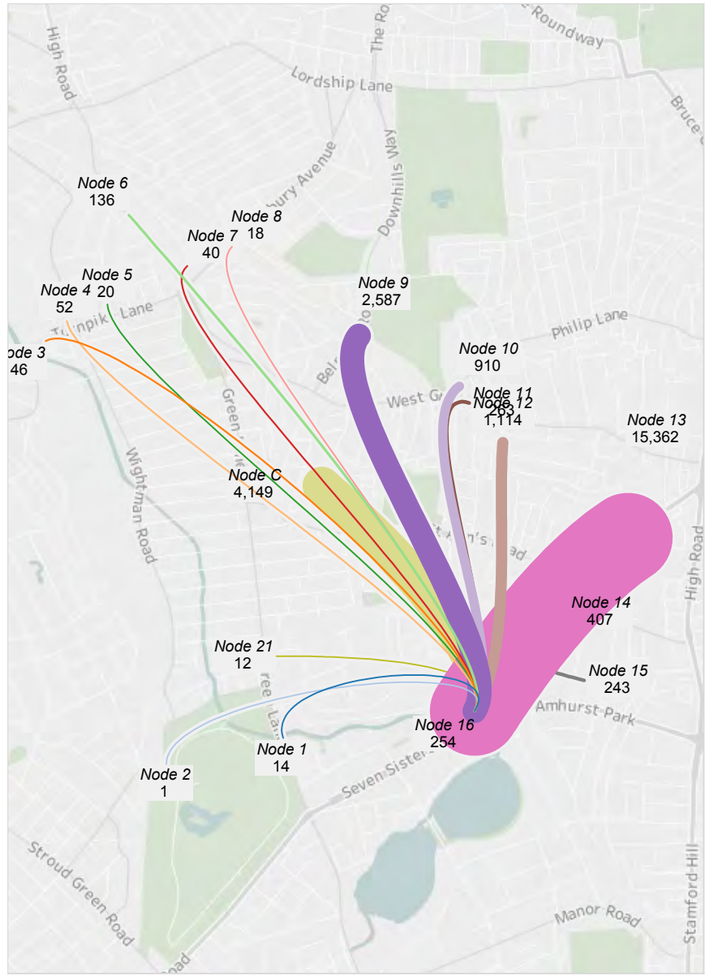
Source: Origin-destination surveys undertaken between 06:00 and 22:00 (16 hours) on Tuesday 22 March 2016 and Wednesday 29 June 2016. The surveys were based on automatic number plate recognition; pedal cycles and powered two wheelers are not included in these flows.

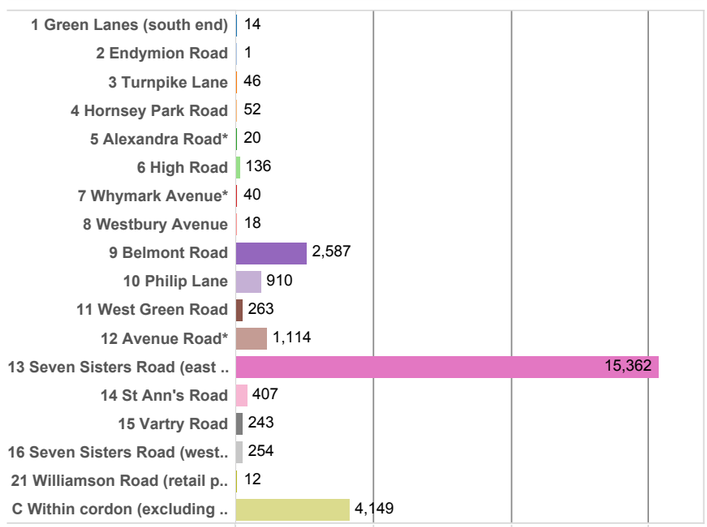
Flows to/from 16 Seven Sisters Road (west end)

Flows in March

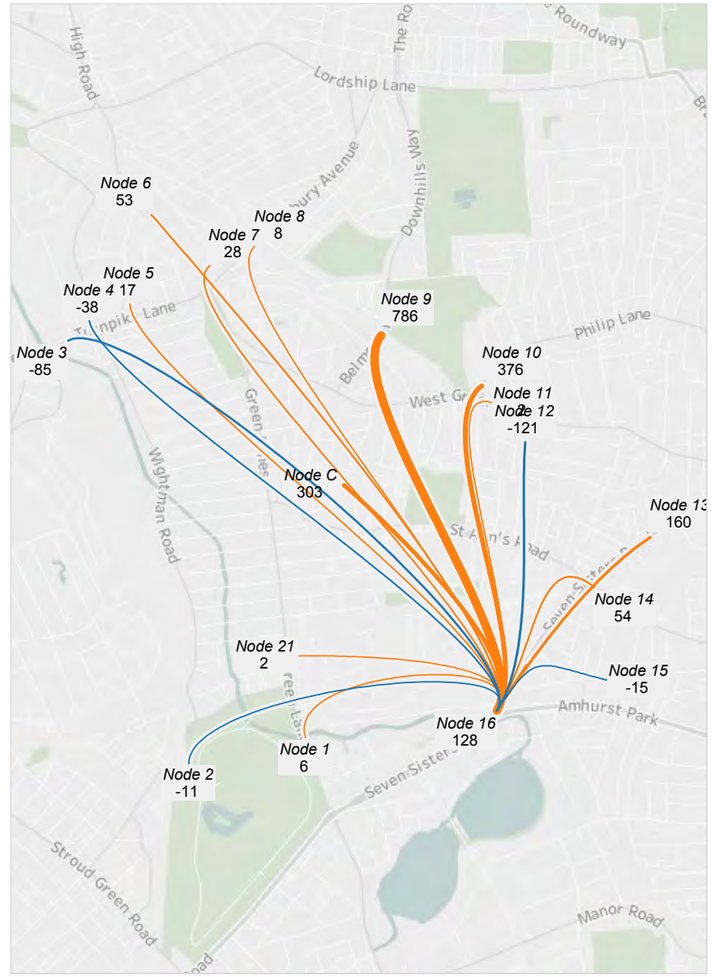


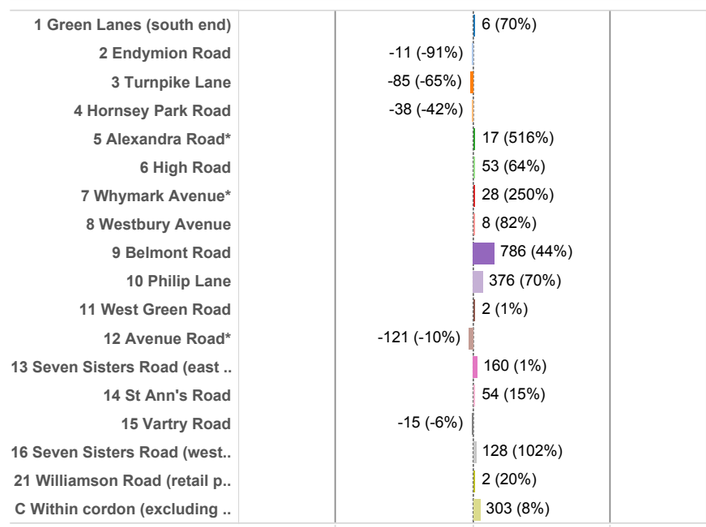
Flows in June





Change in flows from March to June





Selected node
16 Seven Sisters Road (west end)

Flow (veh)
0
2,000
4,000
6,000
8,000
≥ 10,000

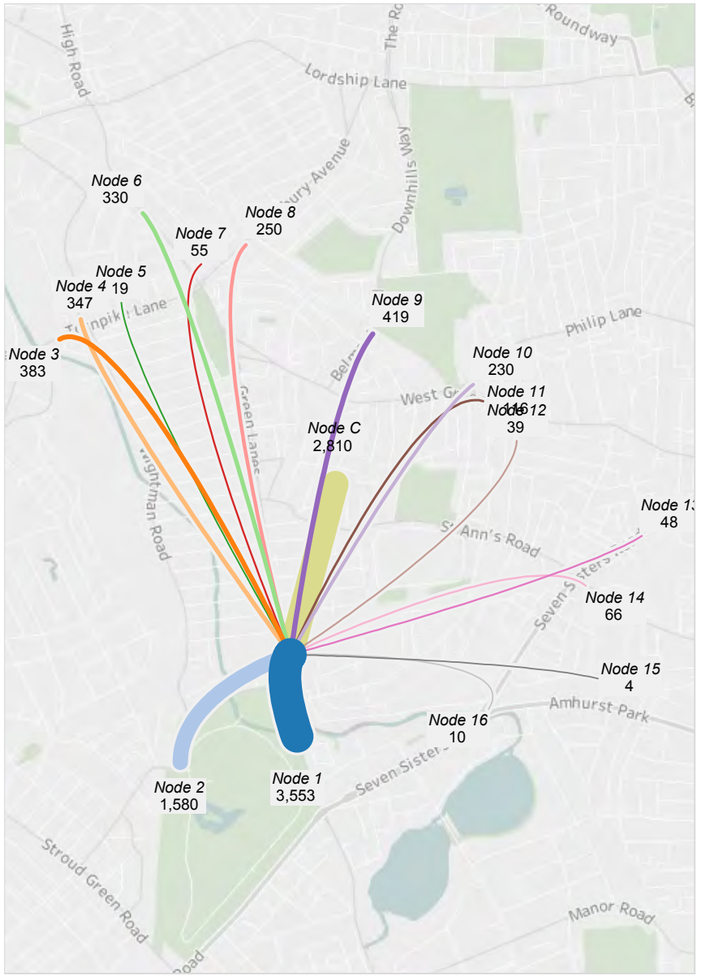
Direction of change
Decrease
Increase

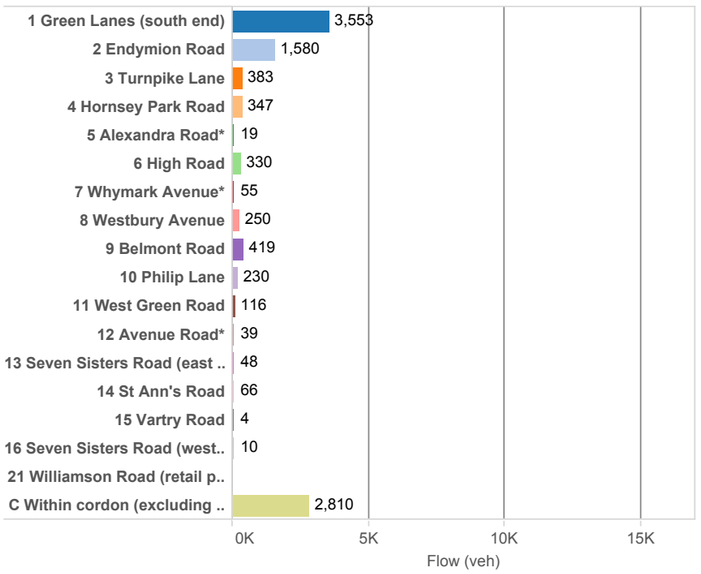
Colour legend
1 Green Lanes (south e..
2 Endymion Road
3 Turnpike Lane
4 Hornsey Park Road
5 Alexandra Road*
6 High Road
7 Whymark Avenue*
8 Westbury Avenue
9 Belmont Road
10 Philip Lane
11 West Green Road
12 Avenue Road*
13 Seven Sisters Road (..
14 St Ann's Road
15 Vartry Road
16 Seven Sisters Road (..
21 Williamson Road (ret..
C Within cordon (excludi..

Source: Origin-destination surveys undertaken between 06:00 and 22:00 (16 hours) on Tuesday 22 March 2016 and Wednesday 29 June 2016. The surveys were based on automatic number plate recognition; pedal cycles and powered two wheelers are not included in these flows.

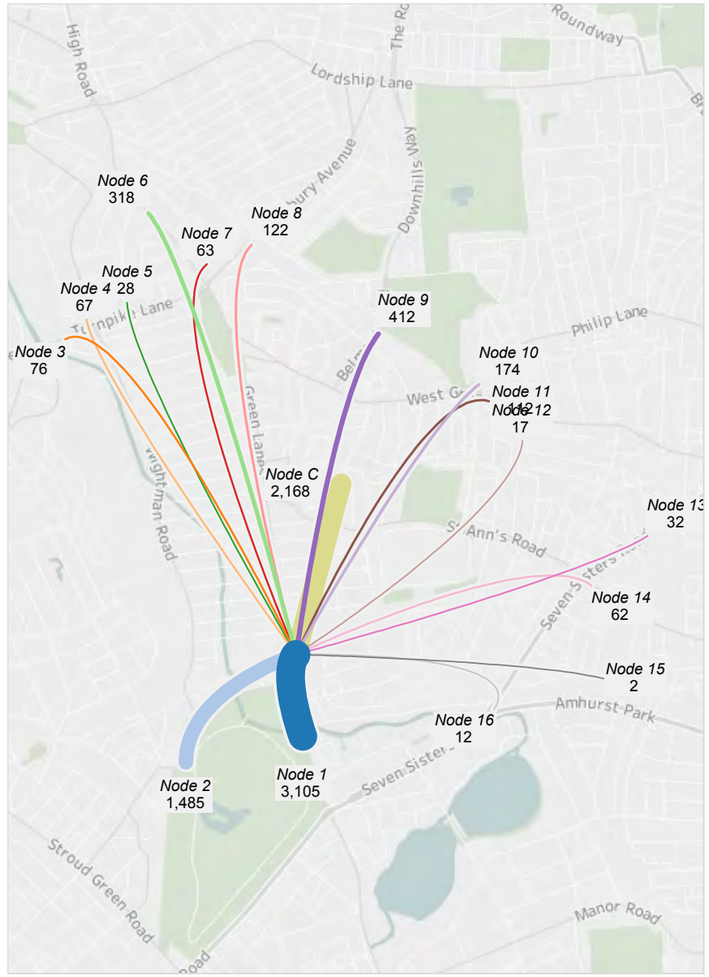
Flows to/from 21 Williamson Road (retail park)

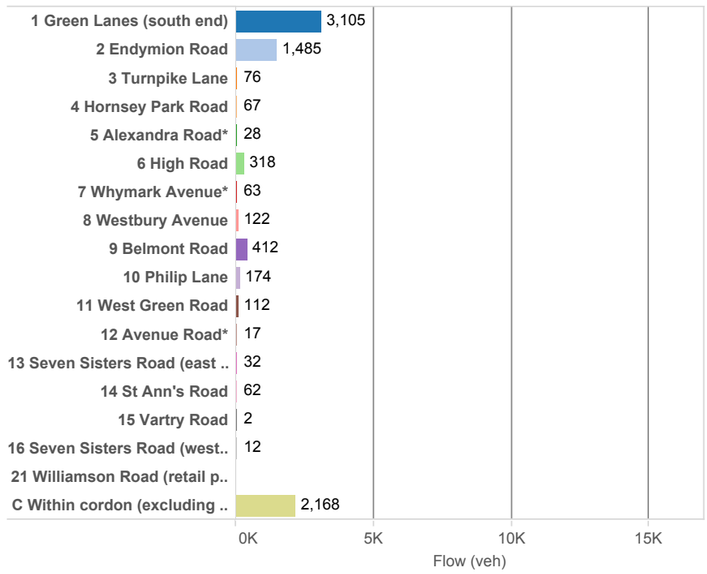
Flows in March



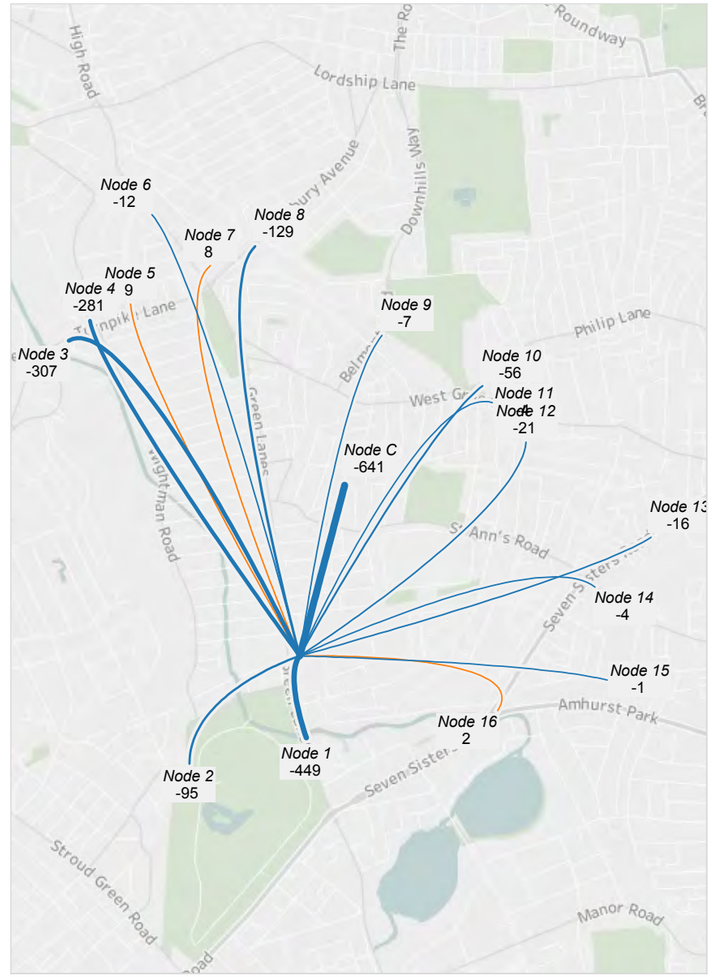


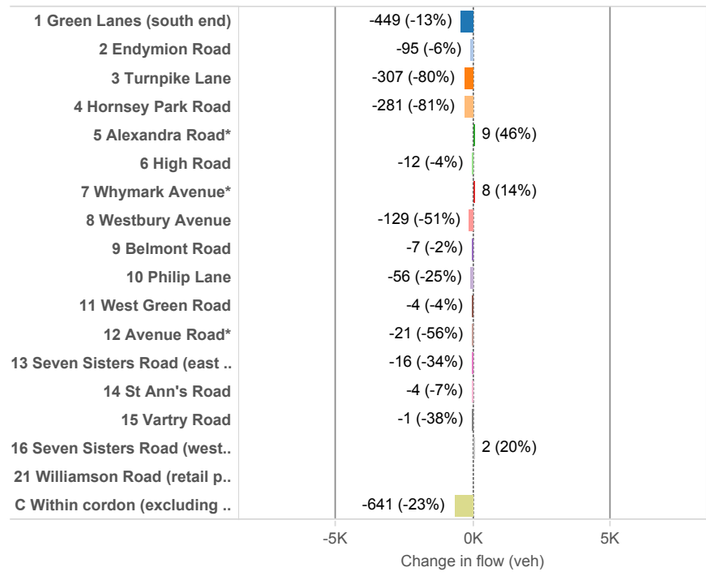
Flows in June





Change in flows from March to June





Selected node
21 Williamson Road (retail park)

Flow (veh)
0
2,000
4,000
6,000
8,000
10,000

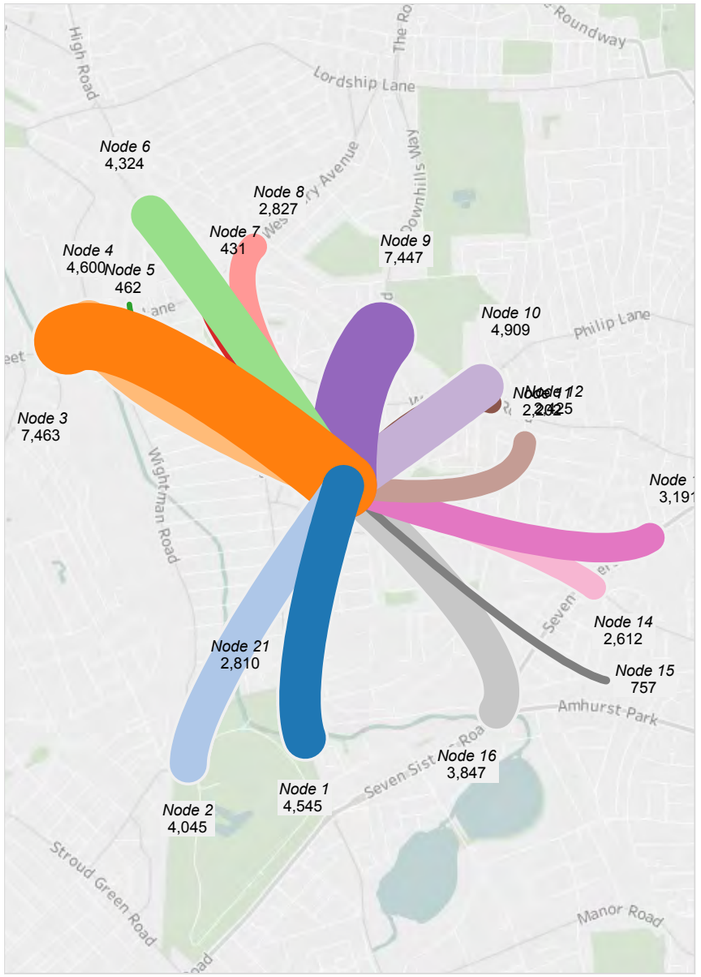
Direction of change
Decrease
Increase

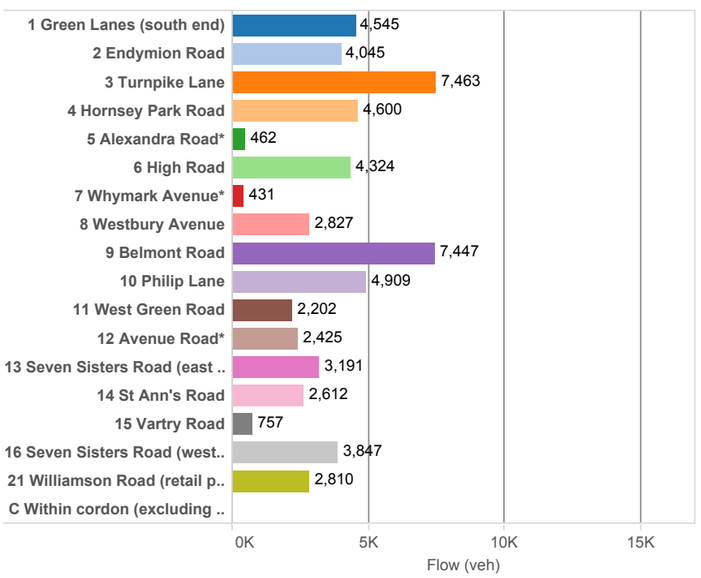
Colour legend
1 Green Lanes (south e..
2 Endymion Road
3 Turnpike Lane
4 Hornsey Park Road
5 Alexandra Road*
6 High Road
7 Whymark Avenue*
8 Westbury Avenue
9 Belmont Road
10 Philip Lane
11 West Green Road
12 Avenue Road*
13 Seven Sisters Road (..
14 St Ann's Road
15 Vartry Road
16 Seven Sisters Road (..
21 Williamson Road (ret..
C Within cordon (excludi..

Source: Origin-destination surveys undertaken between 06:00 and 22:00 (16 hours) on Tuesday 22 March 2016 and Wednesday 29 June 2016. The surveys were based on automatic number plate recognition; pedal cycles and powered two wheelers are not included in these flows.

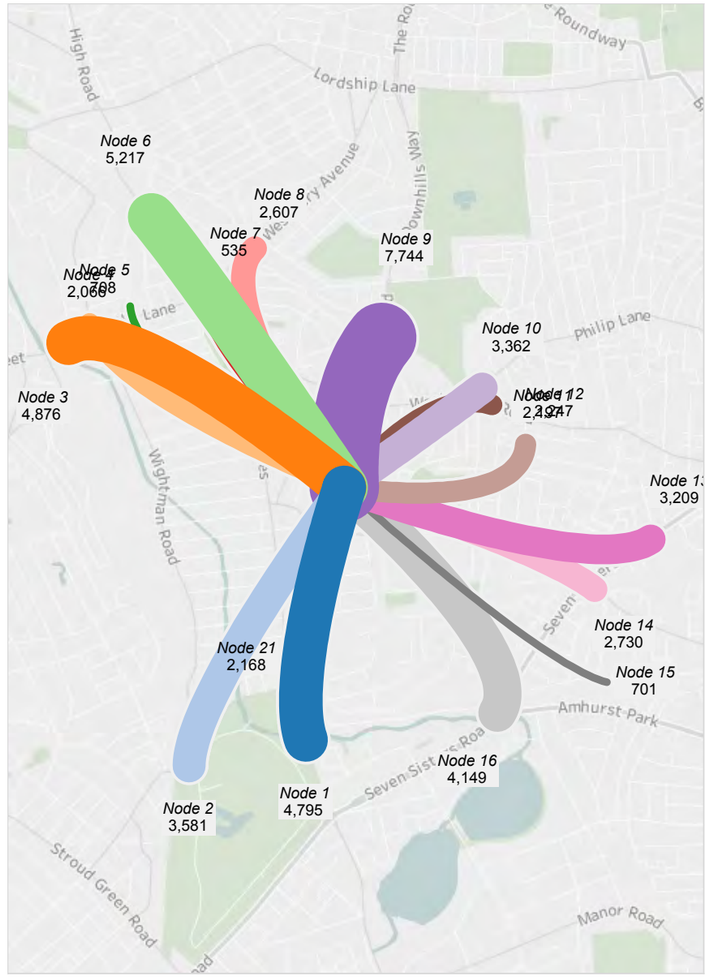
Flows to/from C Within cordon (excluding retail park)

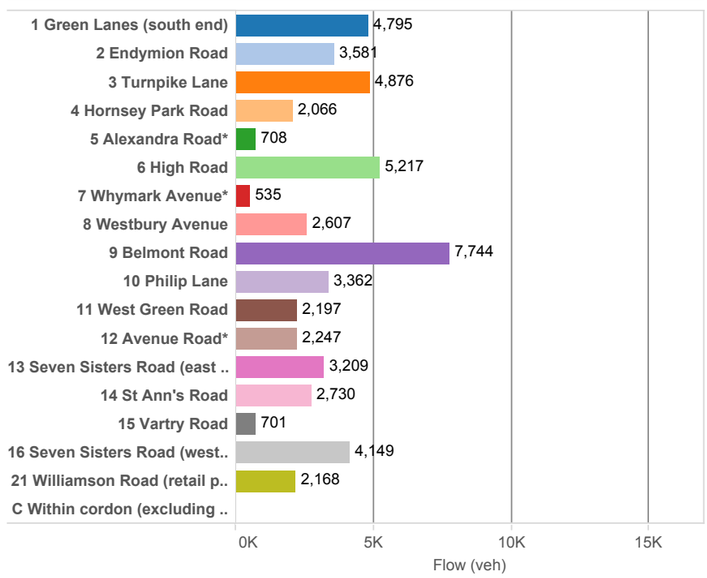
Flows in March



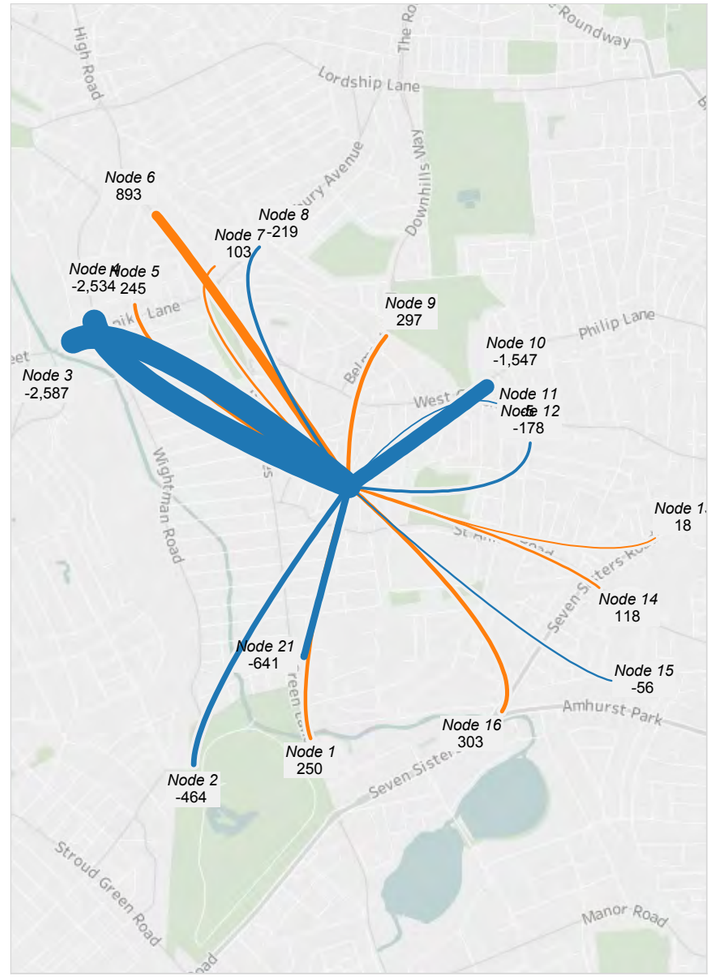


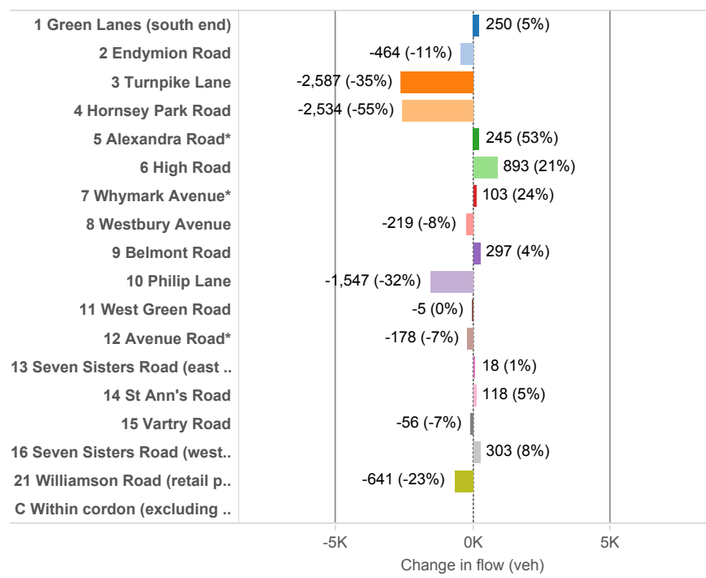
Flows in June





Change in flows from March to June





Selected node
C Within cordon (excluding retail park)

Flow (veh)
0
2,000
4,000
6,000
8,000
10,000

Direction of change
Decrease
Increase

Colour legend
1 Green Lanes (south e..
2 Endymion Road
3 Turnpike Lane
4 Hornsey Park Road
5 Alexandra Road*
6 High Road
7 Whymark Avenue*
8 Westbury Avenue
9 Belmont Road
10 Philip Lane
11 West Green Road
12 Avenue Road*
13 Seven Sisters Road (..
14 St Ann's Road
15 Vartry Road
16 Seven Sisters Road (..
21 Williamson Road (ret..
C Within cordon (excludi..

Source: Origin-destination surveys undertaken between 06:00 and 22:00 (16 hours) on Tuesday 22 March 2016 and Wednesday 29 June 2016. The surveys were based on automatic number plate recognition; pedal cycles and powered two wheelers are not included in these flows.

CONTROL INFORMATION

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SDG project/proposal number	Client contract/project number
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v1.1 Draft updated with revised OD analysis	01/06/16
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v1.3 Interim for issue	29/06/16
v1.41 Draft for internal review	07/03/17
v1.5 Final	09/03/17