



# Lambeth Long Term Transport Strategy

Baseline Situation Report (Part 1)  
Existing Baseline

March 2017

London Borough of Lambeth





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10 Wandsworth Road,  
London,  
SW8 2LL





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# Executive Summary

Mott MacDonald has been commissioned by the London Borough of Lambeth (LBL) to develop a Long Term Transport Strategy (LTTS) to cover the Borough for the next 10 to 20 years. The purpose of the LTTS is to identify which transport schemes are required to support growth and regeneration, as well as improving the overall network across the Borough.

This report (Part 1) has examined Lambeth's existing transport network to understand the current situation and to examine which areas of the Borough may have a poor transport provision. The findings note that there are significant differences in transport provision across the Borough, and demonstrate the potential for improvements to support Borough-wide growth. The Baseline Report Part 2: Future Baseline then looks at expectations of the transport network in the future years.

The two Baseline reports have been developed based on information that was available at the time of writing. The results presented in this report focus on a strategic level and highlight existing issues in the Borough, that LBL should focus their resources on. The analysis in these reports supports the development and direction of the Long Term Transport Strategy and should be used as a starting point for scheme and policy identification and prioritisation.

## **Policy Review**

The policy analysis shows that there have not been significant changes to transport policy in Lambeth since the 2011 Lambeth Transport Plan. Both the 2011 Transport Plan and 2015 Local Plan aim to improve non-car accessibility throughout the Borough. Housing targets for Lambeth have increased recently under the 2015 Further Alterations to the London Plan (FALP), which increases Lambeth's housing target to deliver 1,599 net dwellings per annum, compared to the previous target of 1,195.

## Demographics

Lambeth is a large and varied Borough with a diverse population and a range of different characteristics. There are some distinct trends apparent when analysing demographic data using GIS. This has allowed cross examination of demographic information with transport provision and accessibility to uncover relationships that are not obviously identified from analysis of statistics alone.

From the assessment, Lambeth has been categorised into three distinct areas: north, central and south, which are summarised below:

Table i.1 Key Borough Demographics

North	Central	South
<ul style="list-style-type: none"> <li>• 26,800 residents (2015 estimate)</li> <li>• Medium population density</li> <li>• Diverse age and ethnicity profile</li> <li>• Predominantly high income</li> <li>• Low levels of deprivation and car ownership</li> <li>• Generally high PTAL levels with some lower pockets</li> </ul>	<ul style="list-style-type: none"> <li>• 190,300 residents (2015 estimate)</li> <li>• High population density</li> <li>• Young age profile</li> <li>• Diverse ethnicity profile</li> <li>• Some areas with low income areas with high levels of deprivation</li> <li>• PTAL levels generally lower apart from around key stations</li> </ul>	<ul style="list-style-type: none"> <li>• 103,250 residents (2015 estimate)</li> <li>• Low population density</li> <li>• Older age profile</li> <li>• Generally high income with low levels of deprivation</li> <li>• High car ownership</li> <li>• Reduction in PTAL continues southwards across the Borough</li> </ul>

Source: 2011 Census Data, London Datastore: GLA population projections (2015)

## Active Travel

Walking trips have increased across London from 5.6 million trips in 2005/06 to 5.9 million trips in 2013/14<sup>1</sup>. Lambeth's mode share for walking is 35 per cent, which is only slightly lower than the Central London sub region of 38 per cent.

Conditions for pedestrians vary across the Borough reflecting recent investments in key areas. For example, the South Bank is considered an exemplar pedestrian environment and recent public realm improvements in places such as Streatham and West Norwood have improved pedestrian facilities.

<sup>1</sup> TfL Travel Demand Survey Summary Report (2005-2014) <http://content.tfl.gov.uk/london-travel-demand-survey-report.pdf>



Table i.2: Baseline: Walking across the Borough

North	Central	South
<ul style="list-style-type: none"> <li>• Highest mode share (22.8%) for residents walking to work due to the close proximity to large employment areas in central London and the City</li> <li>• Waterloo Station is a key generator of walking trips as 20 per cent of people leaving the station do so on foot.</li> <li>• Southbank an exemplary attractive pedestrian environment.</li> </ul>	<ul style="list-style-type: none"> <li>• Significantly lower walking mode share, only 7.2 per cent of residents walking to work. This is likely due to the distance the central section of the Borough is to large employment areas in central London, which makes walking unattractive.</li> <li>• Improved public realm in Vauxhall, Brixton and Stockwell town/ neighbourhood centre. However, these areas are still heavily dominated by vehicular traffic.</li> </ul>	<ul style="list-style-type: none"> <li>• Lowest mode share with only 4.8 per cent of residents commuting via foot.</li> <li>• Issues surrounding poor pedestrian safety associated with busy roads often influence walking in the area.</li> <li>• Public realm around National Rail stations generally poor.</li> </ul>

Source: Census, 2011 - See Chapter 4 data sources

Lambeth has seen a large increase in cycling in recent years with cycle trips increasing by 69.6 per cent from 330,000 trips in 2004 to 560,000 trips in 2014<sup>2</sup>, although this has varied in some areas. Over that time, there has been extensive cycling infrastructure provision implemented within and just outside the Borough (including two cycle Superhighways – CS5 & CS7).

Table i.3: Baseline: Cycling across the Borough

North	Central	South
<ul style="list-style-type: none"> <li>• 7.9 per cent of residents commute by cycle. A high proportion of cycle trips are to and from Waterloo station as commuters cycle from the station to complete the last leg of their journey.</li> <li>• Cycling around Waterloo station is difficult during peak hours due to congestion and the volume of pedestrians crossing busy roads</li> <li>• A shortage of cycle hire and cycle parking availability at the station particularly in the AM peak suggesting that additional cycles / parking are required.</li> </ul>	<ul style="list-style-type: none"> <li>• Highest residents cycling to work mode share for commuting (9.1%) Cycling is more popular in areas with generally younger population with high incomes</li> <li>• Lack of TfL cycle hire facility</li> <li>• No major cycle infrastructure provision (Superhighway / Quietways) down the spine of the central area</li> <li>• Areas north east of Brixton have low cycle to work levels. These areas generally have low incomes and high ethnic minority population.</li> </ul>	<ul style="list-style-type: none"> <li>• Has the lowest cycle to work mode share for residents (6.1%) particularly in South Streatham and Tulse Hill which are areas with higher car ownership</li> <li>• Limited segregated cycle routes.</li> <li>• Greater topography and distance to Central London discourages cyclists.</li> </ul>

Source: Census, 2011 - See Chapter 4 data sources

<sup>2</sup> TfL, 2015. *Travel in London: Report 8*. Online: <http://content.tfl.gov.uk/travel-in-london-report-8.pdf>

## Rail

Overall, Lambeth has a seven per cent modal split for rail trips which is only slightly lower than the central London sub-region and neighbouring Borough Southwark, which both have an eight per cent overall rail mode share.

Table i.4: Baseline: Rail Travel across the Borough

North	Central	South
<ul style="list-style-type: none"> <li>• Lowest mode share (7.3%) for residents commuting by rail.</li> <li>• Waterloo Station is the busiest in the UK by passenger usage with trains operating close to capacity in the AM peak.</li> </ul>	<ul style="list-style-type: none"> <li>• 8.9 per cent mode share for residents using rail for commuting.</li> <li>• Trains generally operate at or close to capacity in AM peak.</li> <li>• Poor interchange at Brixton with Underground services and no interchange with Overground services.</li> </ul>	<ul style="list-style-type: none"> <li>• Highest mode share (26.5%) for residents commuting by rail.</li> <li>• High mode share due to lack of alternative underground services.</li> <li>• Trains generally operating within capacity. Some trains have no spare seating capacity.</li> </ul>

Source: Census, 2011 & Baseline Railplan data 2011 – See Chapter 5 data sources

## Bus

Lambeth has a high modal share of bus use, with 20 per cent of all journeys made by bus, which is higher than the wider central London sub region at 16 per cent.

Table i.5: Baseline: Bus Travel across the Borough:

North	Central	South
<ul style="list-style-type: none"> <li>• Highest mode share (22%) for residents commuting by bus</li> <li>• Long queues for bus passengers waiting for bus services at or around Waterloo Station.</li> </ul>	<ul style="list-style-type: none"> <li>• 19.8 per cent of mode share for residents commuting by bus</li> <li>• Large bus station at Vauxhall - second busiest bus station in London with 20 per cent spare capacity.</li> <li>• Buses between Oval and Vauxhall along the A202 operate close to capacity</li> <li>• In Oval bus routes along the A202 and A23 Brixton Road are operating close to capacity limits</li> <li>• Buses south of Brixton on the A23 are operating over capacity</li> </ul>	<ul style="list-style-type: none"> <li>• 18.9 per cent mode share for residents commuting by bus</li> <li>• North bound buses along the A23 operate close to capacity (beyond Streatham Hill).</li> <li>• Higher bus journey times through Streatham due to traffic congestion.</li> <li>• Buses in Tulse Hill and West Norwood are operating within capacity limits</li> </ul>

Source: Census, 2011 & Baseline Railplan data 2011 – See Chapter 5 data sources

The majority of bus routes into central London or near rail / Underground stations are operating close or above capacity limits. Bus services to the south of the Borough are less used, therefore operate within capacity. East-west bus routes are also generally less used than north-south routes through the Borough

## London Underground

Overall, Lambeth has a ten per cent modal share for trips made by Underground, which has increased by 0.8 per cent between 2006 and 2013. Lambeth’s overall Underground mode share is lower than the central London sub region which has a mode share of 16 per cent and slightly higher than neighbouring Borough Southwark, which has an overall mode share of nine per cent.

Table i.6: Baseline: Underground Travel across the Borough

North	Central	South
<ul style="list-style-type: none"> <li>• 24 per cent residents travelling to work by Underground</li> <li>• Jubilee and Waterloo &amp; City lines operating above total capacity at Waterloo Station</li> </ul>	<ul style="list-style-type: none"> <li>• Highest mode share of residents commuting by underground 38.2 per cent</li> <li>• Victoria line trains operate at capacity from Vauxhall in AM peak</li> <li>• Northern Line services operate over capacity at all Lambeth Stations making it difficult to board trains in the AM peak.</li> </ul>	<ul style="list-style-type: none"> <li>• Lowest mode share of residents commuting by underground 17.2 per cent</li> <li>• No underground services to the south of the Borough.</li> </ul>

Source: Census, 2011 & Baseline Railplan data 2011 - Chapter 5 data sources

## Private Vehicle / Road based

Powered Two Wheelers (which include motorcycles and scooters/mopeds) account for 1.4 per cent of journeys to work made by Lambeth residents. The highest mode share is in the south of the Borough (1.8%) and the lowest mode share in the north of the Borough 0.6 per cent. DfT traffic flow data shows there has been a significant (15%) reduction in PTW traffic flows in Lambeth in the last 5 years.

Car ownership in Lambeth is generally lower than the London wide average. According to 2011 census data approximately 58 per cent of households in Lambeth have no cars compared to a London average of 41.5 per cent. Car ownership varies within the Borough, with generally higher car ownership in the south and lower car ownership in the north.

In Lambeth the mode share for the overall use of cars is 22 per cent, which has decreased by 8.7 per cent from 2006 to 2013. The north of the Borough has the lowest mode share for car based commuting at 8 per cent and the south of the

Borough has the highest mode share at 18.1 per cent. The mode share in the central section of the Borough is 9.9 per cent.

Analysis of DfT traffic count data shows there has been a 24 per cent overall reduction in cars/taxi flows across the Borough over a 10 year period from 2004 to 2014.

Freight traffic within the Borough has generally reduced over a 10 year period between 2004 and 2014. Contrary to London wide trends, Light Goods Vehicles (LGV) flows have also reduced by 11 per cent on routes in Lambeth. Heavy Goods Vehicles (HGV) flows have reduced by 1 per cent over the same 10 year period.

The key routes through the Borough for freight traffic is via principal routes such as the A23, A24, A3 and the inner London ring road that bisect the Borough's town/ neighbourhood centres. This leads to a high volume of freight traffic travelling through town/ neighbourhood centre locations.

## **Air Quality**

Although the quality of the air in London has improved over the last decade, pollutant levels still remain high and there are significant benefits to be gained from improving air quality further.<sup>3</sup> Since 2007, a Borough-wide Air Quality Management Area (AQMA) has been declared in Lambeth due to high levels of nitrogen dioxide (NO<sub>2</sub>) and particulate matter (PM<sub>10</sub>).

Lambeth's monitoring results show that the annual mean NO<sub>2</sub> objective continues to be exceeded at two monitoring stations, with nitrogen dioxide concentrations at Brixton Road being some of the highest monitored in London. In addition, the annual mean PM<sub>10</sub> objective continues to be exceeded at one station within the Borough. The data shows that the highest concentrations of NO<sub>x</sub> is along main traffic routes through the Borough such as the Vauxhall gyratory, A23 and A3, which have the highest proportion of bus and HGV traffic.

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<sup>3</sup> The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2007)

## **Journey Information**

There are distinct differences in journey times across the Borough due to geographical distances but also due differences in public transport provision. Journeys in the north of the Borough, are quick and efficient due to underground services, and the lack of underground services in the south of the borough contributes to longer journey times between destinations that are geographically close.

The most common destinations for employment for Lambeth residents are very similar across the northern, central and southern sections, with Westminster being the most common for all three.

## **Road Safety**

Data from the Borough's LIP performance indicators<sup>4</sup> show there was a yearly average of 141 people Killed or Seriously Injured (KSI) in road traffic collisions in Lambeth from 2010 to 2014; this is the second highest among London Boroughs. However, at the same time, the number of people KSI in Lambeth has significantly reduced, with a 44 per cent reduction in 2014 compared to the 2005-2009 yearly average. This reduction is slightly greater than the London average of a 40 per cent reduction.

The number of accidents resulting in slight injuries by road traffic collisions in Lambeth is also high compared to other London Boroughs. Lambeth has the third highest number of slight collisions. In Lambeth there has been a 22 per cent increase in slight collisions in 2014 compared to 2005-2009 average, which is notably higher than the London wide average of a 12 per cent increase in slight collisions.

## **Conclusion**

In conclusion, Lambeth is very diverse and has a number of transport opportunities and constraints. This Baseline Situation Report (Part 1) has reported on the existing

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<sup>4</sup> Appendix B – Borough Local Implementation Plan (LIP) performance indicators

issues and will be used as the basis for all future stages of the study. It is clear that different, but complementary and integrated transport solutions are required for the three distinct areas, and that linkages within Lambeth are the key, along with connections to other major transport infrastructure both within and outside the Borough. The Future Baseline Report (Part 2) will consider future issues and complete the information framework for developing the next steps that will create the Lambeth Long Term Transport Strategy.

# List of Abbreviations

<b>AADF</b>	Annual Average Daily Flow	<b>LGVs</b>	Light Goods Vehicles
<b>AQAP</b>	Air Quality Action Plan	<b>LIP</b>	Local Implementation Plan
<b>AQMA</b>	Air Quality Management Area	<b>LSOA</b>	Lower Super Output Area
<b>AQS</b>	Air Quality Strategy	<b>LTTS</b>	Long Term Transport Strategy
<b>ASR</b>	Annual Status Reports	<b>MALP</b>	Minor Alterations to the London Plan
<b>ATOC</b>	Association of Train Operating Companies	<b>Mph</b>	Miles per hour
<b>BRS</b>	Bus Reliability Schemes	<b>MTS</b>	Mayors Transport Strategy
<b>CO<sub>2</sub></b>	Carbon Dioxide gas	<b>NO<sub>2</sub></b>	Nitrogen Dioxide gas
<b>CCTV</b>	Closed Circuit Television	<b>NO<sub>x</sub></b>	Nitrogen Oxide gas
<b>CCZ</b>	Congestion Charge Zone	<b>NR</b>	National Rail
<b>CDAs</b>	Critical Drainage Areas	<b>NSIP</b>	National Stations Improvement Programme
<b>CIL</b>	Community Infrastructure Levy	<b>OA</b>	Opportunity Area
<b>CLIPs</b>	Co-operative Local Investment Plans	<b>OAPF</b>	Opportunity Area Planning Framework
<b>COTRP</b>	Clapham Old Town Regeneration Project	<b>ORR</b>	Office of Rail and Road
<b>CPZ</b>	Controlled Parking Zone	<b>PM<sub>10</sub></b>	Particulate Matter less than 10 micron in diameter
<b>CS [no.]</b>	Cycle Superhighway route	<b>PTAL</b>	Public Transport Accessibility Level
<b>DEFRA</b>	Department for Environment, Food and Rural Affairs	<b>PTW</b>	Powered Two Wheeler
<b>DfT</b>	Department for Transport	<b>Q [no.]</b>	Quietway cycle route
<b>DLR</b>	Docklands Light Railway	<b>RB</b>	River Bus
<b>EV</b>	Electric Vehicles	<b>REMA</b>	Revised Early Minor Alterations (to the London Plan)
<b>EWT</b>	Excess Waiting Time	<b>RTF</b>	Road Task Force
<b>FALP</b>	Further Alterations to the London Plan	<b>SoLHAM</b>	South London Highway Assignment Model
<b>FORS</b>	Fleet Operator Recognition Scheme	<b>SPD</b>	Supplementary Planning Documents
<b>GIS</b>	Geographic Information Systems	<b>SuDS</b>	Sustainable Drainage Systems
<b>GLA</b>	Greater London Authority	<b>TERM</b>	Transport Emission Roadmap
<b>HGVs</b>	Heavy Goods Vehicles	<b>TfL</b>	Transport for London
<b>KIBAs</b>	Key Industrial and Business Areas	<b>TRLN</b>	TfL Road Network
<b>KSI</b>	Killed or Seriously Injured	<b>ULEZ</b>	Ultra-Low Emission Zone
<b>LAEI</b>	London Atmospheric Emissions Inventory	<b>USA</b>	Updating and Screening Assessment
<b>LAQM</b>	Local Air Quality Management	<b>VNEB</b>	Vauxhall, Nine Elms, Battersea
<b>LBL</b>	London Borough of Lambeth	<b>WHO</b>	World Health Organisation
<b>LEZ</b>	Low Emission Zone		

# 1 Introduction

Mott MacDonald has been commissioned by the LBL to develop a LTTS to cover the Borough for the next 10 to 20 years. The purpose of the LTTS is to identify which transport schemes and policies should be prioritised to support growth and regeneration in key Borough centres.

This report has been developed based on information that was available at the time of writing. The results presented in this report focus on a strategic level and highlight existing issues in the Borough, that LBL should focus their resources on. The analysis in these reports supports the development and direction of the Long Term Transport Strategy and should be used as a starting point for further analysis.

Lambeth's population has witnessed continued growth in recent years – increasing 15 per cent from 274,300 to 314,300 between 2003 and 2014<sup>5</sup>. As the Borough has one of the lower car ownership rates in London<sup>6</sup>, demand for public transport is high and existing infrastructure operates at capacity during peak times<sup>7</sup>. Projected increases in resident and workplace populations (examined in the 'Baseline Report Part 2: Future Baseline') within Lambeth will likely exacerbate this situation for current service provision.

This study (to produce a Long Term Transport Strategy) will assess the likely cumulative impact of proposed housing and employment forecasts from key sites (based on the Lambeth Infrastructure Study 2015) for a base year of 2016 and two future years of 2026 and 2035. It will propose a package of mitigation measures and additional transport infrastructure to meet future demand for growth generated by proposed housing and employment development.

The outcome of the LTTS will be a strategy document setting out a clear desired future strategic transport system in Lambeth up to 2035. The strategy will include preferred mitigation measures which clearly justify the prioritisation of schemes and an approach for the planning, design and implementation of the LTTS.

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<sup>5</sup> Lambeth: Population change and socio-economic change 2015/16

<sup>6</sup> Transport for London Roads Task Force – Technical Note 12: 40% of households have access to a car, the 9<sup>th</sup> lowest in the capital

<sup>7</sup> TfL Railplan data specifically demonstrates this on rail services. This issue is expanded on later in this report

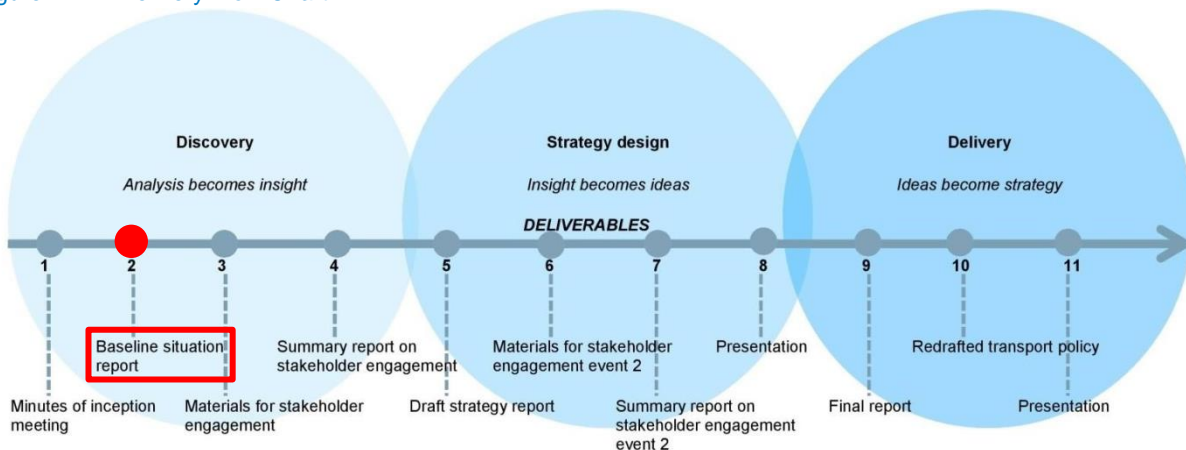


Figure 1.1 shows the delivery chart to develop the LTTTS. As indicated, the Baseline Reports are the second step in this process. This step has been split into two sections; a Baseline Situation Report (Part 1) and a Future Baseline Report (Part 2).

This report will involve a review of existing data and reports, and will describe the state of the Lambeth’s current transport network and identify areas within the network which are constrained by capacity, or areas where insufficient transport options are currently available.

This report presents the Baseline Situation (Part 1), which is then followed by a Future Baseline Report (Part 2).

Figure 1.1 Delivery Flow Chart



### 1.1 Context

The London Borough of Lambeth (LBL) is an inner London Borough situated between the Boroughs of Wandsworth and Southwark, with a northern boundary on the Thames. It covers an area of approximately ten and a half square miles, including Waterloo and the South Bank, Vauxhall, Oval, Kennington, Stockwell, Clapham, Brixton, Loughborough Junction, Herne Hill, Streatham, Tulse Hill, West Norwood and Gipsy Hill

The LBL is a large and diverse Borough with very different characteristics between the northern, central and southern sections of the Borough, as summarised in Table i.1.

Due to this reason, the Borough has been ‘split’ into three segments to help demonstrate the differences that Lambeth faces. It is important to note that the over-arching characteristics of the three ‘segments’ are only

part of the transport study. Underneath these headlines there are localised differences between the wards, which add to the challenges.

Table 1.1: LBL Area Characteristics

Northern Section	Central Section	Southern Section
<p>Central London characteristics with:</p> <ul style="list-style-type: none"> <li>• large employment areas</li> <li>• low car ownership</li> <li>• high levels of public transport accessibility, and</li> <li>• low population density</li> </ul>	<p>Inner city in nature with:</p> <ul style="list-style-type: none"> <li>• generally high population density</li> <li>• high levels of cycling to work</li> <li>• higher proportion of younger population, and</li> <li>• low car ownership levels</li> </ul>	<p>Sub-urban in nature reflecting its location away from central London with:</p> <ul style="list-style-type: none"> <li>• lower levels of public transport provision</li> <li>• higher car ownership, and</li> <li>• lower cycling levels.</li> </ul>

Source: Census data, 2011

The Borough centres all have distinct identities but there are connectivity gaps between them and movement across the Borough is more difficult in some areas. The south of the Borough has areas characterised by very poor accessibility because of the lack of east-west transport services and while bus provision is good, most routes are north-south, and for improved accessibility to areas away from these radial routes, further east-west services are likely to be required.

The most noticeable issue in terms of major London transport investment is that Lambeth, particularly the south of the Borough, has not benefitted from large scheme enhancements. Crossrail 2 appears to be planned to go to Balham rather than through Lambeth and the only major scheme is a Cycle Superhighway (CS5) which touches the north of the Borough. All of the other schemes pass close to, but do not pass through Lambeth or are expected to be largely funded by private development (Waterloo, Vauxhall etc.).

This report has been prepared in the context of updated planning policy since the last Lambeth Transport Plan in 2011. This includes:

- Housing Implementation Strategy (March 2015)
- Lambeth Local Plan (September 2015)
- Lambeth Strategic Infrastructure Study 2017-2031 (September 2015)
- London Plan (2016), incorporating Further Alterations
- Sub Regional Transport Plan for Central London – (2015 Update)

## 1.2 Linking Lambeth – The Long Term Transport Strategy

This Transport Plan is required to address a huge range of transport issues including the distinctly different challenges faced by north and south Lambeth and the linkages across the Borough.

It is within this context that we are referring to this plan as ‘Linking Lambeth’ in the sense of linking Lambeth together via its communities and linking Lambeth to major transport infrastructure and developments

outside of the Borough. More ambitious plans are also to be included in terms of trying to attract major support from TfL, Network Rail etc. to ensure Lambeth receives the level of investment required to facilitate anticipated growth.

The first deliverable as part of the development of this Transport Strategy is the Baseline Reports. This will then be the subject of a stakeholder consultation exercise. The focus on the consultation exercise is to obtain stakeholder views of the baseline situation and the evaluation of potential transport schemes (such as costs, timeframe of implementation, viability, priority etc.).

### 1.3 Objectives and Data

The objectives of this Baseline Situation Report (Part 1) are:

- To set the baseline for transport conditions in Lambeth; and
- To summarise the updates to transport planning policy and infrastructure investment since the 2011 Transport Plan;

To assess the baseline situation, the following data sources have been used across all sections of the report:

1. Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2007)
2. Association of Train Operating Companies (ATOC) Cycle Rail Toolkit
3. Borough Local Implementation Plan (LIP) Performance Indicator Report (2014/15)
4. Brixton Supplementary Planning Document (2013)
5. Car Club Strategy for London – Growing car clubs to support London’s transport future
6. Carplus (2014) Annual Survey: London (p.7)
7. Census data (2011)
8. Central London Rail Termini: Analysing passengers’ onward travel patterns (2011)
9. City Fringe Opportunity Area Planning Framework (OAPF) Transport Review (2014)
10. City Mapper website (2016)
11. Crossrail 2 Factsheet: Clapham Junction station (2015)
12. Department for Environment, Food and Rural Affairs (DEFRA), UK-air website (2016)
13. Department for Transport (DfT) Traffic Count Data
14. Environmental Act (1995)
15. Google Maps: Journey Planner (2016)
16. Housing Implementation Strategy (2015)
17. Lambeth Air Quality Action Plan (2017-2022) Draft for Consultation
18. Lambeth Cycling Strategy (2013)
19. Lambeth Local Plan (2015)
20. Lambeth Strategic Infrastructure Study (2015)
21. Lambeth Surface Water Management Plan (2011)

22. Lambeth Transport Plan (2011)
23. Lambeth Updating and Screening Assessment (2015)
24. Local Implementation Plan (LIP) (2016/17 Update)
25. London Air website (2016)
26. London Assembly Transport Committee – Q11 Car Clubs
27. London Atmospheric Emissions Inventory (2013)
28. London Borough of Lambeth Factsheet (2015)
29. London Datastore: Greater London Authorities (GLA) population projections (2015)
30. London Datastore: London Underground Performance Data (2016)
31. London Infrastructure Plan Update (2015)
32. London Plan (2016), with further alterations
33. London Travel Demand Survey (2012/13-2014/15)
34. Loughborough Junction Plan (2013)
35. Mayor's Transport Strategy (2010)
36. Motorcycle Safety Action Plan (2014)
37. Network Rail Passenger Capacity Summary
38. Office of Rail and Road Estimates of Station Usage (2014-15)
39. Office of Rail Regulator (2015)
40. Road Task Force (2013)
41. Southern Rail Access to Heathrow Feasibility Study – Network Rail (2015)
42. Sub-regional Transport Plan for Central London (2015 Update)
43. TfL Baseline Railplan data (2011)
44. TfL Baseline SoLHam data (2011)
45. TfL Business Plan (2009/10-2017/18)
46. TfL River Action Plan (2013)
47. TfL Road Modernisation Plan (2014)
48. TfL Rolling Origin and Destination Survey (2014)
49. TfL Transport Emissions Roadmap (2014)
50. TfL Travel Demand Survey Summary Report (2005-2014)
51. TfL Travel in London: Report 8 (2015)
52. TfL Website: Bus Investment (2016)
53. TfL: Impact of the Night Tube on London's Night-Time Economy (2014)
54. TfL, Your Accessible Transport Network (2015 Update)
55. The Mayor's Vision for Cycling in London (2013)
56. Understanding the Health Impacts of Air Pollution in London - King's College London (2015)
57. Urban Design London: Better Streets Delivered (2013)
58. Vauxhall Supplementary Planning Document (2013)
59. Vauxhall, Nine Elms, Battersea (VNEB) Opportunity Planning Framework (2012)
60. Waterloo Opportunity Area Planning Framework (2007)
61. Waterloo Supplementary Planning Document (2013)
62. Westminster Bridge Road Regeneration project site

The beginning of each section of the report highlights the specific data sets used to complete the relevant section. Where data sources are missing – and have been agreed as unavailable in the context of this study – they are highlighted in the gap analysis.

#### 1.4 Report Structure

The structure of the report is as follows:

- Section 2 will report on existing transport policy and more specifically any changes since the production of the 2011 Lambeth Transport Plan;
- Section 3 reviews existing demographics and diversity of Lambeth;
- Section 4 reports on the existing (2016) active transport accessibility and conditions in the Borough
- Section 5 outlines the public transport accessibility and usage across the Borough, including, rail, bus and underground
- Section 6 evaluates the different private road uses throughout Lambeth from powered two wheelers, through to cars and then freight traffic.
- Section 7 examines marine transport current availability in the Borough
- Section 8 reports on airports nearest the Borough and connections to these.
- Section 9 examines journey times, most common destinations and mode share for journeys
- Section 10 reviews the air quality in Lambeth
- Section 11 analyses road safety
- Section 12 presents the site audit findings
- Section 13 identifies the gaps in our analysis
- Section 14 outlines the findings from a Strength Weakness Opportunity Threats (SWOT) analysis of Lambeth's transport infrastructure, and
- Section 15 draws the summary and conclusion

## 2 Policy Review

This section of the report reviews both local (Lambeth's) and regional (Mayor of London and TfL) transport policy and guidance. This section highlights changes in transport policy since the production of the 2011 Lambeth Transport Plan.

### 2.1 Regional Policy

This section identifies regional planning policy in chronological order to enable clarity on how later documents have superseded others and how objectives have evolved over time.

#### 2.1.1 Mayor's Transport Strategy (MTS) 2010

The current MTS was published in May 2010 to align with the London Plan. The MTS sets out the Mayor's intentions for London transport and explains how stakeholders such as TfL and London Boroughs will implement the plan over the next 20 years. The MTS has the following six goals:

1. Support economic development and population growth
2. Enhance the quality of life for all Londoners
3. Improve safety and security of all Londoners
4. Improve transport opportunities for all Londoners
5. Tackling deprivation and supporting growth
6. Reduce climate change and improve resilience<sup>8</sup>

The MTS includes a number of key proposals, many of which directly impact Lambeth as shown below:

- Enhancing rail such as Thameslink and London Overground. The London Overground has been completed and Thameslink improvement is currently under construction. The MTS also talks about future schemes such as Crossrail 1 (under construction) and Crossrail 2 (awaiting funding).
- Extending Croydon Tramlink to neighbouring Boroughs.
- Transforming the Tube to add more capacity on Northern and Victoria line through new trains, signalling and control systems. Much of this upgrade has been completed.
- Smoothing traffic flow to maximise efficiency and reliability of the road network through investment in traffic control systems and achieving modal shift to sustainable modes. Lambeth has seen a number of improvements to major road junctions such as Oval and Stockwell gyratory.<sup>8</sup>

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<sup>8</sup> Mayor's Transport Strategy (2010) – Part One, Vision and context pg.27

## 2.1.2 Road Task Force (RTF) 2013

The road task force was set up by the Mayor of London to consider challenges facing London roads. The RTF report sets out the vision in the short, medium and long term for roads in London.

The RTF's vision focuses on three core aims:

1. To enable people and vehicles to move more efficiently on London's streets and roads.
2. To transform the environment for cycling, walking and public transport.
3. To improve the public realm and provide better and safer places for route activities that take place on the city's streets, and provide an enhanced quality of life.<sup>9</sup>

Below are examples of mitigation measures proposed in the RTF to provide efficient and safe movement on London roads:

- Introduction of 20mph streets
- Tolling for new road infrastructure
- Sustainable freight travel (consolidation centres, switching to bikes and powered two-wheelers)
- Relocating capacity underground for strategic traffic by considering the use of tunnels to enable improvement to places on the surface.

Many of the mitigation measures stated in the RTF are currently being implemented in Lambeth such as a 20mph speed limit for the majority of roads controlled by the Borough<sup>9</sup>, which will be completed this year. The Borough is also part of the South London Freight Consolidation Centre study to reduce freight movement through the town/ neighbourhood centres and neighbourhoods. Part of the northern Borough is also within the Congestion Charge Zone (CCZ).

## 2.1.3 Sub-regional Transport Plan for Central London 2015 Update

TfL has written a number of sub-regional plans across London with the aim to help Boroughs develop their Local Implementation Plan (LIP) and TfL to develop their road network (TLRN). The role of the Sub-regional Transport Plan is to help Boroughs implement the MTS.

Lambeth falls within the Central London sub region which also includes Camden, Islington, Southwark, Lambeth, Royal Borough of Kensington and Chelsea, the City of Westminster and the City of London.

The Sub-regional Transport Plan ensures an integrated approach is adopted to tackle transport challenges identified in the MTS. The current

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<sup>9</sup> Road Task Force (2013) – The vision and direction for London's streets and roads: A dense and vibrant inner London

Central Sub-regional Transport Plan was published in 2010 and updated in 2012, 2013, 2014, with those updates on the TfL web site<sup>10</sup>.

Recent updates include information on population, employment, mode, and future growth trends across the sub region and within the Borough. The trends identified in the plan have been analysed in greater detail throughout this report. However, below are key challenges identified in the update:

- London's population has been increasing much faster than previously anticipated. This has meant the number of daily trips in London has been approximately twice the level which the MTS was based on.
- A total of 1.17 million people enter the Central London Activities Zone in the morning peak.
- 60 per cent of commuter trips are within the central sub-region, 7 per cent south and west, 10 per cent east, 5 per cent north and 1 per cent outside of greater London.

The update highlights the following central sub-region challenges:

- Supporting growth areas and regeneration
- Delivering the vision for London's streets and roads
- Improving air quality and meeting CO<sub>2</sub> targets
- Making central London safer
- Transforming the role of cycling

#### **2.1.4 The London Plan 2016**

The London Plan is the overall strategic plan for London, setting out an integrated economic, environmental, transport and social framework for the development of London over the next 20–25 years.

The London Plan (2016) is the spatial development strategy for London consolidated with alterations since London Plan 2011. The alterations include:

- Revised early minor alterations to the London Plan (REMA), October 2013
- Further alterations to the London Plan (FALP), March 2015
- Housing standards minor alterations to the London Plan (MALP), March 2016
- Parking standards minor alterations to the London Plan (MALP), March 2016

The over-arching vision of the London Plan is covered by the following six objectives ensuring that London is:

1. A city that meets the challenges of economic growth
2. An internationally competitive and successful city
3. A city of diverse, strong, secure and accessible neighbourhoods

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<sup>10</sup> <https://tfl.gov.uk/corporate/publications-and-reports/sub-regional-transport-plans>



4. A city that delights the senses
5. A city that becomes a world leader in improving the environment
6. A city where it is easy, safe and convenient for everyone to access jobs, opportunities and facilities.

In relation to Lambeth, the London Plan:

- Identified at least 11,195 additional dwellings in Lambeth over the ten year period 2011/12 to 2020/21, with an annual target of at least 1,195. This target has now been superseded by the Housing Implementation Strategy (March 2015), see below for further details.
- Requires 50 per cent of all new homes to be affordable, with a 70:30 split between social rented and intermediate affordable housing.
- Designates Waterloo and Vauxhall / Nine Elms / Battersea as Opportunity Areas, promoted to accommodate both new jobs and new homes with a mixed and intensive use of land.
- Designates the north of the Borough as part of the Central Activities Zone, promoted for finance, specialist retail, tourist and cultural.
- Designates the South Bank, along with neighbouring Bankside in Southwark, as a Strategic Cultural Area.
- Designates a River Thames Policy Area to protect and enhance the special character of the River Thames and Thames-side.
- Designates Clapham Common, Jubilee Gardens, Brockwell Park, Streatham Common and Woodfield Recreation Ground as Metropolitan Open Land.
- Identifies the town centres of Brixton and Streatham as Major Centres, with an additional nine Neighbourhood Centres in Lambeth (of which six cross Borough boundaries).
- Identifies a waste apportionment of 346,000 tonnes per annum by 2020.
- Seeks the promotion of tall buildings on suitable sites.
- Protects strategic views of the Palace of Westminster and St Paul's Cathedral.

As stated earlier, four sets of alterations have been made to the 2011 London Plan to ensure it is up-to-date. The key changes are:

- Revised early minor alterations were made to account for revised Government guidance and national legislation – National Planning Policy Framework and Government's approach to affordable housing.
- FALP were published to align with the Mayoral priorities set out in 2020 Vision: The Greatest City on Earth - Ambitions for London, particularly the need to plan for the housing and economic capacity, needed for London's sustainable development.
- MALP were published to include changes to national housing standards and the Government's approach to parking standards
- The London Plan now covers the 20 year period to 2036 rather than 2031, as the Government advice suggests a twenty year planning period should be adopted.

- The London Plan revisions have also been driven by faster population growth in London compared to that anticipated in the 2011 London Plan.

### 2.1.5 Local Implementation Plan (LIP) 2016/17 Update

Each London Borough is required to develop a LIP, which sets out how the Borough will deliver the Mayor's Transport Strategy at local level.

The LIP forms the basis for Boroughs to secure TfL funding towards schemes to improve their transport networks. Funding is allocated through five main programmes:

- Principal road maintenance
- Bridge strengthening
- Corridors, neighbourhoods and supporting measures
- Traffic signal modernisation for sites on Borough roads
- Major Schemes

To request funding, each Borough needs to submit a yearly LIP delivery plan. For 2016/17, Lambeth secured a total of £3,909,000 to be spent on the following:

Table 2.1: 2016/17 Lambeth's LIP Allocation

LIP Programme	Allocation
Corridors and Neighbourhoods	£2,924,000
Local Transport Fund	£100,000
Principal Road Maintenance	£635,000
Major Schemes – West Norwood Regeneration	£250,000
<b>Total</b>	<b>£3,909,000</b>

Source: <http://content.tfl.gov.uk/lip-funding-confirmation-letters-16-17-lambeth.pdf>

TfL LIP funding for Lambeth in 2016/17 has increased by 3 per cent from the previous year (2015/16), which allocated a total of £3,802,000.

## 2.2 Lambeth Policy

This section identifies local Lambeth planning policy in chronological order to enable clarity on how later documents have superseded others and how objectives have evolved over time.

### 2.2.1 Lambeth Transport Plan 2011

The Lambeth Transport Plan sets out the Borough's strategy to deliver the MTS until 2031. The document has five objectives to work towards over the next twenty years of the plan. These are to:

- Promote sustainable healthy travel behaviour
- Improve the quality, reliability and efficiency of the road network

- Improve air quality
- Reduce the perceived and actual danger on Lambeth's roads
- Reduce CO<sub>2</sub> emissions<sup>11</sup>

The five objectives in the Lambeth Transport Plan closely follow the six goals of the MTS. However, the Lambeth Transport Plan has a strong focus on improving air quality.

Lambeth's Transport Plan listed the following key transport schemes for delivery within the Borough:

#### Rail schemes

The majority of rail schemes listed in the Transport Plan have been completed (i.e. London Overground) or are currently under construction such as the Thameslink project, National Rail train lengthening programme and London Underground upgrades.

Lambeth also listed some aspirations in the Transport Plan, some of which have now come to fruition, and others which are still being considered:

- Overground stop at new Brixton Station - under consideration
- Waterloo Station redevelopment – ongoing
- Vauxhall Station Upgrade – ongoing
- Northern Line extension to Battersea – under construction due to open is 2020<sup>12</sup>
- Bakerloo Line Extension to Lewisham via Old Kent Road - under consultation
- Airtrack / Heathrow link to Waterloo to Portsmouth line – original Airtrack scheme cancelled however alternative proposals under consideration as part of the 'Southern Rail Access to Heathrow' initiative<sup>13</sup>

#### Bus schemes

- TfL are reviewing all bus routes with the intention to reduce mileage by 1.5 per cent over the next ten years.
- Lambeth are lobbying strongly for the extension of Route Number 155 serving Clapham to be extended to Moorgate.
- More bus services are expected in the area as result of Vauxhall / Nine Elms / Battersea developments (VNEB). This could provide a fast bus link to Waterloo and Victoria and will see improved services generally.
- Schemes to extend Bus Route 255 and re-route the P5 to be developed by Lambeth with support from TfL.

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<sup>11</sup> Lambeth Transport Plan (2011) – 3.3 Lambeth Transport Objectives

<sup>12</sup> <http://content.tfl.gov.uk/nle-quarterly-newsletter-march-2016.pdf>

<sup>13</sup> Southern Rail Access to Heathrow Feasibility Study – Network Rail (2015)

## Major Schemes

Major Schemes are large, area-based schemes that have a value between £2 million and £5 million, and make a transformational improvement and assist in delivering the Mayor's Better Streets Agenda. In the past Lambeth has successfully delivered a number of these types of schemes such as the Herne Hill regeneration scheme and The Cut in Waterloo.

Major schemes listed within the Transport Plan are as follows. Some of which have been completed since the document was written in 2011:

- Clapham Gateway – reduce dominance of cars/ public realm improvements (Complete)
- Norwood Road – public realm improvements (Complete)
- Lower Marsh – public realm improvements (Complete)
- Jubilee Gardens (soft and hard landscaping improvements (Completed)
- A23 Streatham High Road, Streatham Hill Corridor – public realm/ pedestrian improvements (Phase 1 complete)
- Waterloo Square (outstanding)<sup>14</sup>

### **2.2.2 Lambeth Local Plan - September 2015**

The Lambeth Local Plan sets out planning policies for Lambeth to guide growth in housing and jobs, infrastructure delivery, place-shaping and the quality of the built environment over 15 years until 2030.

It replaces the Lambeth Core Strategy 2011 and the remaining saved policies in the Unitary Development Plan 2007. The Local Plan retains the spatial strategy, vision and strategic objectives of the 2011 Core Strategy. However, some of the strategic policies have been updated to align with the National Planning Policy Framework and the London Plan.

The Local Plan includes new space specific policies for Loughborough Junction (PN10) and Upper Norwood (PN11) as well as revisions to the approach in Brixton (PN3) and Vauxhall (PN2).<sup>15</sup>

The Local Plan states that public transport provision in the Borough is generally good, with National Rail stations spread throughout the Borough and Underground stations in the central and southern sections of the Borough. However, it acknowledges that much of Lambeth's public transport infrastructure is currently at, or over capacity during peak hours. Investment is needed to improve conditions for passengers, to provide full access to all stations and to enable the planned increases in resident and working population.

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<sup>14</sup> Lambeth Transport Plan (2010) – Major Schemes pg.100

<sup>15</sup> Lambeth Local Plan (2015) – Section 11 Places and Neighbourhoods

The document also highlights the many bus services within the Borough with major interchanges at Waterloo, Vauxhall and Brixton. However, the accessibility for those in the south of the Borough is currently lacking compared to the rest of Lambeth. The south of the Borough currently experiences poor public transport provision, caused by the existing rail infrastructure and traffic congestion.

The guiding spatial approach in the Lambeth Local Plan is:

- Promotion of both economic and housing growth across the Borough, with housing supply supporting economic growth by helping to ensure an appropriate supply of labour at both local and sub-regional levels.
- A focus for growth and development in Waterloo, Vauxhall and town/ neighbourhood centres – including through the regeneration of Brixton – addressing the issues of transport capacity and other physical infrastructure in key locations.
- Town/ neighbourhood centre regeneration to include housing in appropriate locations, with some revisions to town/ neighbourhood centre boundaries.
- A new, centre-specific approach to managing the mix of uses in town/ neighbourhood centres.
- The mix, balance and diversity of residential neighbourhoods to be maintained, with an emphasis on increasing choice in the type and location of affordable housing overall.
- Keeping the existing requirement for 50 per cent affordable housing across the Borough, with flexibility only in very clearly defined circumstances.
- Preferred Borough-wide dwelling mix for affordable housing defined in policy, based on evidence of housing needs in the Borough.
- Support for tall buildings in appropriate locations to deliver regeneration and economic objectives in accordance with London Plan and national policies.
- Maintaining the existing policy approach to Key Industrial and Business Areas (KIBAs), but with some revisions to boundaries.
- Support for community facilities to meet the changing needs of Lambeth's communities, including the need for additional school places.

### **2.2.3 Housing Implementation Strategy March 2015**

Lambeth's housing target was to deliver 11,195 net additional dwellings over the ten year period from 2011/12 to 2020/21, which equated to an annual figure of 1,119.5 net additional dwellings per annum. In 2015, the GLA published the Further Alterations to the Local Plan (FALP), which establishes a minimum target for Lambeth of 1,559 net additional dwellings per annum. Though, Lambeth may be required to set a higher target in its Local Plan Review

## **2.2.4 Lambeth Strategic Infrastructure Study (2017 – 2032) September 2015**

This study sets out the requirements and strategy to deliver a projected Borough population increase of 39,000 between 2018 and 2032 in terms of infrastructure.

This assessment provides the Council with an understanding of the level, location and capital costs of infrastructure required, committed funding and an estimate of funding raised through developer contributions and other methods:

- The assessment considers the following types of infrastructure:
  - Social infrastructure: education, health, sports and leisure, open and play space, and libraries and community centres
  - Transport infrastructure: rail, road, cycle, bus and public realm
  - Utilities and hard infrastructure: electricity, gas, water, sewerage, district heating, waste management and emergency services (police, fire and ambulance services).
- Transport infrastructure projects that are planned at this stage for delivery by 2032 in support of Lambeth's growth strategy:
  - Northern Line increased frequency and capacity enhancements
  - National Rail corridor upgrades
  - Crossrail 2 with 24 trains per hour by 2030
  - South London Heathrow Rail Network Rail Link
  - Extensions to Northern and Bakerloo Lines, London Overground
  - 24 hour London Underground operation
  - High quality bus priority measures
  - Urban realms improvements
  - Extended Cycle Super Highway Network
- The study estimated that the total cost of all transport projects to Lambeth is estimated as £90.8 million over the Local Plan review period (2017-2032). The study shows that 87 per cent of the cost is likely to be incurred between 2017 and 2026. The majority of the transport projects costs (56%) will be spent in the North Lambeth and Waterloo CLIP areas.

## **2.2.5 Co-operative Local Investment Plan areas (CLIPs)**

Lambeth has set up CLIPs through which communities are given greater powers to confirm their local investment priorities. There are six CLIPs within the Borough, which are: Waterloo, North Lambeth, Clapham, Brixton, Streatham and Norwood.

The CLIPs are to list projects and priorities for spending 25 per cent of the Community Infrastructure Levy (CIL) identified by the community. This gives local residents a greater say in decisions about local infrastructure.

## 2.2.6 Supplementary Planning Documents (SPDs)

To assist with the interpretation of planning policy, Supplementary Planning Documents (SPDs) have been compiled for the following town/ neighbourhood centres within Lambeth:

- Waterloo (adopted April 2013)
- Vauxhall (adopted January 2013)
- Brixton (adopted June 2013)

These documents provide additional detail on local implications of policies included within the Local Plan. Relevant information from these documents has been included throughout the Baseline chapter of this report regarding each mode of transport.

## 2.2.7 Opportunity Area Planning Framework (OAPF)

The Mayor's London Plan identifies 38 Opportunity Areas (OAs). OAs are London's major source of brownfield land which have significant capacity for development such as housing or commercial use. Two OAs have been identified in the Borough; these are Vauxhall/Nine Elms/Battersea and Waterloo.<sup>16</sup>

### Waterloo OAPF (adopted October 2007)

The Waterloo OAPF provides a strategic vision and overarching planning guidance for future development in Waterloo. Key facts regarding the proposed development are stated below:

- Indicative employment capacity: 15,000
- Minimum new homes: 2,500

Key transport measures proposed to support growth in Waterloo include:

- A new 'City Square' and interchange space for Waterloo to create a vastly improved public space around the station.
- Remove general traffic from Waterloo Road and give priority to pedestrians, cyclists and public transport.
- Redevelop and redefine Waterloo Station so that it becomes a new centre for the area.
- Use the public realm to bring the different parts of Waterloo together and address pedestrian movement/connections.
- Support the world class cultural quarter at the Riverside and use it as a motor for regeneration.
- Preserve and enhance the key features of Waterloo's character areas.<sup>17</sup>

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<sup>16</sup> <https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/opportunity-areas>

<sup>17</sup> Waterloo Opportunity Area Planning Framework (October 2007) – Waterloo vision and strategic objectives

### Vauxhall, Nine Elms, Battersea (VNEB) OAPF (adopted March 2012)

The VNEB OAPF sets out the development vision for the area. Key statistics are stated below:

- Area – 227 hectares
- Indicative employment capacity: 25,000
- Minimum new homes: 20,000

Below are some of the key transport measures which will be implemented to support growth at VNEB:

- An extension to the Northern Line from Kennington to Battersea via Nine Elms (now underway and due for completion in 2020)
- A new linear park connecting Vauxhall to Battersea Power Station
- Enhancements to existing bus services<sup>18</sup>

## 2.3 Summary

The policy analysis shows there have not been significant changes to transport policy in Lambeth since the 2011 Lambeth Transport Plan. Both the 2011 Transport Plan and 2015 Local Plan aim to improve non-car accessibility throughout the Borough and set the scene for future growth.

The majority of schemes listed in the 2011 Transport Plan have now either been delivered or are under construction. However, the major schemes still outstanding are:

- Schemes to improve underground links through the Borough (Northern Line and Bakerloo Line extensions)
- London Overground stop at Brixton
- Waterloo Station redevelopment
- Improved bus links across the river

Housing targets for Lambeth have increased recently under the Further Alterations to the London Plan (FALP), to deliver 1,599 net dwellings per annum, compared to the previous target of 1,195.

The transport schemes in the Lambeth Strategic Infrastructure Study 2017 – 2032 focus heavily on schemes to improve capacity of rail networks within the Borough supporting planned additional housing and employment growth.

It is therefore clear that a number of important schemes have been delivered by LBL and / or TfL in Lambeth and that transport policy has remained consistent since the last LTP.

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<sup>18</sup> Vauxhall Nine Elms Battersea Opportunity Area Planning Framework (March 2012) – The Vision



## 3 Demographics and Diversity of Lambeth

This section of the report analyses the demographics within LBL and identifies the diversity across the northern, central and southern sections of the Borough. This analysis sets the background context of this Baseline Report and has been included to highlight the key characteristics, which impact on transport accessibility and network usage across the Borough.

### 3.1 Context

The LBL is a large and diverse Borough with very different characteristics between and within the northern, central and southern sections. The analysis in this section clearly shows distinctions between the three sections in Lambeth. The Boroughs' wards have been assigned to northern, central and southern sections based on their location within the Borough, please refer to Appendix A for further details.

It is important to emphasise that although we have identified key characteristics across each of the three sections, there are many differences within each section as well. The North – Central – Southern segmentation approach is a starting point for the assessment.

The following maps in this section analyse 2011 census data to highlight the diversity within the Borough for characteristics such as:

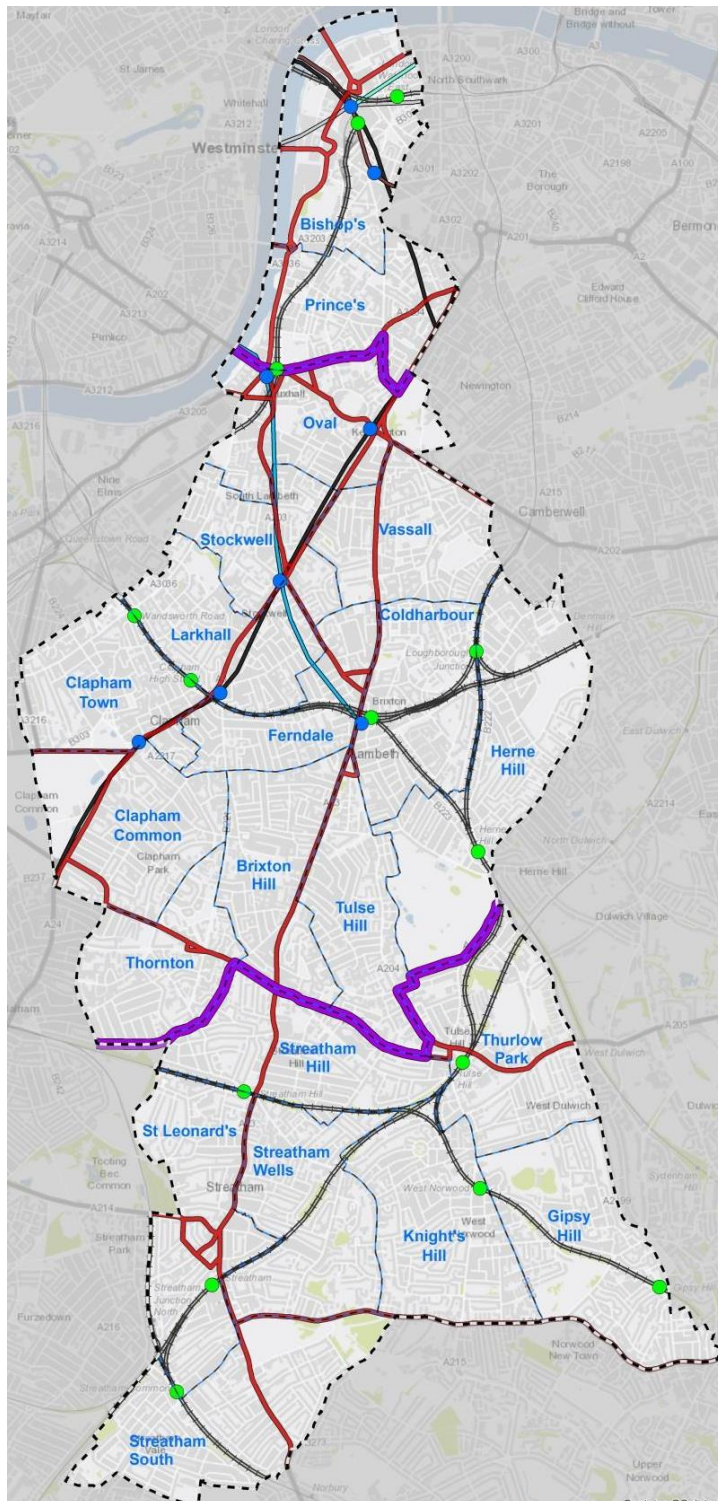
- Household income (Figure 3.3)
- Deprivation (Figure 3.4)
- Cycle to work (Figure 3.5)
- Population age (Figure 3.6)
- Car ownership (Figure 3.7)
- Public Transport Accessibility Level (PTAL) (Figure 3.8); and
- Employment (Figure 3.9)

The latest mid-year (2015) estimates produced by the Greater London Authority (GLA) have been examined to understand the increase in population since the release of 2011 Census data (Figure 3.2).

In addition to the maps, Travel Plan monitoring data for schools within the northern, central and southern sections of the Borough has been analysed to highlight the differences in travel modes in the Borough.

A summary of the analysis is provided overleaf in Figure 3.1.

Figure 3.1 Baseline Summary: Demographics and Accessibility



### North Lambeth

- ‘Central London’ characteristics – part of a large urban centre:
- 26,800 residents (2015 estimate)
- Generally low car ownership
- Lower levels of cycling to work compared to central section of the Borough, however higher than the southern section.
- High levels of public transport accessibility (PTAL)
- Areas of high density around Waterloo station and Kennington

### Central Lambeth

- ‘Inner London’ characteristics:
- 190,300 residents (2015 estimate)
- Generally low car ownership except from some high income areas such as Herne Hill and Clapham
- Generally high levels of cycling to work except for areas of high deprivation such as Vassell and Coldharbour
- High population density around major town/ neighbourhood centres such as Brixton, Oval, Stockwell and Vauxhall
- High levels of public transport accessibility in centre locations. Some areas of low accessibility in peripheral areas such as Vassell, Thornton and Tulse Hill
- Higher proportion of younger population

### South Lambeth

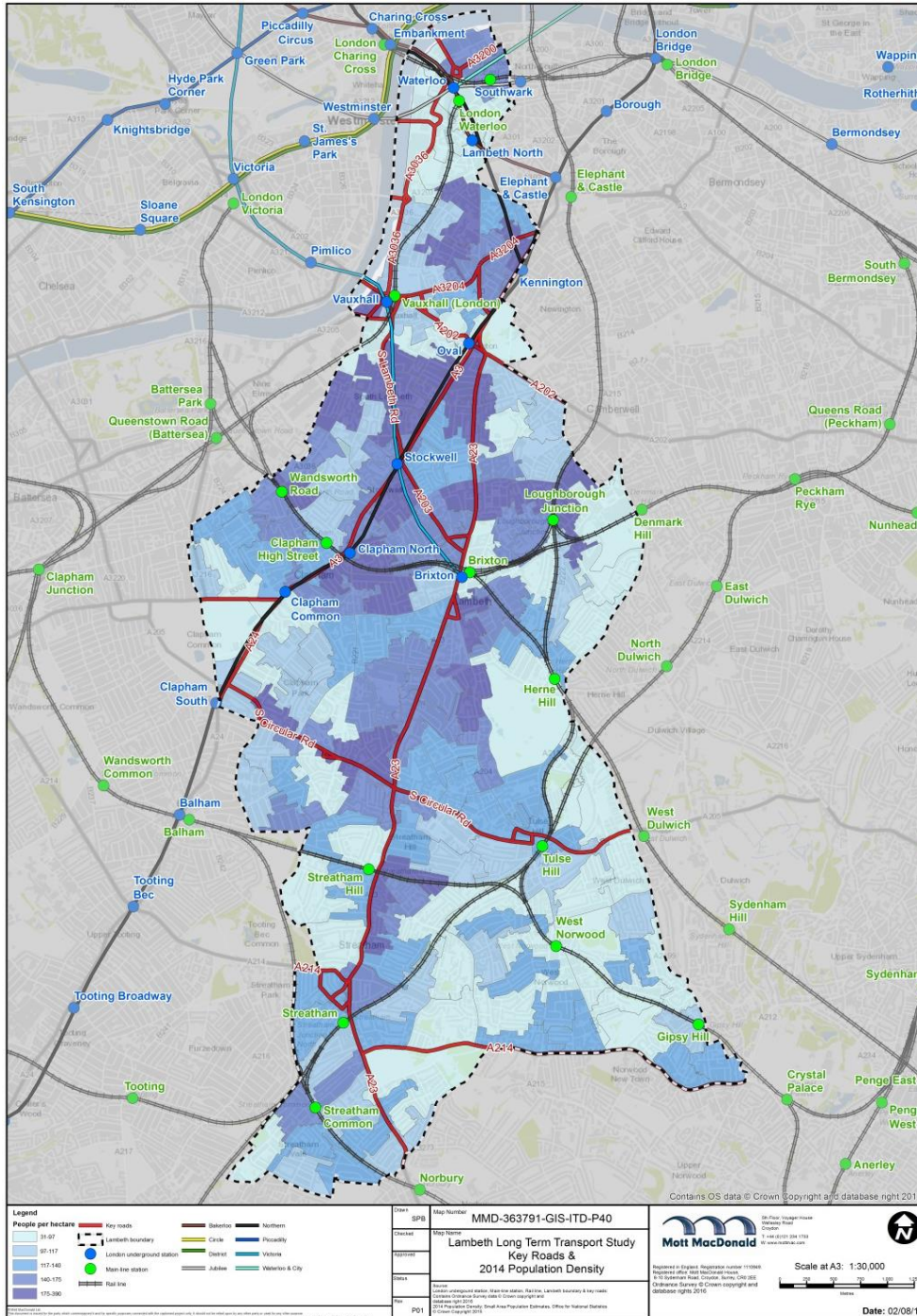
- 103,250 residents (2015 estimate)
- Higher levels of car ownership except for low income areas
- Lower cycling to work levels
- Generally low population density
- Low public transport accessibility except for the A23 corridor.

	Rail line		Key roads
	Bakerloo		Lambeth boundary
	Jubilee		London underground station
	Northern		Main-line station
	Victoria		Dividing lines
	Waterloo & City		Ward boundary

Source: London Underground station, Main-line station, Rail line, Lambeth boundary & key roads: Contains Ordnance Survey data © Crown copyright and database right 2016



Figure 3.2: Population Density



In 2011, Lambeth's population was 303,086. Data predicts that the population in 2015 was 320,350 and thus has increased by around 17,000 in the four years.<sup>19</sup>

The largest increase in population growth has been in the north of the Borough around Waterloo, and the centre of the Borough around Stockwell.

Key observations:

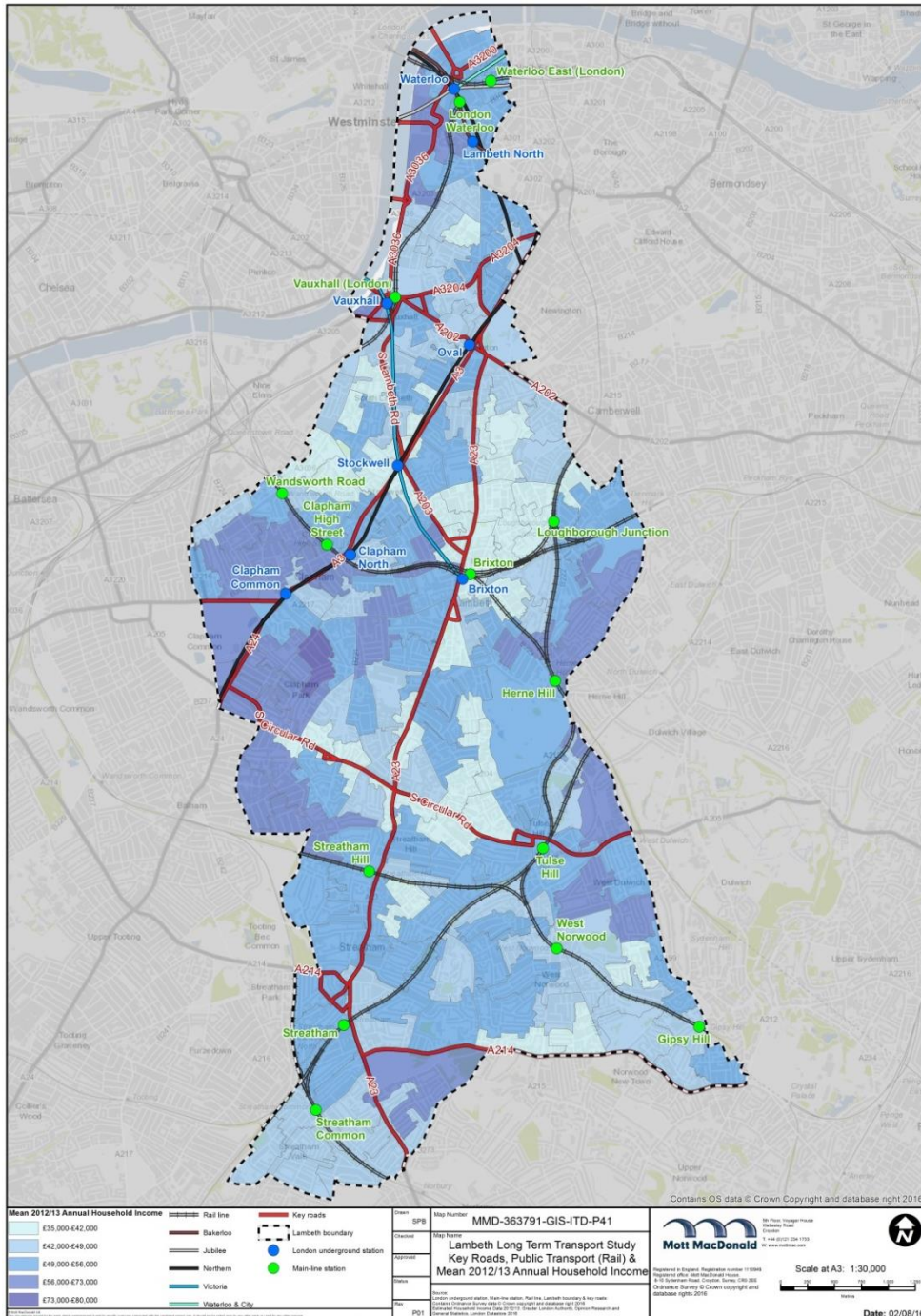
- Higher population density in the central to northern half of the Borough.
- Vauxhall and Stockwell have the highest population densities with between 32,000 and 40,000 people per square kilometre.
- Areas surrounding Waterloo and Lambeth North have low population densities due to the different land uses in these areas: Waterloo station, Waterloo East station, Waterloo bus station, offices and leisure uses including the IMAX cinema, south bank and National theatre.

Population densities are high around the A23 running through the Borough, the densities generally decrease away from this route.

Source: Census, 2011

<sup>19</sup> London datastore: GLA population projections (2015)

Figure 3.3: Household income



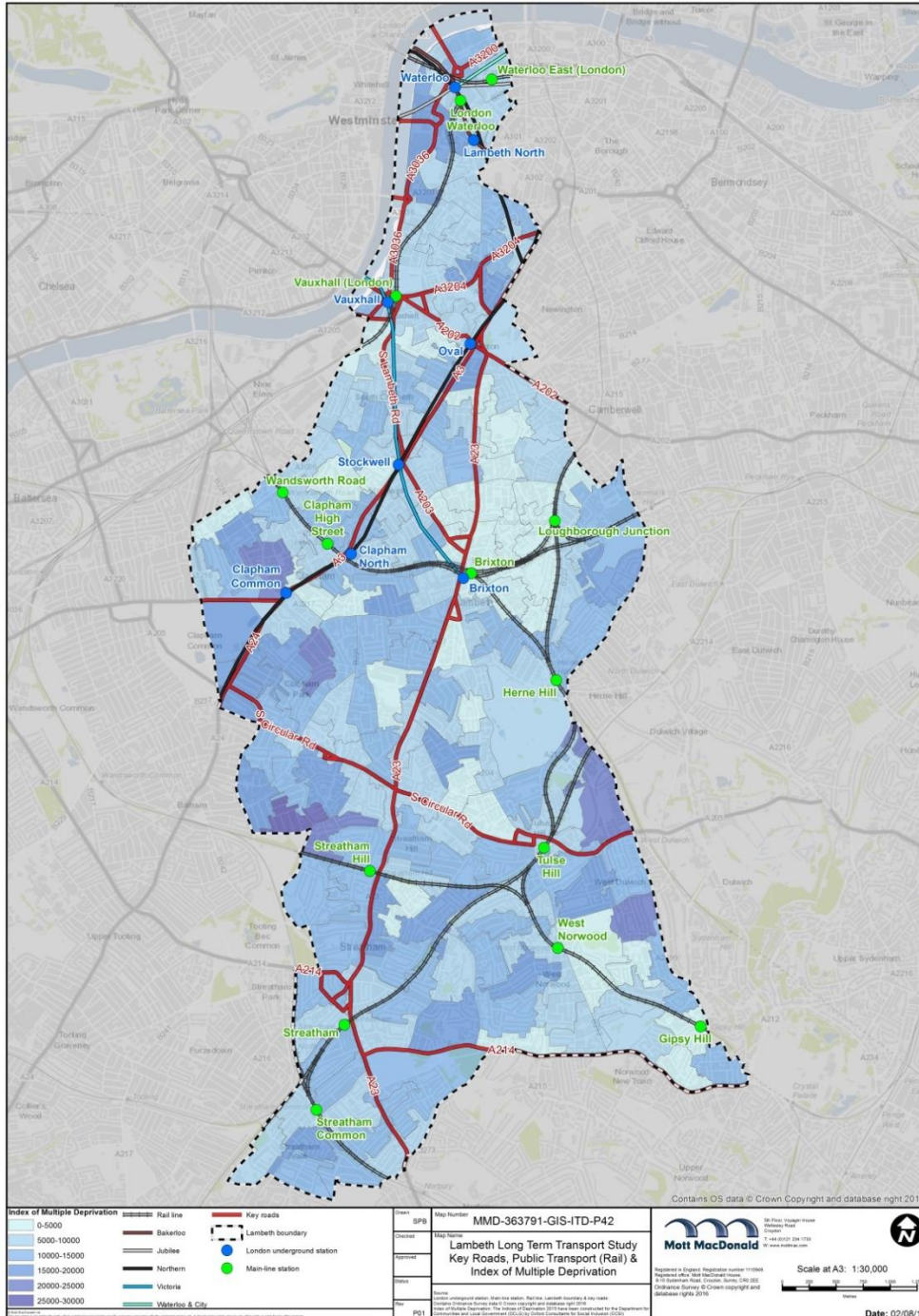
Key observations:

- Wide income variations across the Borough
- Transport networks such as the A23 act as boundaries between high income and low income areas.
- High income areas are spread across the Borough Centres, such as Waterloo, Vauxhall, Clapham and Herne Hill
- Lower income areas within the Borough are generally in the less accessible areas. There is a general correlation between low income areas and low PTAL scores, shown in Figure 3.8.

Source: Census, 2011



Figure 3.4: Multiple Deprivation



The aspects included in the Multiple Deprivation Index are:

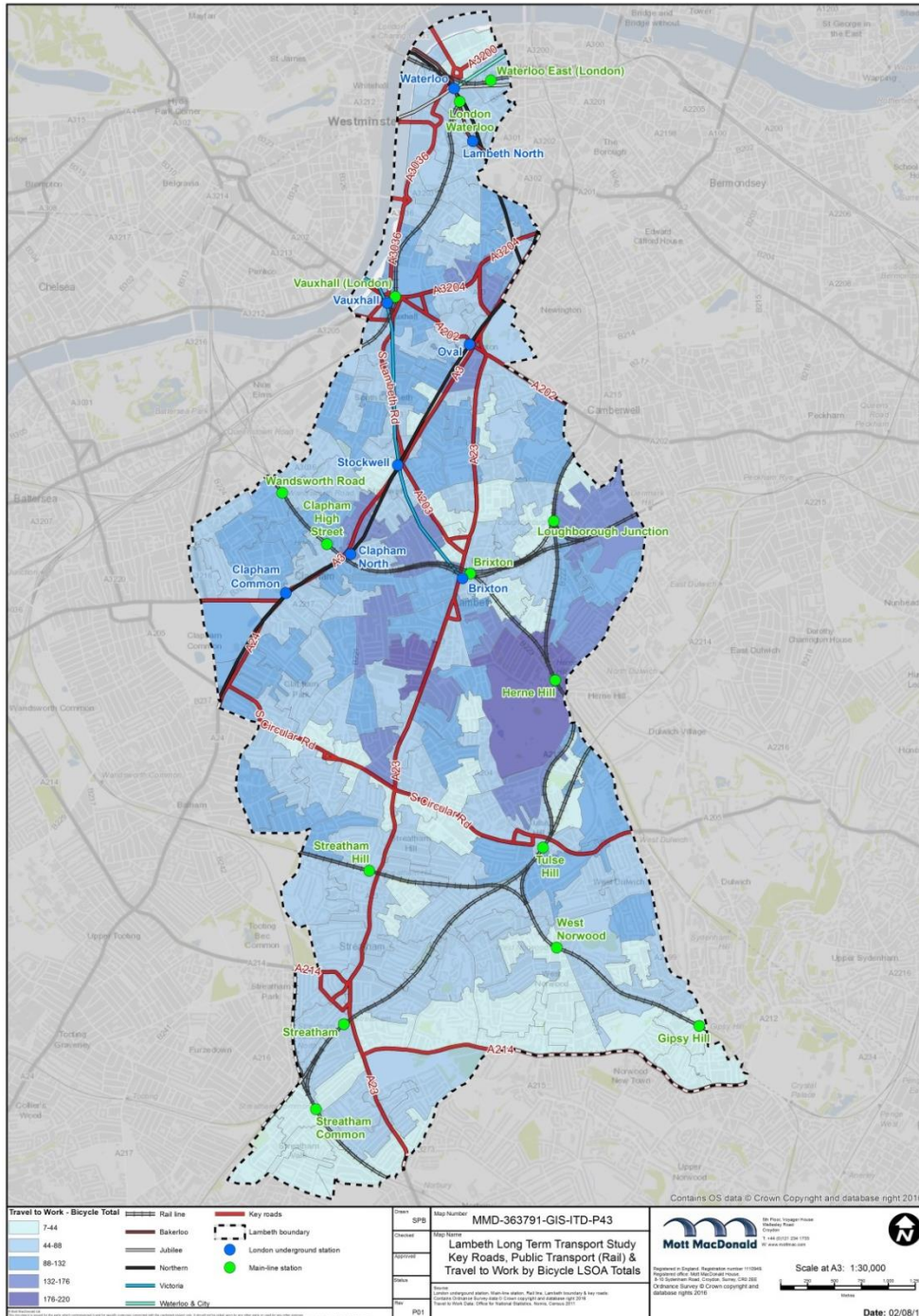
- Income
- Employment
- High deprivation and disability
- Education skills and training
- Barriers to housing and services
- Crime
- Living environment

Key observations:

- The central spine roughly following the A23 sees greater deprivation than the areas of Waterloo, Clapham, Balham, and West Dulwich.
- Areas with highest deprivation generally correlate to areas with low transport accessibility as shown in Figure 3.8.

Source: Census, 2011

Figure 3.5: Travel to Work by Bicycle



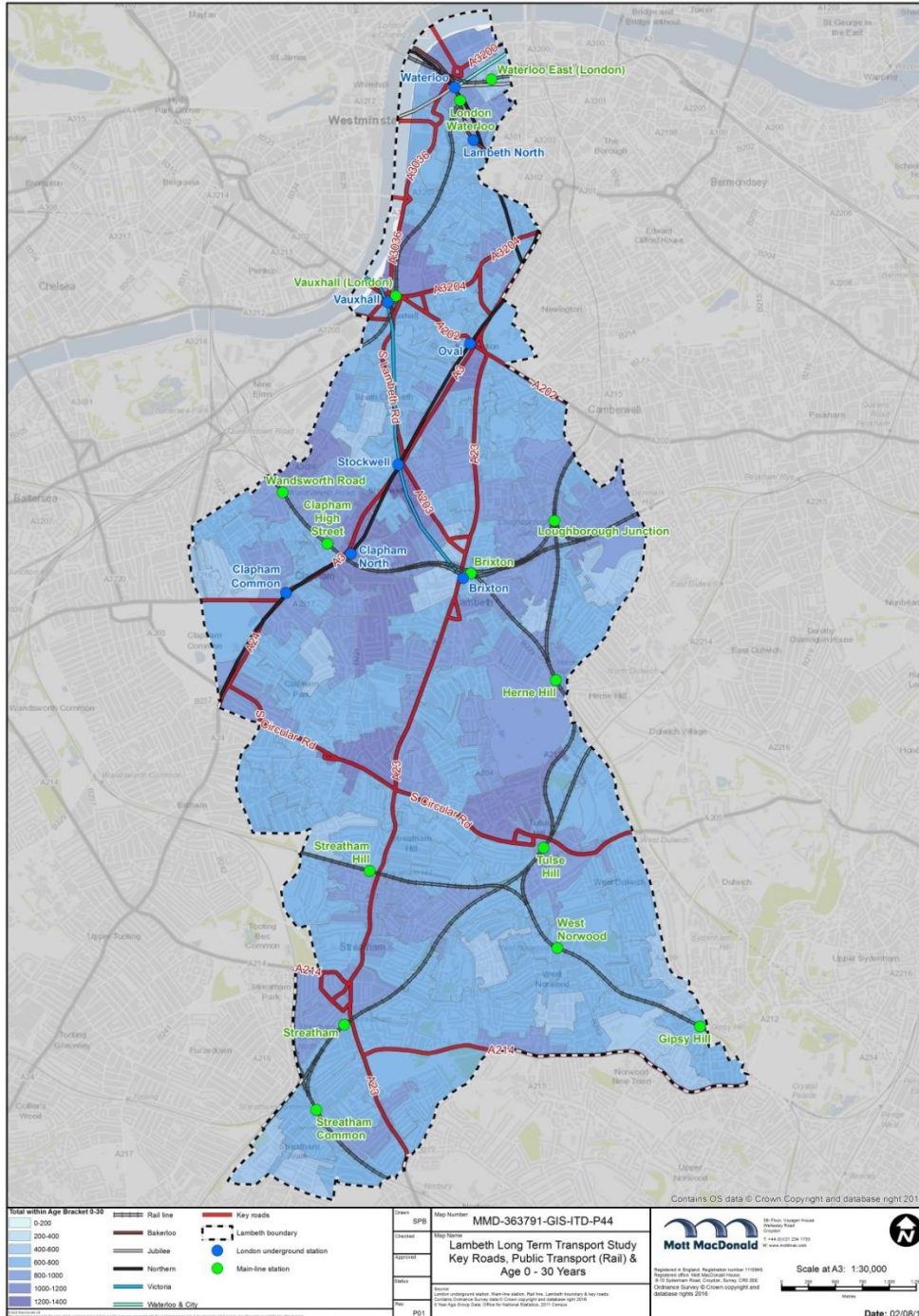
Key observations

- The level of cycling to work is higher in the central section of the Borough.
- The central section of the Borough also has the highest proportion of younger population (Figure 3.6).
- The south of the Borough has the lowest level of cycling cross the Borough.

Source: Census, 2011



Figure 3.6: Population Age (0-30)

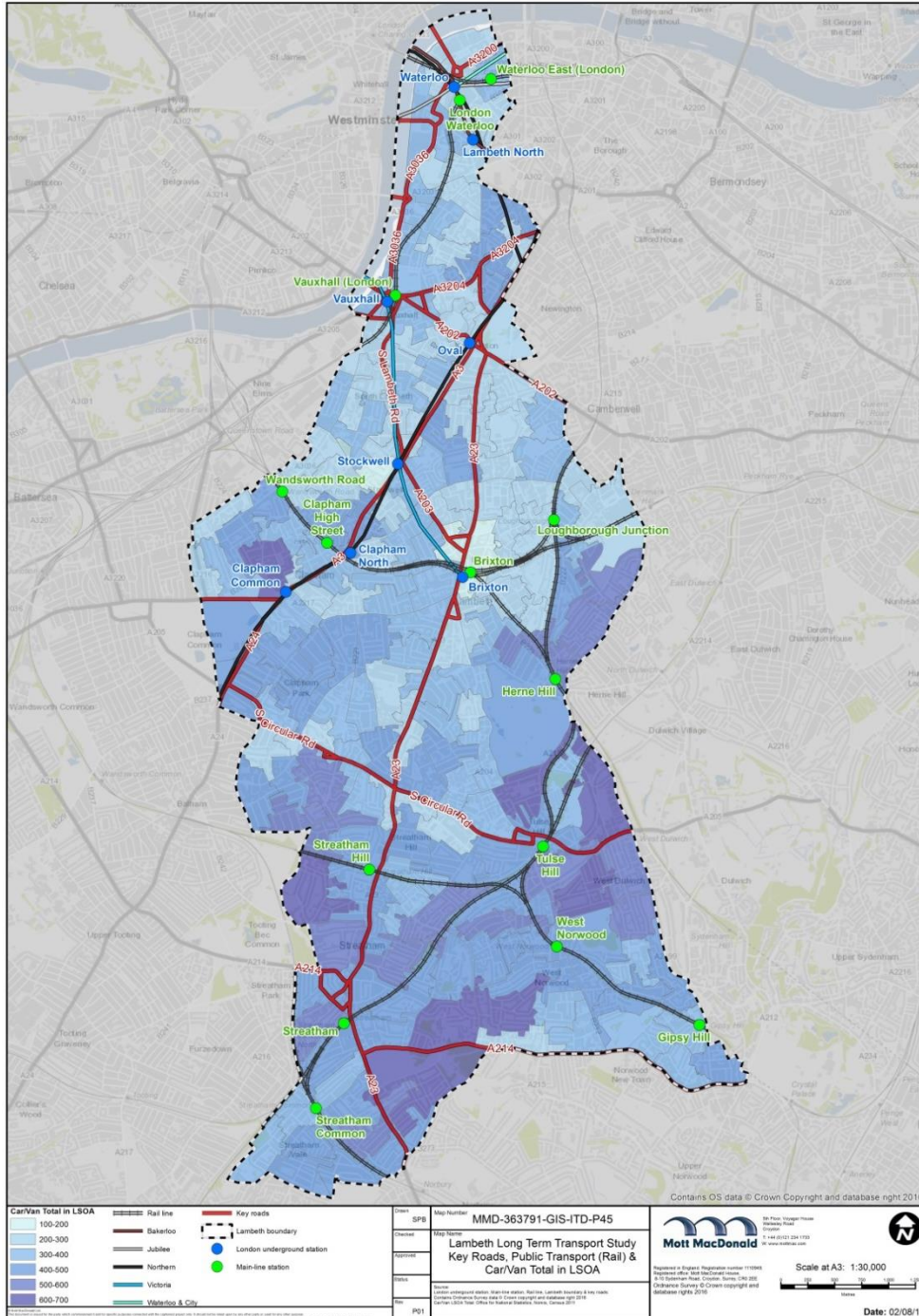


Key observations:

- Higher proportion of younger population (0-30) is clustered in the centre of the Borough around centres such as Vauxhall, Stockwell, Clapham, Brixton, Oval and Herne Hill. Generally these areas also have higher cycling to work levels (Figure 3.5).
- Higher proportion of older population (over 50's) live in the south and north of the Borough.
- The south of the Borough also has higher car ownership (Figure 3.7) and lower cycling to work levels (Figure 3.5)

Source: Census, 2011

Figure 3.7: Car / Van ownership



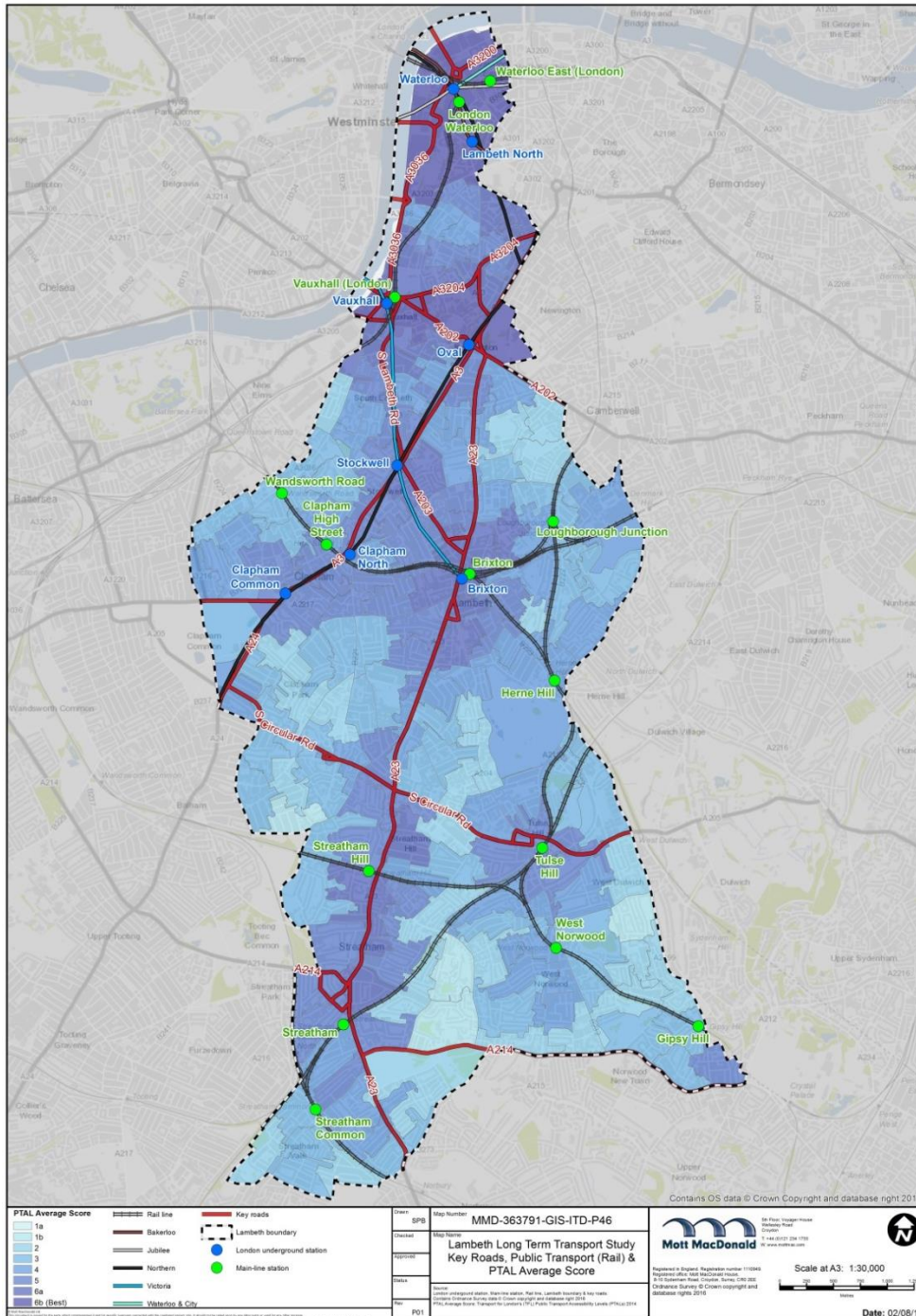
Key observations:

- Car ownership is generally higher to the south of the Borough compared to the central and northern sections.
- There is also a positive relationship between areas with high car ownership and those with higher household income (Figure 3.3)

Source: Census, 2011



Figure 3.8: PTAL scores



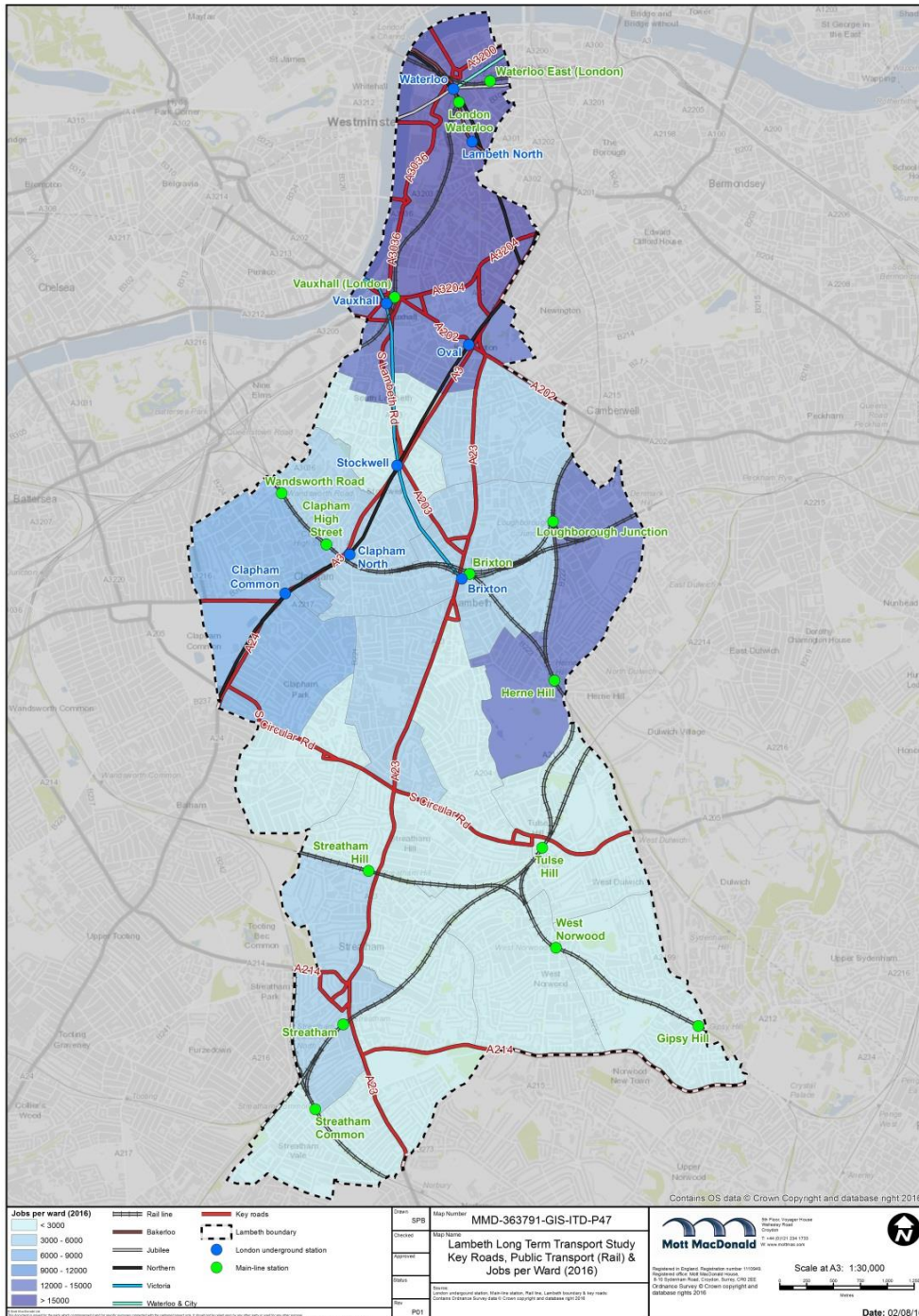
PTAL scores are measures from 1 to 6b, with 1 being areas of poor public transport accessibility and 6b being areas with excellent public transport accessibility.

Key observations:

- The north of the Borough has the highest level of public transport provision and has the highest level of transport accessibility (PTAL scores are generally between 6 and 6b).
- The central section of Lambeth has a number of main town/ neighbourhood centre hubs at Vauxhall, Brixton, Oval, Stockwell and Clapham, which all have high levels of public transport accessibility.
- Away from the main town/ neighbourhood centres there are areas in the centre of the Borough with low public transport accessibility such as the Vassall ward to the east and between Thornton ward and Clapham Common ward.
- Most bus routes in the Borough follow the main arterial routes; therefore these areas are not well served by existing bus services.
- Generally PTAL scores in the south of the Borough are lower than PTAL scores in the central and northern sections of the Borough.

Source: Census, 2011

Figure 3.9: Employment



According to London's poverty profile, Lambeth's unemployment rate is above London's average, at 6.8 per cent,<sup>20</sup> with 2.4 per cent of its working age population in long-term unemployment.<sup>21</sup>

Key observations:

- Number of jobs in the northern section of the Borough is considerably higher than any other section of the Borough. Specifically Bishop's and Prince's ward, which have 45,420 and 19,739 jobs respectively.
- Most of the wards in the central section of the Borough have between 3,000 and 9,000 jobs per ward.
- The southern section of the Borough has the lowest number of jobs. Most of the wards in the south have less than 3,000 jobs per ward.

Source: Census, 2011

<sup>20</sup> <http://www.londonpovertyprofile.org.uk/indicators/Boroughs/lambeth/>

<sup>21</sup> [http://www.lambeth.gov.uk/sites/default/files/ec-lambeth-council-state-of-the-Borough-2014\\_0.pdf](http://www.lambeth.gov.uk/sites/default/files/ec-lambeth-council-state-of-the-Borough-2014_0.pdf)

### School Travel Plan Monitoring

LBL have provided Mott MacDonald with the travel plan monitoring data for Lambeth’s Stars Schools (2015/16). The data indicates the percentage of staff and students travelling to school by an active travel mode.

The analysis shows there are distinct differences between the northern, central and southern sections of the Borough, as identified in Table 3.1.

Table 3.1: Lambeth’s School Travel Plan Findings

Section	Findings
North Lambeth	<ul style="list-style-type: none"> <li>• 60 per cent of staff and students travel to school by an active mode.</li> <li>• Lower levels of car travel to school in the northern section of the Borough (16%) compared to the central and southern Lambeth (27%)</li> <li>• Slightly higher levels of walking to school in the northern section (46%) compared to the central section of the Borough (41%).</li> <li>• Of the top ten schools that have the highest car use to school, none of them are located in the northern section of the Borough</li> <li>• 24 per cent of travel to schools in the north is undertaken by public transport, the highest in the Borough.</li> </ul>
Central Lambeth	<ul style="list-style-type: none"> <li>• 58 per cent of staff and students travel to school by an active mode</li> <li>• Six of the top ten schools that have the highest percentage of cyclists are located in the central section of the Borough</li> </ul>
South Lambeth	<ul style="list-style-type: none"> <li>• 61 per cent of staff and students travel to school by an active mode, which is the highest percentage in the Borough.</li> <li>• Car travel makes up a large proportion of trips in the south of the Borough (27%), with a low percentage using public transport (12%).</li> <li>• Six of the top ten schools that have the highest percentage of car use are located in south Lambeth.</li> </ul>

Source: Lambeth Star Schools (2015/16)



## 4 Transport Accessibility and Conditions – Active Modes

This section of the report analyses the existing levels of active transport within the Borough as well as the provisions in place to encourage people to use active modes. It has a focus on the policies, schemes and infrastructure that are in place to support active travel as well as identifying gaps in the network where improvements could be made.

### 4.1 Walking

#### 4.1.1 Background

##### Walking: Data sources:

- Waterloo Area Supplementary Planning Document (2013)
- Census Data (2011)
- Central London Rail Termini: Analysing passengers' onward travel patterns (2011)
- Lambeth Local Implementation Plan (2014/15)
- Lambeth Transport Plan (2011)
- London Travel Demand Survey (2012/13-2014/15)
- Sub Regional Transport Plan for Central London (2015 Update)
- TfL Baseline Railplan Data (2011)
- TfL Road Modernisation Plan (2014)
- TfL Travel in London: Report 8 (2015)

Walking trips have increased across London from 5.6 million trips in 2005/06 to 5.9 million trips in 2013/14.<sup>22</sup> Within Greater London, 32 per cent of all journeys undertaken are done so on foot, making walking the second most popular mode of travel after car travel, which accounts for 37 per cent of journeys<sup>23</sup>.

As shown in Figure 4.1, the central London sub-region, where Lambeth resides, has a greater modal share for walking compared to Greater London. Within the region, Lambeth's walking mode share is slightly lower than the average, though walking has increased in the Borough by 5.6 per cent from 2006 to 2013<sup>23</sup>. In comparison to neighbouring boroughs, Southwark's walking mode share is slightly higher than Lambeth's.

There has been substantial investment in pedestrian provision in London in recent years, which in part is due to policy direction included in the Mayor's Transport Strategy (MTS). The MTS outlined a strategy of walking improvements that would create a better walking environment for people throughout the city. The MTS highlighted four main strategies for walking, these are;

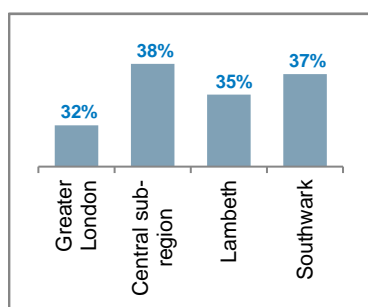
- To improve interchanges
- To make walking count
- To provide better information (through Wayfinding and the Legible London scheme)
- To make better streets and environment (with a specific focus on public realm improvements and increased permeability).

<sup>22</sup> TfL Travel Demand Survey Summary Report (2005-2014)  
<http://content.tfl.gov.uk/london-travel-demand-survey-report.pdf>

<sup>23</sup> Sub Regional Transport Plan for Central London – 2015 Update

### 4.1.2 Walking Policy

Figure 4.1: Walking Mode Share



Source: Sub Regional Transport Plan for Central London – 2015 Update

The Lambeth Transport Plan outlined a desire to place sustainable transport at the heart of their strategy and, as such, envisaged walking and cycling to play a vital role within the Borough. Walking is prioritised at number one on the road hierarchy list. The policy recognises that walking figures in Lambeth are below their central London counterparts<sup>24</sup>, and as a result LBL have outlined a range of initiatives and developments that aim to encourage individuals to use more sustainable modes.

Alongside the Lambeth Transport Plan, in 2015 LBL published the Active Travel and Health Report which highlights a desire to remove barriers to active transport. The Active Travel and Health Report identifies how, within Lambeth, a range of barriers have prevented some members of the public choosing walking as a viable mode of travel. These barriers to walking range from physical barriers such as poor pavement conditions, street lighting, or pollution, to societal issues which have resulted in some groups of people being poorly represented in active travel. The report outlines a desire to improve the safety of walking and cycling, as well as training car drivers to pay greater attention to cyclists and walkers.

### 4.1.3 Walking Routes

In the larger town/ neighbourhood centres, issues often stem around peak rush hour travel, notably at Waterloo, Brixton and Vauxhall stations where the volume of pedestrians leads to a congested environment at peak times<sup>25</sup>.

The principal traffic routes through the Borough also lead to barriers to walking, particularly the main arterial routes including the South Circular and A23.

The Borough ranks highly for the number of collisions resulting in people being Killed or Seriously Injured (KSI) compared to other London Boroughs (However, it is important to note that this is based on actual numbers and a range of factors contribute to this). Lambeth recorded the second highest number of road casualties resulting in people being KSI, with an annual average of 141 between 2010 and 2014. The highest number of casualties between these years occurred in the Westminster Borough, with 171 people being KSI. Out of the KSI collisions 34 per cent (241) involved pedestrians<sup>26</sup>.

The condition of footways has been made available by LBL. The data indicates that 54 per cent of footways are currently in poor condition.

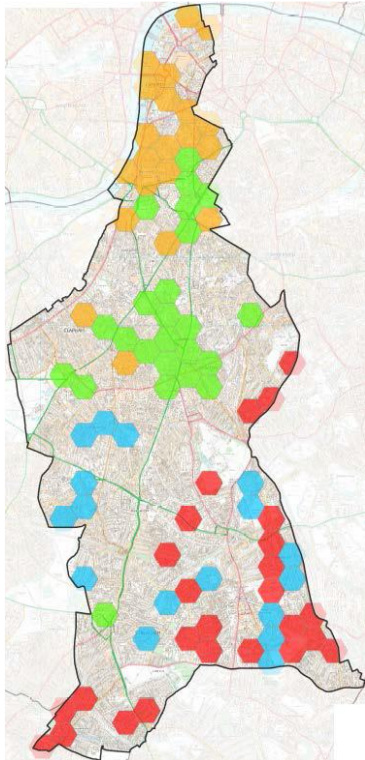
<sup>24</sup> Lambeth Transport Plan (2011)

<sup>25</sup> Baseline Railplan Data (2011)

<sup>26</sup> Lambeth Local Implementation Plan (2014/15)

#### 4.1.4 Walkability and Walking Potential

Figure 4.2: Walkability and Walking Potential in Lambeth



Source: TfL: Where should we be Investing in walking in Lambeth? London Travel Demand Survey 2012/13-2014/15  
Note: Only the hexagons where walking potential was identified are included in the analysis.

TfL have conducted research to understand the walkability and walking potential in Lambeth and to identify the areas that would benefit from walking investment.

Using the London walkability model, developed by Dr Ashley Dhanani at University College London, TfL have identified areas of high or low 'walkability'. The walkability model's components include:

- Land use diversity
- Residential density
- Transport accessibility, and
- Street network connectivity.

As a result, the walkability model assesses the technical walkability of streets and is unable to measure the user experience.

In addition, TfL's research has considered 'walking potential', which is based on criteria such as encumbrance, age, disability, trip length, time of day and current mode of travel.

By combining walkability and walking potential, TfL have categorised areas in Lambeth based on the criteria:

- High walkability and high walking potential (green) – there is a high level of walking and good potential to increase walking
- High walkability and low walking potential (orange) – there is a high level of walking and little potential for increasing walking
- Low walkability and high walking potential (blue) – there is a low level of walking but there is a good potential to increase walking
- Low walkability and low walking potential (red) – there is a low level of walking and little potential to increase walking trips.

The analysis indicates that there are high levels of walking in the north and central sections of Lambeth, around Waterloo, Vauxhall and Brixton. There is not much potential for increasing walking trips in the north but there is a high potential in the central section around Brixton, though it would need to be considered if streets need to be more attractive. There are low levels of walking in the south of the Borough, and funding may improve these areas where there is a high walking potential, however site investigations would be required as the environment may not be conducive.

### 4.1.5 Walking Initiatives

Lambeth is a partner in the Cross London Partnership for strategic walking routes in London, which is being managed by the Corporation of London as the lead authority. Three of the six strategic walking routes traverse the Borough, including Capital Ring Walks 4 and 5 (Crystal Palace to Streatham and Streatham to Wimbledon), the Thames Path National Trail and Jubilee Walkway, which follow the same route along the south bank of the Thames.

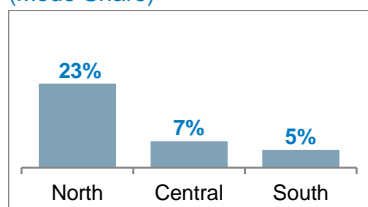
Lambeth also implement other initiatives such as:

- 'Lambeth Walks' - Active Referral Scheme - A scheme that recognises the role walking plays in the health of local residents. It is co-ordinated by Lambeth Healthy Lifestyles team who organise and encourage 'Active Walks' where local residents are encouraged to walk at their own pace in their local parks with a trained walk leader.

### 4.1.6 Walking Improvements in Lambeth

Table 4.1 presents the public realm improvements to improve walking routes and destinations throughout northern, central and southern sections of the Borough.

Figure 4.3: Walking in Lambeth (Mode Share)



Source: Census, Method of Travel to Work (2011).

Note: Working Population size: North (12,859), Central (101,172), South (52,463)

Although improvements have been made, there continue to be some barriers to walking in the north of the Borough, in particular the Waterloo Road (IMAX) roundabout and surrounding pedestrian infrastructure. This area has been identified as a critical junction and as an area requiring improvements to make pedestrians feel safe.<sup>27</sup>

<sup>27</sup> Waterloo Area Supplementary Planning Document (2013)

Table 4.1: Lambeth Walking Improvements

Public realm improvements	
North Lambeth <sup>28</sup>	<ul style="list-style-type: none"> <li>• Creation of new routes in the Lower Marsh area, linking the Southbank and Lower Marsh to Waterloo station.</li> <li>• Improvements to link current paths to the Leake Street Tunnel and tunnel refurbishment.</li> <li>• Improvements to the station entrance and in the areas surrounding The Cut, Waterloo Road and Millennium Green.</li> <li>• Jubilee Gardens refurbishment that allowed it to be used as a cultural venue for the 2012 Olympic Games. The area was de-cluttered, and green spaces with interconnected paths were introduced.</li> <li>• Improvements to Southbank's riverside walkway in 2012 to make the area 'accessible for all'. The scheme now provides an attractive and consistent link along the river with new lighting, paving and seating.</li> </ul> <p>The Southbank redevelopments have focused on improving wayfinding by increasing the number of Legible London signs, providing street furniture (e.g. benches, green areas) and disabled provisions (e.g.) dropped or flush kerbs at crossings. The scheme recognised that it was vital to provide a strong connectivity between other transport modes, in particular the link between the North bank and Waterloo station. The route is particularly well traversed by people on their onwards journey from Waterloo Station, where 20 per cent of people leaving the station do so on foot.<sup>29</sup></p>
Central Lambeth <sup>30</sup>	<ul style="list-style-type: none"> <li>• Improvements to the public realm environment in Vauxhall, with the introduction of new pedestrian crossings that provide tactile paving, dropped curbs and non-slip paving now facilitate the area.</li> <li>• Vauxhall bus depot has benefitted from sandstone paving that has uplifted the look of the area, and in addition, there is seating and overhead cover for pedestrians waiting in adverse weather conditions.</li> <li>• Redesign of Windrush Square in 2010 creating a high-quality public space in the centre of Brixton.</li> <li>• Public realm scheme in Clapham Old Town Regeneration Project (COTRP) covering the Clapham Old Town / Pavements / Clapham Common tube station.</li> <li>• Public realm scheme in Stockwell linked with better junction program. The scheme has seen Binfield Road and Stockwell Gyratory undergo public realm improvements.</li> <li>• Ongoing scheme at Loughborough Junction to improve public realm; enhancing the local environment, and improving the permeability for pedestrians when crossing key roads and accessing the station.</li> <li>• Public realm improvements at the Brixton Police station junction are being implemented to widen pedestrian crossings and improved footways. The scheme is due to be completed in 2016.</li> <li>• Proposed scheme to improve public realm on Atlantic Road by restricting traffic on the road for servicing vehicles and local buses. The scheme is due to be completed in 2016.</li> <li>• Improvements to the Stockwell gyratory are currently under construction to reduce the dominance of cars at the junction and reallocate road space to pedestrians and cyclists.</li> <li>• Proposals are planned for Loughborough junction, which currently has a poor pedestrian environment surrounding the station. Experimental road closures and consultations were completed in 2015; however there was a varied response to the scheme which the council are currently considering.</li> </ul>
South Lambeth <sup>31</sup>	<ul style="list-style-type: none"> <li>• Recent public realm improvements around West Norwood have included improvements to footways and pedestrian crossings. Traffic calming features such as raised tables at junctions off the A215 have also been implemented.</li> <li>• Improvements at Herne Hill following community engagement. The scheme developed into a neighbourhood centre strategy and included better crossings, better access to the park and introduced raised tables outside the station to provide a high quality pedestrian environment.</li> <li>• The pedestrian environment along through Streatham has recently been improved through large public realm improvements along the A23. These works have improved permeability along the A23 by removing barriers and adding crossings, street furniture, trees and lighting.</li> </ul>

<sup>28</sup> Waterloo Area Supplementary Planning Document (2013)

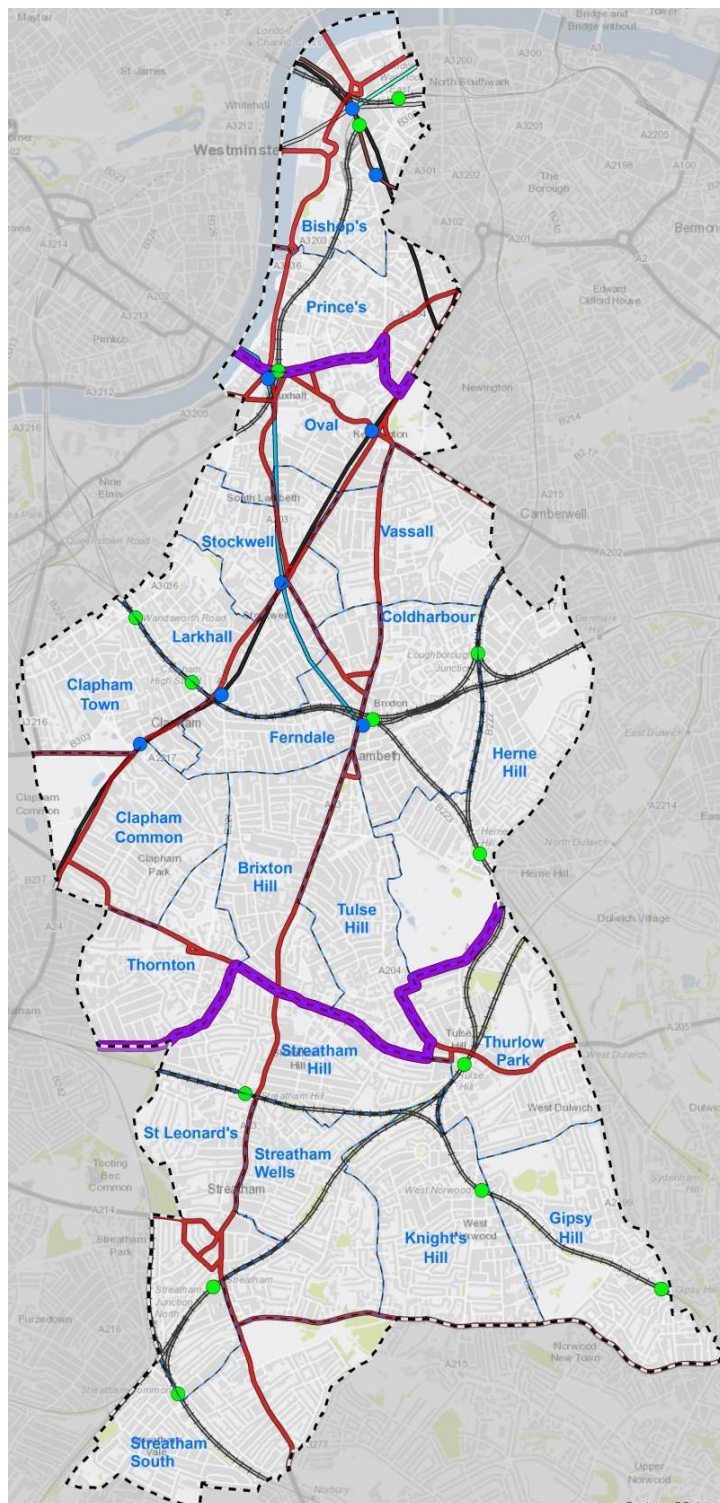
<sup>29</sup> Central London Rail Termini: Analysing passengers' onward travel patterns (2011)

<sup>30</sup> TfL Road Modernisation Plan (2014)

<sup>31</sup> Borough Local Implementation Plan (2014/15)



Figure 4.4: Baseline Summary: Walking



### North Lambeth

- 22.8 per cent of residents walk to work, which is the highest in the Borough (Census, 2011).
- Southbank area is now identified as one of the most attractive walking routes within London after a number of public realm improvements
- 20 per cent of people leaving Waterloo Station do so on foot

### Central Lambeth

- 7.2 per cent of residents walk to work, which is lower than the northern section but higher than the southern section (Census, 2011).
- Improvements to the public realm in Vauxhall, Stockwell neighbourhood centres and Brixton town centre.

### South Lambeth

- 4.8 per cent of residents walk to work, which is the lowest in the Borough (Census, 2011).
- Improvements to the public realm on the A23 Streatham High Road and West Norwood neighbourhood centre

Source: London Underground station, Main-line station, Rail line, Lambeth boundary & key roads: Contains Ordnance Survey data © Crown copyright and database right 2016

## 4.2 Cycling

### 4.2.1 Background

#### Cycling: Data sources

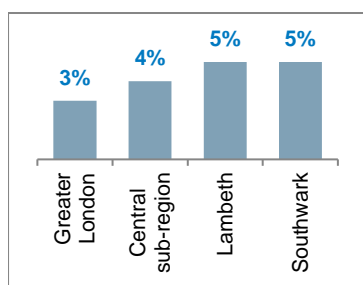
- ATOC Cycle Rail Toolkit
- Lambeth Cycle Parking Scheme Guide (Online)
- Lambeth Cycling Strategy (2013)
- Lambeth Transport Plan (2011)
- London Cycling Campaign (2012)
- National Census Data (2011)
- TfL Cycle Hire - Santander cycles transparency to end (2015)
- Sub Regional Transport Plan for Central London – 2015 Update
- TfL Attitudes towards Cycling, Annual Report 2014
- TfL Cycle Parking Facilities
- TfL Find a Docking Station (2016)
- TfL Quietways website (2016)
- TfL Travel in London: Report 8 (2015)
- The Mayor's Vision for Cycling in London (2013)

In 2013, cycling made up the main mode of travel for 3 per cent of trips per day in Greater London<sup>33</sup>. Cycling in Greater London has increased more than any other mode in recent years; data indicates that in 2014 there were 645,000 cycle journey stages in Greater London each day. This represents a 69.6 per cent increase since 2004, with a 10.3 per cent increase between 2013 and 2014<sup>32</sup>.

As shown in Figure 4.5, the central London sub-region, where Lambeth resides, has a greater modal share for cycling compared to Greater London. Within the region, Lambeth's cycling mode share is slightly higher than the average and is the same as neighbouring Borough, Southwark. Cycling trips in Lambeth have increased by 2 per cent from 2006 to 2013<sup>33</sup>.

Cycle flows on major roads, monitored by TfL through automatic traffic counters, have shown a 230 per cent increase between 2000/01 and 2014. The growth appears to be focused in central London, where cycle flows across the CCZ are almost twice as high as the inner and outer London flows combined<sup>32</sup>. This is reflected in the Central Area Peak Count data, a yearly monitor taken on a weekday in autumn to assess the number of people entering central London during the morning peak period (07:00-10:00). The results showed a 203 per cent increase between 2000 and 2014, while other flows have remained comparatively consistent.<sup>32</sup>

Figure 4.5: Cycling Mode Share



Source: Sub Regional Transport Plan for Central London – 2015 Update

The A24 experienced the biggest increase in the Borough, with a 176 per cent rise over the 10 year period whereas the A23 through Brixton only saw a 7 per cent increase over the same period<sup>34</sup>. While the A24 has seen the establishment of a cycle Superhighway (CS7) along the route, recently converted into a segregated cycle lane in 2015, the A23 has minimum cycle facilities meaning that cyclists continue sharing road space with cars, buses and freight<sup>32</sup>. Cycling tends to be more common on weekdays, reflecting the high share of commuter trips by this particular mode.<sup>35</sup>

It is worth noting that cycling numbers still fluctuate according to the season. Although the difference between periods of low activity and high activity is narrowing, TfL's annual monitor of traffic flows on the Capital's

<sup>32</sup> TfL. 2015. *Travel in London: Report 8*. Online: <http://content.tfl.gov.uk/travel-in-london-report-8.pdf>

<sup>33</sup> Sub Regional Transport Plan for Central London – 2015 Update

<sup>34</sup> DfT Traffic Count data

<sup>35</sup> Census data, 2011

major roads show a consistent pattern of increases in the summer months, and decreases around Christmas and the New Year period<sup>32</sup>.

#### 4.2.2 Cycling Policy

The Lambeth Transport Plan (2011) prioritises sustainable transport such as cycling over other motorised modes.

*“The vision is for Lambeth to be the most cycle friendly Borough in London”*

Lambeth Cycling Strategy (2013)

Lambeth aims to be the most cycle friendly Borough in London<sup>36</sup>. The Lambeth Cycling Strategy aims to achieve this by implementing 20mph speed limits to create safe and attractive streets for cycling. The Borough wants to widen the range of people cycling by offering free cycle training and targeting groups with low cycling rates. The strategy also commits to improving the road network for cyclists by relocating road space to cyclists, creating shorter links for cycling and reducing traffic on residential streets.

#### 4.2.3 Cycling Investment

London's investment in improving cycling infrastructure and services in recent years has certainly contributed to its increased mode share. An on-going £913 million investment scheme for cycle infrastructure announced by the Mayor of London in March 2013 aims to:<sup>37</sup>

- establish a new network of cycle routes in Central London
- create a 'Crossrail' for the bike
- introduce better cycle superhighways
- develop new Quietways
- construct 'Mini-Hollands' in the suburbs, and
- develop a 'Tube network' for the bike

These schemes are all currently being delivered. One thing of note is that, with the exception of the 'Mini-Hollands' - limited to three outer London Boroughs - there are very few radial routes as part of these London-wide improvements. Most of these new cycle schemes are routes concentrated between inner and central London.

The investment impact is significant as the northern section of the Borough, served in part by the A24, has seen a 90 per cent increase in cycling from 2004 to 2014. On the other hand, the southern section, which has experienced less investment, has the lowest number of cycling flows.

Lambeth's cycling provision is improving in-line with London trends of recent years. Until the introduction of route CS7 from Merton to The City, no off-road segregated cycle facilities within the Borough existed and

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<sup>36</sup> Lambeth Cycling Strategy (2013)

<sup>37</sup> The Mayor's Vision for Cycling in London (2013)

now there are two cycle Superhighways (CS5 & CS7) and a Quietway (Q1) in the north of the Borough, with three other Quietways (Q4, Q5 & Q7) proposed (see Figure 4.7). Major cycle routes are discussed later within this section.

#### 4.2.4 Cycle Initiatives in Lambeth

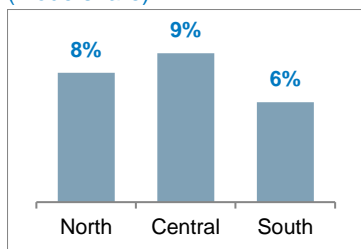
As well as the physical measures discussed above, the Borough has also implemented the following soft measures to encourage cycling within the Borough:

- Dr Bike Events - Free bicycle surgery to look at items such as brakes, tyres, gears and the general road-worthiness. Dr Bike events are held weekly in the summer and routinely have 40 people attending the two hour event.
- Free Cycle Training - The Borough offers free one-to-one cycle training sessions to improve confidence when cycling on the road. The service is free to anyone who lives, works or studies in Lambeth. The Borough trained 305 adults in three months between April and June 2016.
- Try Before you Buy -The Borough offers a try before you buy scheme where residents, students or employees of Lambeth are allowed to borrow a bicycle and accessories for up to 4 weeks. At the end of the loan period they have the option to return or buy at a reasonable price. In four months between April and August 2016, 166 people borrowed a bike using the scheme.

#### 4.2.5 Cycling Environment

Table 4.2 describes the cycling environment throughout the northern, central and southern sections of the Borough, and the improvements that have been undertaken to improve the cycling environment.

Figure 4.6: Cycling in Lambeth (Mode share)



Source: Census, Method of Travel to Work (2011).

Note: Working Population size: North (12,859), Central (101,172), South (52,463)

Lambeth is home to a number of principal traffic routes and one-way gyratory systems that create unfriendly environments for cycling due to high volumes of vehicle traffic and fewer opportunities for pedestrian permeability.

Road space within the Borough is also constrained as major principal routes are predominately single carriageway roads which travel through town/ neighbourhood centres such as parts of Brixton, Streatham, and Stockwell. As these are key routes through the Borough there is a high proportion of freight, bus and vehicular which leads to a generally poor cycling environment and also perception of unsafe cycling.



There have been a number of cycle infrastructure improvements at major gyratories and intersections within the Borough as part of TfL's Road Modernisation Plan at the following junctions:

- Oval triangle
- Stockwell cross
- Vauxhall cross
- Westminster Bridge South.

The improvements include on-street and segregated cycle lanes to improve cycle permeability and safety through the junctions. The amended junctions also reallocate road space away from vehicular traffic to pedestrians and cycles to reduce the dominance of cars at these major junctions. The following schemes have either been completed or are due to be completed in 2016.

Table 4.2: Cycling Environment in Lambeth

Section	Existing cycling environment	Cycling improvements
North Lambeth	<ul style="list-style-type: none"> <li>• There are segregated cycle lanes provided on some routes, such as the (A3036) Lambeth Palace Road. However, like the central section of the Borough, there are major junctions such as the Westminster Bridge Gyrotory and IMAX roundabout, which both have minimal segregated cycle facilities.</li> <li>• A high proportion of cycle trips are to and from Waterloo station as commuters cycle from the station to complete the last leg of their journey.</li> <li>• The north has recently been connected to London's longest off-road cycle lane that goes across Vauxhall Bridge, as part of the cycle Superhighway route CS5, which has dramatically improved cycling safety at Vauxhall Cross, a junction considered one of the ten worst for cyclists by the London Cycling Campaign in 2012.<sup>38</sup></li> <li>• The cycle Superhighway route CS7, from Merton to The City, which follows the Northern Line route along the A24/A3 has established a safe segregated cycle path along one of the Borough's busiest roads.</li> <li>• Cycle Superhighway CS7 connects the north-east of the Borough to Cannon Street and the City, and thus any cyclists on CS7 wishing to travel to the West End of London or Westminster need to use on-street signed cycle routes in the north of the Borough towards Waterloo Bridge, Westminster Bridge or Lambeth Bridge.</li> </ul>	<p><b>Westminster Bridge South</b> (due for completion in October 2016)</p> <ul style="list-style-type: none"> <li>• The proposal is to give cyclists dedicate space and separate cycle signals at junctions. The improvements for pedestrians include upgraded crossings, clearer footways and a new pedestrian crossing on Westminster Bridge Road.</li> </ul> <p><b>Vauxhall Gyrotory</b> (due for completion in the next two years)</p> <ul style="list-style-type: none"> <li>• There have been the following major cycling improvements recently completed at the junction: <ul style="list-style-type: none"> <li>– Off-road segregated cycle lanes have been provided on most arms of the gyrotory to separate cycle and vehicular traffic</li> <li>– Continuous cycle crossings have been provided on major crossings, which are also segregated from pedestrian crossings.</li> </ul> </li> <li>• Lambeth are currently working on proposals to remodel the Vauxhall gyrotory to convert back into one-way operation. Once the scheme is completed it will significantly improve the environment for cyclists. It would also improve the cycling route between Lambeth major employment areas in Central London which will encourage a greater cycling mode share in the future.</li> </ul> <p><b>Quietway 1</b> (Operational in Summer 2016)</p> <ul style="list-style-type: none"> <li>• The new Quietway 1 runs from Waterloo to Greenwich via South Bermondsey. Quietway 1 forms part of the Central London Cycling Grid which is a series of Quietways which cross central London following lightly trafficked roads such as back streets, parks and waterways to minimise conflicts between bicycles and vehicular traffic.</li> </ul>

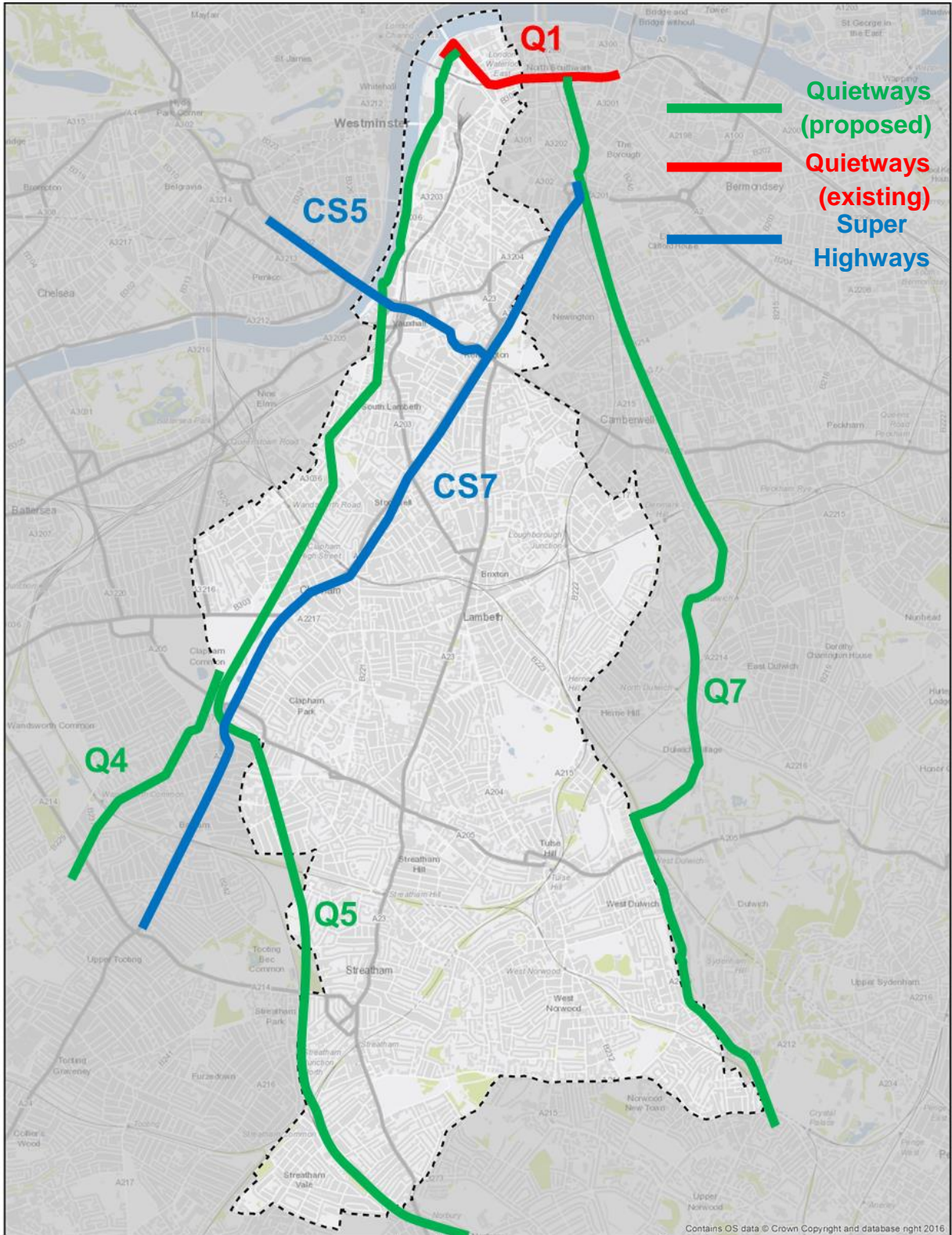
<sup>38</sup> London Cycling Campaign: <http://lcc.org.uk/pages/gyratories>

Central Lambeth	<ul style="list-style-type: none"> <li>• Cycle Superhighway (CS7) runs from Oval in the north-east to Clapham South in the south-west. The route follows the A3/A24 with on-street cycle lanes along the majority of the road, which includes the neighbourhood centres of Stockwell and Clapham Common. However, there are no major cycle routes through the spine of the Borough to connect the northern and central sections, to the southern section of the Borough.</li> <li>• Apart from the cycle Superhighway (CS5 &amp; CS7), the majority of roads in the central section of the Borough have limited cycling provision.</li> <li>• In town centre locations such as Brixton there are still limited segregated cycle lanes and restricted carriageway widths. This is also coupled with high volume of traffic and a high proportion of freight and bus traffic, which creates an unsafe perception of cycling for inexperienced cyclists.</li> </ul>	<p><b>Brixton town centre</b></p> <ul style="list-style-type: none"> <li>• Public realm improvements, including extended footways, enhanced street furniture, and increased provision of cycle parking has helped promote cycling in the Brixton area.</li> <li>• There are currently on-going works to improve public realm around Electric Avenue and Electric Lane. There is also a scheme to restrict vehicular traffic on Atlantic Road which will improve the environment for cyclists around Brixton town centre. The cycling improvements around Brixton town centre align with the aspirations of the 2013 Brixton SPD, which identified the need to improve cycling routes, parking spaces, and safety during day and night. The document also states that enhanced cyclist priority, the establishment of a clear network of routes for cycle access to and through the town centre were important components to improve the quality of town centre.</li> </ul> <p><b>Oval triangle</b> (in progress)</p> <ul style="list-style-type: none"> <li>• The Oval triangle junction is under redevelopment to improve safety for cyclists and other road users. The plan includes four junctions, A23 Kennington Road, A202 Harleyford Street, A202 Camberwell New Road, and A23 Brixton Road.</li> <li>• This has greatly improved cyclists experience of the junction, by enhancing safety and permeability of the junction.</li> </ul> <p><b>Stockwell Cross</b> (in progress)</p> <ul style="list-style-type: none"> <li>• Transport for London is removing the existing gyratory to reduce the dominance of motor traffic.</li> </ul>
South Lambeth	<ul style="list-style-type: none"> <li>• There are limited cycle facilities such as segregated cycle lanes, and cycling levels remain lowest here.</li> <li>• Even though there are bus lanes on the A23 through Streatham for cyclists to use, these bus lanes are not continuous; therefore cyclists have to share the carriageway along congested sections of the route.</li> </ul>	

#### 4.2.6 Major Cycle Routes

Figure 4.7 shows the existing cycle super highways, CS5 and CS7, running through the Borough as well as proposed Quietways running along the northern, eastern and western boundaries of the Borough. The first route (Q1 Waterloo to Greenwich) was launched in June 2016, and the other three Quietways (Q4 Clapham Common to Wimbledon, Q5 Waterloo to Croydon and Q7 Elephant and Castle to Crystal Palace) are currently in the consultation stage.

Figure 4.7: Existing and Proposed Major Cycle Routes



As shown in Section 3, cycling to work levels are generally highest in the centre of the Borough and lowest in the south of the Borough. Areas such as Herne Hill have some of the highest levels of cycling, with 12.8 per cent commuting by bicycle<sup>39</sup>. Even though areas such as Herne Hill are well connected by signed cycle routes, there is no major cycle infrastructure such as cycle Superhighways or major segregated cycle lanes.

To improve cycle accessibility to the central and southern section of the Borough, TfL are currently conducting consultation for three Quietway cycle routes (Q4, Q5 and Q7), which run close to the eastern and western boundaries of the Borough through low traffic roads, parks and waterways. The proposed Quietways will improve cycle connectivity for cyclists east and west of the Borough with new cycle signage and infrastructure that will enable better and more secure cycle access to central London.<sup>40</sup>

Due to the location of the Quietways (Q4, Q5 & Q7) along the eastern and western boundaries of the Borough, they will not improve cycling through the spine of the Borough along the A23. Existing cyclists using the A23 will have to utilise lateral east-west cycle routes across the Borough to access the proposed Quietways.

#### **4.2.7 Cycle Hire Scheme**

The cycle hire scheme is proving a major success across London. In the 2014/15 financial year there were 10.1 million hires, which was a 22.5 per cent increase on the previous year.<sup>41</sup>

Borough wide, the TfL cycle hire scheme is currently only present from Waterloo down to Stockwell. The existing docking stations are predominantly located within the CCZ (i.e. to the north of the A3204). Outside of the CCZ there are docking stations close to the A3 between Elephant and Castle to Stockwell.

All of the nine most popular cycle hire journeys in London start or end in Lambeth. As shown in Table 4.3 below, the nine most popular journeys across London in December 2015 were tied to Waterloo station.

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<sup>39</sup> Census Data (2011)

<sup>40</sup> <https://tfl.gov.uk/travel-information/improvements-and-projects/quietways>

<sup>41</sup> <https://tfl.gov.uk/modes/cycling/santander-cycles/find-a-docking-station>



Table 4.3: Most Popular Cycle Hire Journeys in London (top nine)

Most frequent journeys	Number of journeys (over 6 weeks)
Waterloo station to Stonecutter Street, Holborn	414
Waterloo station to Finsbury circus, Liverpool Street	357
Waterloo station to Newgate Street, St Paul's	338
Newgate street, St Paul's to Waterloo station	336
Queen Street 2, Bank to Waterloo station	332
Waterloo station to Queen Victoria street, St Paul's	320
Waterloo station to Queen street bank	311
Waterloo station to Godliman Street, St Paul's	304
Finsbury Circus to Waterloo station	285

Source: TfL Cycle Hire - Santander cycles transparency to end 2015

The most frequent journeys highlight the importance of Waterloo as a hub for last mile commuter journeys by bike. Many commuters using the rail service into London travel onwards to their final destination from Waterloo by bicycle. On-site observations show that during peak hours there are a shortage of cycle hire bikes around Waterloo Station. This is covered further in the Site Audit section, which is Section 12 of this report.

As well as using the cycle hire scheme from Waterloo station, other commuters also bring a foldable bicycle onto their trains, and others still use the cycle parking facilities at the station to use their bikes. The limited spaces for cycles on the recently provided racks at the entrance to the station attests how well used these are used<sup>42</sup>.

#### 4.2.8 Cycle Parking

Figure 4.8: Lambeth BikeHanger



Source: Lambeth Cycling Strategy (2013)

Cycle parking has improved across Lambeth in recent years. Recent public realm improvements in areas such as Vauxhall, Streatham, Brixton, and West Norwood have increased the amount of on-street cycle parking facilities.

The Borough has also designed its own cycle parking system known as the Lambeth 'BikeHanger', which is a secure covered cycle storage facility holding up to 12 cycles (example shown in Figure 4.8). The BikeHangers are usually located on-street with each hanger taking up the same space as a single car parking space.

The BikeHangers have proved to be a major success with between 100 to 200 cycle racks being installed each year across the Borough.<sup>43</sup> The BikeHangers are currently being funded through developer contributions or residents can request a cycle BikeHanger to be installed and rent the space via a monthly fee.

<sup>42</sup> TfL Cycle Parking Facilities

<sup>43</sup> Lambeth Cycle Parking Scheme, Lambeth website

Major train stations within the Borough such as Waterloo and Vauxhall also require improvements to cycle parking facilities. Even though cycle parking provision at both these stations have increased over the last few years, both station's cycle parking facilities still operate at or close to maximum capacity during peak hours. Reviews were undertaken of the level of cycle parking at Waterloo which demonstrated high demand. Further information is contained in the site audit section. The Association of Train Operating Companies states that where cycle parking is at 80 per cent usage, a further 20 per cent should be introduced as a guide to matching capacity to demand.<sup>44</sup> The Site Audit undertaken during the AM peak at key Lambeth stations indicates greater than 80 per cent usage. The Association of Train Operating Companies (ATOC) has guidelines as to how this can be developed further to provide more specific numbers. However, this was not part of this review. A high level assessment was undertaken to look at cycle parking in relation to overall station usage. Although this is only a high level proxy, it did indicate very low ration of cycle parking to passenger numbers across Lambeth and backs up the site audit process.

Brixton station has limited cycling parking facilities. There are a number of on-street cycling parking spaces which are heavily used and are usually operating at capacity during peak hours (see Site Audit - Photo 12.12).

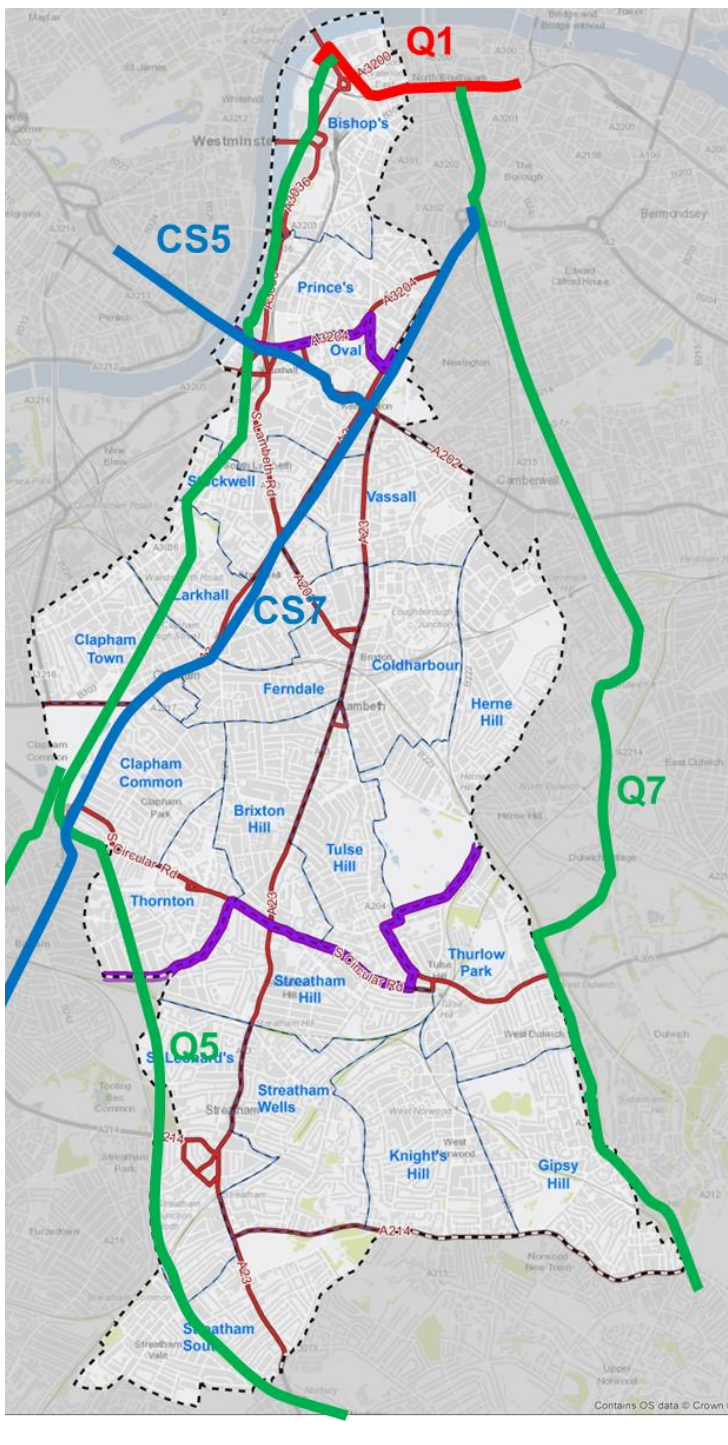
All rail and tube stations in the Borough have established cycle parking provision with the exception of Streatham Hill, and town/ neighbourhood centre cycle parking has improved with cycle racks incrementally increasing across the Borough.

Local cycle parking has also improved as a result of the council's concerted efforts to become more responsive to demand.

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<sup>44</sup> ATOC Cycle Rail Toolkit

Figure 4.9: Baseline Summary: Cycling



### North Lambeth

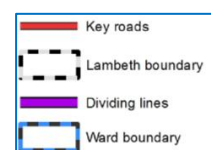
- 7.9 per cent of residents cycle to work (Census, 2011)
- Cycle Superhighways, CS5 and CS7, connect Vauxhall and the Oval, and Merton to the City respectively
- TfL cycle hire scheme is currently only present from Waterloo down to Stockwell.
- All of the top nine most popular cycle hire journeys start or end at Waterloo station, which has 126 docking stations.
- Generally challenging cycle environment around Waterloo Station and IMAX junction due to peak time congestion and volume of pedestrians crossing busy roads
- Cycle Parking at Waterloo Station operates at capacity during peak periods<sup>45</sup>

### Central Lambeth

- Highest percentage of residents cycling to work, 9.1 per cent (Census, 2011)
- Areas of low cycling levels to the north east of Brixton town centre.
- Cycle Superhighway along the A24
- Lack of cycle parking facilities at Brixton station
- No major cycling routes along the A23 / congested road network leading to poor cycling environment
- No TfL cycle hire coverage south of Stockwell
- Areas such as Herne Hill have one of the highest levels of cycling which is also an area of high income

### South Lambeth

- 6.1 per cent of residents cycle to work (Census, 2011)
- Higher levels of car ownership
- No TfL cycle hire coverage
- Limited segregated cycling facilities



Source: Contains Ordnance Survey data © Crown copyright and database right 2016,  
Cycle Routes: <https://tfl.gov.uk/travel-information/improvements-and-projects/quietways>

<sup>45</sup> Baseline site audit within this report (Photo 12.3)

# 5 Public Transport

The next section of the report focuses on public transport accessibility across the Borough as well as the current conditions and capacity. Specific areas of existing congestion hot spots and gaps in the network are identified and explored to create a detailed account of baseline conditions.

## 5.1 Rail

### Rail: Data sources

- Baseline Railplan Data (2011)
- Brixton Supplementary Planning Document (2013)
- Census Data (2011)
- Crossrail 2 Factsheet: Clapham Junction station (2015)
- Loughborough Junction Plan (2013)
- Mayor’s Transport Strategy (2010)
- Network Rail Passenger Capacity Summary
- Office of Rail and Road Estimates of Station Usage (2014-15)
- Office of Rail Regulator (2015)
- Sub Regional Transport Plan for Central London (2015 Update)
- Urban Design London: Better Streets Delivered (2013)
- Waterloo Opportunity Area Planning Framework (2007)
- Waterloo Supplementary Planning Document (2013)

### 5.1.1 Background

National Rail in London has extensive coverage throughout Greater London providing local services, as well as longer distance inter city services from key hub stations. In 2012, rail made up the main mode of travel for 5 per cent of trips in Greater London<sup>46</sup>.

As shown in Figure 5.1, Lambeth’s overall mode share by rail is higher than the Greater London average but lower than the Central sub-region average and neighbouring Southwark’s mode share. Lambeth’s mode share for rail is unchanged since 2006.

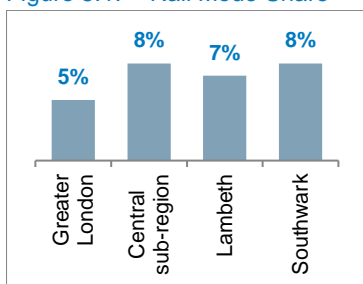
In the Mayor’s Transport Strategy, both Rail and tube are identified as key opportunity for improvement. The strategy outlines an ambition to ‘transform the Tube’ and ‘Enhance rail, including Crossrail, Thameslink and London Overground’.<sup>47</sup>

### 5.1.2 National Rail Services

In Lambeth there are 12 National Rail stations situated throughout the Borough. The stations are served by four train providers and these are shown in Table 5.1.

There are no direct rail services which link the northern, central and southern sections of the Borough, which makes it difficult to travel within the Borough by rail. There is also a lack of east-to-west train services in south London, as the majority of the train services are towards central London terminals.

Figure 5.1: Rail Mode Share



Source: Sub Regional Transport Plan for Central London – 2015 Update

<sup>46</sup> Sub Regional Transport Plan for Central London – 2015 Update

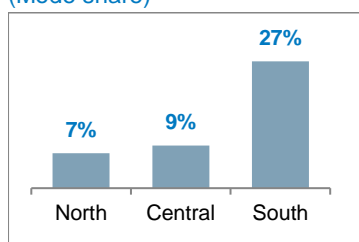
<sup>47</sup> Mayor’s Transport Strategy (2010)

Table 5.1: National Rail Stations and Services in Lambeth

	Train Providers			
	South West Trains	South Eastern	Southern	Thameslink
Waterloo	✓			
Waterloo East		✓		
Vauxhall	✓			
Clapham Junction *	✓		✓	
Loughborough Junction				✓
Brixton		✓		
Herne Hill		✓		✓
Tulse Hill			✓	✓
Streatham Hill			✓	
Streatham			✓	✓
Streatham Common			✓	
West Norwood			✓	
Gipsy Hill			✓	
<b>Services</b>	London Waterloo to Windsor and Eton Riverside, Reading, Exeter St Davids, Weymouth and Portsmouth and Southampton	London Victoria and Charring Cross to Kent and Sussex. Charring Cross Line runs through Waterloo East, to London Victoria	London Victoria and London Bridge to Southampton, Portsmouth, and Brighton.	North-south services between Bedford and Brighton

\*Not in Borough boundary

Figure 5.2: Rail use in Lambeth (Mode share)



Source: Census, Method of Travel to Work (2011).  
Note: Working Population size: North (12,859), Central (101,172), South (52,463)

In addition to the 12 National Rail stations in Lambeth there are also two London Overground stations located within the Borough; situated at Wandsworth Road and Clapham High Street.

Even though London Overground trains pass through Brixton town centre via the high level railway viaduct, there is no London Overground connection at Brixton. Various proposals have been considered to provide an Overground stop at Brixton.



### 5.1.3 Lambeth's Rail Stations

Table 5.2 describes the rail provision and use in the northern, central and southern sections of the Borough.

Table 5.2: Rail Stations in Lambeth

North Lambeth													
<b>Waterloo</b>													
<ul style="list-style-type: none"> <li>• Busiest station in the UK by passenger usage</li> <li>• Two platforms formerly utilised by Eurostar services, due to be brought into use</li> <li>• Main concourse can become very congested as passengers wait in front of information display boards whilst others access the platforms<sup>48</sup></li> </ul> <p>The busiest morning peak hour sees 45,700<sup>49</sup> (2013/14) passengers arriving on National Rail services</p> <p>Waterloo is in the process of undertaking a station upgrade to improve both the provision of retail services and train services in the station, the upgrade process has been undertaken in stages and is as follows:</p> <ul style="list-style-type: none"> <li>• Retail balcony upgrade (completed in 2012 - £25 million)</li> <li>• 10 car platforms completed in 2014 to increase capacity with 108 extra carriages</li> <li>• 12 car platforms to be introduced, and will continue to be so until completion (2018)</li> <li>• A new street level concourse, also in the longer term</li> </ul>	<table border="1"> <tr> <td>No. of entries and exits (2014/15)<sup>50</sup></td> <td><b>99.2m</b></td> </tr> <tr> <td>No. of interchanges (2014/15)</td> <td><b>10.2m</b></td> </tr> <tr> <td>No. of Platforms</td> <td><b>22</b></td> </tr> <tr> <td>Step free access</td> <td><b>Yes</b></td> </tr> <tr> <td>Ramp for train access</td> <td><b>Yes</b></td> </tr> </table>	No. of entries and exits (2014/15) <sup>50</sup>	<b>99.2m</b>	No. of interchanges (2014/15)	<b>10.2m</b>	No. of Platforms	<b>22</b>	Step free access	<b>Yes</b>	Ramp for train access	<b>Yes</b>		
No. of entries and exits (2014/15) <sup>50</sup>	<b>99.2m</b>												
No. of interchanges (2014/15)	<b>10.2m</b>												
No. of Platforms	<b>22</b>												
Step free access	<b>Yes</b>												
Ramp for train access	<b>Yes</b>												
<b>Waterloo East</b>													
<ul style="list-style-type: none"> <li>• Situated on the South Eastern main line</li> <li>• Waterloo East station is connected to Waterloo station by an elevated walkway that acts as the main access to the station and is managed by South Eastern. This is poorly connected and signed from the main concourse<sup>51</sup></li> </ul>	<table border="1"> <tr> <td>No. of entries and exits (2014/15)<sup>50</sup></td> <td><b>7.9m</b></td> </tr> <tr> <td>No. of interchanges (2014/15)</td> <td><b>1.4m</b></td> </tr> <tr> <td>No. of Platforms</td> <td><b>4</b></td> </tr> <tr> <td>No. of peak hour trains travelling in both directions</td> <td><b>30</b></td> </tr> <tr> <td>Step free access</td> <td><b>Yes</b></td> </tr> <tr> <td>Ramp for train access</td> <td><b>Yes</b></td> </tr> </table>	No. of entries and exits (2014/15) <sup>50</sup>	<b>7.9m</b>	No. of interchanges (2014/15)	<b>1.4m</b>	No. of Platforms	<b>4</b>	No. of peak hour trains travelling in both directions	<b>30</b>	Step free access	<b>Yes</b>	Ramp for train access	<b>Yes</b>
No. of entries and exits (2014/15) <sup>50</sup>	<b>7.9m</b>												
No. of interchanges (2014/15)	<b>1.4m</b>												
No. of Platforms	<b>4</b>												
No. of peak hour trains travelling in both directions	<b>30</b>												
Step free access	<b>Yes</b>												
Ramp for train access	<b>Yes</b>												

<sup>48</sup> Waterloo Supplementary Planning Document (2013)

<sup>49</sup> Network Rail Passenger Capacity Summary

<sup>50</sup> Office of Rail and Road Estimates of Station Usage (2014-15)

<sup>51</sup> Waterloo Opportunity Area Planning Framework (2007)

## Central Lambeth

### Vauxhall

<ul style="list-style-type: none"> <li>Key station for interchange within Lambeth, which lies in close proximity to Vauxhall bus station, and Vauxhall underground station</li> </ul>	No. of entries and exits (2014/15) <sup>50</sup>	<b>21.1m</b>
<ul style="list-style-type: none"> <li>The station is managed by South West Trains</li> </ul>	No. of peak trains travelling into London Waterloo	<b>24</b>
<ul style="list-style-type: none"> <li>Station is isolated from its surroundings as it is located in the middle of a large gyratory system. There have been recent improvements to wayfinding and public realm surrounding the station to improve pedestrian and cycle accessibility to the station</li> </ul>	No. of trains travelling to destinations in the south west (Woking, Windsor and Guildford)	<b>28</b>
	Step free access	<b>Yes</b>
	Ramp for train access	<b>Yes</b>

### Loughborough Junction

<ul style="list-style-type: none"> <li>Railway network has contributed to the severance of communities in the area<sup>52</sup></li> </ul>	No. of entries and exits (2014/15) <sup>50</sup>	<b>1.4m</b>
<ul style="list-style-type: none"> <li>Loughborough Junction is located to the north east of Brixton, at the intersection of the Thameslink line towards Elephant and Castle, and the London Overground line to Clapham High Street. However, the latter does not currently stop at Loughborough Junction</li> </ul>	No. of peak hour trains travelling in both directions	<b>9</b>
<ul style="list-style-type: none"> <li>The station is managed as part of the Thameslink services</li> </ul>	Step free access	<b>No</b>
<ul style="list-style-type: none"> <li>The trains stopping at the station run on the Thameslink Line between Bedford and Brighton. The station is located on the top of a viaduct.</li> </ul>	Ramp for train access	<b>No</b>
<ul style="list-style-type: none"> <li>Network Rail has proposals to regenerate the area by refurbishing the railway arches to provide space for start-up businesses and improve the environment surrounding the station</li> </ul>		

### Brixton

<ul style="list-style-type: none"> <li>Situated on the Chatham main line, to the north west of Brixton Underground station</li> </ul>	No. of entries and exits (2014/15) <sup>50</sup>	<b>1.1m</b>
<ul style="list-style-type: none"> <li>Key bus stops in the area are within walking distance of the station</li> </ul>	No. of peak hour trains travelling in both directions	<b>8</b>
<ul style="list-style-type: none"> <li>The station is managed by Southeastern who currently run all the stopping services from the station</li> </ul>	Step free access	<b>No</b>
<ul style="list-style-type: none"> <li>The station is located above the street on a viaduct at the point of intersection of a number of rail lines. Both platforms are currently only accessible via stairs</li> </ul>	Ramp for train access	<b>No</b>
<ul style="list-style-type: none"> <li>Currently, there is no interchange facility to London Overground services from Brixton National Rail station</li> </ul>		
<ul style="list-style-type: none"> <li>Brixton SPD outlines a desire to upgrade the mainline railway station and improve interchange between to public transport and to improve mainline station entrance and facilities including a provision of passenger lifts as well as staircases between the street and the existing rail platforms<sup>53</sup></li> </ul>		
<ul style="list-style-type: none"> <li>Better signage and lighting are outlined in the Brixton SPD</li> </ul>		

### Herne Hill

<ul style="list-style-type: none"> <li>The station is managed by South Eastern and serviced by both the Thameslink line and the Chatham main line</li> </ul>	No. of entries and exits (2014/15) <sup>50</sup>	<b>3.4m</b>
	No. of interchanges (2014/15)	<b>1.6m</b>

<sup>52</sup>Loughborough Junction Plan (2013)

<sup>53</sup> Brixton Supplementary Planning Document (2013)

<ul style="list-style-type: none"> <li>• South Eastern services run between London Victoria and Orpington, but Thameslink services operate to and from various central London termini</li> </ul>	No. of peak hour trains travelling in both directions	<b>19</b>
<ul style="list-style-type: none"> <li>• The station became fully accessible in 2010 when refurbishments were undertaken to coincide with the instalment of ticket barriers</li> </ul>	Step free access	<b>Yes</b>
<ul style="list-style-type: none"> <li>• £1.7 million redesign of station and surrounding junctions<sup>54</sup></li> </ul>	Ramp for train access	<b>Yes</b>
<ul style="list-style-type: none"> <li>• 12 car trains cannot currently stop at Herne Hill</li> </ul>		

### Tulse Hill

<ul style="list-style-type: none"> <li>• The station is managed by Southern Trains, and has stopping trains from the Thameslink line and Southern line services</li> </ul>	No. of entries and exits (2014/15) <sup>50</sup>	<b>2.6m</b>
<ul style="list-style-type: none"> <li>• 4 Thameslink services per hour travel into London, 4 travel out on the Wimbledon Loop</li> </ul>	No. of interchanges (2014/15)	<b>0.7m</b>
<ul style="list-style-type: none"> <li>• 4 Southern trains travel to London Bridge, with 4 travelling in the opposite direction to Crystal Palace and West Croydon</li> </ul>	No. of peak hour trains travelling in both directions	<b>36</b>
<ul style="list-style-type: none"> <li>• Currently the station can only accommodate 8 car trains due to complex track sections near the station platforms</li> </ul>	Step free access	<b>No</b>
<ul style="list-style-type: none"> <li>• Data shows the usage of Tulse Hill station is approximately an equal split between Southern and Thameslink services with the majority of passengers boarding trains during AM peak <sup>55</sup></li> </ul>	Ramp for train access	<b>Yes</b>

### Wandsworth Road

<ul style="list-style-type: none"> <li>• Managed by London Overground</li> </ul>	No. of entries and exits (2014/15) <sup>50</sup>	<b>0.6m</b>
<ul style="list-style-type: none"> <li>• Wandsworth Road has seen passenger entries/exits dramatically increase in recent years. In 2008/09 166,326 passengers passed through the station. The number of passenger entries and exits further rose to 312,730 in 2012/13. By 2014/15 ORR reported a high growth trend with 617,414 entering / exiting the station<sup>56</sup>.</li> </ul>	Step free access	<b>No</b>
<ul style="list-style-type: none"> <li>• The station has benefited from investment since joining the Overground network, and equipped with cycle hire and Legible London wayfinding. However, currently there is no disabled access at the station and a short platform which only accommodates 6-8 car trains.</li> </ul>	Ramp for train access	<b>No</b>

### Clapham High Street

<ul style="list-style-type: none"> <li>• Managed by London Overground</li> </ul>	No. of entries and exits (2014/15) <sup>50</sup>	<b>1.2m</b>
<ul style="list-style-type: none"> <li>• Clapham High Street has experienced a 'strong growth trend'<sup>Error! Bookmark not defined.</sup>, with 1.2 million passengers passing through the station in 2014/15, which is an increase of 12 per cent from 2013/14.</li> </ul>	Step free access	<b>No</b>
<ul style="list-style-type: none"> <li>• The station has benefited from recently joining the Overground network, and has cycle parking and some signage.</li> </ul>	Ramp for train access	<b>No</b>
<ul style="list-style-type: none"> <li>• The station is currently undergoing a refurbishment to reduce overcrowding during peak flow by widening the entrance. There is also a plan to introduce disabled access in the form of a lift or ramp.</li> </ul>		

<sup>54</sup> Urban Design London: Better Streets Delivered (2013)

<sup>55</sup> Baseline Railplan Data (2011)

<sup>56</sup> Office of Rail Regulator (2015)



## South Lambeth

### West Norwood

<ul style="list-style-type: none"> <li>The station is managed and served by Southern Trains</li> </ul>	No. of entries and exits (2014/15) <sup>50</sup>	<b>2.3m</b>
<ul style="list-style-type: none"> <li>Trains from platform 1 travel towards Central London, to London Victoria and London Bridge, while services from platform 2 operate to a range of stations, such as West Croydon and Crystal Palace</li> </ul>	No. of interchanges (2014/15)	<b>0.02m</b>
<ul style="list-style-type: none"> <li>The station was modernised in 2009/10 to coincide with the instalment of new ticket barriers</li> </ul>	No. of peak hour trains travelling in both directions	<b>12</b>
<ul style="list-style-type: none"> <li>Rail services in the AM peak from West Norwood towards Victoria (via Balham) are nearly 3 times as busy as train services towards London Bridge<sup>55</sup></li> </ul>	Step free access	<b>Yes</b>
<ul style="list-style-type: none"> <li>Trains to Victoria also operate with no spare seating capacity from West Norwood</li> </ul>	Ramp for train access	<b>Yes</b>

### Gipsy Hill

<ul style="list-style-type: none"> <li>The station is located on the Crystal Palace line, and operated by Southern Trains</li> </ul>	No. of entries and exits (2014/15) <sup>50</sup> :	<b>2.1m</b>
<ul style="list-style-type: none"> <li>Trains travel to London Victoria, London Bridge, Beckenham Junction and Sutton</li> </ul>	No. of peak hour trains travelling both ways	<b>12</b>
<ul style="list-style-type: none"> <li>£800,000 of improvements in 2010 under the Department for Transport's National Stations Improvement Programme (NSIP)</li> </ul>	Step free access	<b>No</b>
<ul style="list-style-type: none"> <li>Improvements included a complete re-design of the booking hall to include a new accessible ticket office window, an accessible station entrance, a new accessible toilet and new retail and ticket buying facilities</li> </ul>	Ramp for train access	<b>Yes</b>

### Streatham Hill

<ul style="list-style-type: none"> <li>The station and all services are managed by Southern Trains</li> </ul>	No. of entries and exits (2014/15) <sup>50</sup>	<b>2.8m</b>
<ul style="list-style-type: none"> <li>4 trains per hour towards London Victoria on platform 1, 4 trains per hour towards Sutton and London Bridge</li> </ul>	No. of peak hour trains travelling both ways	<b>8</b>
	Step free access	<b>Yes</b>
	Ramp for train access	<b>Yes</b>

### Streatham

<ul style="list-style-type: none"> <li>Services are provided by Southern and Thameslink operators with trains traveling between Luton and Wimbledon on the Thameslink line, and London Bridge and West Croydon on the Southern line</li> </ul>	No. of entries and exits (2014/15) <sup>50</sup>	<b>3.2m</b>
<ul style="list-style-type: none"> <li>ORR noted a high growth trend at the station (entries / exits up 310,364 from 2013/14)<sup>50</sup></li> </ul>	No. of interchanges (2014/15)	<b>0.47m</b>
	No. of peak hour trains travelling both ways	<b>12</b>
	Step free access	<b>No</b>
	Ramp for train access	<b>No</b>

### Streatham Common

<ul style="list-style-type: none"> <li>Managed by Southern Trains</li> </ul>	No. of entries and exits (2014/15) <sup>50</sup>	<b>4m</b>
<ul style="list-style-type: none"> <li>Direct trains from the station run north towards London Victoria, London Bridge, Milton Keynes Central, and South towards Croydon</li> </ul>	No. of interchanges (2014/15)	<b>0.2m</b>
<ul style="list-style-type: none"> <li>There have been some recent cycle infrastructure improvements around the station. The station benefits from sheltered cycle parking</li> </ul>	No. of peak hour trains travelling both ways	<b>15</b>

<ul style="list-style-type: none"> <li>Southern Trains consider Streatham Common to be the 6<sup>th</sup> busiest station in their 158 station network</li> </ul>	Step free access	No
<ul style="list-style-type: none"> <li>The station has 4 platforms but only platforms 1 and 2 are used daily as stopping platforms</li> </ul>	Ramp for train access	Yes
<ul style="list-style-type: none"> <li>Between 2012 and 2013 platforms 1 and 2 were extended to accommodate 10 car trains</li> </ul>		

## Outside Lambeth

### Clapham Junction

<p>Although not within the Borough of Lambeth, Clapham Junction is a vital transport link for the Borough and a key interchange for the Borough's residents for journeys into Central London, and to the south of England</p> <ul style="list-style-type: none"> <li>The station is currently a key junction linking trains from Victoria and Waterloo to the south of England, particularly Woking, Basingstoke and Croydon</li> <li>The station is currently at the consultation stage for the development of a Crossrail 2 station at the site<sup>57</sup></li> <li>The station benefits from the TfL cycle hire scheme and on site cycle parking</li> </ul>	No. of entries and exits (2014/15) <sup>50</sup>	26.5m
	No. of interchanges (2014/15)	28.4m
	No. of peak hour trains travelling both ways	117
	Step free access	Yes
	Ramp for train access	Yes

As the table above indicates, less than 50 per cent (7 out of 15) of the rail stations in Lambeth currently offer step free access.

A study was undertaken in December 2016 to consider the feasibility of Crossrail 2 to serve Streatham. The study was commissioned as residents and stakeholders of the Streatham area felt that these improvements are bypassing the area. The study found that currently:

- Rail journey times from Streatham are longer than neighbouring towns such as Tooting. However, it also states Streatham is better served than other similarly placed areas in Zone 3.
- Streatham will benefit from current Thameslink improvements, therefore it's not strictly true that Streatham is missing out on rail investment.

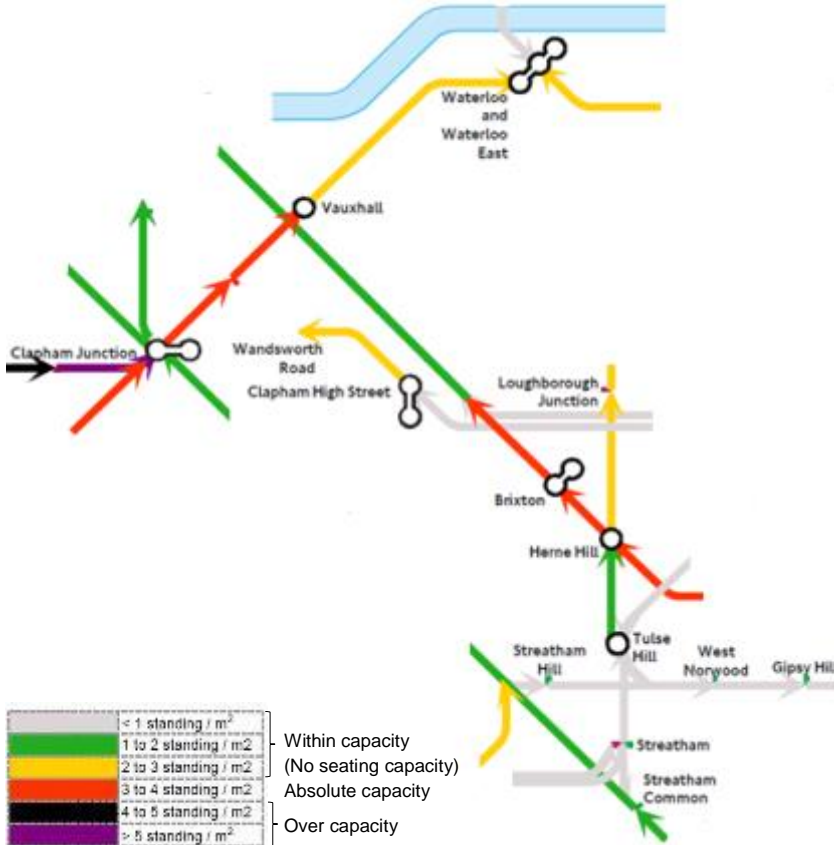
#### 5.1.4 National Rail Capacity

TfL's Baseline Railplan model has been interrogated to analyse capacity issues on the current rail network (based on 2011 data). The 2011 to 2016 growth has not been factored as it is outside scope of this study.

To analyse the worst case scenario, AM peak hour (8am to 9am) crowding on national rail services through Lambeth has been examined and the Railplan results are shown in Figure 5.3. It is important to note that results presented in Figure 5.3 show an aggregate of all train services on a particular train line rather than specific train services, and also includes non-stopping trains at stations where a fast train will travel through.

<sup>57</sup> Crossrail 2 Factsheet: Clapham Junction station (2015)

Figure 5.3: National Rail AM Peak Crowding (8am-9am) – Standing Passengers per square metre



Key National Rail observations:

- South West train services are heavily congested all the way through the Borough up to Waterloo station. There is a slight drop after Vauxhall station where passengers interchange with underground services. However, services are still congested between Vauxhall and Waterloo
- South Eastern trains are also heavily congested through the Borough from Herne Hill station to Vauxhall. The link between Brixton and Victoria is green; however this includes less congested trains from Loughborough junction which is showing an average reduction in congestion on this section of track.
- Southern Trains operate within total capacity limits with spare capacity from West Norwood and Streatham Hill towards Victoria.
- Thameslink trains operate close to total capacity with no seating capacity on Thameslink services running through Lambeth

Source: Baseline Railplan data (2011)

Note: This analysis includes an aggregate of all train services on a particular train line rather than specific train services for a peak Hour (8am to 9am). The analysis also includes both stopping trains and fast trains. It is not recommended to use this data for fine detail as the models strength is at a more strategic level.

To understand the capacity of specific train services stopping at Lambeth’s stations, Railplan data has been interrogated further. Figure 5.4 presents the capacity of services departing Lambeth’s stations in the AM peak hour (8am to 9am). However, the results should be treated with caution as the data shows an aggregate of all train services within the peak hour, and capacity may fluctuate throughout the peak hour.

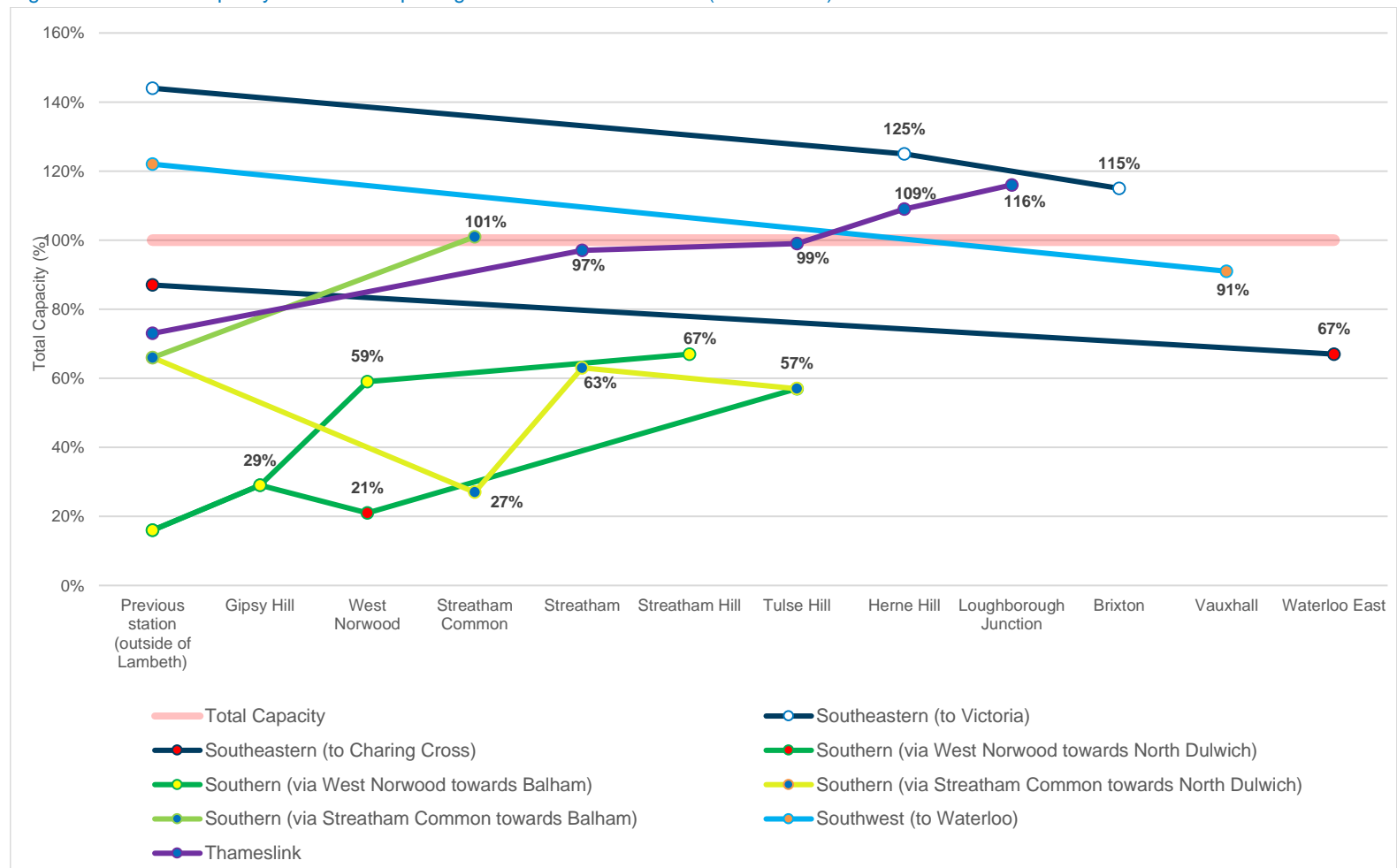
Also, the data assumes that all rail services operate on time with no cancellations, which can have an impact on rail capacity. Performance statistics for a number of train providers has been examined to understand rail reliability. The performance results indicate that:

- 9% of planned Thameslink services did not run as scheduled in Period 9 (13 November to 10 December 2016)<sup>58</sup>
- 6.7% of planned Southern train services did not run as scheduled in Period 9 (13 November to 10 December 2016)<sup>59</sup>

<sup>58</sup> <http://www.thameslinkrailway.com/about-us/performance/>

<sup>59</sup> <http://www.southernrailway.com/your-journey/performance-results/>

Figure 5.4: Total Capacity on Trains Departing Rail Stations in Lambeth (8am to 9am)



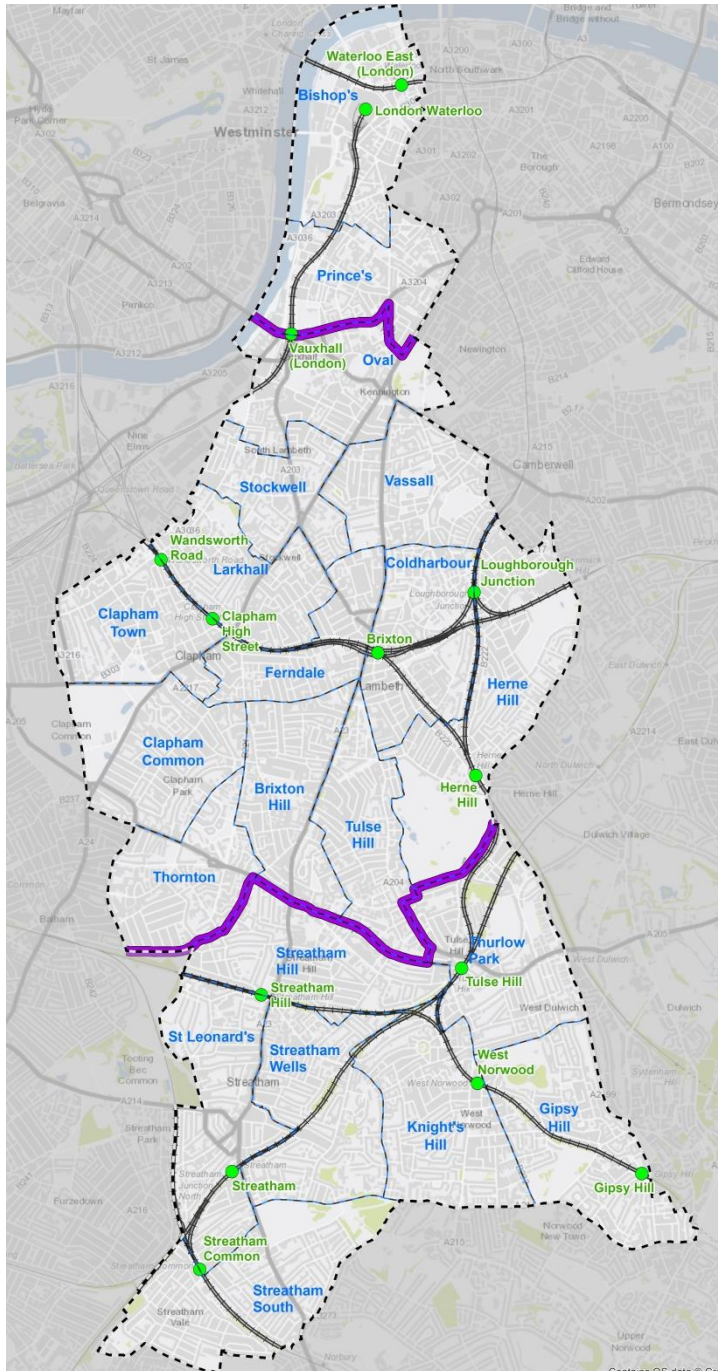
Key Observations:

- Southeastern route to Victoria is 25 per cent over capacity when it departs Herne Hill, and although some passengers alight at Brixton, it is still 15 per cent over capacity when it departs Brixton.
- The Southern route via Streatham Common towards Balham experiences capacity issues at Streatham Common station.
- Thameslink route through the Borough experiences capacity issues at Tulse Hill, Herne Hill and Loughborough Junction. The Thameslink train is also close to capacity when the train leaves Streatham station – often Streatham station is crowded on the platform, as shown in Photo 12.15 in the Site Audit section.
- All other routes within through Borough appear to operate within capacity at stations in Lambeth.

Source: Railplan data (2011)

Note: Total capacity = 4 people per every sqm of standing space. Please see Appendix B for the Railplan data output

Figure 5.5: Baseline Summary: Rail



### North Lambeth

- 7.3 per cent of residents use rail for commuting (Census, 2011)
- Waterloo station is the busiest station in the UK by passenger usage
- Trains arriving at Waterloo station operate close to capacity in AM peak. Station entrances and concourses experience peak hour congestion

### Central Lambeth

- 8.9 per cent of residents use rail for commuting (Census, 2011)
- Vauxhall station is a key interchange station between National Rail and London Underground
- Trains operate at or close to capacity in AM peak
- Brixton station has poor interchange with London Underground services and no interchange with London Overground.
- Train services departing Herne Hill, Brixton and Loughborough Junction are over capacity in the AM peak hour.

### South Lambeth

- 26.5 per cent of residents use rail for commuting, which is the highest share in the Borough (Census, 2011)
- High mode share due to lack of alternative Underground services
- Trains general operating within capacity. Some trains have no spare seating capacity.

Source: London Underground station, Main-line station, Rail line & Lambeth boundary: Contains Ordnance Survey data © Crown copyright and database right 2016



## 5.2 Bus

### 5.2.1 Background

#### Bus: Data sources

- Borough LIP Performance Indicator Report (2014/15)
- Census data (2011)
- City Mapper website (2016)
- Lambeth Transport Plan (2011)
- London Borough of Lambeth Factsheet (2015)
- Roads Task Force (2013)
- Sub-regional Transport Plan for Central London (2015 Update)
- TfL Baseline Railplan Data (2011)
- TfL Website: Bus Investment (2016)
- TfL, Your Accessible Transport Network (2015 Update)
- Urban Design London: Better Streets Delivered (2013)
- Vauxhall Supplementary Planning Document (2013)

Buses in London are an integral part of the city’s transport infrastructure. Currently London buses carry 2.3 billion passengers a year<sup>60</sup> and approximately 15 per cent<sup>61</sup> of all journeys are made by bus. This is more than double the number carried by tube.<sup>61</sup>

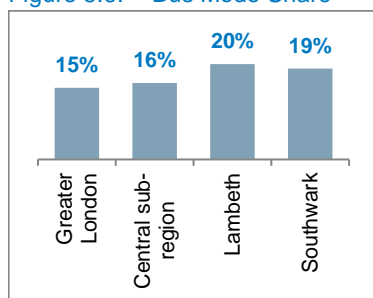
As the city grows in population, it is anticipated that bus service levels will increase by 3 per cent and demand will increase by 7 per cent<sup>61</sup> over the next seven years. Since 2011, TfL’s business plan has set aside £200m over the period 2020/21<sup>61</sup> for the development and implementation of schemes at pinch points and along new bus priority corridors serving key growth areas.

Buses offer a vital service for many residents in Lambeth with low rates of car ownership and high rates of deprivation. As shown in Figure 5.6, Lambeth has a higher modal share of bus use compared to Greater London and the central sub-region. However, since 2006, the bus modal share in Lambeth has marginally declined by 0.3 per cent.

As shown in Figure 5.7, the Borough is well covered by bus routes with the majority of A and B roads covered by bus services.

There are currently 92 bus services<sup>62</sup> operating in Lambeth servicing 1,258 bus stops in the Borough, the majority of which intersect one of the major bus interchanges at Waterloo, Vauxhall or Brixton.

Figure 5.6: Bus Mode Share



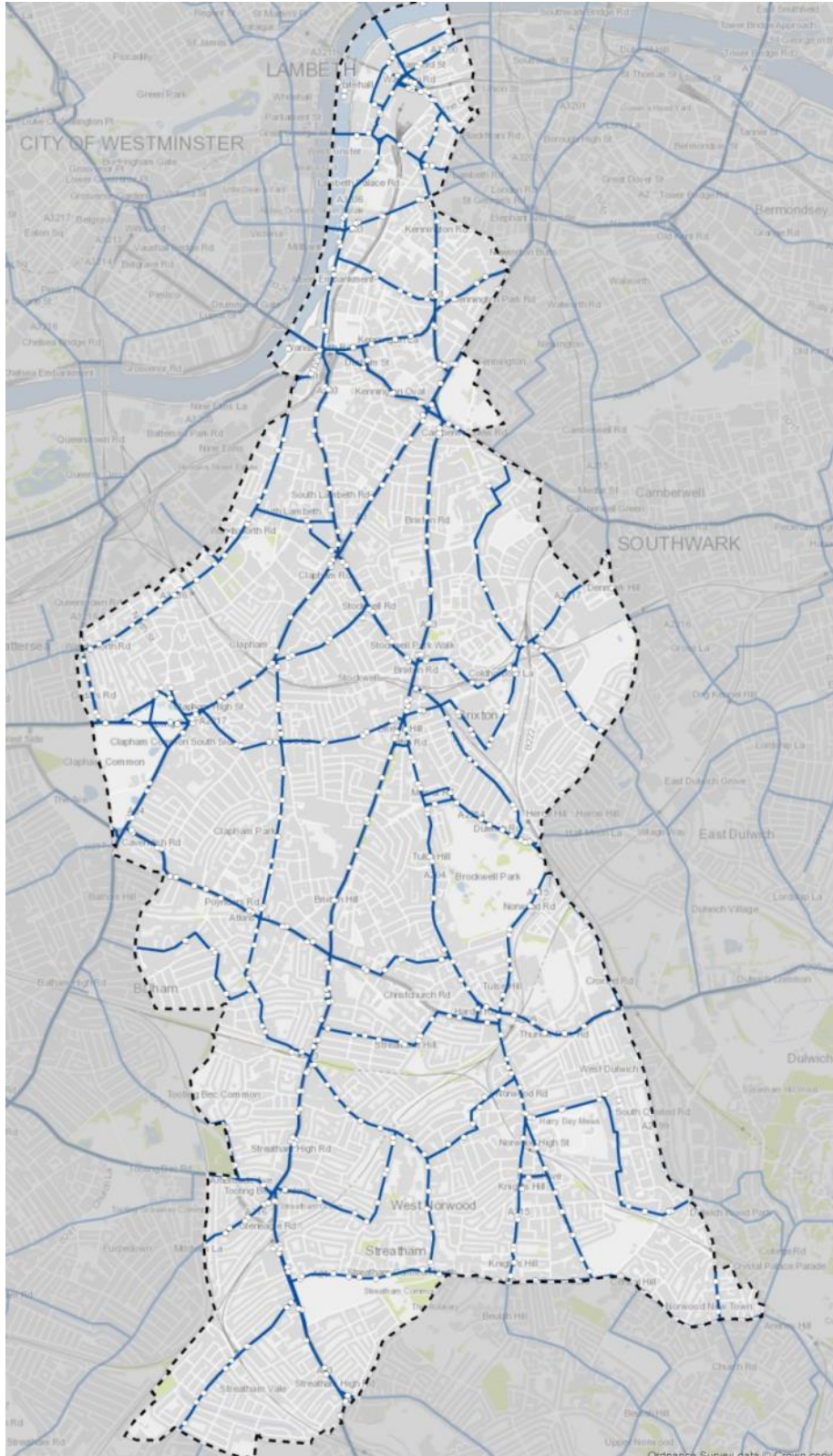
Source: Sub Regional Transport Plan for Central London – 2015 Update

<sup>60</sup> Road Task Force (2013) – The vision and direction for London’s streets and roads: A dense and vibrant inner London

<sup>61</sup> Sub Regional Transport Plan for Central London – 2015 Update

<sup>62</sup> London Borough of London Factsheet (2015)

Figure 5.7: Lambeth Bus Network



Source: Lambeth boundary: Contains Ordnance Survey data [2016]; Bus routes: Basemap July 2015; Bus stops: Powered by TfL Open data 2016

### 5.2.2 Bus Policy

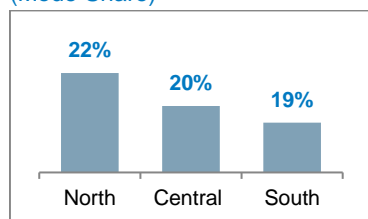
Bus service provision lies third on Lambeth’s road user hierarchy list, behind walking and cycling.<sup>63</sup> The Lambeth Transport Plan and Lambeth Town Centre masterplan outline a desire to improve bus links and to improve connectivity in the Borough.

In order to do so the Borough aims to prioritise the bus network by;

- Undertaking regular liaison with TfL to improve public transport services in Borough
- Ensuring effective enforcement of parking and loading provisions along bus routes
- Gritting bus routes during cold weather
- Continuing to work with partners through the Central Sub-Regional partnership on influencing positive changes to maximise service provision
- Continuing to make bus stops more accessible for users<sup>63</sup>

These objectives align with the Borough’s Core Strategy, which sets out to focus on improving bus service reliability for high frequency bus routes. The strategy sets out to keep bus excess waiting times at their current level of 1 minute 10 seconds for the years 2016/17 and 2017/18. To perform this, the council will assess bus routes and implement measures to improve bus priority. They will also look to implement measures to smooth traffic flow along routes with delays.

Figure 5.8: Bus use in Lambeth (Mode Share)



Source: Census, Method of Travel to Work (2011).

Note: Working Population size:  
 North (12,859), Central (101,172),  
 South (52,463)

The Central London Sub-regional plan includes the Mayor’s bus strategy for the sub-region. The report outlines the desire to improve bus fleet technology by rolling out electric buses and by introducing a NO<sub>x</sub> reduction program. There is also a strategy to improve bus stop accessibility within the central sub-region, aiming to make 95 per cent of all bus stops fully accessible by the end of the year (2016/17).

<sup>63</sup> Lambeth Transport Plan (2011)

Table 5.3: Major Bus Interchanges in the Borough

Section	Station
North Lambeth	<p><b>Waterloo</b></p> <ul style="list-style-type: none"> <li>Waterloo Station is an integral part of the London bus network and has some of the most heavily used routes in the area.</li> <li>Waterloo has three key locations that serve as bus interchange: York Road, Waterloo Road, and Tenison Way.</li> <li>During peak hours there is severe pedestrian congestion queuing from the bus stops, particularly from the Tenison Way stop for services into The City, where the queue often stretches back towards the station<sup>64</sup>.</li> <li>With the VNEB and Waterloo Opportunity Area investments, alongside the introduction of 10-12 car carriages at Waterloo station and potential tube upgrades; the demand for bus services is likely to increase further.</li> </ul>
Central Lambeth	<p><b>Brixton</b></p> <ul style="list-style-type: none"> <li>The main bus routes into the town centre are along Brixton Road, Coldharbour Lane and Acre Lane.</li> <li>21 bus routes<sup>30</sup> traverse the town centre and there is a large clustering of bus stops around the tube station on Brixton Road.</li> <li>145 bus services<sup>31</sup> pass through Brixton every hour, making it a very busy location for interchange and a major bus terminal in its own right.</li> <li>Brixton is the last tube stop on the Victoria Line, and as a result a high percentage of users switch to the bus for their onward journey.</li> <li>The dual lane A23 is reduced to one lane on both sides of the road to accommodate the bus stops. Consequently, there is often a bottleneck in and around the area (See Photo 12.14 in the Site Audit section).</li> <li>Substantial investment into public realm in Brixton has been undertaken in recent years, however this has largely been to improve pedestrian movements to, and from the tube and around the town centre.</li> <li>The bus stops for the north-bound routes are restricted to stopping signs and do not have basic facilities such as shelter or seating.</li> <li>The bus stops for the south-bound routes have recently received upgrades to the shelters and seating. However, during peak times the provision is still not adequate for the patronage at the stops.</li> </ul> <p><b>Vauxhall<sup>65</sup></b></p> <ul style="list-style-type: none"> <li>Vauxhall bus station is vital in providing both transport for onwards journeys and an interchange between transport networks.</li> <li>Currently the bus operation is not as efficient as it could be, as the bus station currently retains approximately 20 per cent spare capacity<sup>66</sup>.</li> <li>The station is located within the gyratory; whilst providing a good interchange between public transport modes, the bus station is isolated and the canopy does not provide adequate protection from the elements.</li> <li>There have been recent improvements to pedestrian and cycle facilities around the Vauxhall gyratory, however, further improvements are required to reduce the dominance of cars.</li> </ul>
South Lambeth	<ul style="list-style-type: none"> <li>Although there are no major interchanges in the south of the Borough, there are many north-south radial routes through Lambeth.</li> <li>There is a lack of east-west services. As such, some areas of the Borough continue to have low levels of accessibility when traveling in and around Lambeth. This becomes particularly prevalent for users living in peripheral residential areas.</li> <li>Some residents in the Borough are faced with considerably longer journey times than those living elsewhere in the central London sub-region. Often these routes consist of multiple interchanges with more stops, and therefore it is indirect in nature. For example, a 12 minute cycle from Streatham to Herne Hill would take a minimum of 28 minutes by bus<sup>67</sup>.</li> </ul>

<sup>64</sup> As evidenced in the Site Audit chapter (Photo 12.2)

<sup>65</sup> Vauxhall bus station lies in the ward that is part of the central borough section, even though it is situated towards the centre of London

<sup>66</sup> Vauxhall Supplementary Planning Document (2013)

<sup>67</sup> City Mapper website

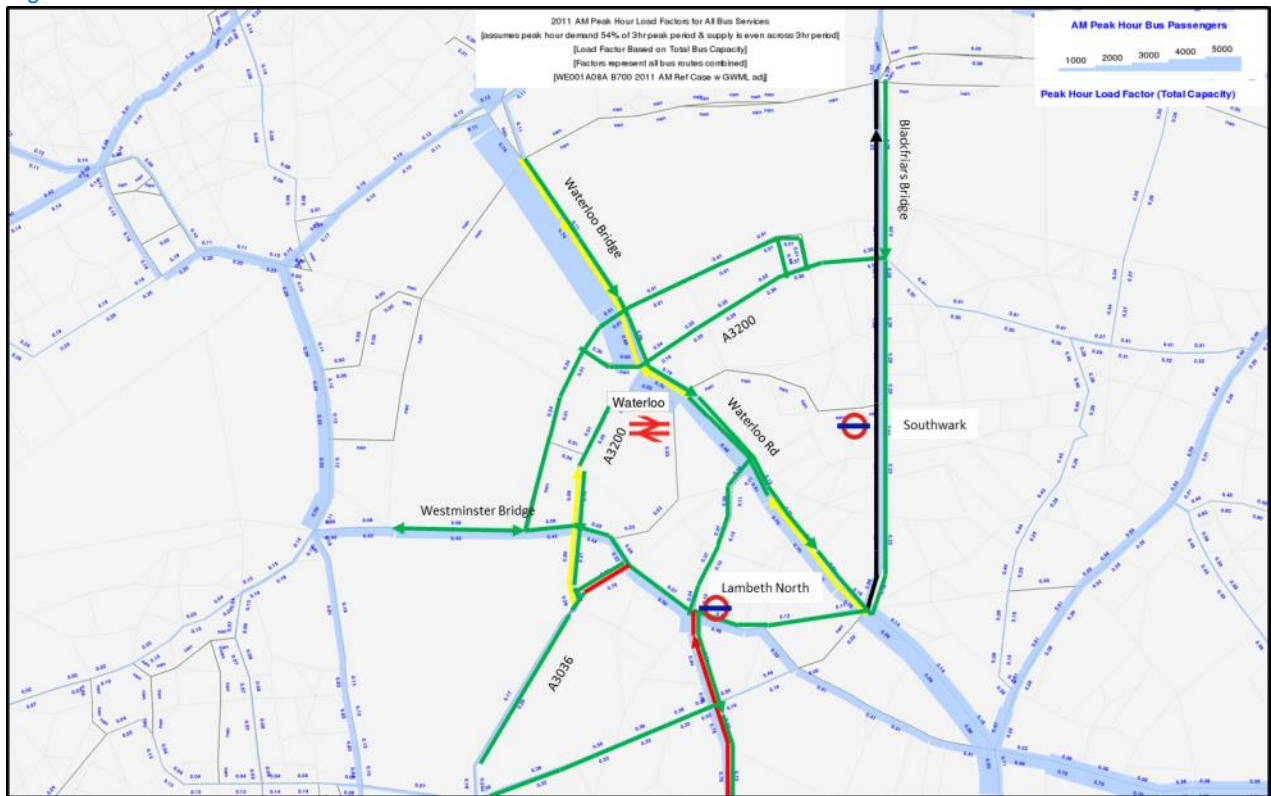


### 5.2.1 Bus Capacity

TfL's Railplan model has been interrogated to identify areas of Lambeth's bus network which are currently capacity constrained. The following figures present the AM peak hour (8am to 9am) results, which are considered to represent the worst-case scenario.

The Railplan results show an average capacity along bus corridors and does not show capacity on particular services; therefore some bus services may perform better or worse than the results presented in the figures below. As a result, it is not recommended to use this data for localised issues as the models strength is at a more strategic level.

Figure 5.9: Baseline AM Peak Bus Load Factors: Waterloo



#### Key

- Over 100% capacity
- 80%-100% capacity
- 60%-80% capacity
- Under 60% capacity

#### Waterloo

- The busiest bus routes are from Waterloo Station across the Waterloo Bridge, with buses operating close to capacity.
- Buses from the Park Plaza gyratory are busy, however buses operate within capacity.
- Northbound buses towards Lambeth North Underground station operate at capacity.

Source: TfL Baseline Railplan data (2011)



Figure 5.10: Baseline AM Peak Bus Load Factors: Brixton / Clapham



**Key**

- Over 100% capacity
- 80%-100% capacity
- 60%-80% capacity
- Under 60% capacity

**Brixton**

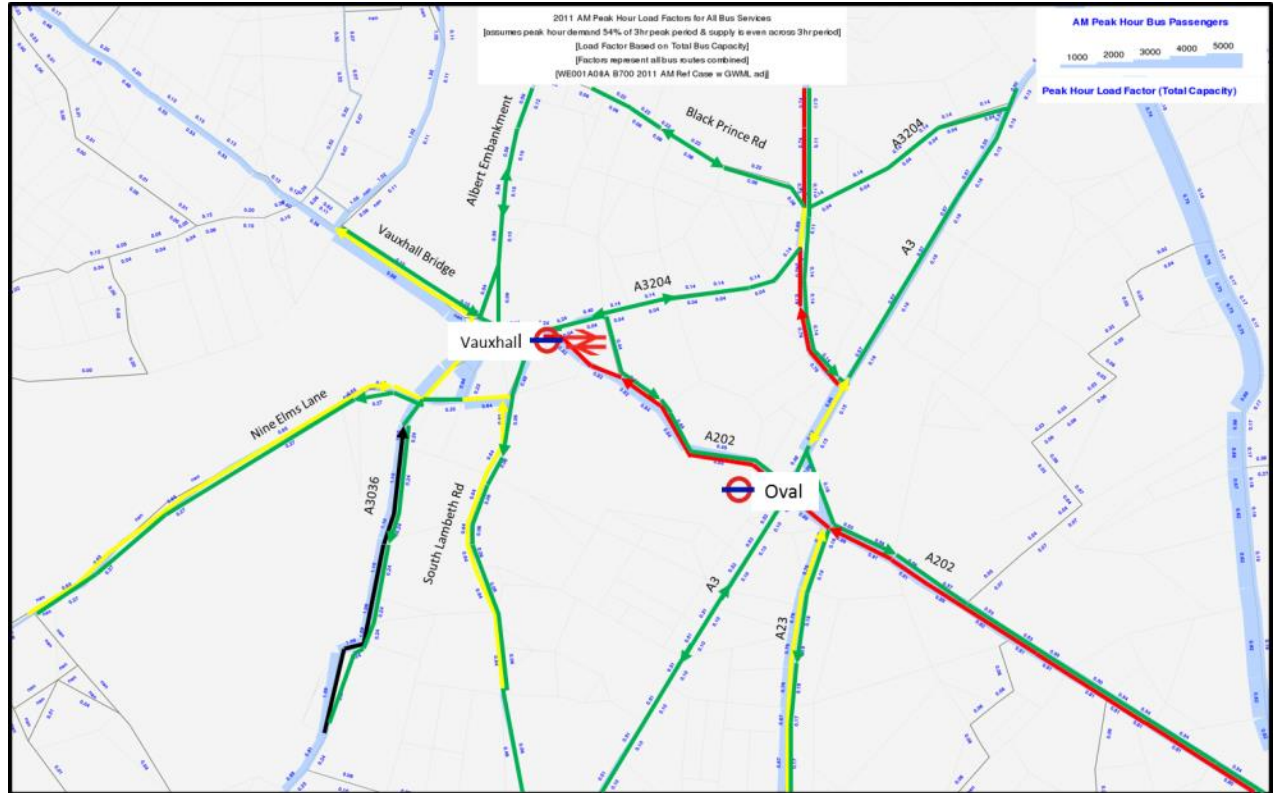
- Northbound services along the A23, to the south of Brixton station, are currently operating over capacity.
- Buses along the A204 towards Brixton town centre operate close to capacity
- Bus routes north of Brixton town centre are less busy than bus routes to the south of Brixton town centre.
- Buses between Herne Hill and Brixton are operating at capacity.

**Clapham**

- Buses along Clapham High Street operate within capacity.
- Buses between the South Circular Road and Clapham Common are congested.
- Northbound buses to the south of A2217 operate at capacity.

Source: TfL Baseline Railplan data (2011)

Figure 5.11: Baseline AM Peak Bus Load Factors: Vauxhall / Oval



**Key**

- Over 100% capacity
- 80%-100% capacity
- 60%-80% capacity
- Under 60% capacity

**Vauxhall**

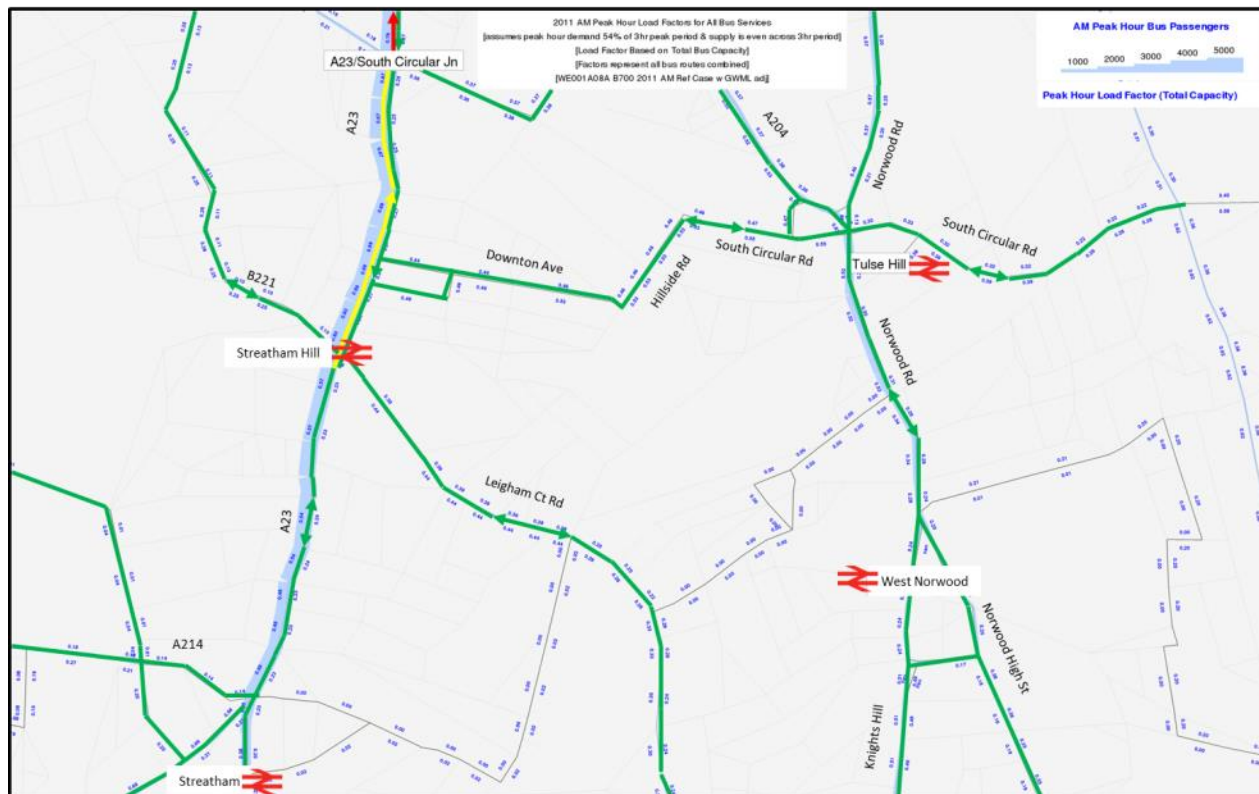
- The busiest bus routes from the Vauxhall gyratory are northbound services across Vauxhall Bridge; though they operate within capacity
- Westbound services between Oval and Vauxhall along the A202 operate close to capacity limits.
- Northbound buses along the A3036 Wandsworth Road are over capacity limits.
- Eastbound buses along Nine Elms Lane are busy but operate within capacity.

**Oval**

- The busiest bus routes through Oval are along the A202 from Camberwell; bus services along this route operate close to capacity limits.
- Northbound buses along the A23 Brixton Road are also heavily congested and operate close to capacity limits.
- Northbound buses along Kennington Road operate close to capacity.

Source: TfL Baseline Railplan data (2011)

Figure 5.12: Baseline AM Peak Bus Load Factors: Streatham/ West Norwood/ Tulse Hill



### Key

- Over 100% capacity
- 80%-100% capacity
- 60%-80% capacity
- Under 60% capacity

### Streatham

- The busiest bus routes are northbound along the A23
- Buses northbound between Streatham Hill and the South Circular operate close to capacity.
- East to west bus routes along the South Circular Road have low passenger numbers compared to north-south bus routes on A23
- Buses on the A23, south of Streatham Common station are heavily congested.

### West Norwood/ Tulse Hill

- Bus routes around West Norwood and Tulse Hill have relatively low passenger volumes and buses operate within capacity limits.

Source: TfL Baseline Railplan data (2011)

## 5.2.2 Bus Usage Analysis

Table 5.4 shows the top three bus routes in Lambeth, which have experienced the most significant increases and decreases in patronage.

Routes 255, 249, and 360, which have experienced patronage increases, connect areas where there are no alternative direct connections by London Underground or National Rail.

Table 5.4: Bus Passenger Numbers

Route	Origin/Destination	2010-2011 (Patronage)	2014-2015 (Patronage)	Change (2010- 2015)
<b>Bus Routes with Increased Passenger Numbers</b>				
255	Balham – Mitcham	1,247,722	1,731,838	+39%
249	Clapham – Anerley Station	3,399,847	3,877,969	+14%
360	Elephant and Castle – South Kensington	1,827,976	2,048,342	+12%
<b>Bus Routes with Decreased Passenger Numbers</b>				
436	Paddington-Lewisham	12,431,342	9,732,379	-22%
12	Oxford Circus – Dulwich	12,918,803	11,175,477	-13%
148	Camberwell Green – Shepherd’s Bush	8,460,383	7,569,041	-11%

Source: TfL Railplan

Bus service reliability within Lambeth is generally poor compared to other London Boroughs. In 2014/15 the mean Excess Waiting Time (EWT) for high-frequency routes in Lambeth was 1.2, which was slightly higher than the Greater London average of 1.1. Even though the mean excess time is slightly high compared to other London boroughs, it is in-line with other inner London boroughs. The EWT in Lambeth has increased by 0.2 since 2010/2011, from 1.0 to 1.2.<sup>68</sup>

At the time of writing, 48 of 574 bus stops in Lambeth were not fully accessible. This means that currently, 8 per cent of all bus stops in Lambeth are not accessible to wheelchair users. *Being accessible means stops have a kerb that is high enough for the wheelchair ramp to deploy and for the step into the bus to be at a reasonable height for older or disabled people to board. It also means there is a protected ‘clearway’ so only buses can use the stop and it is free from any street furniture or clutter blocking access to the doors.*<sup>69</sup>

## 5.2.3 Bus Improvements

In 2015/16 LBL designed and delivered 37 quick win Bus Reliability Schemes (BRS) with a value of around £400,000, which was funded by

<sup>68</sup> Local Implementation Plan (LIP) (2016/17 Update)

<sup>69</sup> TfL, Your Accessible Transport Network (2015 Update)

TfL outside of the LIP settlement as an additional investment to the network.

The 2015/16 schemes include improvements to bus journey time reliability for Route 3 corridor including measures along Lambeth Road, Kennington Road, Effra Road, Morval Road, Dalberg Road, Dulwich Road, Norwood Road and Croxted Road. These schemes mitigate the impacts on the key bus journey times following the TfL's Road Modernisation plan and are well received by TfL. The delivered measures vary from bus lane widening, junction improvements, bus stop improvements, traffic signal improvements, yellow box junctions, traffic lane priority changes, and enhancement to cycling and pedestrian facilities.

TfL are prepared to fund a similar level of work in 16/17 subject to satisfactory scheme submissions with £15,000 already secured for a feasibility study to cover scheme selection, prioritisation and scheme development for the BRS 16/17 quick win schemes.

LBL have also implemented some major schemes in the Borough, which are listed below in Table 5.5.

Table 5.5: Bus Investment in Lambeth

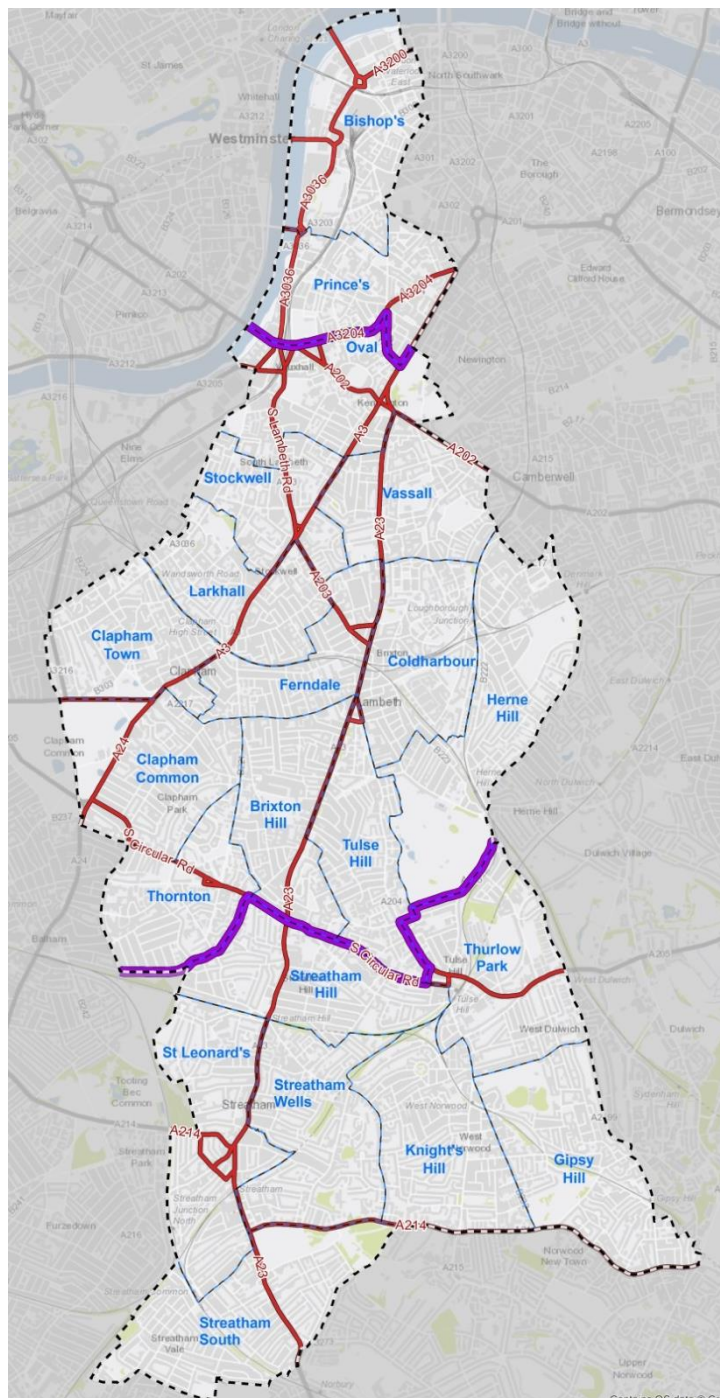
Scheme name	Scheme description
Clapham Gateway/Old Town Transformation	Upgrade and renewal of Clapham Old Town and Clapham Common station. The programme set out to address public realm issues by relocating and upgrading bus stops, which aimed improve pedestrian and bus accessibility <sup>70</sup>
Herne Hill Refurbishment	Bus lanes and signal timings were reviewed in order to improve interchange links and reduce bus delays around the junction surrounding Herne Hill National Rail station. The scheme cost £1.7 million <sup>70</sup> and was mainly funded by TfL and was completed in July 2010. <sup>70</sup>
Refurbishment of the countdown system	This is a TfL strategy being rolled out throughout London, which will deliver real-time arrival and service information for all routes across London's bus network. <sup>71</sup>
Brixton Public Realm Improvements	Prior to the improvements, bus services and stops were congested in Brixton town centre and along Brixton Road. Lambeth, in partnership with TfL, developed a detailed public realm and cycling strategy, which streamlined services and improved the positioning of bus stops in the area, while continuing to allow for interchange between transport modes. <sup>70</sup>

<sup>70</sup> Urban Design London: Better Streets Delivered (2013)

<sup>71</sup> TfL Website: Bus Investment (2016)



Figure 5.13: Baseline Summary: Bus



### North Lambeth

- 22 per cent of residents use the bus to commute to work, which is the highest in the Borough (Census, 2011)
- Long queues for bus passengers waiting for bus services at Waterloo station
- Bus routes from Waterloo station across Waterloo Bridge are congested.
- Bus routes in Lambeth tend to be focused on the north-south radial routes through the Borough, compensating for the lack of direct north-south train routes<sup>72</sup>

### Central Lambeth

- 19.8 per cent of residents use the bus to commute to work (Census, 2011)
- Vauxhall is one of the busiest bus stations in London but has 20 per cent spare capacity
- Buses between Oval and Vauxhall along the A202 operate close to capacity limits
- Buses along the A3036 Wandsworth Road are over capacity limits
- Bus stops on Brixton High Road suffer from severe congestion
- Buses south of Brixton on the A23 are operating over capacity
- In Oval, bus routes along the A202 and A23 Brixton Road are operating close to capacity limits

### South Lambeth

- 18.9 per cent of residents use the bus to commute to work, which is the lowest in the Borough. (Census, 2011)
- North bound buses along the A23 operate close to capacity (beyond Streatham Hill)
- Higher bus journey times through Streatham due to traffic congestion
- Buses in Tulse Hill and West Norwood are operating within capacity limits.

Source: Key Roads & Lambeth boundary: Contains Ordnance Survey data © Crown copyright and database right 2016

<sup>72</sup> Lambeth Transport Plan (2011)

### 5.3 London Underground

#### 5.3.1 Background

In Lambeth, the overall mode share by Underground is 10 per cent, which has seen a 0.8 per cent increase since 2006. As shown in Figure 5.14 Lambeth’s Underground mode share is slightly higher than Greater London’s average and the average mode share for neighbouring Borough, Southwark. However, Lambeth’s Underground mode share is lower than the central sub-region average<sup>73</sup>.

#### Underground: Data sources

- Census data (2011)
- City Fringe OAPF Transport Review (2014)
- London Datastore: London Underground Performance Data (2016)
- Sub regional Transport Plan for Central London (2015 Update)
- TfL Baseline Railplan data (2011)
- TfL Business Plan (2009/10-2017/18)
- TfL Rolling Origin and Destination Survey (2014)
- TfL: Impact of the Night Tube on London’s Night-Time Economy (2014)

Table 5.6 shows the eight London Underground stations located in Lambeth, along with the lines they are served by and the passenger entries and exits in 2014.

Waterloo is the busiest Underground station within the Borough followed by Brixton and then Vauxhall.

Figure 5.14 Underground Mode Share

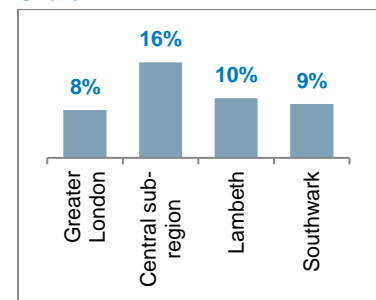


Table 5.6: Underground stations within Lambeth

Source: Sub Regional Transport Plan for Central London – 2015 Update

Station name	Northern	Victoria	Bakerloo	Waterloo and City	Jubilee	Annual entries/exits (millions) <sup>74</sup>
Brixton		✓				29.37
Clapham Common	✓					8.94
Clapham North	✓					6.67
Lambeth North			✓			3.57
Oval	✓					6.40
Stockwell	✓	✓				10.52
Vauxhall		✓				27.51
Waterloo	✓		✓	✓	✓	91.49

Source: London Datastore: London Underground Performance Charts (2016)

<sup>73</sup> Sub Regional Transport Plan for Central London – 2015 Update

<sup>74</sup> London Datastore: London Underground Performance Charts (2016)

### 5.3.2 Lambeth Underground Provision and Use

The following section of the report analyses the Underground provision and use in the northern, central and southern sections of the Borough, see Table 5.7.

Table 5.7: Lambeth Underground station provision

London Underground Stations Summary	
North Lambeth	<p><b>Waterloo</b></p> <ul style="list-style-type: none"> <li>• Most frequented Underground station with 91.5 million passengers<sup>75</sup>.</li> <li>• Direct access to the Underground station from the National Rail platforms.</li> <li>• Street level access to Waterloo Underground services from Waterloo Road and York Road, and from within the main station concourse. Though, access to the station via the York Road station entrance is temporarily closed for redevelopment works until 2018.</li> <li>• During peak times access is extremely congested for both rail and Underground passengers<sup>76</sup>.</li> <li>• Step free access to the station platforms is available for the Jubilee Line only.</li> <li>• On the Northern and Bakerloo lines, platforms and walkways are restricted and congested during busy periods.</li> <li>• The pedestrian environment outside of Waterloo station is poor due to limited footway widths and the dominance of vehicular traffic. During busy periods pedestrians sometimes spill out onto the footway of Waterloo Road whilst waiting to enter the Underground barriers<sup>77</sup>.</li> <li>• The Jubilee Line has wider platforms and pedestrian walkways. The Jubilee Line platforms also include safety doors to improve passenger safety.</li> </ul> <hr/> <p><b>Lambeth North</b></p> <ul style="list-style-type: none"> <li>• Located at the junction of Westminster Bridge Road, Kennington Road, Baylis Road, and Hercules Road.</li> <li>• The junction is heavily dominated by vehicular traffic with restricted footways and cycle infrastructure.</li> <li>• There are proposals which will be implemented in 2016 to improve public realm outside the station and station accessibility.</li> <li>• No step free access to the station platforms.</li> </ul> <hr/>
Central Lambeth	<p><b>Vauxhall</b></p> <ul style="list-style-type: none"> <li>• Located underneath the rail and bus stations in Vauxhall with three entrances facilitating the station.</li> <li>• The station is accessible from the rail station entrance, the bus station, and from Albert Embankment/ St George Wharf. There is also lift access to the platforms from the central bus terminus.</li> <li>• Key interchange station with National Rail services. As a result, it is often congested during peak hours.</li> <li>• The recent station improvement programme has created more space within ticket hall areas, and also provided wheelchair access. The station subways and stairways have also been improved to increase capacity and environment for passengers.</li> <li>• Passenger movements at Vauxhall are dominated by boarders on the Victoria Line and people alighting from Southwest services, with approximately 25 per cent of these interchanging to the Victoria Line.</li> </ul> <hr/> <p><b>Brixton</b></p> <ul style="list-style-type: none"> <li>• The station has approximately 30 times greater patronage than Brixton National Rail station</li> <li>• There is one main entrance that spills out onto the busy A23.</li> <li>• The station is a vital interchange point with buses and cycles. Consequently, the barriers are congested with people entering during the AM peak, and exiting during the PM peak.</li> <li>• There is lift access to the platform from the station entrance.</li> </ul>

<sup>75</sup> London Datastore: London Underground Performance Charts (2016)

<sup>76</sup> Reference: Site Audit Chapter (Photo 12.4)

<sup>77</sup> Reference: Site Audit Chapter (Photo 12.5)

**London Underground Stations Summary**

**Stockwell**

- This station is accessed to the south of the busy Stockwell gyratory junction. A series of changes are proposed to improve the public realm around Stockwell station.
- The station is a key interchange point between the Northern and Victoria line.
- Step free access is available for interchanging passengers; however this is not available from street level
- 70 per cent of passenger movements at Stockwell station are interchanging movements between Northern and Victoria line services in the AM peak.

**Oval**

- The station is located at the south-western corner of the Oval gyratory.
- The station has good accessibility for bikes as it is located along cycle Superhighways CS5 and CS7 however; cycle parking is limited to on-street spaces.
- TfL are currently undertaking junction improvements to improve pedestrian and cycle infrastructure around the station which will improve accessibility to the station.
- Due to the station's prominent position there are a number of bus services in close vicinity of the station. Legibility from the station's main entrance to surrounding bus stops is good.
- No step free access to the station platforms.

**Clapham stations**

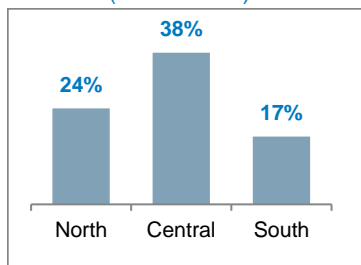
- The stations are located close to busy junctions along the A3/A24.
- The station is located along cycle Superhighway CS7 on the A3/ A24, and therefore the station is well connected to the cycling route.
- Pedestrian access to Clapham Common station is located on an island between the busy A3 and B224. There is a secondary access to the station from the western footway on the A3.
- Both stations have restricted platforms due to their layout with a narrow central platform between north and south bound trains.
- During the AM peak, the trains at these stations are often congested, which makes it difficult to board.
- Clapham North and Common are only accessible via escalators.

South Lambeth There are no Underground stations located in the south of the Borough

Source: TfL Baseline Railplan data (2011)

**5.3.3 Underground Network Capacity**

Figure 5.15: Underground in Lambeth (Mode share)

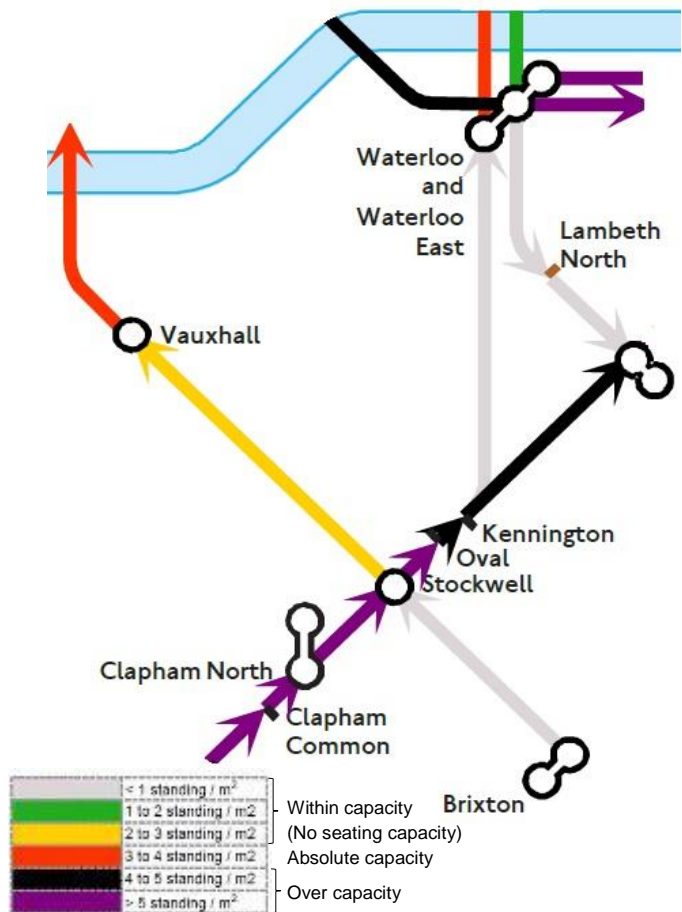


Source: Census, Method of Travel to Work (2011).

Note: Working Population size: North (12,859), Central (101,172), South (52,463)

In order to understand the existing crowding issues in the AM peak hour (8am to 9am) on the Underground network in Lambeth, Railplan analysis has been examined. To understand the Underground crowding at specific stations in Lambeth, Railplan data has been analysed and is presented in Figure 5.17. This data represents the peak hour (8am to 9am), and shows that that Northern Line services departing stations between Clapham and the Oval are over total capacity in the AM peak. In addition, Jubilee Line and Waterloo and City services appear to be over capacity by 23 per cent and 22 per cent, respectively.

Figure 5.16: London Underground AM Peak Hour (8am to 9am) Crowding – Standing Passengers per square metre



Source: Baseline Railplan data (2011)

#### Northern Line (Clapham Common, Clapham North, Stockwell, Oval, Kennington & Waterloo)

- Northern Line services through Lambeth operate over total capacity (i.e. 4 people standing per square meter) in the AM peak throughout the Borough.
- During the peak hour the Northern Line becomes severely congested from Balham, two stations south of Clapham Common, when the National Rail lines converge with the Northern line.
- The journey from Clapham through Kennington has over 4 + people standing per sqm throughout, and is recognised as one of the most overcrowded tube lines in London.<sup>78</sup>
- Northern Line trains from Kennington towards Waterloo operate below capacity as some trains start from Kennington, however, these trains reach capacity at Waterloo Station.

#### Victoria Line (Brixton, Stockwell & Vauxhall)

- The Victoria Line currently operates within capacity.
- Services from Brixton station, which is at the beginning of the line, has less than 1 person standing per sqm.
- At Stockwell, the interchange with the Northern Line increases passenger numbers, and the crowding continues to rise as the line travels north towards Vauxhall and onto Victoria.

#### Bakerloo Line (Lambeth North & Waterloo)

- The Bakerloo Line is lightly used from Lambeth North to Waterloo with trains operating within seating and standing capacity during AM peak hour.
- Bakerloo Line trains leave Waterloo station congested with no seating capacity.

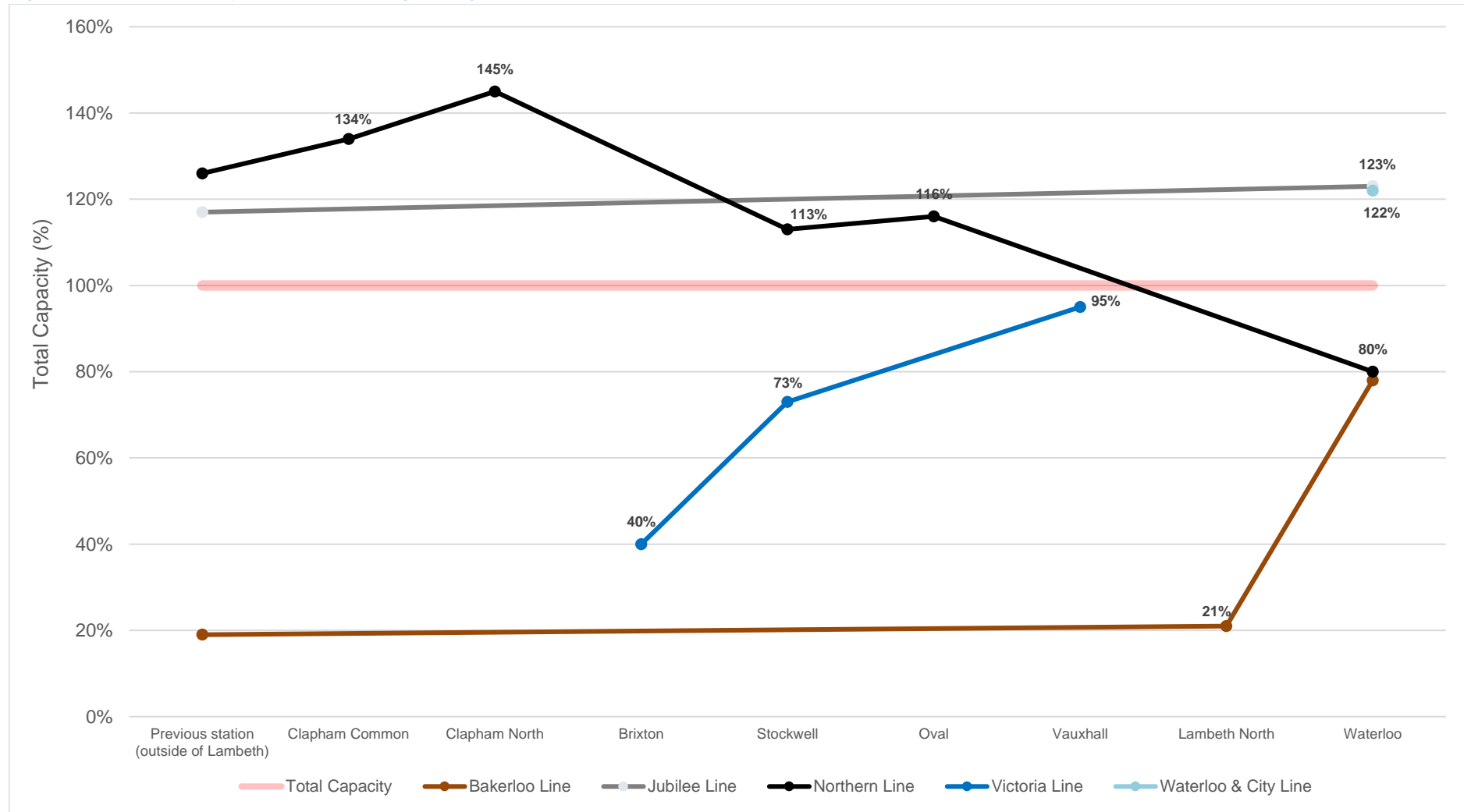
#### Jubilee and Waterloo and City (Waterloo)

- Both the Waterloo and City Line and Jubilee Line have one stop in Lambeth, at Waterloo; both are at capacity during peak hours and severely overcrowded<sup>78</sup>

<sup>78</sup> All capacity data from the *City Fringe OAPF. Transport Review. 2014*



Figure 5.17: Total Capacity on Trains Departing Underground Stations in Lambeth (8am to 9am)



Source: Railplan data (2011)

Note: Total capacity = 4 people per every sqm of standing space. Please see Appendix B for the Railplan data output.

### 5.3.4 Underground Improvements

Table 5.8 presents the improvements that have been made on the Underground lines in Lambeth.

Table 5.8: Underground Improvements

Underground Line	Improvements
<b>Northern Line</b>	<ul style="list-style-type: none"> <li>The line is in the process of undertaking a major line upgrade; broken down into two stages, the upgrade sets out to increase capacity and speed throughout the line:                             <ul style="list-style-type: none"> <li>Part one has been completed and aims to increase capacity by 20 per cent and improve journey times by 18 per cent</li> <li>Part two of the upgrade is due for completion by 2018. The proposal sets out to simplify and reorganise service patterns with an aim to increase frequency and thus reduce crowding. This upgrade should improve capacity by a further 21 per cent.</li> </ul> </li> <li>By 2018 there is an additional proposal to increase capacity on the Northern line by partially separating the Charing Cross and Bank branches at the existing Kennington interchange which is expected to add a further 20 per cent capacity.</li> <li>An extension to the Northern line is proposed from Kennington to Battersea Power Station via Nine Elms to support the proposed regeneration at VNEB. The project is due for completion in 2020, and should improve the transport links in Lambeth and neighbouring Boroughs.</li> </ul>
<b>Victoria Line</b>	<ul style="list-style-type: none"> <li>The line has undergone an upgrade to improve the aesthetic feel of the carriages. The upgrade featured:                             <ul style="list-style-type: none"> <li>new CCTV</li> <li>wheelchair access, and</li> <li>better ventilation that improved the passenger experience on the line.</li> </ul> </li> <li>Furthermore, the line had upgrades to reduce both crowding and waiting times, and in doing so journey times were cut by up to 16 per cent and capacity increased by 21 per cent on some journeys<sup>79</sup>.</li> </ul>
<b>Bakerloo Line</b>	<ul style="list-style-type: none"> <li>The line experienced an upgrade to reduce both journey times and capacity at peak hours by introducing a new signalling system that will improve the reliability and service.</li> <li>There is a future aspiration to extend the Bakerloo line to Old Kent Road and Lewisham; however this extension remains aspirational and is anticipated for completion in 2030.</li> </ul>
<b>Jubilee Line</b>	<ul style="list-style-type: none"> <li>Since 2006 the line has undergone substantial improvements; all trains have been upgraded so that they are all seven cars services, which as a result capacity has increased by 17 per cent<sup>79</sup>.</li> <li>Further signalling and train control improvements have seen capacity improve by a further 33 per cent in-line with improvements in frequency and efficiency<sup>79</sup>.</li> </ul>

Source: TfL Business Plan (2009/10-2017/18)

<sup>79</sup> City Fringe OAPF: Transport Review 2014

### 5.3.5 Access to Underground stations

Table 5.9 presents passengers' method of travel to each of the Underground stations in Lambeth.

Table 5.9: Method of travel to Station (by total day)

Station name	NR/ DLR/ Tram	Bus/ Coach	Cycle	Motorcycle	Car/Van Parked	Car/Van drop off	Walk	Taxi/ Minicab	Marine	Other
Brixton	3%	47%	0.4%	0%	0.4%	2%	47%	0.2%	0%	0%
Clapham Common	0%	22%	0.2%	0%	1%	1%	76%	0%	0%	0%
Clapham North	5%	2%	0%	0%	0.2%	0.3%	93%	0%	0%	0%
Lambeth North	0%	11%	0%	0.1%	0%	0%	89%	0.2%	0.1%	0.2%
Oval	0%	24%	0.2%	0%	0.3%	0.4%	73%	0%	0%	2%
Stockwell	0%	18%	0%	0%	1%	3%	77%	0%	0%	0%
Vauxhall	47%	14%	0.3%	0%	0.1%	0.2%	39%	0.1%	0%	0%
Waterloo	74%	3%	0.2%	0.1%	1%	0.4%	21%	0.2%	0%	0.1%

Source: TfL Rolling Origin and Destination Survey (2014)

### 5.3.6 Night Tube service (Starting in 2016)

#### Underground stations in Lambeth open for night tube services

- Clapham Common (Northern Line)
- Clapham North (Northern Line)
- Stockwell (Northern Line & Victoria Line)
- Oval (Northern Line)
- Kennington (Northern Line)
- Waterloo (Northern Line & Jubilee Line)
- Vauxhall (Victoria Line)
- Brixton (Victoria Line)

The night tube will see services continue throughout the night on five London Underground lines on Friday and Saturday nights. This includes the Central, Jubilee, Northern, Piccadilly, and Victoria lines. In Lambeth, there will be seven stations which are going to be open through Friday and Saturday nights.

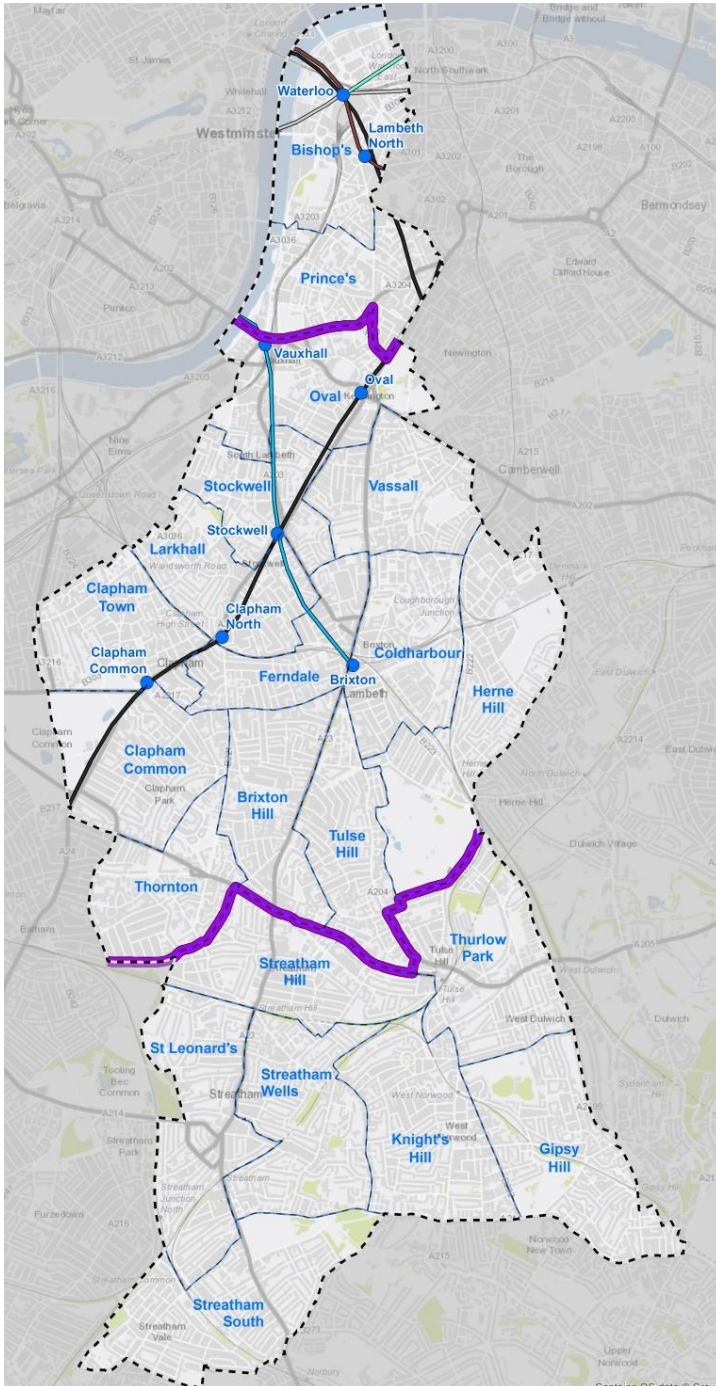
TfL estimate that the night tube will create 1,965 permanent jobs, producing an additional net output of £360m over 30 years. There are potential unquantifiable positive impacts such as:

- reduced demand for illegal minicabs
- improved commuter journeys for people who work during the night
- potential for longer operating hours for bars, clubs, restaurants, bowling alleys, cinemas and other attractions
- Reduced congestion at the station after events at entertainment venues such as the O2<sup>80</sup>.

<sup>80</sup> TfL: Impact of the Night Tube on London's Night time economy:

<http://content.tfl.gov.uk/night-time-economy.pdf>

Figure 5.18: Baseline Underground Summary



### North Lambeth

- 24 per cent of residents travel to work by the Underground (Census, 2011)
- Waterloo is a major interchange and is the busiest tube station within the Borough
- Long queues at Waterloo station to board Waterloo and city during peak hours
- Jubilee and Waterloo and City Lines arrive and depart above total capacity

### Central Lambeth

- 38 per cent of residents commute to work using the Underground, which is the highest in the Borough (Census, 2011)
- Victoria Line trains operate within capacity at the start of the journey, in Brixton. Passenger numbers increase at Stockwell, due to the interchange with the Northern Line and the line operates at capacity from Vauxhall in AM peak
- Northern Line services operate over capacity at all Lambeth stations making it difficult to board trains in the AM peak
- Brixton station only has one entrance, which gets very congested during the AM peak.

### South Lambeth

- The Underground makes up longest part of the commute for 17 per cent of residents in the South (Census, 2011)
- There are no Underground services, so there are a lot of trips towards other parts of the Borough to use Underground services

Source: London Underground & Lambeth boundary: Contains Ordnance Survey data © Crown copyright and database right 2016

## 6 Road Use

The road use section of the report examines all the different vehicles that use the road network in Lambeth. This section covers Cars, Powered Two Wheelers (PTW) and Freight. In each case, mode shares are identified as well as key issues related to the vehicle type.

There is an extensive road network in Lambeth, which covers a total of 390 km; this comprises of the following:

- 33 km - Transport for London Road Network (TLRN)
- 24 km - Principal roads
- 43 km - Classified roads
- 286 km - Unclassified roads (incl. housing estates)
- 5 km - Back lanes
- 2 km – Cycle lanes (off road adopted highway)<sup>81</sup>

### 6.1 Cars

#### 6.1.1 Background

##### Cars: Data sources

- Borough LIP Performance Indicator Report (2014/15)
- Census data (2011)
- DfT Traffic Count Data
- London Borough of Lambeth Factsheet (2015)
- Sub-Regional Transport Plan for Central London (2015)
- TfL Baseline SoLHam data (2011)
- TfL Road Modernisation Plan (2014)
- TfL Travel in London Report 8 (2015)
- Westminster Bridge Road Regeneration project site

Over the past 20 years, transport investment in London has prioritised non-car modes of transport, which has meant that road space has been reduced for vehicular traffic. The investment in non-car transport modes in London has led to a decline in car travel from 2000. Despite the growth in population over recent years, data suggests that car travel in kilometres is 9.5 per cent lower in 2014 compared to in 2000<sup>82</sup>.

Car ownership in Lambeth is generally lower than the London wide average; approximately 58 per cent of households in Lambeth have no cars compared to a London average of 41.5 per cent<sup>83</sup>. The number of cars per household in Lambeth is 0.5 compared to a London wide average of 0.8 cars per household<sup>83</sup>. Car ownership varies within the Borough, with generally higher car ownership in the south and lower car ownership in the north. Further details of car ownership are included in Figure 3.7.

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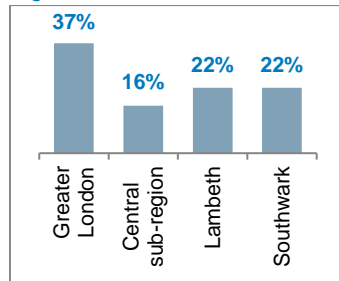
<sup>81</sup> London Borough of Lambeth Factsheet (2015)

<sup>82</sup> TfL Travel in London Report 8 (2015)

<sup>83</sup> Census data (2011)



Figure 6.1: Car Mode share



Source: Sub Regional Transport Plan for Central London (2015 Update)

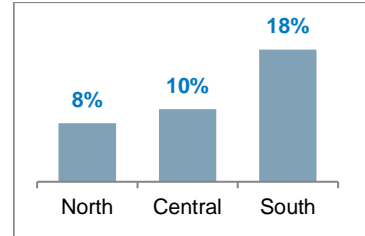
In 2013, Lambeth’s mode share for car travel was 22 per cent, which has declined by 8.7 per cent since 2006<sup>84</sup>. As shown in Figure 6.1, the percentage of residents that travel by car in Lambeth is higher than the sub-regional average but significantly lower than Greater London’s average.

DfT traffic count data indicates that car traffic flows have significantly reduced across the Borough over the last 10 years. From 2004 to 2014, car and taxi traffic has reduced by 27 per cent in Lambeth.

There are distinct differences in commuter car trips throughout Lambeth. As indicated in Figure 6.2, the northern section has the lowest mode share for resident commuter trips by car and the southern section has the highest mode share. As well as this, the south of the Borough has seen the least investment in public transport accessibility and cycle infrastructure by comparison.

### 6.1.2 Key Routes

Figure 6.2: Car use in Lambeth (mode share)



Source: Census, Method of Travel to Work (2011).

Note: Working Population size:  
 North (12,859), Central (101,172),  
 South (52,463)

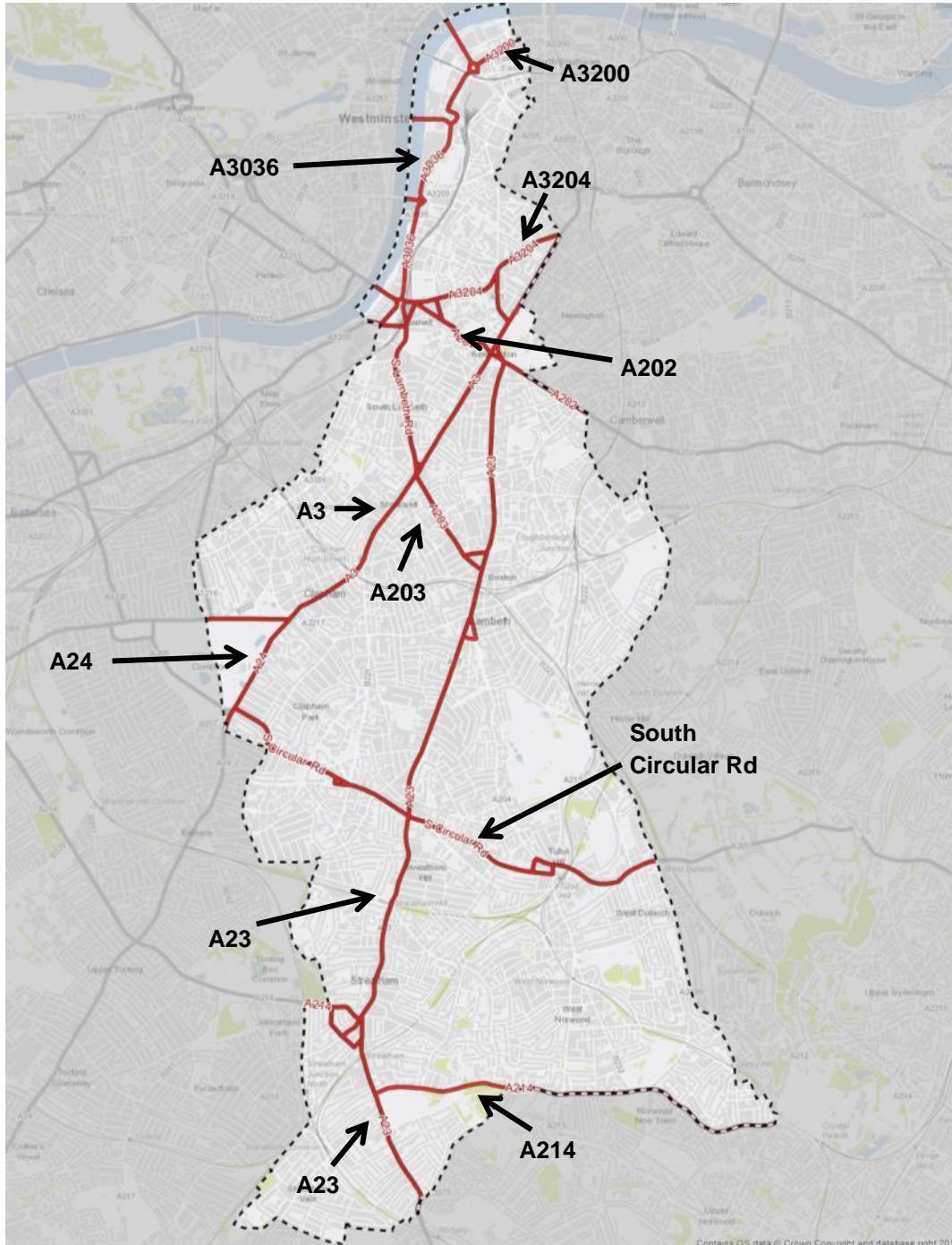
Table 6.1 discusses the arterial, orbital and other key routes that run through the Borough.

There are three main arterial routes which converge within the Borough and two orbital routes through the Borough which form part of TfL’s Road Network (TLRN), otherwise known as London’s Red Routes. These roads are managed by TfL, who determine the traffic measures, parking restrictions and speed. TfL are also responsible for maintenance, management and operation of London’s traffic signals.

As well as the main arterial and orbital routes, there are a number of other key roads in the Borough, which are managed by LBL.

<sup>84</sup> Sub-regional Transport Plan for Central London (2015 Update)

Figure 6.3: Key Routes in Lambeth



Source: Ordnance Survey

Table 6.1: Key Routes in Lambeth: Summary

Route Number	Description and Route	Design	Traffic Flows
<b>Arterial Routes</b>			
<b>A3</b>	<ul style="list-style-type: none"> <li>Runs from Elephant and Castle to Clapham Common.</li> <li>Beyond Clapham Common westwards, the A3 forms part of the South Circular Road up to the Wandsworth gyratory</li> <li>Beyond Wandsworth it converts into a dual carriageway through south-west London</li> <li>Routes through neighbourhood centres of Clapham, Stockwell and Oval</li> </ul>	<ul style="list-style-type: none"> <li>Mostly two-way single carriageways through the Borough with bus lanes on either side</li> <li>Cycle Superhighway (CS7) with cycle lanes on both sides of the road is shared with bus lanes in places</li> </ul>	<ul style="list-style-type: none"> <li>Annual Average Daily Flows (AADFs) have reduced by 36 per cent over a 10 year period from 2004-2014<sup>85</sup></li> <li>The road is designated as a 'Red Route' which restricts parking during peak hours</li> <li>The road suffers from peak time traffic congestion, especially through the neighbourhood centres where there are intersections with other principal traffic routes</li> </ul>
<b>A24</b>	<ul style="list-style-type: none"> <li>Starts at Clapham Common and continues towards south-west London</li> <li>Forms a route into Central London for major town centres and neighbourhoods such as Wimbledon, Sutton and Epsom within the M25</li> <li>Beyond London the road continues to the south coast to Worthing</li> </ul>	<ul style="list-style-type: none"> <li>Through the Borough it varies from single to dual carriageway</li> <li>On-street cycle lanes as the A24 forms part of the CS7</li> </ul>	<ul style="list-style-type: none"> <li>AADFs have reduced by 29 per cent from 2001 to 2014<sup>86</sup></li> <li>Over the same period pedal cycles have increased by 176 per cent</li> <li>Congestion between Clapham Common intersection with the A3 and Clapham South intersection with the South Circular Road</li> </ul>
<b>A23</b>	<ul style="list-style-type: none"> <li>Runs through the central spine of the Borough, from the Oval gyratory in the north, through to Brixton and Streatham.</li> <li>Beyond the Borough it continues south towards Croydon and then turns into the M23 motorway, which is the principal route to Brighton via Gatwick airport</li> </ul>	<ul style="list-style-type: none"> <li>It is predominantly a two-way single carriageway with bus lanes on both sides</li> <li>Becomes a dual carriageway section though Streatham Hill and past Streatham Common.</li> <li>Brixton, Streatham and Oval have recently undergone public realm improvements which has reallocated road space to improve facilities for pedestrians and cyclists</li> </ul>	<ul style="list-style-type: none"> <li>AADFs have reduced by 26 per cent<sup>87</sup> from 2004 to 2014.</li> <li>The road still suffers from peak time congestion, which is worse in town/ neighbourhood centres (see Photo 12.16 in the Site Audit section)</li> <li>Red Route parking restrictions across the length of the route to restrict on-street parking and loading</li> <li>The reallocation of road space may explain why the A23 still suffers from congestion even though the road has seen a significant reduction in car flows.</li> </ul>

<sup>85</sup> Source DfT Traffic Count Data, A3, Count ID 6108, 16101, 28507, 28544, 36109, 56108, and 56186

<sup>86</sup> Source DfT Traffic Count data, A24, Count ID 36277, and 74021

<sup>87</sup> Source DfT Traffic Count data, A23 Streatham, Count ID 26270

Route Number	Description and Route	Design	Traffic Flows
<b>Orbital Routes</b>			
<b>Inner Ring Road</b>	<ul style="list-style-type: none"> <li>Formed of major roads which encircle central London. The road also forms the boundary of the London CCZ. Therefore, the roads to the north of Kennington Lane (A3204) are within the CCZ.</li> <li>The inner ring road enters the Borough from Vauxhall Bridge and continues through Kennington Lane via the Vauxhall gyratory. To the east of the Borough Kennington Lane forms a junction with the A3 and heads north-east away from the Borough towards Elephant &amp; Castle</li> <li>The Vauxhall gyratory forms part of the inner ring road, and forms an intersection between six A-classified roads.</li> </ul>	<ul style="list-style-type: none"> <li>Kennington Lane is a single carriageway road in both directions. Unlike the A23, A24 and A3 there are limited on-street bus or cycle facilities.</li> <li>There is red line parking restrictions to limit on-street parking during peak times to avoid obstructions to traffic flow.</li> <li>The gyratory system is made up of four roads which encircle Vauxhall train station viaduct.</li> </ul>	<ul style="list-style-type: none"> <li>AADFs have reduced by 30 per cent on Kennington Lane<sup>88</sup> from 2004 to 2014.</li> <li>Even though traffic on Kennington Lane has reduced, the road still experiences peak time congestion between the Vauxhall Gyratory and the A3 junction. Vehicles using the A3204 to avoid the CCZ are likely to be contributing towards congestion on this road.</li> <li>AADFs have reduced by 21 per cent on the Vauxhall Gyratory<sup>89</sup> from 2004 to 2014.</li> <li>The gyratory currently experiences peak time congestion to and from Vauxhall Bridge Road.</li> </ul>
<b>South Circular Road</b>	<ul style="list-style-type: none"> <li>The route dissects the centre of the Borough from the Tulse Hill gyratory to Clapham Common via Streatham Hill.</li> <li>The road comprises of a number of major routes through south London, which connect major arterial routes such as the A2, A20, A23 and A3.</li> <li>It is the only signed east to west orbital vehicular route through south London, between the Inner Ring Road to the north and the M25 motorway to the south.</li> </ul>	<ul style="list-style-type: none"> <li>Unlike other principal routes through Lambeth, the South Circular Road has limited non-car infrastructure.</li> <li>There are less bus routes on the South Circular Road compared to bus routes on north-south links such as the A23.</li> </ul>	<ul style="list-style-type: none"> <li>AADFs have reduced by 12 per cent on the A205<sup>90</sup> from 2004 to 2014.</li> <li>Traffic on the route has reduced at a lower rate compared to other major routes in the Borough. It is anticipated that the lack of east to west non-car transport options has led to a smaller modal shift to non-car travel compared to north-south routes in the Borough.</li> <li>The route experiences peak time congestion at major intersections such as the Tulse Hill gyratory, Streatham Hill junction with the A23 and Clapham South junction with the A24.</li> </ul>
<b>Other Key Routes</b>			
<b>A3036</b>	<ul style="list-style-type: none"> <li>A-classified road which runs between the County Hall roundabout near Waterloo, to the A3 at Wandsworth</li> </ul>	<ul style="list-style-type: none"> <li>Majority of the road is single carriageway in both directions</li> <li>South of Vauxhall gyratory the road has sporadic bus lanes</li> </ul>	<ul style="list-style-type: none"> <li>AADFs have reduced by 32 per cent from 2004 to 2014.</li> <li>It has seen one of the largest decreases in traffic of all major routes through the Borough. A large proportion of the decrease</li> </ul>

<sup>88</sup> Source DfT Traffic Count Data, A3204, Count ID 18463, 27660, 57657, and 57904

<sup>89</sup> Source DfT Traffic Count Data, Vauxhall gyratory Count ID 73681, 38565, 48547, 18463, 8478, 8354, and 37663.

<sup>90</sup> Source DfT Traffic Count Data, A205, Count ID 46789, 74022, 16743, and 56626

Route Number	Description and Route	Design	Traffic Flows
	<ul style="list-style-type: none"> <li>Follows the northern boundary of the Borough via Clapham, Stockwell and Vauxhall.</li> <li>North of Vauxhall gyratory it forms part of the TLRN and is within the CCZ</li> </ul>	<ul style="list-style-type: none"> <li>North of the Vauxhall gyratory the road widens with bus lanes in both directions along the majority of the road.</li> </ul>	<ul style="list-style-type: none"> <li>is likely to be attributed to the introduction of the CCZ.</li> <li>Peak time congestion through the Vauxhall gyratory even though the junction has recently undergone public realm improvements</li> </ul>
<b>A3200</b>	<ul style="list-style-type: none"> <li>Runs between Westminster Bridge junction, through to Blackfriars Bridge.</li> <li>Also routes via the Waterloo Bridge road (IMAX Junction).</li> <li>Forms part of the TLRN and is within the CCZ</li> </ul>	<ul style="list-style-type: none"> <li>Majority of the route is single carriageway with bus lanes on both sides of the road between Westminster Bridge and Waterloo Bridge.</li> </ul>	<ul style="list-style-type: none"> <li>Traffic flows have reduced, but the road still experiences peak time congestion at 3 major junctions along the route (Westminster Bridge, Waterloo Bridge Road and Blackfriars Bridge)</li> </ul>
<b>A214</b>	<ul style="list-style-type: none"> <li>Runs along the southern boundary of the Borough between Wandsworth and West Wickham.</li> </ul>	<ul style="list-style-type: none"> <li>Predominantly single carriageway with no segregated bus lanes or cycle lanes.</li> </ul>	<ul style="list-style-type: none"> <li>AADFs have reduced by 17 per cent from 2004-2014.</li> <li>Experiences peak time congestion at the junction with the A23 and as the road approaches the Crystal Palace one-way system.</li> <li>Also peak time congestion around Beulah Hill junction (towards West Norwood)</li> </ul>
<b>A215</b>	<ul style="list-style-type: none"> <li>A primary road which runs from the southern boundary of the Borough at Beulah Hill junction towards the east of the Borough at Herne Hill</li> <li>Runs through the neighbourhood centres of West Norwood and Tulse Hill.</li> </ul>	<ul style="list-style-type: none"> <li>West Norwood neighbourhood centre consists of three one-way streets</li> <li>Recent junction improvements around West Norwood neighbourhood centre have included traffic calming features such as raised tables at junctions in accordance with the West Norwood masterplan to improve the public realm.</li> </ul>	<ul style="list-style-type: none"> <li>The one-way system experiences peak time congestion.</li> <li>The section of the A215 between the Tulse Hill gyratory and West Norwood neighbourhood centre is heavily congested during peak periods.</li> </ul>

### 6.1.3 Highway Asset Condition

According to the Borough LIP Performance Indicator Report, the condition of Lambeth’s principal road network is poor compared to the Greater London average. 31 per cent of Lambeth’s principal road network in poor condition compared to the Greater London average of 16 per cent.<sup>91</sup> Despite this, Lambeth’s principal road condition has improved by 12 per cent since 2011.

The poor condition of the principal road network can impact highway safety, especially for vulnerable road users such as cyclists. It can also discourage cyclists from using these routes, as poor road condition can lead to a perception of danger.

<sup>91</sup> Borough LIP Performance Indicator Report 2014/15'



The road condition results shown in the Borough LIP Performance Indicator Report 2014/15 only include principal routes in the Borough.

Data on highway condition has been made available by LBL. The data indicates that 38 per cent of all carriageways of other routes is in poor condition.

#### **6.1.4 Traffic Volumes**

Figure 6.4 shows traffic volumes on the strategic and principal roads in Lambeth, this is based on outputs from TfL's baseline SoLHAM traffic model for the AM peak period. The SoLHAM model has not been updated to 2016 as part of this study, as it is outside the scope of the study. However, the results highlight routes and intersections within the Borough which currently experience high traffic volumes.

It is important to note that the SoLHAM model is an area wide model and accounts for trips that originate within and outside of Lambeth and accounts for through traffic.

In addition, Figure 6.5 shows the junctions that are currently operating within 90 per cent of total capacity during the AM peak period.

#### **6.1.5 Speed limit**

Lambeth is rolling out a Borough-wide 20mph speed limit. The reduction in speed limit is being implemented to improve pedestrian and cyclist safety, as well as to reduce emissions. The Borough wide 20mph speed limit will not immediately apply to the majority of TLRN routes as these are controlled by TfL. However, it is envisaged that the majority of these routes will in time also be subject to 20mph speed limits.

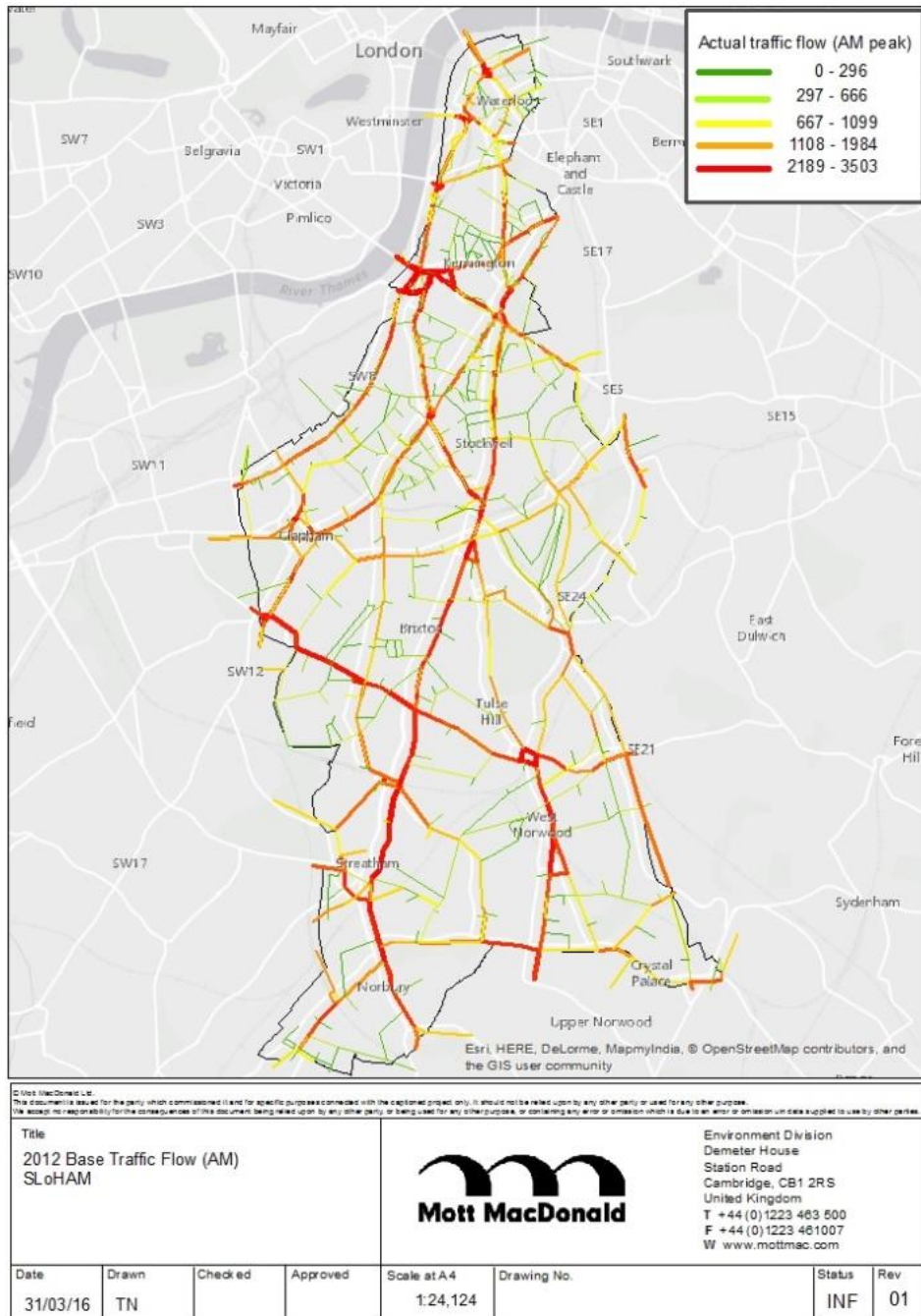
#### **6.1.6 Controlled Parking Zones**

There are currently 28 Controlled Parking Zones (CPZ) within the Borough, which are shown in Figure 6.6. Each area within the CPZ has different parking restrictions but in most areas parking is typically controlled between Monday and Friday. The most restrictive parking control applies to Brixton Hill ward where the parking restriction operates between Monday and Saturday, 08:30 to 17:30 or 20:30.

The Borough is currently reviewing the existing CPZ due to requests from residents and local businesses over recent years. The aim of the review is to assess if the existing controls still meet the demand of local communities and whether additional parking controls are required. The results of the study are expected to be published in October 2016.

The review of CPZ may extend the CPZ at sensitive areas such as areas around stations. Lambeth is one of the only places in London Zone 2 which has areas not covered by CPZ's.

Figure 6.4: SolHAM Baseline Traffic Volumes

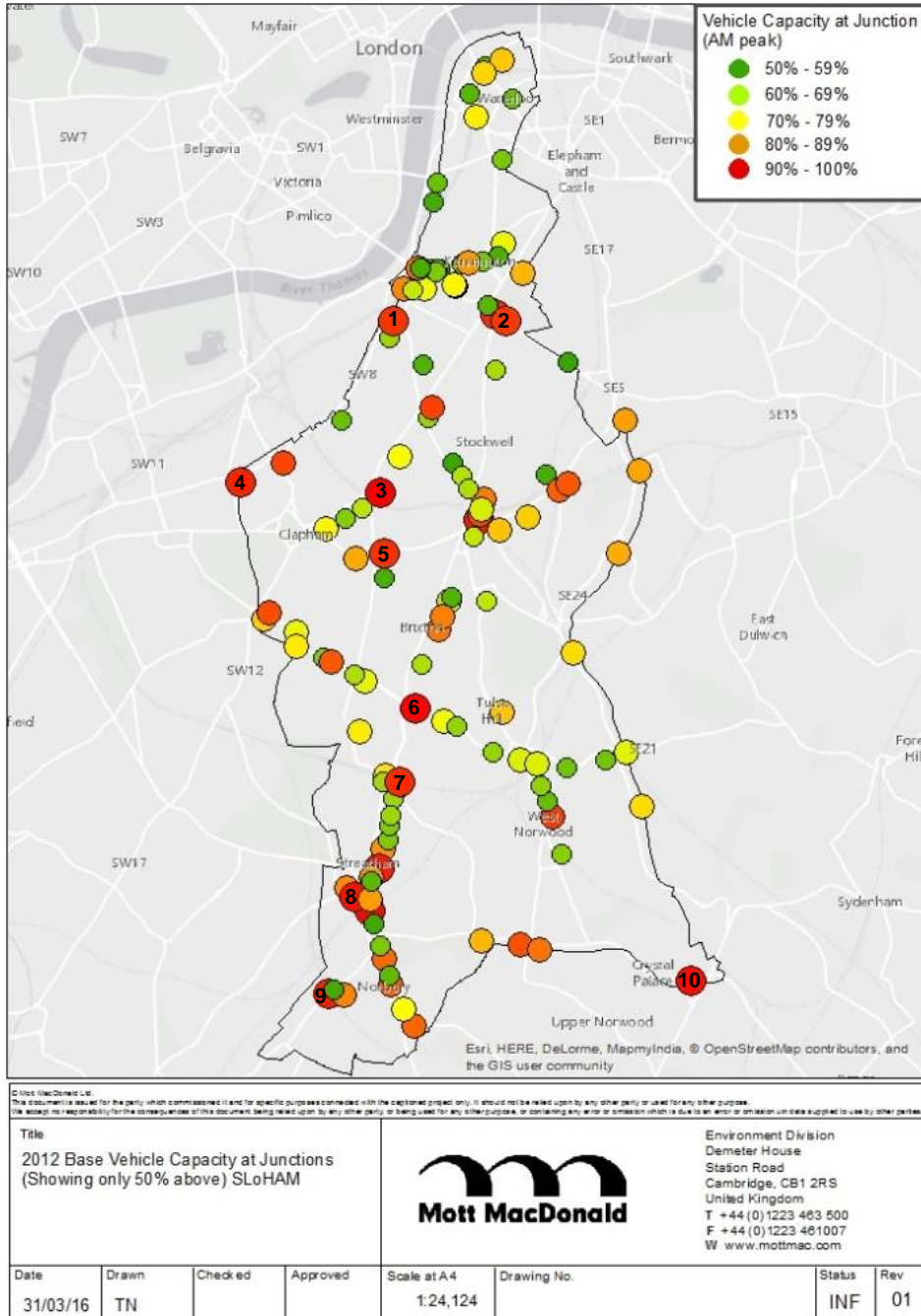


Key observations:

- Traffic volumes are high on the principal traffic routes through the Borough, especially on the A23 and the South Circular Road.
- The A23 experiences significantly high car volumes in the peak time from Streatham in the south and Oval in the north.
- The South Circular Road through the Borough is also a popular route for car travel.
- In the north of the Borough, there are high car volumes around the Vauxhall gyratory, Westminster Bridge gyratory and the IMAX roundabout.
- Car volumes in the Borough are generally higher in the south and lowest in the north. This reflects high car ownership and mode share in the south compared to the north

Source: TfL Baseline SolHAM data (2011)

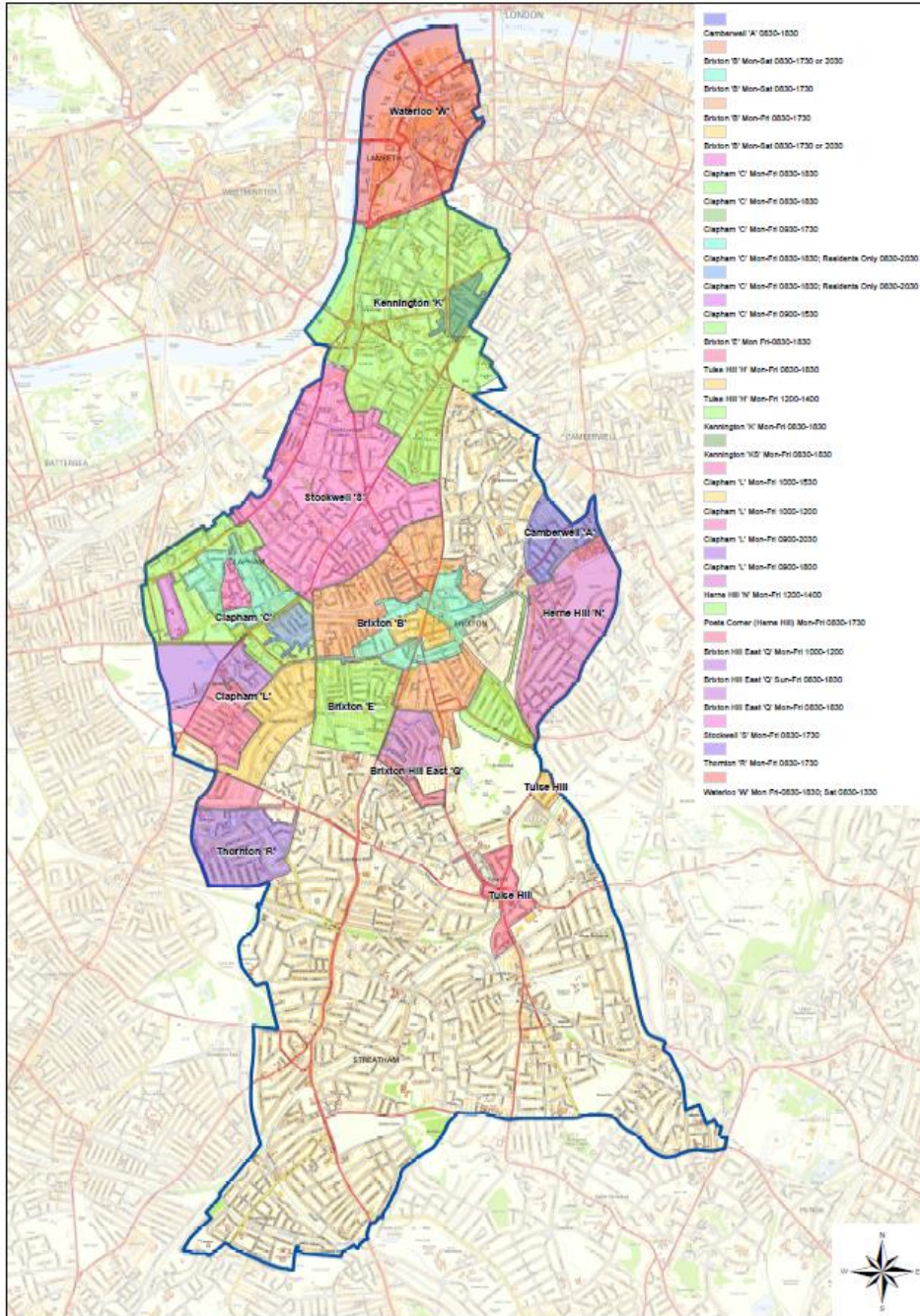
Figure 6.5: SolHAM Baseline Junction Capacity Map



Source: TfL Baseline SolHAM data (2011)12.8



Figure 6.6: Lambeth Control Parking Zone Map



Key observations:

- The existing CPZ's are concentrated in the central and northern sections of the Borough.
- However, there are some areas to the east of Brixton and Stockwell which are not currently within the CPZ.
- The majority of south of the Borough is not currently covered within Lambeth's CPZ's except for areas around Tulse Hill.
- The areas within the Borough with the highest car ownership (based on 2011 census data) are generally in areas which aren't included in the CPZ zone, such as the southern section of the Borough.

Source: Lambeth Controlled Parking Zones: [http://www.lambeth.gov.uk/sites/default/files/pts-cpz-zones-map\\_0.pdf](http://www.lambeth.gov.uk/sites/default/files/pts-cpz-zones-map_0.pdf)

### 6.1.7 Road Improvements

There are a number of junction improvements in Lambeth, which are currently under construction or due to start in 2016 as part of TfL's Road Modernisation Plan<sup>92</sup>. TfL is investing more than £4bn to improve London's roads and the plan includes hundreds of projects to transform junctions, bridges, tunnels and public spaces.

In Lambeth, there are eight major schemes initiated under the Road Modernisation plan. Three projects that are being implemented by TfL are due to be completed in 2016<sup>92</sup>, and these are described in Table 6.2. The table also includes the Westminster Bridge Road project, which is being delivered by LBL in partnership with a number of local groups and is due to be completed in 2016<sup>93</sup>.

Table 6.2: Road Improvements

Scheme	Scheme description
<b>Junction improvements at Oval</b> (in progress) - TfL	<p>Oval triangle was a traffic dominated junction with a Cycle Superhighway (CS7) running through the junction. The redevelopment of the junction was initiated to improve safety for cyclists and other vulnerable road users. The junction improvements are currently under construction, and the changes applied to cyclist and pedestrian safety includes:</p> <ul style="list-style-type: none"> <li>• Wide, segregated cycle lanes and cycle specific signals at traffic lights</li> <li>• Advanced stop line deeper to allow more cyclists to wait ahead of other traffic</li> <li>• Cycle bus stop bypasses</li> <li>• Improved pedestrian crossings and footpaths</li> <li>• Removal of the existing central reservation and guard railing</li> <li>• Shared space</li> <li>• Improvements to the Oval Triangle green space.</li> </ul>
<b>Stockwell Cross</b> (Due for summer 2016 completion) - TfL	<p>TfL is proposing to remove the Stockwell Cross gyratory to reduce the dominance of vehicular traffic at Stockwell and to improve safety for cyclists and pedestrians. The proposed junction modifications include:</p> <ul style="list-style-type: none"> <li>• Closure of the South Lambeth Road arm of the gyratory to vehicular traffic and conversion into a pedestrianised area/ public space</li> <li>• Conversion of the gyratory to form two signalised cross roads</li> <li>• New segregated cycle facilities through the junction</li> <li>• Permitting cyclists to enter the Clapham Road/ Stockwell Road junction ahead of all traffic by having a separate green signal for cyclists only</li> <li>• Introducing new sections of cycle lanes on Stockwell Road and South Lambeth Road</li> <li>• Making changes to the advance stop line</li> <li>• Widening the bus lanes on Clapham Road, south of Stockwell Road and Binfield Road</li> </ul>
<b>Westminster Bridge South</b> (Due to for commencement October 2016) - TfL	<p>Westminster Bridge South used to operate as a full gyratory system. Recently, the junction has been transformed into a peninsular style junction with a hotel development in the middle of the junction. To reduce the dominance of cars at the junction, further improvements are proposed at the junction by giving cyclists dedicated space and to provide separate cycle signals at junctions. The changes would also provide a link between the East-West Cycle Superhighway on the north bank of the Thames and the Central London Cycle Grid on Belvedere Road and Royal Street in Lambeth.</p>

<sup>92</sup> TfL Road Modernisation Plan (2014)

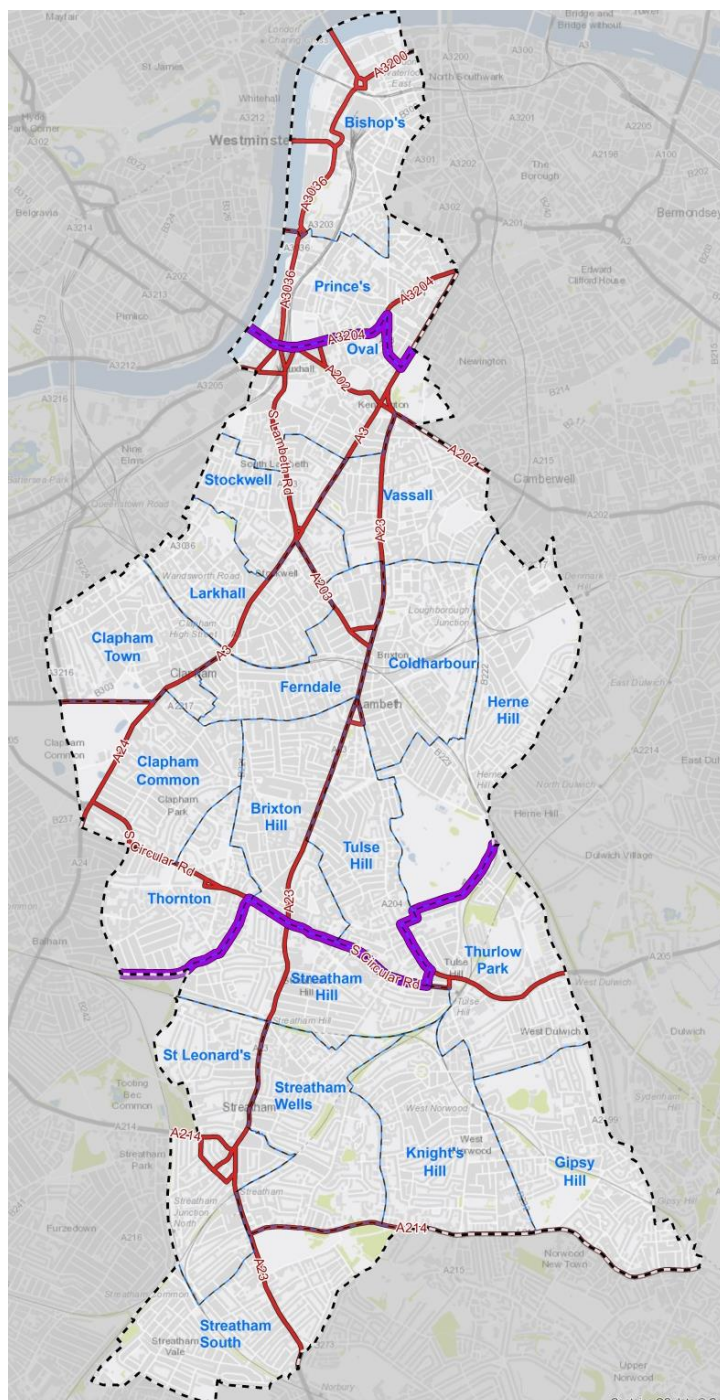
<sup>93</sup> Westminster Bridge Road Regeneration project site: <http://www.wbrproject.co.uk/proposals/hercules-road-baylis-road-lambeth-quietways-scheme>



Scheme	Scheme description
	<p>To improve traffic flow through the junction some right hand turn manoeuvres have been banned. However, the junction amendments will lead to slightly longer journey times for vehicles.</p> <p>The proposed changes for cyclists and pedestrians include:</p> <ul style="list-style-type: none"> <li>• Dedicated road space for cyclists on Westminster Bridge, Westminster Bridge Road, Lambeth Palace Road, Addington Street and York Road</li> <li>• Separation from motor vehicle movements at the junction with dedicated cyclist signal phase</li> <li>• Wider straight pedestrian/cycle crossings</li> <li>• Bus stop bypasses</li> <li>• Wider footways</li> </ul>
<p><b>Westminster Bridge Road</b> (due to be completed in 2016) – LBL</p>	<p>The project includes refurbishment and improvement to the area of Westminster Bridge Road from the Addington Street roundabout to the Borough boundary at Morley Street.</p> <p>There are four projects under the scheme:</p> <ul style="list-style-type: none"> <li>• Lambeth North Junction on Westminster Bridge Road - To improve pedestrian safety by catering for desire lines, and to enhance public realm at Lambeth North junction. Changes include: <ul style="list-style-type: none"> <li>– Banned left turn to create a new public space and simplify the crossing points</li> <li>– Access only to Hercules Road to create a new public space</li> <li>– Crossing on Kennington Road to improve safety, which is with a main desire line</li> <li>– Diagonal crossing to provide more direct access to the station by catering for desire lines</li> <li>– Trees and planting on new public space to enhance the public realm</li> <li>– Wider pavements to improve pedestrian flows.</li> </ul> </li> <li>• Upper Marsh/ Carlisle Lane/ Lower Marsh crossing - The proposed changes cater for improved safety for pedestrians and cyclists as well as better traffic flows. The following changes have been proposed: <ul style="list-style-type: none"> <li>– Extend similar materials used in Lower Marsh to reflect the positive changes which have been made recently</li> <li>– Reverse direction of traffic on Carlisle Lane to prevent this route being used as a dangerous cut through by vehicles</li> <li>– Reverse direction of traffic on Upper Marsh to improve traffic flows around the area</li> <li>– Wider crossing across Westminster Bridge Road to support the important pedestrian route from Lower Marsh to Carlisle Lane and Upper Marsh</li> <li>– Raised table across Westminster Bridge Road to improve the pedestrian and cycle route across Westminster Bridge Road</li> <li>– Improved signalised cycle facilities to improve safety for all road users, and to slow cyclists entering a busy area.</li> </ul> </li> <li>• Lighting proposals for the tunnels - The proposal is to improve the pedestrian experience by creating attractive and interesting ambience in the three main tunnels. Each tunnel will have different lighting themes which aim to improve perceptions of safety in the tunnels. The initiatives have been proposed at following tunnels: <ul style="list-style-type: none"> <li>– Carlisle Lane</li> <li>– Upper Marsh</li> <li>– Westminster Bridge Road</li> </ul> </li> <li>• Hercules Road &amp; Baylis Road (Lambeth Quietways Scheme) - The proposal is to improve the cycle facilities and the public realm along Baylis Road and Hercules Road. The following changes have been proposed: <ul style="list-style-type: none"> <li>– Baylis Road <ul style="list-style-type: none"> <li>– Wider cycle lanes and improved protection from motor traffic</li> <li>– Floating bus stops</li> <li>– Decluttering of the streetscape</li> </ul> </li> <li>– Hercules Road <ul style="list-style-type: none"> <li>– Banned left turn</li> <li>– Trees in a boulevard style</li> </ul> </li> </ul> </li> </ul>

Source: TfL Road Modernisation Plan (2014)

Figure 6.7: Baseline Summary: Car



### North Lambeth

- 8 per cent of residents use their car to travel to work, which is the lowest in the Borough (Census, 2011)
- Largest reduction in car and taxi traffic flows in the Borough (35%) between 2004 and 2014.
- Majority of junctions operating within capacity
- Low car ownership
- Congestion Charge Zone is located in the north.

### Central Lambeth

- 9.9 per cent of residents commute by car (Census, 2011)
- 33 per cent reduction in car and taxi flows between 2004 and 2014
- Low car ownership compared to the south of the Borough
- High car volumes on principal traffic routes and town/ neighbourhood centre locations

### South Lambeth

- Highest mode share of residents using a car to commute to work in the Borough, 18.1 per cent (Census 2011)
- 14 per cent reduction in car and taxi traffic flows (2004-2014)
- High car ownership levels compared to the rest of the Borough
- High car volumes during peak time on the A23 and A215.

Source: Key Roads & Lambeth boundary: Contains Ordnance Survey data © Crown copyright and database right 2016

## 6.2 Powered Two Wheelers (PTW)

### 6.2.1 Background

#### PTW: Data sources

- Census data (2011)
- DfT Traffic Count data
- Motorcycle Safety Action Plan (2014)

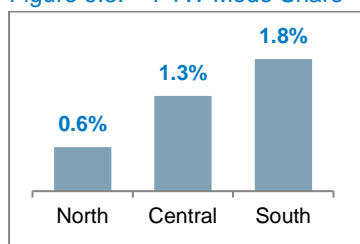
PTW, which includes motorcycles, scooters and mopeds accounts for 1.4 per cent of all journeys to work made by Lambeth residents<sup>94</sup>; a relatively low number that is also reflected in traffic flow data throughout the Borough from DfT traffic counts.

TfL's motorcycle safety action plan note that of all journeys made by PTWs in Greater London, 61 per cent were made for commuting purposes; a higher proportion than that of car drivers and cyclists.<sup>95</sup> The mode share for PTW commuting varies across the Borough which is summarised in Figure 6.8. The data indicates that actual motorcycle flows are highest in the central section of the Borough and lowest in the northern section of the Borough.

Average Annual Daily Flows (AADF), made available by the DfT has shown that across the Borough, motorcycle traffic flows have decreased by 15 per cent from 2004 to 2014. The greatest decline has been experienced in the north of the Borough, where there has been a 23 per cent decrease in motorcycle flows from 2004 to 2014<sup>94</sup>. Over the same period cycle flows have increased by 90 per cent in the southern section of the Borough.

### 6.2.2 PTW Routes & Parking

Figure 6.8: PTW Mode Share



Source: Census, Method of Travel to Work (2011).

Note: Working Population size: North (12,859), Central (101,172), South (52,463)

Motorcycles are permitted to use the majority of bus lanes on the TLRN through Lambeth, which can also be used by cyclists. Due to number of bus lanes on major routes (such as the A23, A24 and A3) in Lambeth, there are good motorcycle routes through the Borough.

However, recent schemes to improve public realm at major gyratories has reduced road space which has made it more difficult for motorcycles to navigate through these junctions

It should be noted that in 2012, there were 629 motorcyclists Killed or Seriously Injured (KSI) on London's roads. This equates to 21 per cent of all KSIs in the capital for that year. There is a TfL target to reduce KSI casualties by 40 per cent by 2020<sup>96</sup>.

Collision data analysis shows that KSIs casualties, which involved PTWs, predominantly occur along principal traffic routes (such as the A23, A3, A203 and the South Circular Road).

<sup>94</sup> Census data (2011)

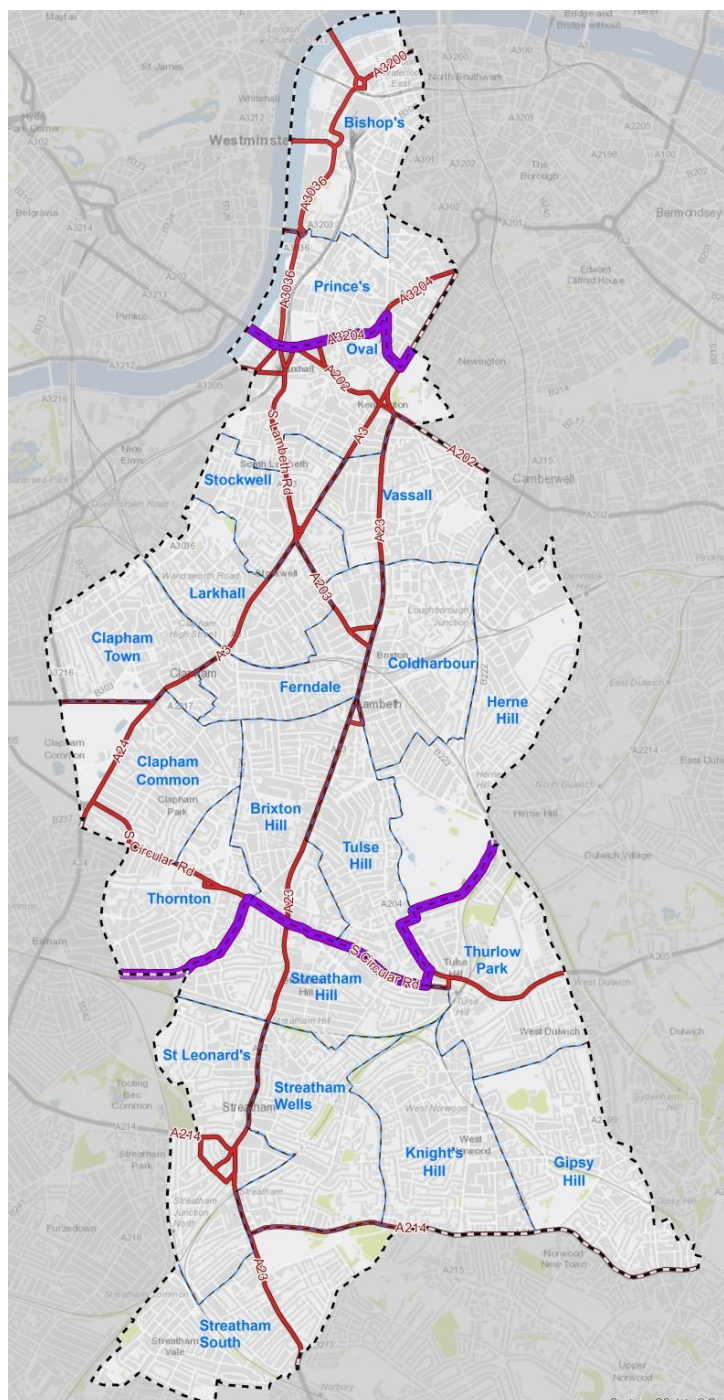
<sup>95</sup> Motorcycle Safety Action Plan (2014)

<sup>96</sup> Motorcycle Safety Action Plan (2014)

Motorcycle parking within the Borough is currently available in Brixton, Brixton Hill, Camberwell, Clapham, Poets Corner, Stockwell, Thornton, Tulse Hill and Waterloo. The Borough is currently reviewing Controlled Parking Zones (CPZ) to establish whether existing facilities are sufficient to cater for the demand.



Figure 6.9: Baseline Summary: PTW



### North Lambeth

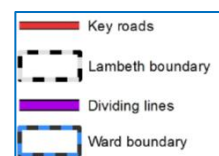
- 0.6 per cent of residents commute to working using a PTW (Census, 2011)
- PTW collision data suggests that there is a collision hot spot around Westminster Bridge Road
- North of the Borough has experienced a 23 per cent decrease in motorcycle flows from 2004 to 2014.

### Central Lambeth

- 1.3 per cent of residents commute to work using a PTW (Census, 2011)
- Collisions predominantly happen on major on main roads, such as the A23, A3 and A203.
- Central Lambeth has the highest PTW traffic flows

### South Lambeth

- 1.8 per cent of residents commute to work using PTW (Census, 2011)
- Collisions hotspot around Streatham station.
- Motorcycle flows have been decreasing since 2004, and cycling flows in the south of the Borough have increased by 90 per cent between 2004 and 2014.



Source: Key Roads & Lambeth boundary: Contains Ordnance Survey data © Crown copyright and database right 2016



## 6.3 Freight

### 6.3.1 Background

#### Freight: Data sources

- Census data (2014)
- DfT Traffic Count data
- Lambeth Transport Plan (2011)
- London Borough of Lambeth Factsheet (2015)

In London, approximately 90 per cent of all goods are moved by road via a mixture of Heavy Goods Vehicles (HGVs) and Light Goods Vehicles (LGVs)<sup>97</sup>.

Based on DfT traffic count data, there has been a significant increase in LGV traffic across London over the last 10 years<sup>97</sup>. Since the year 2000, HGV traffic across London has reduced by 10 per cent, however, this trend has levelled off since 2008.

Based on DfT traffic count data, freight traffic within the Borough has generally reduced over a 10 year period between 2004 and 2014. Contrary to wider London data, LGV flows have reduced by 11 per cent on the routes recorded in Lambeth by the DfT, HGV flows have reduced by 1 per cent over the same 10 year period.

By analysing individual routes across the Borough, there are significant variations in freight traffic flows over the same 10 year period (i.e. 2004 to 2014). Some routes such as the A214 (link between Streatham and Crystal Palace) have seen a 38 per cent increase in HGV flows, whereas routes like the A3204 Inner Ring Road have seen a 46 per cent reduction in HGV flows<sup>98</sup>.

The A24 through the Borough has also seen a 22 per cent increase in HGV traffic over the 10 years<sup>98</sup>.

### 6.3.2 Key Routes & Parking

The only route through the Borough for freight traffic is via principal routes such as the A23, A24, A3 and the inner London ring road which bisect the Borough's town/ neighbourhood centres. This leads to a high volume of freight traffic travelling through town/ neighbourhood centre locations, which can create a negative impact on air quality and road safety. Freight traffic through town / neighbourhood centres also has a negative impact for pedestrians and cyclists.

The majority of roads which dissect the major town/ neighbourhood centres such as Clapham, Streatham and Brixton are TLRN routes controlled by TfL. The majority of these routes are subject to double red line parking restrictions through town/ neighbourhood centre locations, which restrict parking at any time.

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<sup>97</sup> Lambeth Factsheet, 2015

<sup>98</sup> DfT Traffic Count data

On-street loading bays are present in some of these locations to allow on-street servicing but only during off-peak hours. In busy town / neighbourhood centre locations the number of loading bays are restricted and often shared between multiple shops and businesses, which can lead to queuing. To reduce dwell time some loading bays are restricted to 20 minutes which can cause problems for larger shops and businesses due to longer loading times required to service these businesses.

### **6.3.3 Lambeth Freight Initiatives**

Lambeth are working on a number of initiatives to encourage more sustainable deliveries across the Borough, such as:

- Encouraging businesses to sign up to the Fleet Operator Recognition Scheme (FORS) which acts as a quality and performance benchmark for the freight industry.
- Continuing to ensure adequate off-street loading and unloading facilities are provided.
- Discouraging on-street loading through parking restrictions, particularly during peak times.
- To reduce larger freight vehicle traffic; the Borough is encouraging businesses to transport goods by more sustainable means.
- The Lambeth Business Travel Network has previously provided grants for businesses to purchase cycle 'hods' allowing short deliveries within the Borough to be carried out by bicycle<sup>99</sup>.

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<sup>99</sup> Lambeth Transport Plan (2011)

## 7 Marine Transport

This section focuses on marine transport in Lambeth, outlining which areas are served by river bus services.

### 7.1.1 Background

#### Marine Transport: Data sources

- London Infrastructure Plan Update (2015)
- TfL River Action Plan (2013)
- Travel in London Report 8 (2015)

TfL's river services have seen a significant expansion between 2008/09 and 2014/15.<sup>100</sup> More than 10 million passengers used river services last year, representing an increase of 19 per cent in the latest year.<sup>100</sup> The River Action Plan, published in February 2013 outlined proposals to realise the potential of the Thames, along with other navigable waterways in London, for passenger and freight transport.<sup>101</sup>

The River Action Plan identifies a range of investments in river infrastructure, including extending existing piers and building new ones in order to achieve the Mayor's target of 12 million passengers a year by 2020. The Plan sets out planning for new passenger piers at nearby Battersea Power Station and in the east at Rotherhithe, Convoys Wharf and Enderby Wharf.<sup>101</sup> In the longer term, it aims to enhance and increase river services, particularly to serve population growth east of Canary Wharf, where fewer constraints exist.

Given that river freight infrastructure is more developed in east London compared to the west, the Mayor's River Concordat Steering Group (a group of stakeholders brought together to address strategic issues on the river) is looking at developing freight capacity in the west to significantly reduce road freight traffic volumes and enhance local employment opportunities. The potential is large given that in 2013, over five million tonnes of freight was transported on the Thames, taking 265,000 lorry movements off London's roads.<sup>102</sup>

### 7.1.2 Marine Transport in Lambeth

Lambeth flanks the river for around 1.5 miles between Vauxhall Bridge in the south to Waterloo Bridge in the north. Within this stretch of river there are two river bus connections, at London Eye pier and St Georges Wharf.

The London Eye pier connects to River Bus 1 (RB1) which travels from the London Eye to Woolwich Arsenal Pier via North Greenwich,

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<sup>100</sup> TfL Travel in London: Report 8 (2015)

<sup>101</sup> TfL River Action Plan (2013)

<sup>102</sup> London Infrastructure Plan Update (2015).

Greenwich, Canary Wharf, Tower, London Bridge, Blackfriars and Embankment. The London Eye pier also connects to the Westminster to Greenwich leisure route.

The St George Wharf Pier serves two River Bus services, RB2 and RB6. Service RB2 runs from St George Wharf to Bankside via Millbank, Westminster and Embankment, and Service RB6 runs from Blackfriars to Putney via Embankment, St George Wharf, Cadogan, Chelsea Harbour, and Wandsworth Riverside.

Currently there are good river bus services from the London Eye pier towards the east, such as London Bridge and Canary Wharf. However, there are no direct river bus services from St George Wharf to the east or vice versa.

Table 7.1 shows single ticket prices on marine transport in London.

Table 7.1: Single Ticket Prices – Marine Transport

Zone	Adult Single	TfL Travelcard Holder	Child 5-15	Child 5-15 Travelcard	Under 5s
Central	£8.00	£5.35	£4.00	£2.65	Free
East	£4.30	£2.90	£2.15	£1.45	Free
West	£4.20	£2.80	£2.10	£1.40	Free
Central and East	£8.70	£5.80	£4.35	£2.90	Free
Central and West	£8.00	£5.35	£4.00	£2.65	Free
All Zones	£9.00	£6.00	£4.50	£3.00	Free

Source: TfL Website

## 8 Airport Access

This section of the report presents the existing travel options within Lambeth to major London airports (Heathrow, Gatwick, Stansted, London Luton, and London City). To recognise the differences in accessibility across the borough, travel to key airports has been assessed from Waterloo in the north, Brixton in the central section and West Norwood in the southern section of the borough.

### 8.1 Airport Connections

Table 8.1 presents journey times to London airports from Waterloo, Brixton and West Norwood. Overall, Lambeth is well connected to London airports and residents in Lambeth can mostly travel to any London airport within an hour and a half. However, the southern section of the Borough experiences slow travel times to Stansted and Luton.

Table 8.1: Journey Times to London Airports

From	Time of travel	Travelling to:				
		Heathrow	Gatwick	Stansted	Luton	London City
<b>North Lambeth: Waterloo station</b>	Early AM (pre-5am)	1hr 15mins via bus and Heathrow Express	1hr 10mins via bus and rail from Blackfriars	1hr 30 mins via 76 bus and rail from Liverpool Street	1hr 30mins via 59 bus and rail from St Pancras	1hr 15 mins via N1 bus
	Peak hour (8am-9am)	40 mins via tube and Heathrow Express or 60 mins via Jubilee then Piccadilly Line	50 mins rail via Clapham Junction	1hr 20mins via tube and rail from Liverpool Street	1hr 20mins via bus and rail from Blackfriars	25 mins via tube and DLR
<b>Central Lambeth: Brixton</b>	Early AM (pre-5am)	1hr 20mins via bus and Heathrow Express	1hr 15mins via bus and rail from Victoria	1hr 40mins via N133 bus and rail from Liverpool Street	1hr 50mins via 49 bus and rail from St Pancras	1hr 15mins via bus and DLR
	Peak hour (8am-9am)	1 hr via tube or 50 mins via tube and Heathrow Express	60 mins via tube and rail from Victoria	1hr 20mins via tube then rail from Tottenham Hale	1hr 20mins via tube, then rail from St Pancras	50 mins via tube and DLR
<b>South Lambeth: West Norwood</b>	Early AM (pre-5am)	1hr 30mins via bus then Heathrow Express	60 mins via bus then rail from East Croydon	2hrs 5mins via bus then rail from Liverpool Street	2hrs via bus then coach	1hr 15mins via bus then DLR
	Peak hour (8am-9am)	1hr 25mins via bus, tube then Heathrow Express	60 mins rail via Victoria	1hr 50mins via bus, tube then rail from Tottenham Hale	1hr 40mins via bus then rail from St Pancras	1hr 15mins via rail, tube then DLR



## 9 Journey Information

This section of the report analyses a selection of key journey times between destinations within Lambeth and journeys made outside of the Borough.

### 9.1 Journeys within Lambeth

Journeys across Lambeth have been examined in five ways, first by looking at the fastest route possible to get between two locations within the Borough using any public transport mode, then specifically looking at fastest bus only journey, walking journey, cycle journey and car journey times. To simulate commuter times, the time period examined was 8am on a weekday. Each route is an end to end journey time from the areas' central hub.

Table 9.1: Fastest Route Possible by all Public Transport Modes

	Waterloo	Vauxhall	Stockwell	Clapham	Brixton	Herne Hill	Tulse Hill	West Norwood	Streatham
Waterloo		14	22	23	23	32	37	49	43
Vauxhall	17		14	20	14	31	33	36	40
Stockwell	19	14		11	11	27	31	36	37
Clapham	22	21	11		13	26	32	36	33
Brixton	21	13	10	14		16	18	22	25
Herne Hill	31	34	26	27	15		14	23	25
Tulse Hill	35	38	30	33	19	13		21	26
West Norwood	43	36	38	32	29	23	24		26
Streatham	41	43	40	36	27	27	26	25	

**Key**

25 mins and under
  Between 26 and 39 mins
  40 mins and over

Source: Google Maps, Journey Planner

Table 9.2: Journey Times by Bus Only

	Waterloo	Vauxhall	Stockwell	Clapham	Brixton	Herne Hill	Tulse Hill	West Norwood	Streatham
Waterloo		20	32	43	23	37	48	54	50
Vauxhall	18		19	26	23	39	39	45	47
Stockwell	37	23		11	11	32	31	36	38
Clapham	45	31	11		13	26	32	38	33
Brixton	29	26	13	14		17	18	22	29
Herne Hill	41	41	29	27	16		14	23	40
Tulse Hill	49	47	30	33	22	13		21	29
West Norwood	55	57	45	44	29	23	24		26
Streatham	56	54	40	36	27	44	33	25	

**Key**

25 mins and under
  Between 26 and 39 mins
  40 mins and over

Source: Google Maps: Journey Planner

Table 9.3: Journey Times by Walking

	Waterloo	Vauxhall	Stockwell	Clapham	Brixton	Herne Hill	Tulse Hill	West Norwood	Streatham
Waterloo		25	54	70	62	75	91	116	115
Vauxhall	25		31	47	42	61	72	96	95
Stockwell	54	30		18	17	41	47	71	66
Clapham	69	46	17		24	51	52	69	60
Brixton	61	41	17	25		27	31	54	53
Herne Hill	73	59	39	50	26		21	48	55
Tulse Hill	89	69	44	50	29	20		30	38
West Norwood	112	92	67	66	50	46	30		26
Streatham	112	91	63	58	50	54	38	26	

**Key**

25 mins and under
  Between 26 and 39 mins
  40 mins and over

Source: Google Maps: Journey Planner

Table 9.4: Journey Times by Cycling

	Waterloo	Vauxhall	Stockwell	Clapham	Brixton	Herne Hill	Tulse Hill	West Norwood	Streatham
Waterloo		9	17	22	20	24	31	39	41
Vauxhall	11		10	14	13	20	24	32	33
Stockwell	16	10		5	5	15	16	23	25
Clapham	20	15	5		9	19	20	25	21
Brixton	21	15	6	9		10	11	19	19
Herne Hill	24	18	14	19	11		8	16	18
Tulse Hill	29	23	14	18	10	8		10	13
West Norwood	36	29	21	22	17	15	10		11
Streatham	36	32	21	20	19	17	13	11	

**Key**

25 mins and under
  Between 26 and 39 mins
  40 mins and over

Source: Google Maps: Journey Planner

Table 9.5: Journey Times by Car

	Waterloo	Vauxhall	Stockwell	Clapham	Brixton	Herne Hill	Tulse Hill	West Norwood	Streatham
Waterloo		9	20	26	22	26	30	40	40
Vauxhall	12		12	20	18	22	26	35	35
Stockwell	28	20		7	9	18	20	26	20
Clapham	35	26	8		14	18	20	26	22
Brixton	40	28	12	12		9	10	16	18
Herne Hill	40	35	16	20	14		8	16	18
Tulse Hill	45	35	18	22	20	9		9	12
West Norwood	55	45	30	35	30	22	12		10
Streatham	60	45	26	26	35	18	14	7	

**Key**

25 mins and under
  Between 26 and 39 mins
  40 mins and over

Source: Google Maps: Journey Planner

### 9.1.1 Accessibility Analysis

TfL’s journey planner, which considers accessibility options, has been analysed to understand the impact that station/stop accessibility has on journey times for the disabled. Table 9.6 shows the journey times for journeys requiring full step-free access.

Table 9.6: Journey Times by Accessible Public Transport

	Waterloo	Vauxhall	Stockwell	Clapham	Brixton	Herne Hill	Tulse Hill	West Norwood	Streatham
Waterloo		23	42	47	32	38	53	52	57
Vauxhall	23		29	35	25	50	54	53	50
Stockwell	51	25		21	18	36	41	40	44
Clapham	57	40	20		23	37	52	50	46
Brixton	35	25	15	25		25	32	21	31
Herne Hill	40	53	34	38	29		29	29	44
Tulse Hill	53	59	46	50	36	29		25	32
West Norwood	49	59	51	55	35	27	29		33
Streatham	64	41	39	46	32	47	37	30	

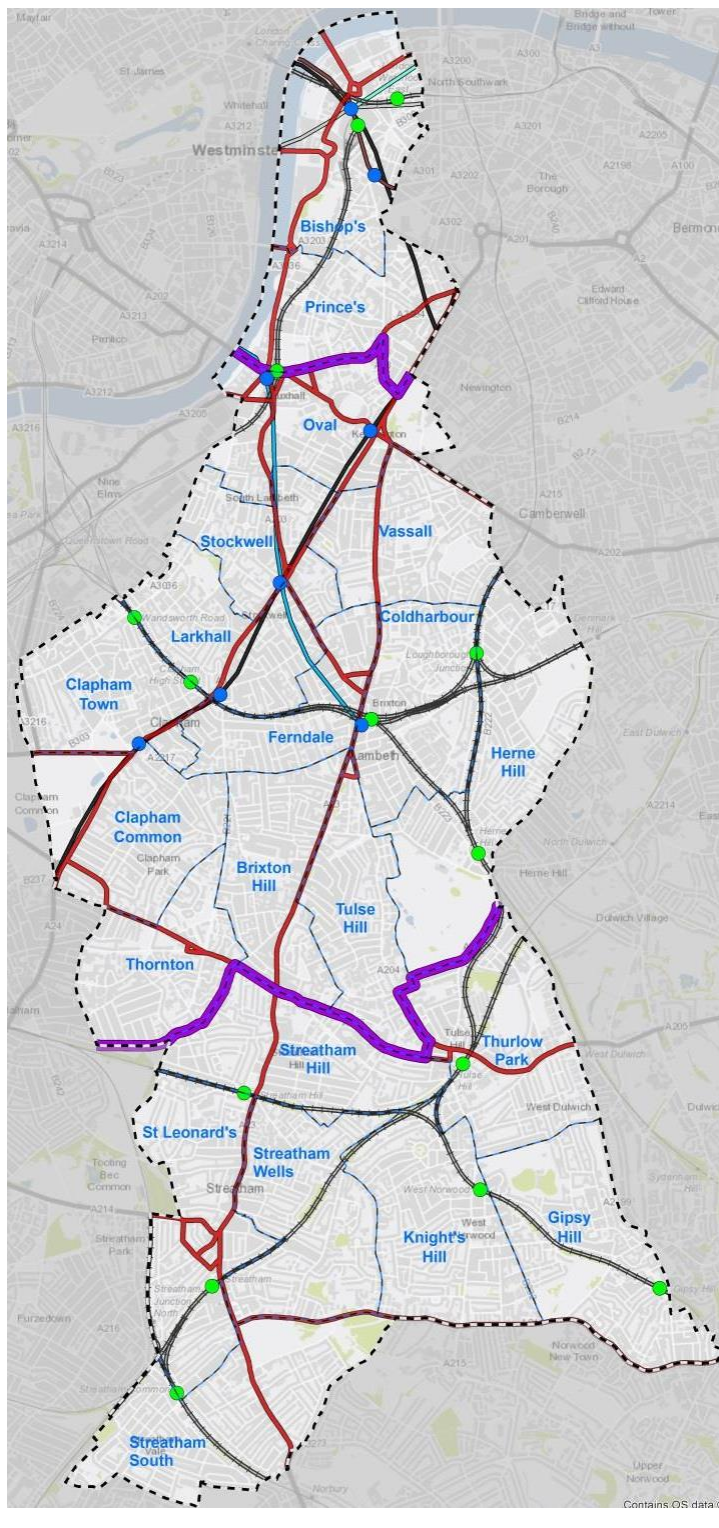
**Key**

- 25 mins and under
- Between 26 and 39 mins
- 40 mins and over

Source: TfL Journey Planner

As the results suggest, journey times for accessible public transport are much higher compared to times presented in Table 9.1 (Fastest route possible by all public transport modes). A large proportion of step-free access journeys within Lambeth currently take over 40 minutes (47%), compared to only 10% in Table 9.1.

Figure 9.1: Baseline Summary: Journey Times within Lambeth



### North Lambeth

- **Public Transport**- Relatively quick journey times to central and southern sections of the Borough.
- **Bus**- Good bus service provision, particularly for east west travel. Viable alternative to rail travel in the north however it is often slower due to road congestion.
- **Walking**- Walking to central and southern sections of the Borough is unrealistic as a single mode trip; however it could be incorporated into an inter-modal trip.
- **Cycling**- Quickest mode of travel for most trips within the north of Lambeth
- **Car**- Longer journey times compared to public transport

### Central Lambeth

- **Public Transport**- Quickest to travel North to South via underground services, but by bus when traveling east to west
- **Bus**- High inter-Borough connectivity
- **Walking**-Trips between Clapham, Stockwell and Brixton could be viable, albeit longer, transport options, as could journeys between Tulse and Herne Hill.
- **Cycling**- Quickest mode of travel in central Lambeth
- **Car**- Journeys are generally longer by car from central locations than public transport, good connectivity of other modes makes car a slower alternative.

### South Lambeth

- **Public Transport**- Key mode for south-north travel linking the south of the Borough to the northern and central sections.
- **Walking**- All walking journeys between locations in the south are over 25 minutes
- **Cycling**- Cycling is often two to three times faster than bus travel in the south.
- **Car**- Efficient way of traveling in the south of the borough, key arterial roads make connectivity for shorter journeys faster than other modes.

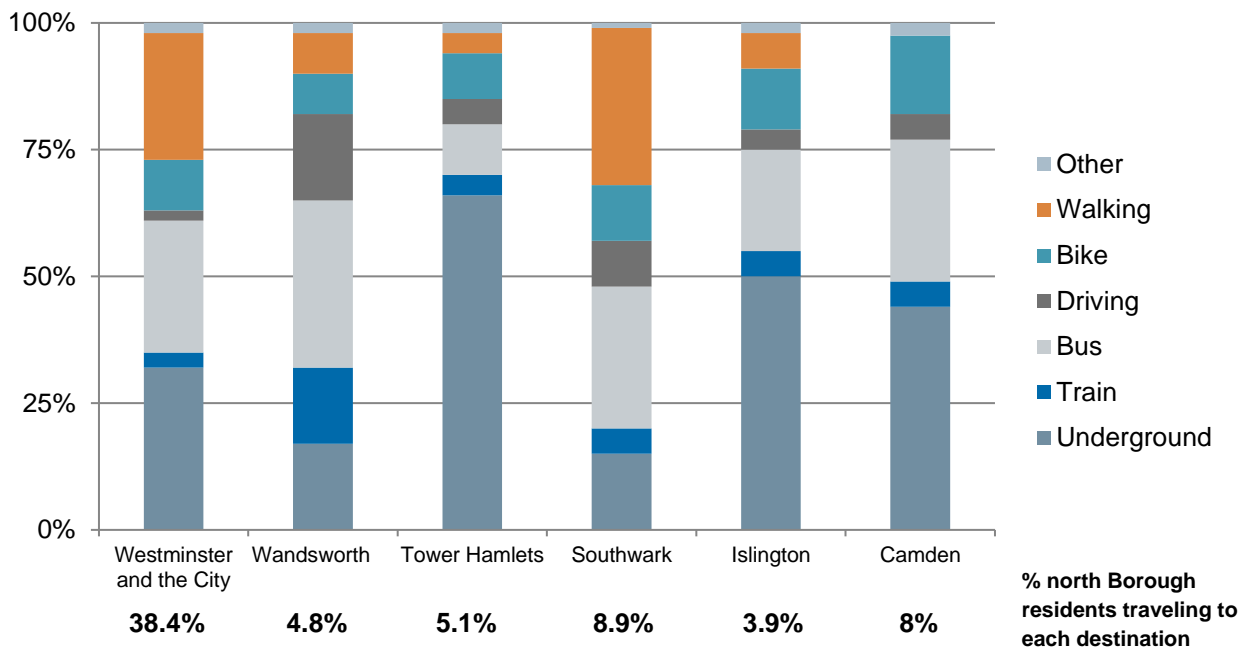
Source: London Underground station, Main-line station, Rail line, Lambeth boundary & key roads: Contains Ordnance Survey data © Crown copyright and database right 2016



## 9.2 Journeys outside of Lambeth

This section assesses journeys from northern, central and southern sections of Lambeth to other London Boroughs. The figures below present the top five destinations for residents from the three sections and the modal split of these journeys. This data has been obtained from the Census and considers Travel to Work journeys only.

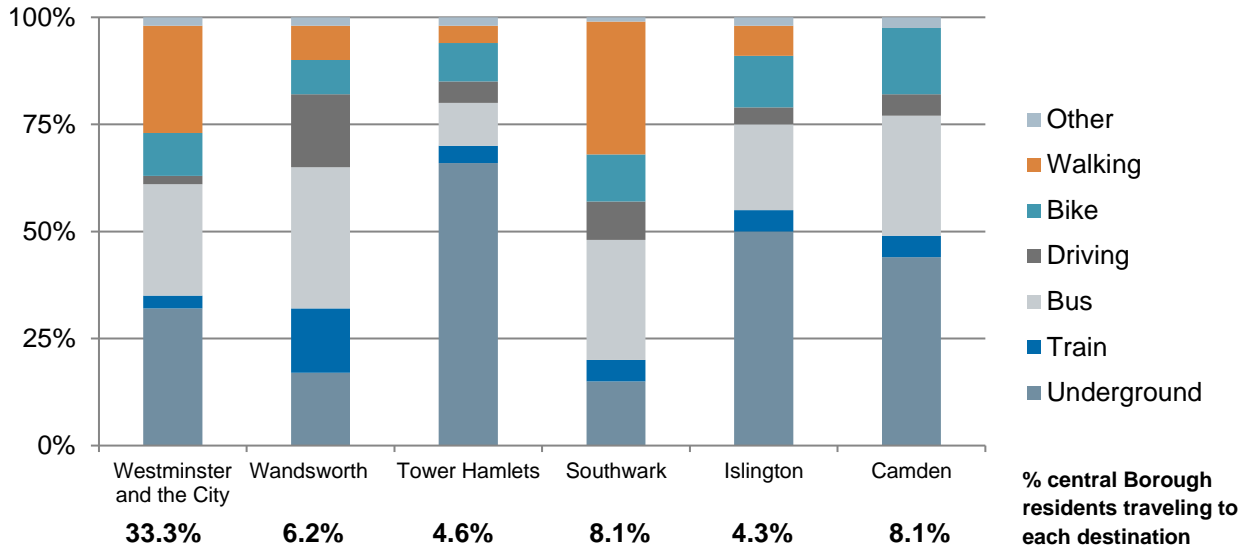
Figure 9.2: Top Destinations from North Lambeth by Mode of Transport



Source: Census data (2011)

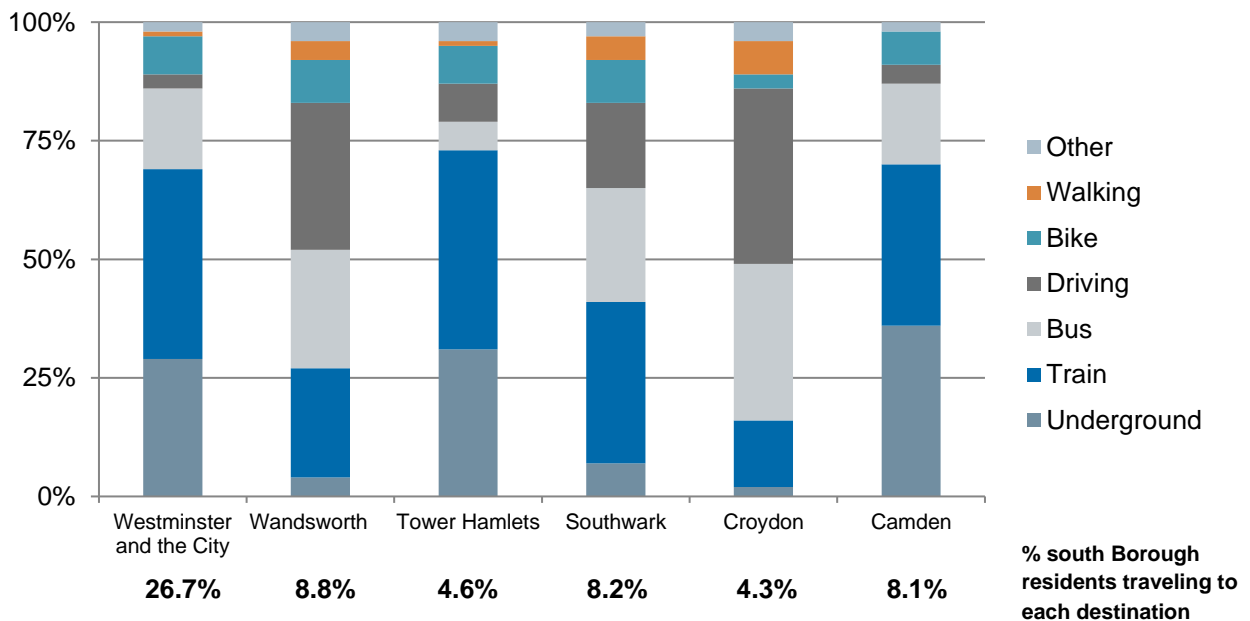
Note: Westminster and the City of London is classified as one Borough in the Census data.

Figure 9.3: Top Destinations from Central Lambeth by Mode of Transport



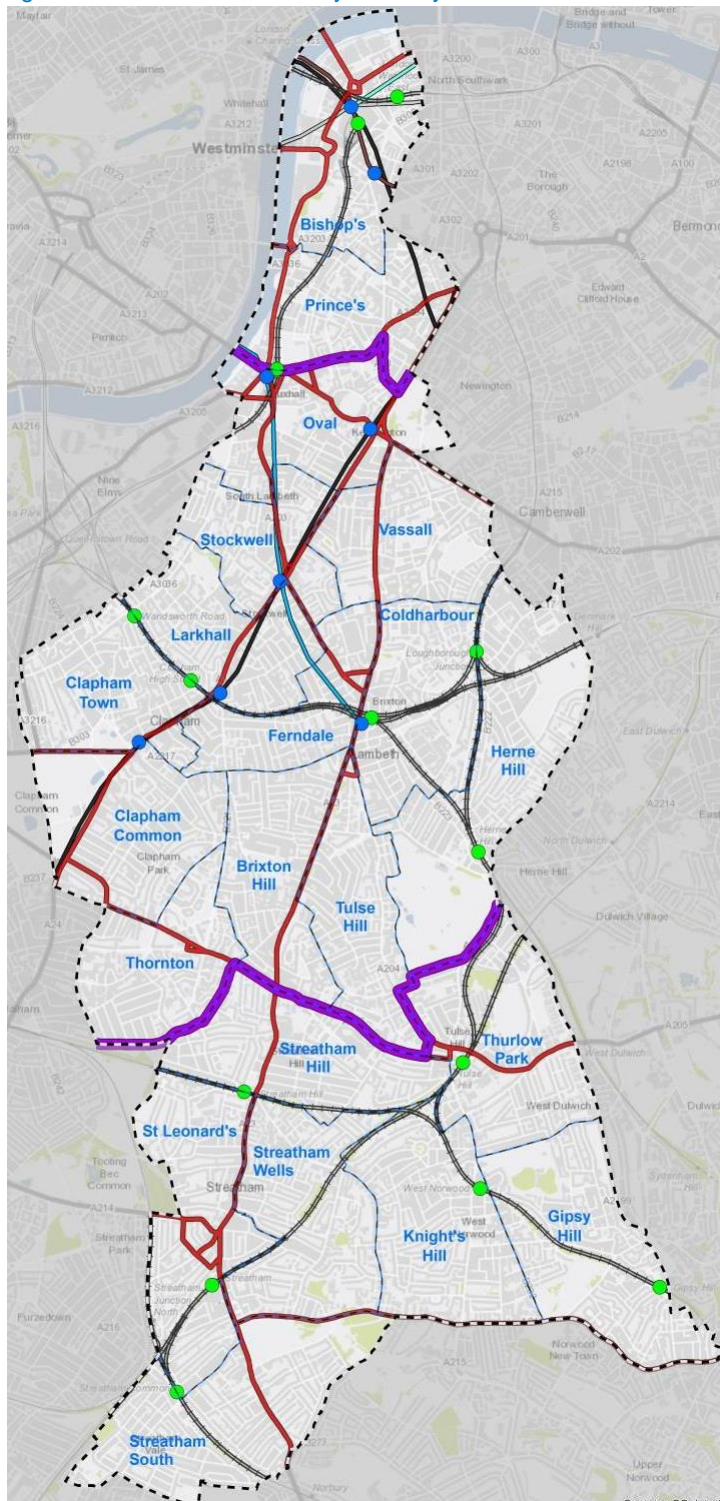
Source: Census data (2011)  
Note: Westminster and the City of London is classified as one Borough in the Census data.

Figure 9.4: Top Destinations from South of Lambeth by Mode of Transport



Source: Census data (2011)  
Note: Westminster and the City of London is classified as one Borough in the Census data.

Figure 9.5: Baseline Summary: Journey Times outside of Lambeth



### North Lambeth

- The most frequent commuter journey in the north of the Borough is to Westminster and the City, where 38.4 per cent of residents travel to.
- Approximately one third of resident journeys to other Boroughs are undertaken on Underground services making it the key mode of travel for this section of Lambeth.
- Bus is also relatively popular for east west journeys to Wandsworth and Southwark with approximately a quarter of journeys made on busses.
- Walking is a popular mode of choice in the north of Lambeth.

### Central Lambeth

- Around a third of journeys destinations from the central section are to Westminster and the City
- The central section of the Borough is significantly dominated by Underground services, more so than the north with around half of journeys made using this mode.
- For east and west journeys to Southwark and Wandsworth many choose the bus because of a lack of east and west underground services.

### South Lambeth

- The south of the Borough has the lowest levels of walking and cycling.
- The mode share is mainly dominated by train services as there are no underground connections to the south.
- Many residents in the south of the borough choose to drive to the Boroughs of Croydon and Wandsworth.

Source: London Underground station, Main-line station, Rail line, Lambeth boundary & key roads: Contains Ordnance Survey data © Crown copyright and database right 2016

# 10 Air Quality, Carbon & Sustainability Drainage Systems

## Air Quality: Data sources **10.1 Background**

- Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2007)
- Car Club Strategy for London - Growing car clubs to support London's transport future
- Carplus (2014) Annual Survey: London (p.7)
- DEFRA, UK-air website (2016)
- Environmental Act (1995)
- Lambeth Air Quality Action Plan (2017-2022) Draft for Consultation
- Lambeth Surface Water Management Plan (2011)
- Lambeth Updating and Screening Assessment (2015)
- London Air website (2016)
- London Assembly Transport Committee - Q11 Car Clubs
- London Atmospheric Emissions Inventory (2013)
- London Plan (2016), with further alterations
- TfL Transport Emissions Roadmap (2014)
- Understanding the Health Impacts of Air Pollution in London - King's College London (2015)

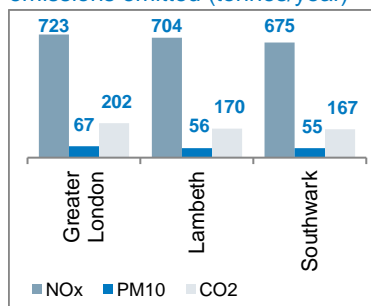
Although the quality of the air in London has improved over the last decade, pollutant levels still remain high and there are significant benefits to be gained from improving air quality further.<sup>103</sup> Research indicates that air pollution has detrimental effects on human health and in London alone, poor air quality is estimated to cause 9,500 deaths each year<sup>104</sup> and reduce life expectancy of every person by an average of seven to eight months.<sup>103</sup> The key pollutants of concern are nitrogen dioxide (NO<sub>2</sub>) and particulate matter (specifically PM<sub>10</sub>). LBL also aims to reduce levels of carbon dioxide (CO<sub>2</sub>) in the Borough.

The UK Air Quality Strategy (AQS) provides the overarching strategic framework for air quality management in the UK and contains national air quality standards and objectives established by the Government, based on research provided by the World Health Organisation (WHO), to protect human health.

To understand existing air quality conditions, Lambeth's latest Updating and Screening Assessment (USA) has been reviewed. The USA fulfils the requirements of the Local Air Quality Management (LAQM) process as set out in national policy documents.<sup>103,105</sup> It should be noted that in 2016, the process changed and Annual Status Reports (ASR) will replace Updating and Screening Assessments, and Progress Reports.

Monitoring results presented in the USA indicate that Lambeth is still failing to meet the annual mean objective for NO<sub>2</sub> and modelling indicates that it is being breached at a number of other locations, most particularly areas in the north of the Borough and in areas with high traffic flows.

Figure 10.1: Road Transport emissions emitted (tonnes/year)



Source: LAEI, 2013  
Note: CO<sub>2</sub> presented in '000s

Figure 10.1 compares the road transport NO<sub>x</sub>, PM<sub>10</sub> and CO<sub>2</sub> emissions emitted in Lambeth and in neighbouring Borough Southwark, against the Greater London Borough average. The chart indicates that the key road transport emissions emitted in Lambeth is slightly higher than Southwark and lower than the Greater London average.

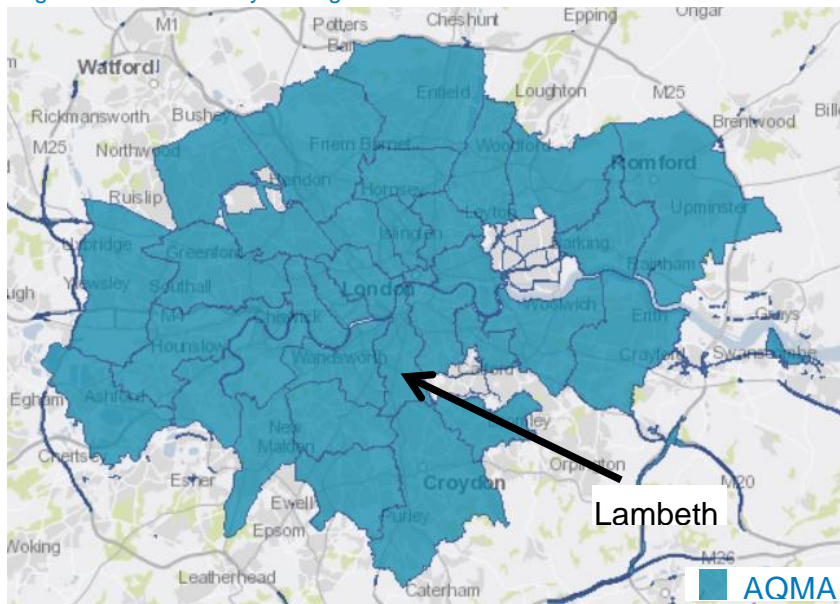
Since 2007, the whole Borough has been designated as an Air Quality Management Area (AQMA) due to exceedances of the NO<sub>2</sub> and PM<sub>10</sub> objective levels. As Figure 10.2 shows, the majority of Boroughs in Greater London have declared a Borough-wide AQMA due to high pollution levels.

<sup>103</sup> The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2007)

<sup>104</sup> Understanding the Health Impacts of Air Pollution in London – Kings College London (2015)

<sup>105</sup> Part IV of the Environmental Act (1995)

Figure 10.2: Air Quality Management Areas in Greater London



Source: Defra UK-Air website

## 10.2 Air Quality Monitoring & Modelling

There are three automatic monitoring stations located in Lambeth. The monitoring stations measure nitrogen dioxide (NO<sub>2</sub>), sulphur dioxide (SO<sub>2</sub>) and particulate matter (PM<sub>10</sub>)<sup>106</sup>.

The following air quality stations are located within Lambeth:<sup>106</sup>

- Streatham Green (LB6) – A background monitoring site located on Streatham Green, which lies between the A23 and A216 corridors.
- Brixton Road (LB4) – A kerbside monitoring site at Brixton located 1m from Brixton High Road (approximately 170m north of Brixton station).
- Vauxhall (LB5) – An industrial monitoring site located on a traffic island in the middle of the Broadway / Wandsworth Road Vauxhall Cross Interchange.

Table 10.1: Monitoring Site Classifications

**Background sites** are located away from major roads and are broadly representative of town/city-wide background

**Kerbside sites** are located at within one metre of the kerb of a busy road

**Industrial sites** are located in an areas where industrial emissions make a significant contribution to pollution levels

Source: London Air website, 2016

Note: Vauxhall's monitoring site is considered as industrial due to its proximity to Bondway Interchange and Underground station

<sup>106</sup> Lambeth Updating and Screening Assessment (2015)



### 10.2.1 Nitrogen Dioxide (NO<sub>2</sub>)

Table 10.2 presents the nitrogen dioxide monitoring results at stations in Lambeth.

The monitoring results show that the annual mean nitrogen dioxide objective, of 40µgm<sup>-3</sup>, was exceeded at Brixton Road and Vauxhall for all years reported, including 2014. The monitoring station at Brixton recorded the highest level of NO<sub>2</sub> emissions in 2014. NO<sub>2</sub> results at Streatham Green did not exceed the objective level of 40µgm<sup>-3</sup>, though concentrations have fluctuated for the past five years and the objective level was exceeded in 2010 and 2013 at this location.

Nitrogen dioxide concentrations at Brixton Road are some of the highest monitored in London, and this is likely due to the fact that the Brixton monitoring station is located at the kerbside close to road traffic, which could be particularly influenced by the high number of buses in close proximity.

In terms of the hourly mean objective, only the Brixton Road monitoring site exceeded the objective level in 2014.

Table 10.2: NO<sub>2</sub> Monitoring Results

Monitoring Stations	Annual Mean Concentration (µgm <sup>-3</sup> )				
	2010	2011	2012	2013	2014
Brixton Road (LB4)	<b>173 (2677)</b>	<b>158 (1632)</b>	<b>162 (2182)</b>	<b>112 (250)</b>	<b>149 (1732)</b>
Vauxhall (LB5)	<b>77 (17)</b>	<b>77 (4)</b>	<b>72 (4)</b>	<b>65 (0)</b>	<b>71 (3)</b>
Streatham Green (LB6)	<b>46 (0)</b>	38 (0)	37 (0)	<b>45 (2)</b>	38 (0)

Source: Lambeth Updating and Screening Assessment (2015)

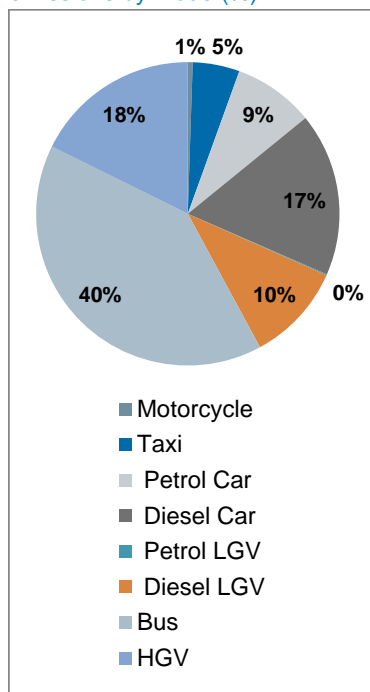
Note: **bold** indicates when the annual mean objective level (40µgm<sup>-3</sup>) has been exceeded.

(Brackets) indicate the number of times the hourly mean objective (a one hour mean of 200µgm<sup>-3</sup> no more than 18 times over a calendar year) was exceeded

As shown in Figure 10.3, transport is a major contributor to NO<sub>x</sub> emissions in Lambeth, with road transport alone accounting for 55 per cent of total emissions in 2013.

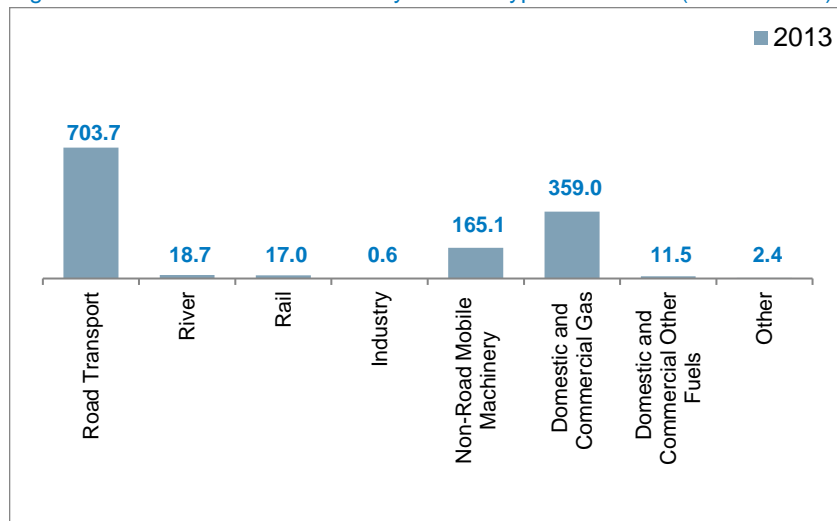
A large proportion of NO<sub>x</sub> road transport emissions in Lambeth is created by bus and HGV traffic, with car traffic also making a significant contribution to NO<sub>x</sub> emissions (see Figure 10.4). This also reflects the results of the air monitoring stations which show high levels of NO<sub>x</sub> at monitoring stations close to busy roads such as Brixton and Vauxhall, which have high levels of bus and HGV traffic.

Figure 10.4: Road Transport NO<sub>x</sub> emissions by Mode (%)



Source: LAEI, 2013

Figure 10.3: Total NO<sub>x</sub> Emissions by Source Type in Lambeth (Tonnes/Year)



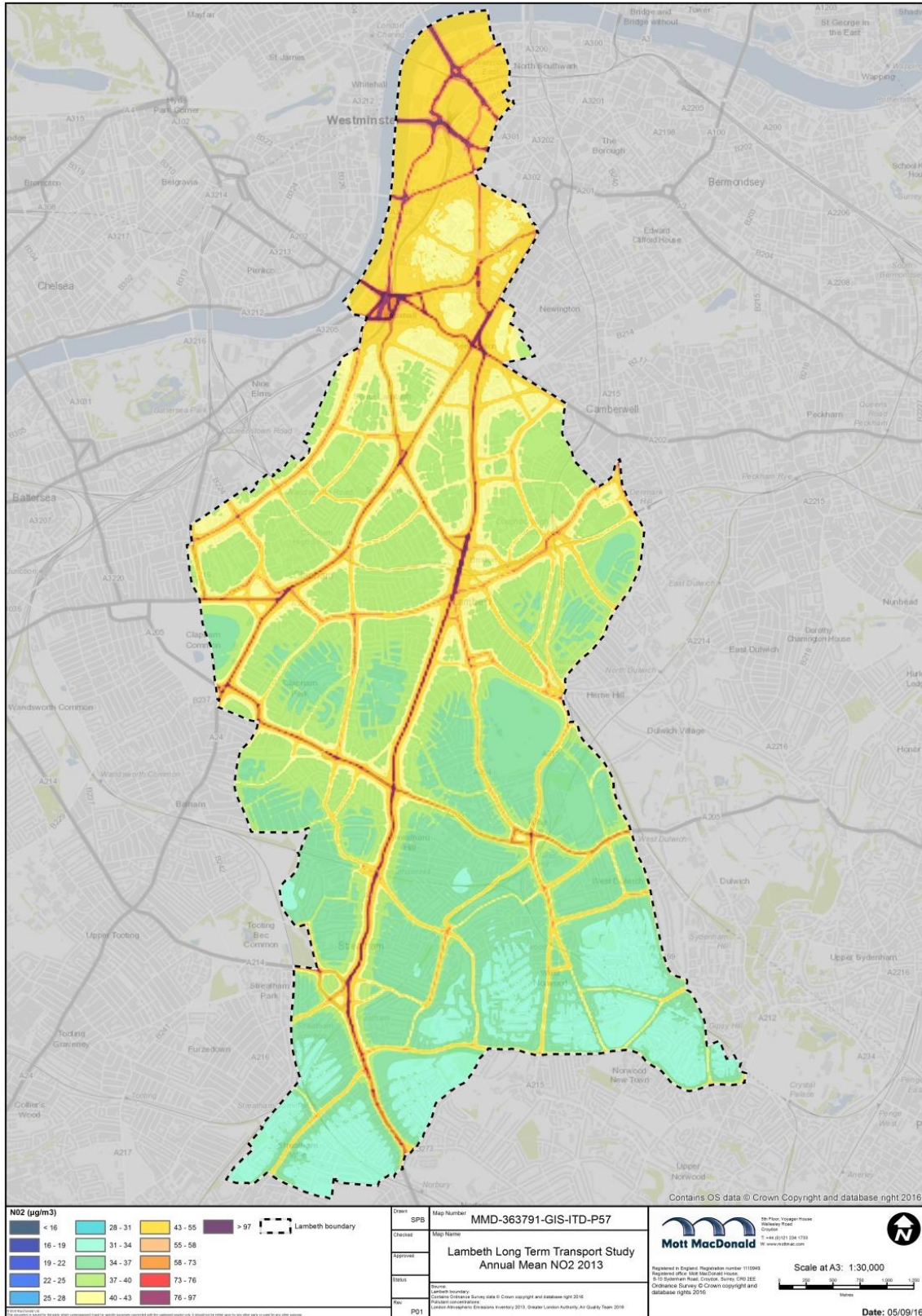
Source: LAEI, 2013

Figure 10.5 presents the spatial representation of modelled NO<sub>x</sub> emissions in Lambeth in 2013, and identifies the key hot spot areas.

The modelled outputs show that the north of the Borough experiences higher pollution levels compared to the central and southern sections. In addition, poor air quality is identified along major routes and junctions throughout the Borough, specifically:

- Roads / junctions surrounding Waterloo station (i.e. IMAX roundabout, Westminster Bridge Road, Waterloo Road)
- Vauxhall gyratory
- Kennington Oval, Kennington Park Road and Camberwell New Road
- Majority of the A23 and especially north of Brixton station
- A205 Christchurch Road and Streatham Hill
- Herne Hill Croxted Road / Half Moon Lane / Dulwich Rd / Norwood Rd

Figure 10.5: Modelled NO<sub>x</sub> emissions in Lambeth (2013)



Source: LAEI, 2013

### 10.2.2 Particulate Matter (PM<sub>10</sub>)

Table 10.3 presents the PM<sub>10</sub> monitoring results at stations in Lambeth. The results show that the annual mean objective level of 40µgm<sup>-3</sup> was not exceeded at the Brixton Road and Streatham Green sites for all years reported. However, the annual mean PM<sub>10</sub> concentration at the Vauxhall site in 2014 was 40µgm<sup>-3</sup>, and therefore equalled the objective level. In addition, the annual mean objective level was exceeded in 2010 and 2011 at the Vauxhall site.

Table 10.3: PM<sub>10</sub> Monitoring Results

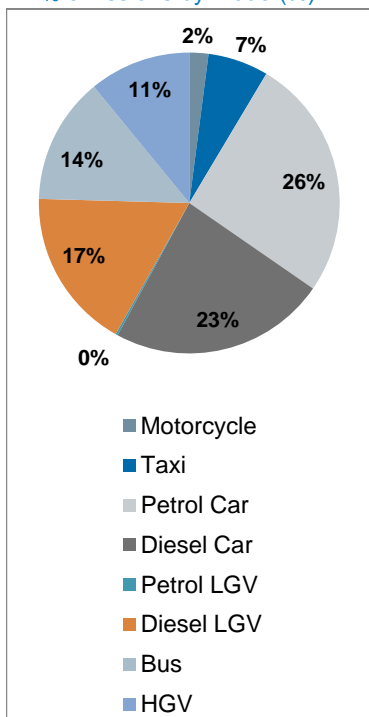
Monitoring Stations	Annual Mean Concentration (µgm <sup>-3</sup> )				
	2010	2011	2012	2013	2014
Brixton Road (LB4)	33 (15)	37 ( <b>36</b> )	39 ( <b>55</b> )	32 (31)	30 (12)
Vauxhall (LB5)	<b>43 (72)</b>	<b>43 (89)</b>	29 (15)	39 (22)	<b>40 (62)</b>
Streatham Green (LB6)	23 (6)	27 (20)	27 (12)	18 (4)	24 (10)

Source: Lambeth Updating and Screening Assessment (2015)

Note: **bold** indicates when the annual mean objective level (40µgm<sup>-3</sup>) has been exceeded.

(Brackets) indicate the number of days the daily mean objective (24 hour mean of 50 µgm<sup>-3</sup> no more than 35 days over a calendar year) was exceeded

Figure 10.6: Road Transport PM<sub>10</sub> emissions by Mode (%)

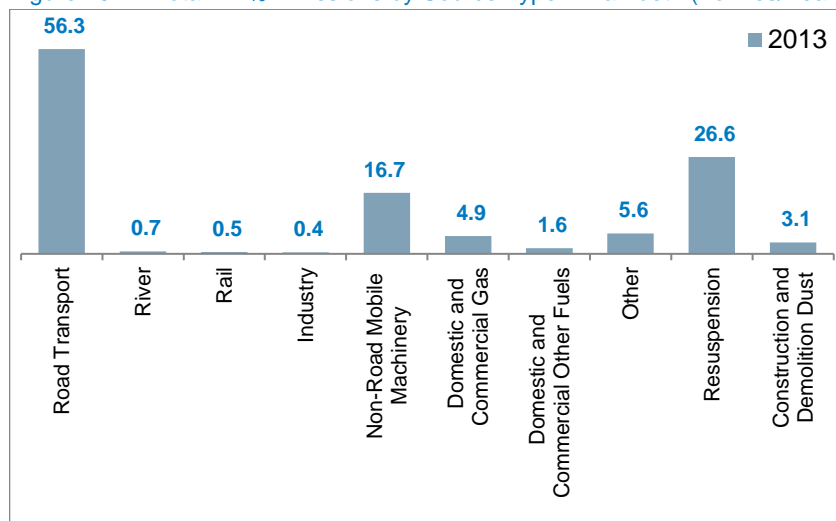


Source: LAEI, 2013

Transport is also a major contributor to PM<sub>10</sub> emissions in Lambeth, with road transport alone accounting for 48 per cent of total emissions in 2013, as seen in Figure 10.7.

Car travel accounts for around half of the PM<sub>10</sub> transport-related emissions in Lambeth, with LGVs and buses also having significant contributions. See Figure 10.6 for more details.

Figure 10.7: Total PM<sub>10</sub> Emissions by Source Type in Lambeth (Tonnes/Year)



Source: LAEI, 2013

Figure 10.8 presents the spatial representation of modelled PM<sub>10</sub> emissions in Lambeth in 2013, and identifies the key hot spot areas.

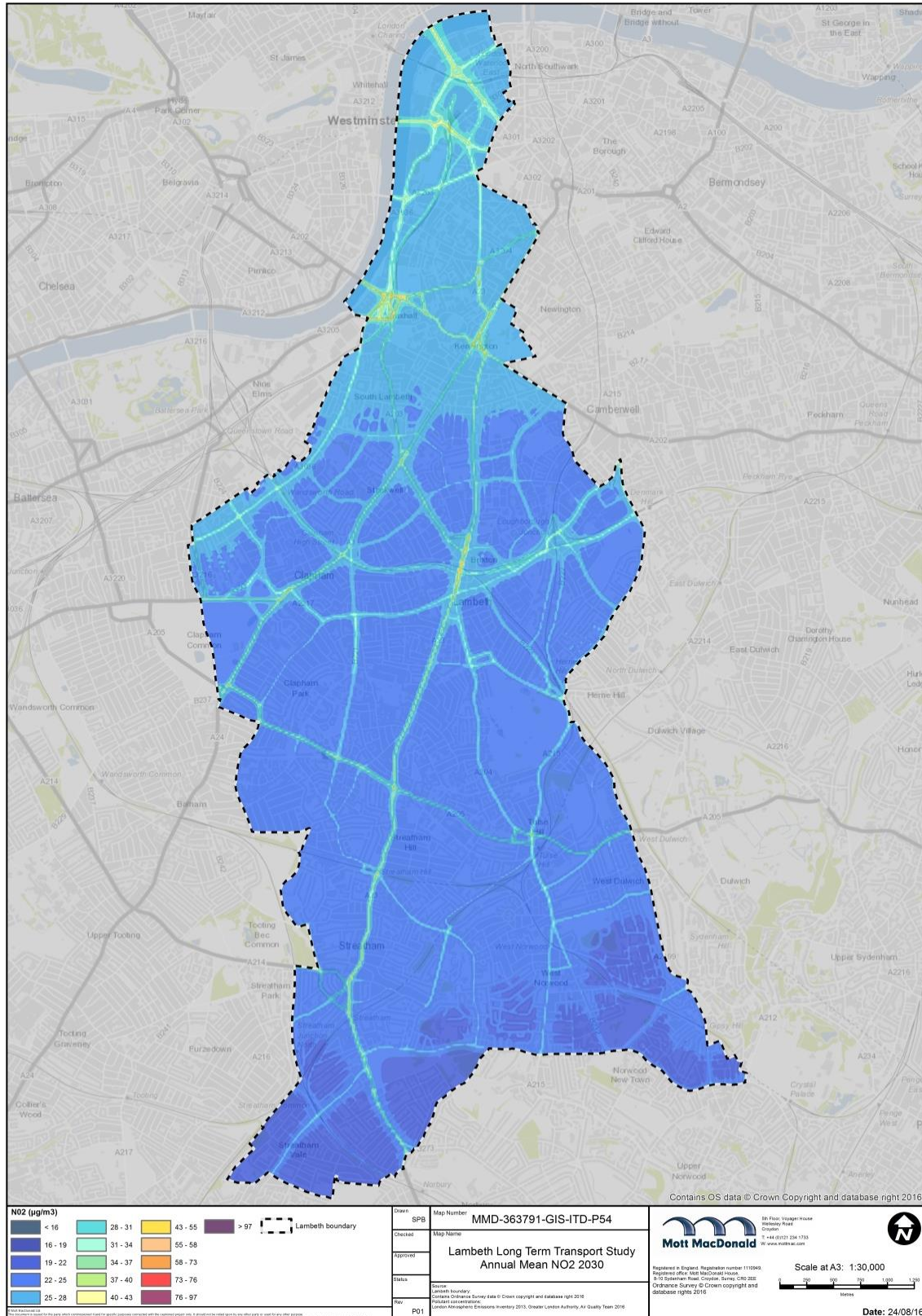
Similar to modelled NO<sub>x</sub> emissions, the modelled outputs show that the north of the Borough experiences higher pollution levels compared to the central and southern sections. In addition, poor air quality is identified along major routes and junctions throughout the Borough.

Based on the existing modelled conditions, the following roads/junctions are experiencing PM<sub>10</sub> that are exceeding the annual mean objective:

- Roads/junctions surrounding Waterloo station (i.e. IMAX roundabout, Westminster Bridge Road, Waterloo Road)
- Vauxhall gyratory
- Kennington Oval, Kennington Park Road and Camberwell New Road
- A23
- A24
- A205 Christchurch Road and Streatham Hill



Figure 10.8: Modelled PM<sub>10</sub> emissions in Lambeth (2013)



Source: LAEI, 2013

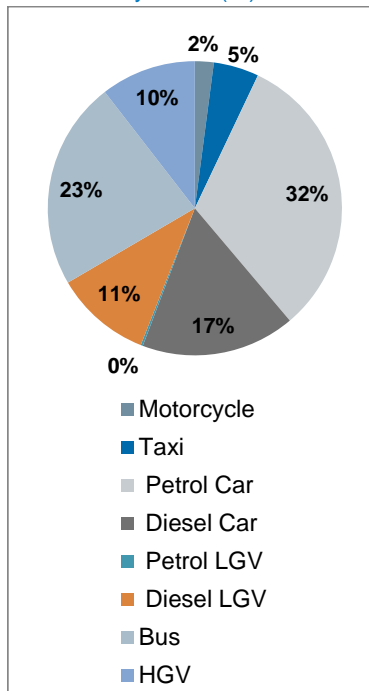
### 10.2.3 Carbon Dioxide (CO<sub>2</sub>)

Transport-related CO<sub>2</sub> emissions in Lambeth have declined by 22 per cent from 2005 to 2014.<sup>107</sup> Despite this, carbon dioxide is an area of concern for Lambeth, as it is considered to be a principal greenhouse gas climate change.

Transport is the second biggest contributor to CO<sub>2</sub> emissions in Lambeth, after domestic and commercial gas contribution. As seen in Figure 10.10 road transport produces 170,450 tonnes of CO<sub>2</sub> per year, which represents 27 per cent of total CO<sub>2</sub> emissions in the Borough.

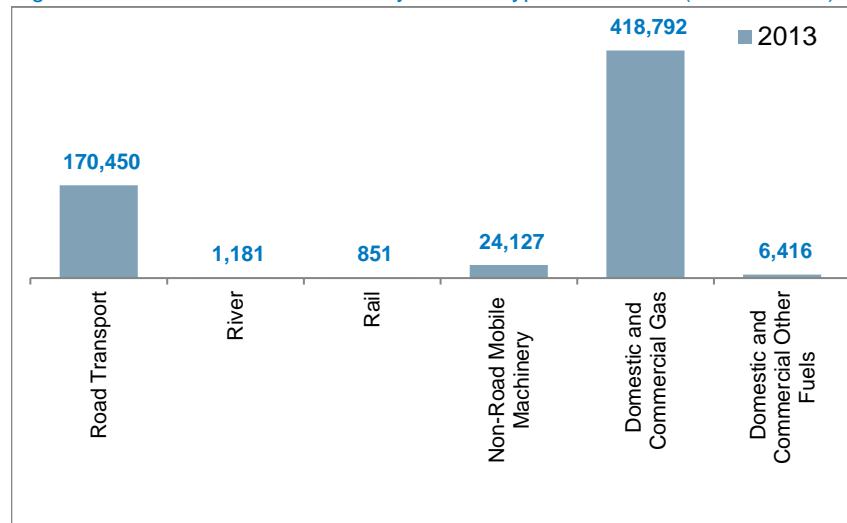
Car travel accounts for around half of the CO<sub>2</sub> transport-related emissions in Lambeth and petrol cars account for 32 per cent of private car emissions. LGVs and buses also have significant contributions to CO<sub>2</sub> emissions, as shown in Figure 10.9.

Figure 10.9: Road Transport CO<sub>2</sub> emissions by Mode (%)



Source: LAEI

Figure 10.10: Total CO<sub>2</sub> Emissions by Source Type in Lambeth (Tonnes/Year)



Source: LAEI, 2013

<sup>107</sup> Department of Energy & Climate Change: 2005 to 2014 UK local and regional CO<sub>2</sub> emissions – data tables

### 10.3 Existing Measures to Reduce Transport Emissions

Table 10.4: Bus routes in Lambeth operating hybrid buses

Route	Operator
3	Abellio London
12	Go Ahead Group
53	Stagecoach London
59	Arriva London
68	Go Ahead Group
76	Arriva London
87	Go Ahead Group
88	Go Ahead Group
109	Abellio London
137	Arriva London
139	Metroline Travel
148	London United
155	Go Ahead Group
168	Metroline Travel
188	Abellio London
211	Abellio London
319	Arriva London
360	Go Ahead Group
415	Abellio London
436	Go Ahead Group
453	Go Ahead Group

Source: Mike Weston, Director of Buses at TfL

In order to reduce air pollution to adequate levels in the Borough, a variety of measures are being implemented; some of which are discussed below.

Lambeth have produced an Air Quality Action Plan (AQAP) which outlines the actions and measures that Lambeth will deliver to improve air quality. At the time of writing this report Lambeth’s draft AQAP 2017-2022 was at consultation stage. Once the plan has been finalised, the AQAP will identify key focus areas and the actions required.

TfL have been progressively upgrading London’s bus fleet ahead of legislative requirements, which has reduced emissions from buses in the Borough. Mike Weston, Director of Buses, has stated that “TfL have retrofitted around 2,300 of the oldest buses with upgraded exhaust systems to reduce NO<sub>x</sub> emissions by up to 88 per cent”. TfL are working with industry professionals to develop equipment capable of delivering similar reduction in more recent vehicles, and to make hybrid/ pure electric buses more feasible. Table 10.4 presents the existing routes that serve Lambeth using hybrid buses.

Car clubs can also bring benefits such as access to cleaner vehicles, improved air quality (particularly if electric vehicles (EV) are used in the fleet) and promoting a greater use of sustainable transport options.<sup>108</sup> London currently has 186,000 car club members using 2,800 cars in the capital, which makes up 85 per cent of car club users in the UK.<sup>109</sup> In January 2015, Lambeth had 10,740 car club members with 201 car club bays.<sup>108</sup>

TfL commissions a trade body, Carplus, to promote and oversee the car club industry. According to Carplus 2014 annual survey, almost 100 per cent of the car club fleet in London is Euro 5 (or Euro 6) compliant, which is up from 80 per cent in 2011.<sup>110</sup> Typically, car club vehicles tend to be newer than the average private vehicle and produce 33 per cent less CO<sub>2</sub> and lower average oxides of nitrogen and particular matter. Therefore the increased uptake of car clubs in the future is predicted to reduce emissions in the Borough; this measure is discussed further in the Future Baseline Report (Part 2).

Furthermore, TfL have a vision to reduce emissions from ground based transport sources as shown in the Transport Emission Roadmap (TERM) document published in 2014. The following measures are currently being

<sup>108</sup> A Car Club Strategy for London – Growing car clubs to support London’s transport future

<sup>109</sup> London Assembly Transport Committee – Q11 Car Clubs

<sup>110</sup> Carplus (2014) Annual Survey: London (p.7)

implemented in Lambeth to reduce ground based transport emissions, some of which are discussed in Section 4 of this report: <sup>111</sup>

- Promotion of sustainable travel through improved public transport provision and pedestrian/ cycle infrastructure (e.g. Vauxhall Nine Elms Battersea Opportunity Area Planning Framework)
- Reducing traffic in the northern part of the Borough due to the congestion charge
- New age and emission limits for taxis and Private Hire Vehicles.
- Permitting powered two wheels to use bus lanes on TfL's road network.

In addition to the measures specified above, a number of new ideas have been identified that could help to further reduce emissions in Greater London in the future. These are discussed in greater detail in the Future Baseline Report (Part 2).

One new measure is the introduction of an Ultra-Low Emissions Zone (ULEZ) in Central London. The proposed ULEZ area will cover the existing CCZ and come into effect from 2020. TfL undertook a consultation for the ULEZ proposals from 27 October 2014 to 9 January 2015. During the consultation, four councils including Lambeth called for the ULEZ to be widened, higher levies against more polluting motors and strengthening of the existing Low Emission Zone (LEZ). Widening of the ULEZ is predicted to have a significant impact upon reducing emissions in the centre and south of the Borough.

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<sup>111</sup> TfL, Transport Emissions Roadmap (2014)

## 10.4 Sustainable Drainage Systems (SuDS)

The Environment Agency predict that approximately 46,300 residential properties and 4,200 non-residential properties in the Lambeth could be at risk of surface water flooding of greater than 0.1m depth during a rainfall event with a 1 in 200 probability of occurrence in any given year. Of those, 13,500 residential properties and 1,200 non-residential properties are estimated to be at risk of flooding to a depth of greater than 0.3m during the same modelled rainfall event.<sup>112</sup>

Figure 10.11 identifies locations in Lambeth that are prone to surface water flooding and highlights fourteen Critical Drainage Areas (CDAs) within or crossing the administrative boundary of the Lambeth.

In order to reduce the risk of flooding in Lambeth, the London Plan states that *“a development should utilise sustainable drainage systems (SuDS) unless there are practical reasons for not doing so, and should aim to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible in line with the following drainage hierarchy”*<sup>113</sup> SuDS include:

- storing rainwater for later use
- using infiltration techniques (e.g. porous surfaces in non-clay areas)
- attenuating rainwater in ponds or open water features for gradual release
- attenuating rainwater by storing in tanks or sealed water features for gradual release
- discharging rainwater direct to a watercourse
- discharging rainwater to a surface water sewer/drain; and
- discharging rainwater to the combined sewer.

As Figure 10.12 indicates, some parts of the Borough have been identified as being unsuitable for infiltration techniques, which can be partly due to the impermeable London clay underlying the Borough. However, it should be noted that there is a large amount of local variation and other non-infiltration SuDS techniques are still applicable. The data shows that it is uncertain whether the northern half of the Borough is suitable for infiltration SuDS, with a need for further site investigation.

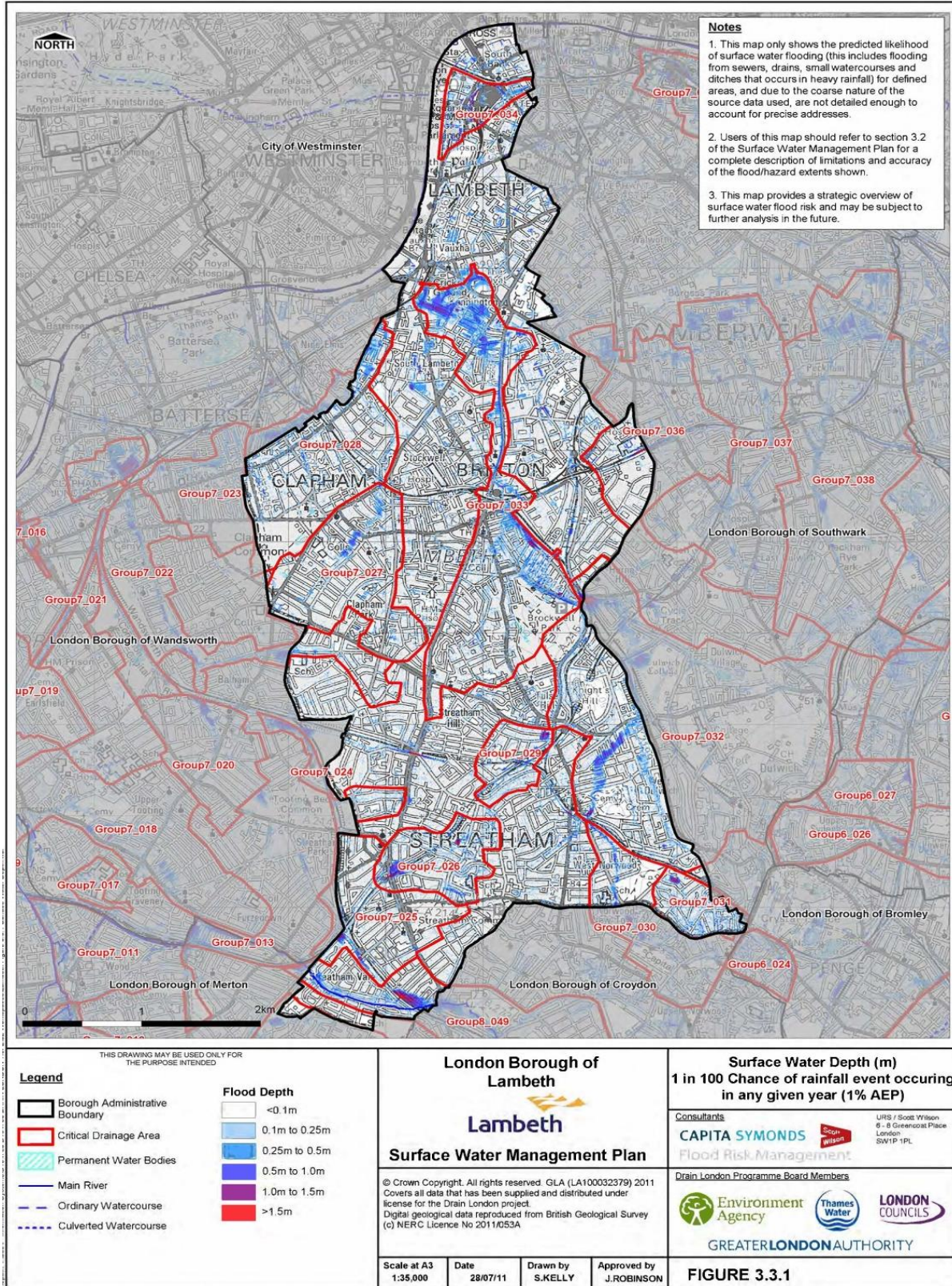
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<sup>112</sup> Lambeth Surface Water Management Plan (2011)

<sup>113</sup> London Plan (2016): Chapter 5 – Policy 5.13 Sustainable drainage



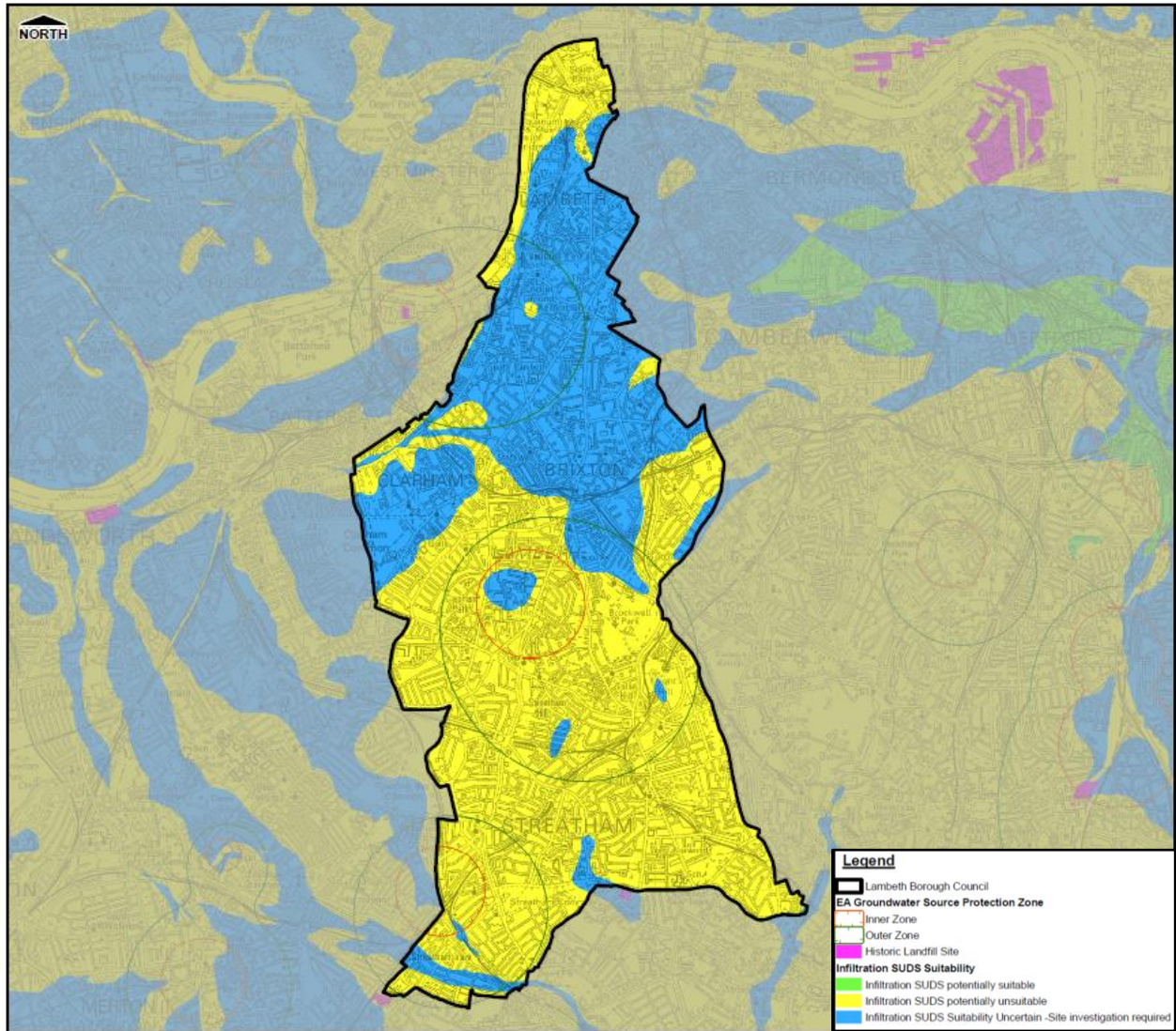
Figure 10.11: Flood Risk Areas in Lambeth



Source: Lambeth Surface Water Management Plan (2011)

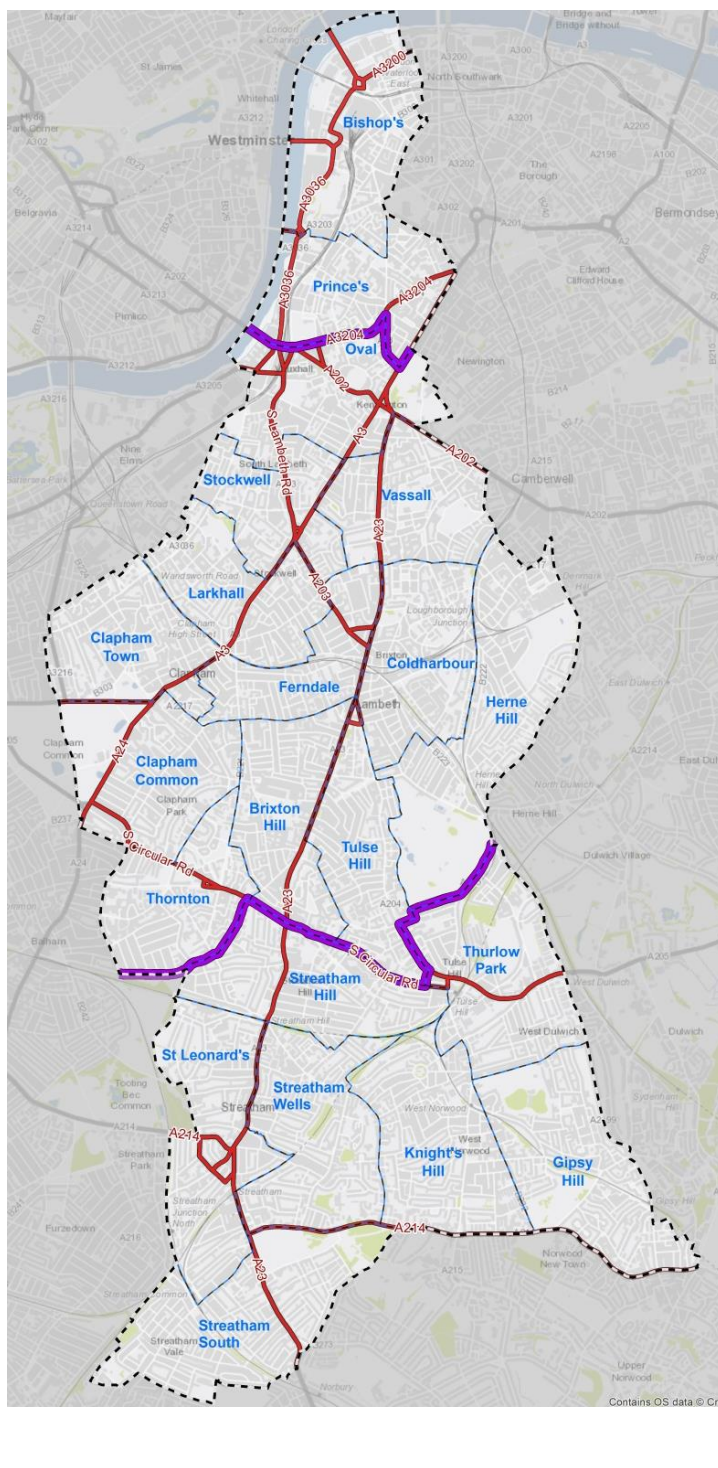


Figure 10.12: Infiltration SuDS Suitability in Lambeth



Source: Lambeth Surface Water Management Plan – Intermediate Assessment of Groundwater Flooding Susceptibility

Figure 10.13: Baseline Summary: Air Quality & Sustainability Drainage Systems



### North Lambeth

- Although there are no air quality monitoring sites, modelling indicates that air pollution levels are generally higher in the north of the Borough
- Pollution levels are particularly higher at roads/junctions surrounding Waterloo station (i.e. IMAX roundabout, Westminster Bridge Road, Waterloo Road)
- It is uncertain whether the northern half of the Borough is suitable for infiltration SuDS, with a need for further site investigation.

### Central Lambeth

- Air quality monitoring site at Brixton Road:
  - Annual mean NO<sub>2</sub> objective level has been exceeded for all reported years and the PM<sub>10</sub> annual mean objective is being met.
  - The monitoring has recorded the highest level of NO<sub>2</sub> emissions in the Borough; this may be due to the sites proximity to road traffic.
- Air quality monitoring site at Vauxhall:
  - Annual mean NO<sub>2</sub> & PM<sub>10</sub> objective level of 40µgm<sup>-3</sup> was exceeded in 2014
- The highest concentrations of NO<sub>2</sub> and PM<sub>10</sub> are along the main traffic routes through the Borough e.g. Vauxhall gyratory, A23, A24 and A3.
- Areas around Vauxhall and Brixton are prone to surface water flooding due to River Effra running underground

### South Lambeth

- Air quality monitoring site located on Streatham Green
  - The annual mean nitrogen dioxide objective was met in 2014
  - The annual mean PM<sub>10</sub> objectives were met in 2014
- Air pollution levels are generally lower in the south of the Borough.
- The majority of the southern section is unsuitable for infiltration SuDS.

Source: Key Roads & Lambeth boundary: Contains Ordnance Survey data © Crown copyright and database right 2016



# 11 Road Safety

## 11.1 Background

### Road Safety: Data sources

- Sub-regional Transport Plan for Central London (2015 Update)
- Borough LIP Performance Indicator Report (2014/15)

Lambeth has the second highest number of people being Killed or Seriously Injured (KSI) from road traffic collisions compared to all other London Boroughs. Only Westminster City Council has a higher KSI yearly average. Between 2010 and 2014, Lambeth had a yearly average of 141 people KSI in road traffic collisions.<sup>114</sup> The number of people KSI in Lambeth has significantly reduced by 44 per cent from 2009 to 2014 and this reduction is slightly higher than the London average reduction of a 40 per cent<sup>114</sup>.

The number of incidents resulting in slight injuries caused by road traffic collisions in Lambeth is also high compared to other London Boroughs. Lambeth has the third highest number of slight collisions, behind the London Borough of Barnet and Westminster City Council. There has been a 22 per cent increase in slight collisions from 2009 to 2014, which is notably higher than the London wide average increase of 12 per cent in slight collisions<sup>114</sup> (see Table 11.1).

In the central London sub-region, 39 per cent of collisions results in a casualty being KSI involved pedestrians, 31 per cent involved pedal cyclists and 18 per cent involve powered two-wheelers.<sup>115</sup>

Table 11.1: KSI Accidents in London

	2005-2009 average	2010-2014 average	% change from 2005-09 average to 2010-14
Lambeth (KSI)	176	98	-44%
Greater London (KSI)	3,627	2,167	-40%
Lambeth (Slight)	1,058	1,294	+22%
Greater London (Slight)	25,600	28,618	+12%

Source: Borough LIP Performance Indicators 2014/15

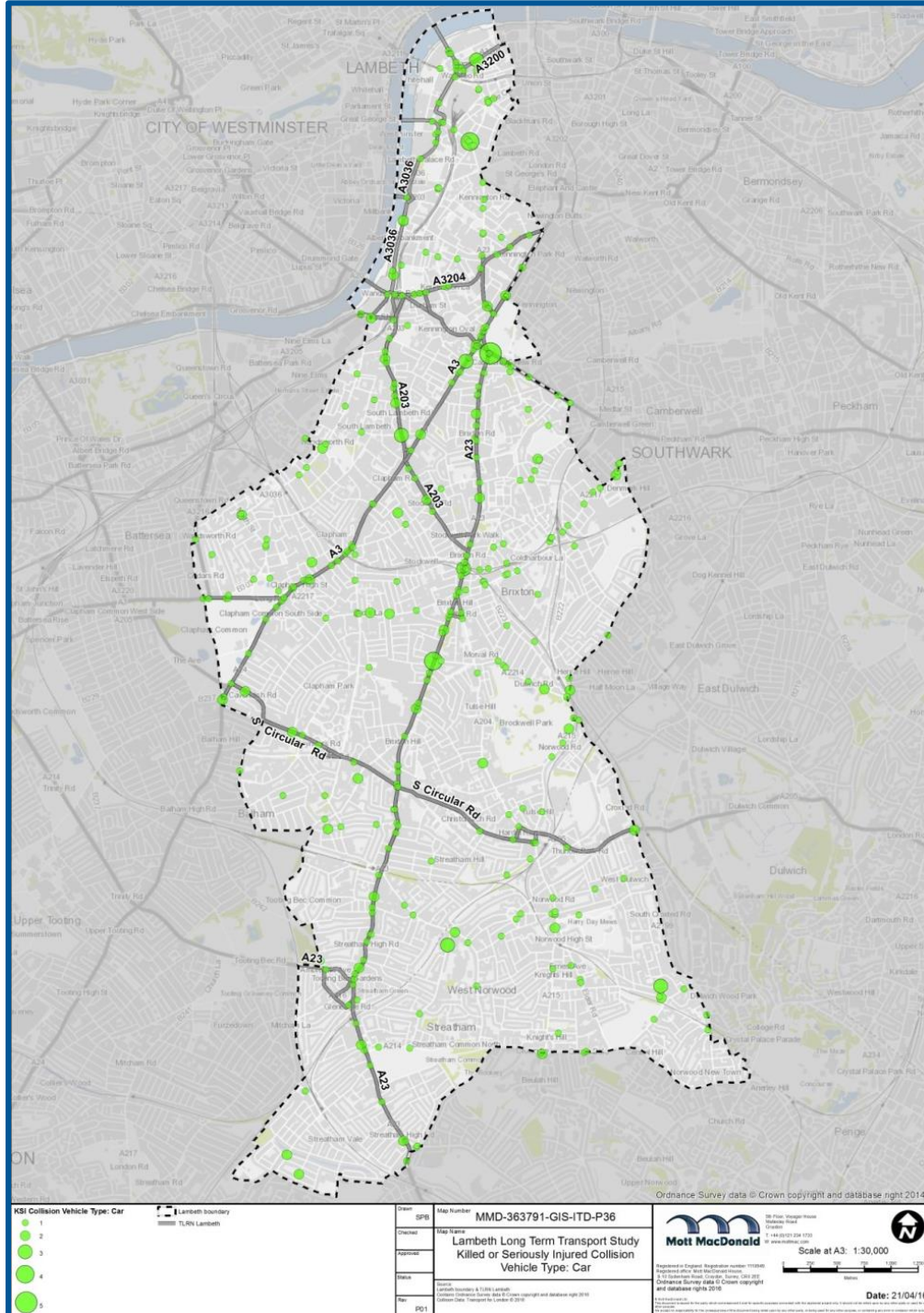
## 11.2 Collision Analyses

The following analysis shows collision hotspots within Lambeth by identifying the locations of KSI casualties by car collisions (Figure 11.1), bicycle collisions (Figure 11.2), PTW collisions (Figure 11.3) and low frequency vehicle (HGV's, buses and taxis) collisions (Figure 11.4). Collision data has been provided by TfL.

<sup>114</sup> Borough LIP Performance Indicators 2014/15

<sup>115</sup> Sub-regional Transport Plan for Central London (2015 Update)

Figure 11.1: KSI Car Collision Locations



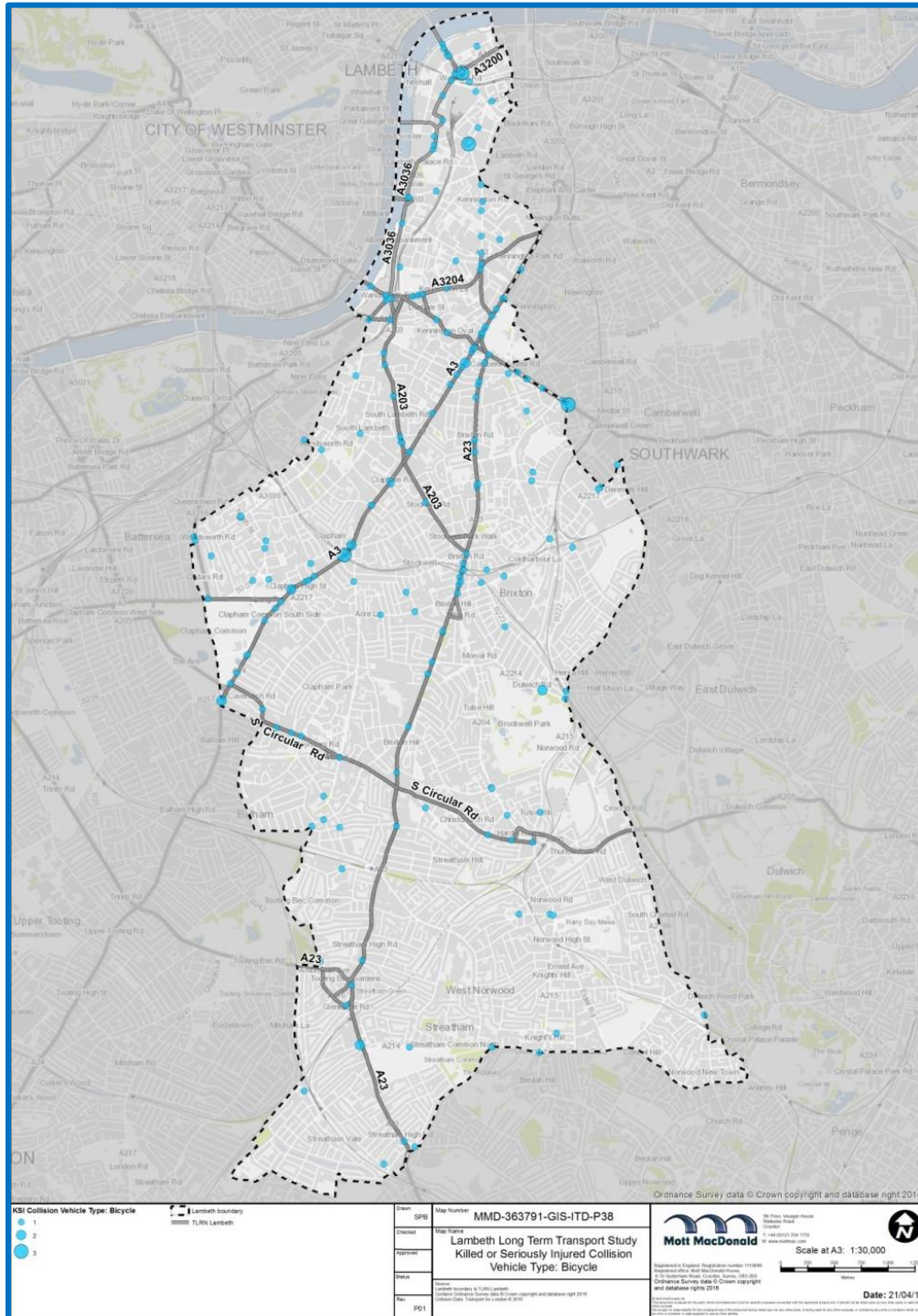
Key observations:

- The majority of KSI collisions involving cars are located along principal traffic routes through the Borough such as the A23, A24 and A203.
- Collisions are concentrated in town/ neighbourhood centre locations and major intersections such as the A23 through Streatham, Brixton and Oval town/ neighbourhood centres.
- The A23 has a high concentration of accidents through Oval and Clapham neighbourhood centres.
- Other junctions such as the Vauxhall Gyrotary and the IMAX roundabout near Waterloo can also be identified as collision hotspots for cars.

Source: TfL Road Safety Team



Figure 11.2: KSI Bicycle Collision Locations

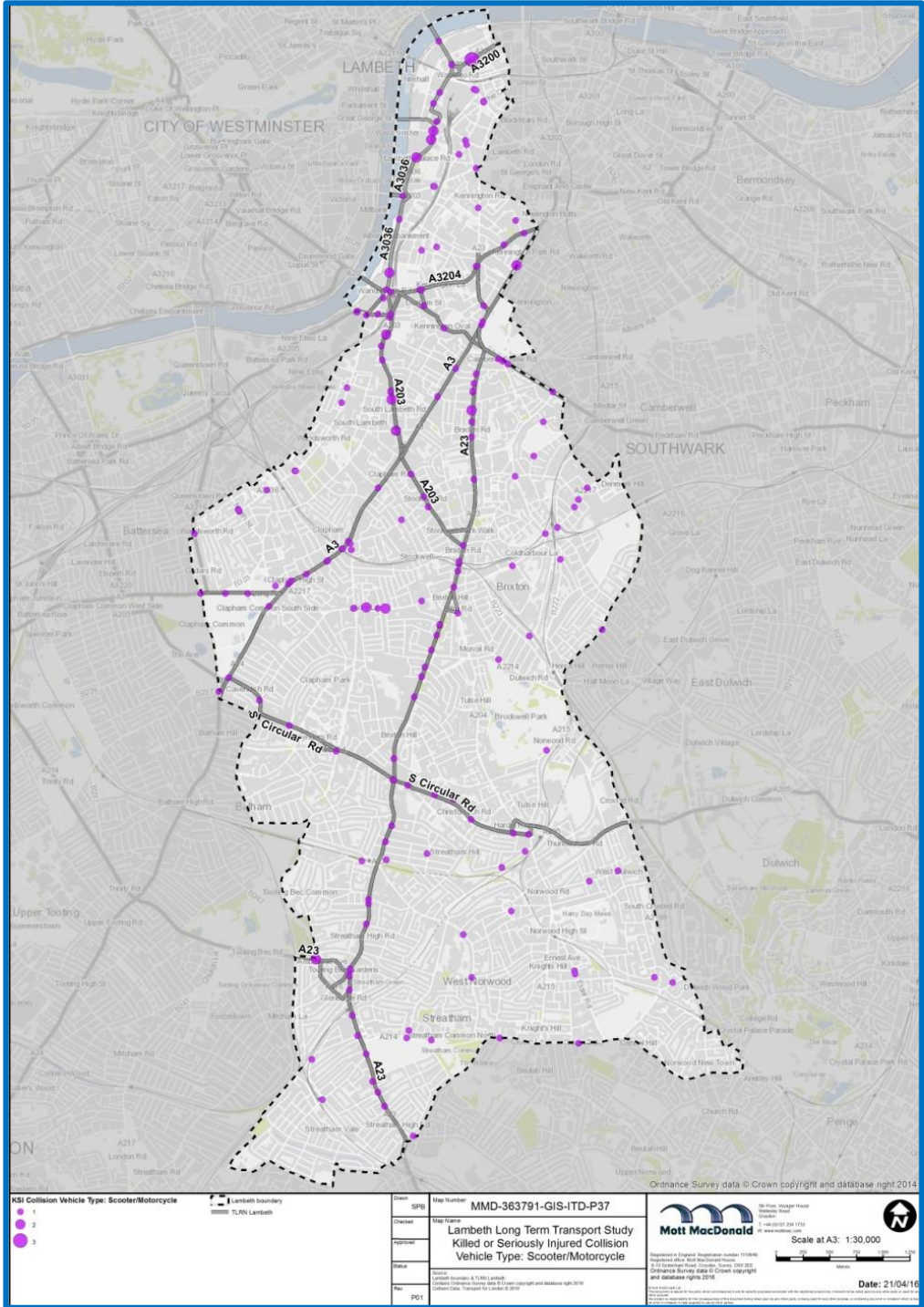


Key observations:

- The majority of KSI collisions involving cyclists are in the northern and central sections of the Borough, which is where cycling levels are highest.
- Similar to collisions involving cars, collisions involving cyclists are also concentrated on principal traffic routes through the Borough.
- In Brixton there is a clear bicycle collision hotspot on the A23, between the A2217 junction to the south and A203 junction in the north. This section of the A23 runs through Brixton town centre, which has a reduced carriageway width..
- There is a high concentration of KSI collisions involving cyclists on the A24 & A3 through Clapham, Stockwell and Oval. The A3 & A24 is a Cycle Superhighway (CS7) with high volumes of cycle traffic.
- Cycle collision hot spots can also be identified on major intersections in the north of the Borough such as the Vauxhall gyratory, Oval junction and IMAX roundabout.

Source: TfL Road Safety Team

Figure 11.3: KSI PTW Collision Locations



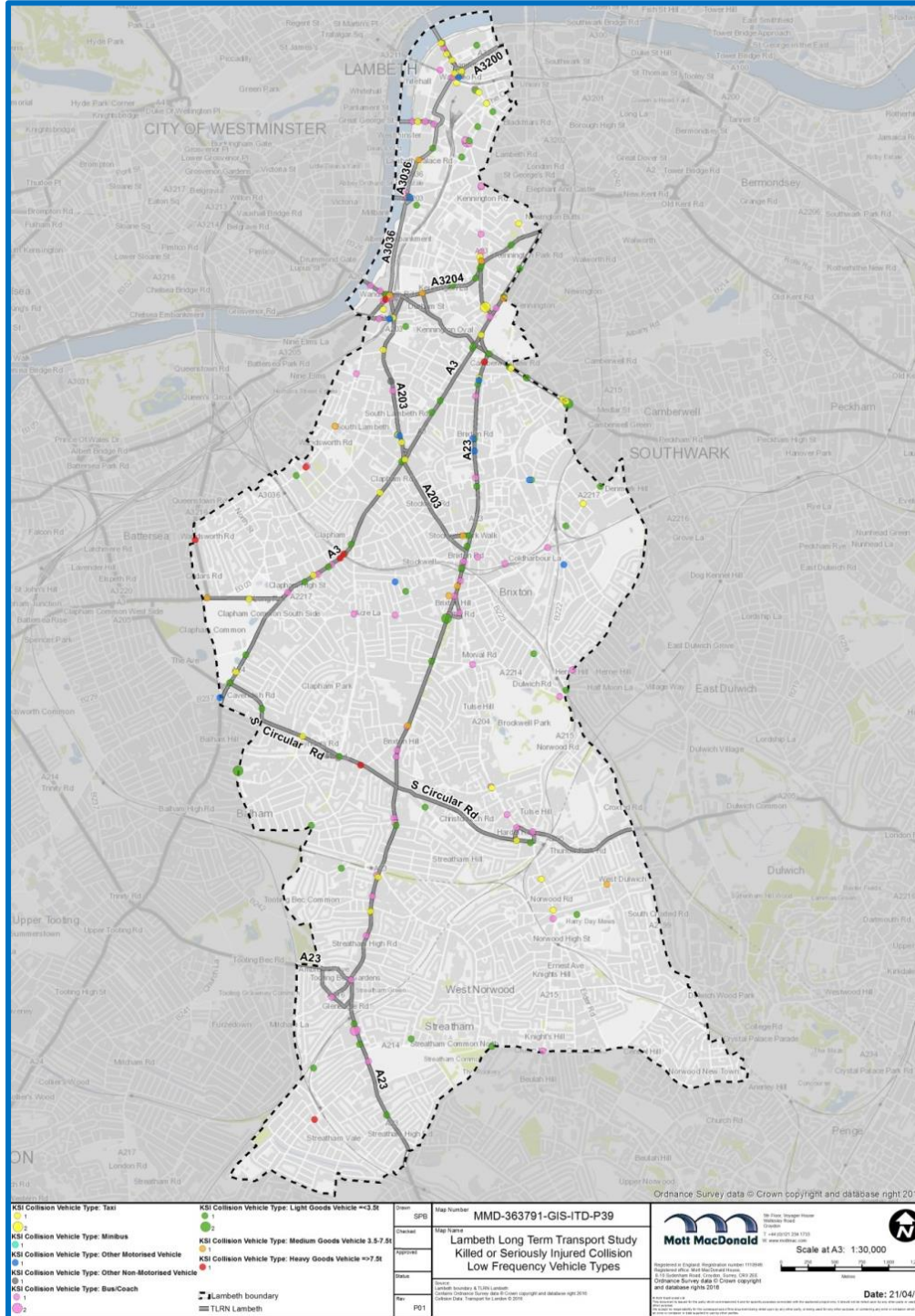
Key observation:

- The majority of KSI collisions involving Power Two Wheelers (PTW) are along principal traffic routes through the Borough such as A23, A3, A203 and the South Circular Road

Source: TfL Road Safety Team



Figure 11.4: KSI Low Frequency Vehicle Collision Locations



Key observation:

- Collisions involving buses and HGV's are concentrated on principal traffic routes and within town/ neighbourhood centre locations, which is where the highest frequency of buses occur.
- There is a high concentration of KSI casualties involving taxi's around Waterloo station and the IMAX roundabout.

Source: TfL Road Safety Team

## 12 Site Audit

Site audits have been undertaken in the AM peak period to add evidence to the statements and assumptions in this Baseline Situation Report (Part 1). The pictures below also provide a visual presentation of the existing transport conditions focusing on the following areas: Waterloo, Vauxhall, Stockwell, Oval, Brixton and Streatham.

Photo 12.1: Waterloo: Cycle hire shortage



On-site observations have shown that during peak hours there is a shortage of cycle hire bikes around Waterloo Station.

Photo 12.2: Waterloo: Bus queuing



During peak hours there is severe pedestrian congestion queuing from the bus pick up points, particularly from the Tenison Way stop for services into The City, where the queue often stretches back towards the station.



Photo 12.3: Waterloo: Cycle Parking



There is a high level of cycle parking at Waterloo station, which is well used.

Photo 12.4: Waterloo: Peak congestion



During peak times access is extremely congested for both rail and Underground passengers.

Photo 12.5 Waterloo: Pedestrian environment



The pedestrian environment outside of Waterloo station is poor due to limited footway widths and the dominance of vehicular traffic. During busy periods pedestrians sometimes spill out onto the footway of Waterloo Road whilst waiting to enter the Underground barriers.

Photo 12.6 Vauxhall: Cycle Parking



Cycle parking well used at Vauxhall during peak periods

Photo 12.7 Vauxhall: Pedestrian environment



Area around Vauxhall station is dominated by vehicular traffic and pedestrians cross risking conflict with vehicles.

Photo 12.8 Oval: On-street cycle parking



The station has good accessibility for bikes as it is located along cycle Superhighways (CS5 & CS7); however, cycle parking is limited to on-street spaces.



Photo 12.9 Oval: Public realm improvements



There have been a number of cycle infrastructure improvements at major gyratories and intersections within the Borough as part of TfL's Road Modernisation Plan at the following junction, Oval triangle.

Photo 12.10 Stockwell: Public realm improvements



Public realm improvements ongoing near Stockwell station

Photo 12.11 Stockwell: Cycle Superhighway (CS7)



Cycle Superhighway 7 well used near Stockwell station, showing the route segregated from vehicular traffic.

Photo 12.12 Brixton: Cycle Parking



Brixton station has limited cycling parking facilities. There are a number of on-street cycling parking spaces which are heavily used and are usually operating at capacity during peak hours.



Photo 12.13 Brixton: Congestion in station



Brixton station is a vital interchange point with buses and cycles. Consequently, the barriers are congested with people entering during the AM peak, and exiting during the PM peak.

Photo 12.14 Brixton: Traffic Congestion



During peak periods the bus stops and roads in the area often suffer from severe congestion, with the majority of buses and bus stops at, or over capacity.

Photo 12.15 Streatham: Congestion in station



Rail passengers waiting on the platform at Streatham station.

Photo 12.16 Streatham: Traffic Congestion



During peak periods the A23 becomes severely congested around Streatham railway station

## 13 Gap Analysis

The following data has been requested by Mott MacDonald but it has not been made available at the time of writing this report. This information has been requested from the LBL / TfL:

- TfL bus data and user satisfaction
- Workplace travel plan monitoring data
- Footfall data at stations' gates
- Disabled access journey times within the Borough

## 14 SWOT Analysis

A Strengths, Weakness, Opportunity and Threats (SWOT) analysis for the northern, central and southern sections of the Borough has been completed based on the findings of this Baseline Situation Report (Part 1).

The SWOT analysis highlights the distinct characteristics across the Borough and the varying transport priorities. For example, the northern section of the Borough is highly accessible by public transport services; however, the public transport network in the north suffers from peak time overcrowding and congestion. The southern section of the Borough suffers from low public transport accessibility outside of town/ neighbourhood centre locations and high levels of traffic congestion.

## Northern Section SWOT

### Strengths

- Excellent public transport accessibility.
- Good coverage of National Rail, London Underground and buses.
- Cycle hire facilities.
- Major transport terminal/intersection.
- Southbank recognised as exemplar walking route.
- Cycle superhighways CS5/CS7 running through north of the borough.
- High mode share for buses and pedestrians in the North.

### Opportunities

- Major opportunity for development at Waterloo to assist with funding for transport improvements.
- Redevelopment of Waterloo stations to increase capacity for all modes.
- Improve public transport capacity across London could relieve pressure at key points (e.g. Crossrail 2 takes pressure of Charing Cross branch of Northern Line).
- Reuse redundant rail infrastructure (Waterloo international terminal).
- Improve accessibility/public realm around train stations.
- Improve already high walking mode share.
- Increase use of river services/use of river for construction of freight.
- Low car ownership and reduction in overall traffic flows.
- Congestion Charge Zone.
- River Bus routes to the City and Canary Wharf.
- Increase cycle hire scheme.
- Create cycle hub at Waterloo.

### Weaknesses

- Heavily congested during peak hours making it difficult to board trains from Lambeth stations to central London.
- Limited rail connectivity from the North of the Borough to the South of the Borough (i.e. Streatham/ Tulse Hill/ West Norwood).
- Cycle parking and cycle hire in high demand during peak times.
- Challenges for walking environment around Waterloo station due to high volume of pedestrians, localised high levels of road traffic and some issues with streetscape.
- Peak time congestion at some key junctions around Waterloo.
- Taxi queueing at Waterloo Station.

### Threats

- Failure to tackle overcrowding/lack of capacity on public transport networks could constrain future growth.
- Modal shift to other modes which are already experiencing congestion i.e. buses.
- No direct connection from Waterloo to major future rail schemes- Crossrail 1 (to the West), HS2 or Crossrail 2.
- Increase in rail passengers boarding trains from the south of Lambeth making it more difficult for North Lambeth residents to board during peak hours.
- Poor air quality. Both PM10 and NOx objectives being exceeded.
- Delay to redevelopment of Waterloo Station.
- Funding and budgetary constraints.
- Transport system cannot accommodate additional demand.



## Central Section SWOT

### Strengths

- Served by National Rail, London Underground, London Overground, Thameslink services.
- High underground mode share.
- Served by both the Northern and Victoria Lines.
- Key rail interchanges (Stockwell/Vauxhall – to the North).
- Good rail links into Central London.
- Excellent PT accessibility in district town/ neighbourhood centres.
- Improved public realm in Vauxhall/ Stockwell/ Oval neighbourhood centres.
- High cycling mode share.
- Many major routes include bus lanes.
- Low car mode share.
- High frequency bus network.
- Significant reduction in traffic flows.
- Low car ownership.

### Opportunities

- High population density making public transport an attractive form of transport.
- High proportion of young population more likely to travel by sustainable modes
- Improved interchanges (Brixton/ Vauxhall).
- New rail infrastructure (Crossrail2/ Northern line extension) alleviating congestion (northern line – Clapham stations).
- Opportunity for development at Vauxhall to assist with funding for transport improvements
- New London Overground interchange at Brixton.
- Improved accessibility through Cycle Quietways.
- Night tube.
- Improvements to Vauxhall Station.
- Improvements to East West Routes.
- Brixton East Station
- Expansion of cycle Hire Scheme.
- Expansion of residential parking zones.

### Weaknesses

- Low income areas generally in areas of low public transport accessibility
- Heavily congested rail and underground network during peak hours making it difficult to board trains from Lambeth into Central London.
- No London Overground connectivity at Brixton (Overcrowding on National Rail services through Lambeth).
- Poor environment at some stations (Brixton/ Loughborough Junction).
- Lack of north/south cycle routes.
- No cycle hire beyond Stockwell.
- Buses around Oval, Stockwell and Brixton operate at capacity.
- Lack of North-South rail links through borough and lack of east to west rail connections to connect to town/ neighbourhood centres.
- Lack of resident parking schemes.
- Many people travelling to Brixton Station from South of the borough and beyond.
- Lack of cycle parking at key stations.
- Low national rail mode share.

### Threats

- Air quality challenges - Both PM10 and NOx objectives being exceeded.
- Accident hotspots in town/ neighbourhood centre locations (e.g. Brixton, Clapham, and Stockwell).
- High Underground mode share on an already congested network – limited opportunity for increasing
- Public transport congestion.
- High car ownership in high income areas.
- Vauxhall gyratory dominated by cars.
- Road congestion around town/ neighbourhood centre locations.
- Potential for additional travel demand from the south of the Borough and beyond to Brixton Station.
- Delays to redevelopment of Vauxhall Station.
- Funding and budgetary constraints.
- Transport system cannot accommodate additional demand.

## Southern Section SWOT

### Strengths

- Direct train links to the South of the borough (i.e. Croydon/ Sutton).
- National Rail and Thameslink Services operating within capacity.
- Improved public realm at Streatham and West Norwood.
- Buses operating within capacity.
- High mode share for buses.
- High National Rail mode share.

### Opportunities

- Improved cycle connections through proposed Cycle Quietways.
- Improved connections to Croydon (Tramlink extension)
- Modal shift away from cars.
- Improvements to cycle parking facilities at train stations.

### Weaknesses

- Low population density.
- No London Underground or Overground connections.
- Lack of north to south rail connections limits accessibility in the South.
- Low public transport accessibility away from major transport corridor.
- Low walking/cycling mode share- high car mode share- high car ownership.
- Limited segregated cycle facilities.
- No cycle hire facilities.
- Traffic congestion on major routes.
- Severance created by A23.

### Threats

- Improved train services in the north and central section of the Borough may be at the detriment to train services to the south of the Borough.
- Continued high levels of car ownership.
- Continued air quality challenges. PM10 objectives being exceeded.
- Poor pedestrian and cycle environment due to traffic and congestion in key south district centres.
- Topography discourages cycling.
- Lack of east to west bus routes.
- Moderate decrease in traffic flows.
- Transport system cannot accommodate additional demands.

## 15 Baseline Conclusion

This Baseline Situation Report (Part 1) helps to illustrate the transport characteristics of Lambeth as it stands in 2016. It has highlighted the diversity between the northern, central and southern sections of the Borough. However, it is important not to take the North – Central – South labels as all encompassing. There are also significant issues within each of the 'segments', and our classification is intended to start to show emerging issues. The Baseline Situation Report (Part 2) – Future Baseline will examine these issues further and help to understand where issues are continuing into the future. This report has highlighted areas of the existing transport network where there is a shortage of transport provision and the capacity constraints.

By examining the Borough's current transport network, it shows that the northern, central and southern sections of the Lambeth do not link together well. There are limited public transport options which connect the northern and southern sections of the Borough. Buses do however run along main arterial routes through the Borough but there is a lack of east to west connections, which makes travelling by bus unattractive due to longer journey times.

Public transport accessibility varies considerably throughout the Borough, with the north of the Borough the most accessible and the south of the Borough the least accessible with high levels of car ownership. There are also pockets of low transport accessibility in the central section of the Borough which is generally represented by areas of low income and high deprivation. This demonstrates the range of local issues that must be considered.

The assessment has indicated that, not surprisingly, bus routes and areas surrounding rail / underground stations into Central London are the busiest in the Borough and are operating close to or above capacity limits.

The majority of rail and underground services operate at capacity from the central section of the Borough. This makes it difficult for residents in the north of Lambeth to board services during peak periods and there is insufficient spare capacity to accommodate future growth. Improving the capacity for rail and underground services will be vital to unlock future growth within the Borough.

The Borough has seen a significant reduction in traffic flows over the last 10 years. The percentage reduction in car and taxi traffic flows varies significantly across the Borough with the highest reduction in the north of the Borough and lowest reduction in the south of the Borough. Even with

the reduction in traffic, major routes through the Borough still experience peak time congestion, Even though recent road schemes have not materially reduced traffic congestion they have significantly improved the environment for non-car modes of transport.

Air pollution is a major concern within Lambeth and the whole Borough is designated as an Air Quality Management Area. The monitoring results show that the annual mean nitrogen dioxide objective continues to be exceeded at two of the three monitoring stations within the Borough. Transport based emissions is a major contributor in the Borough and so reducing vehicular traffic, specifically HGV traffic, and improving emissions from buses will play a key role in improving air quality within Lambeth.

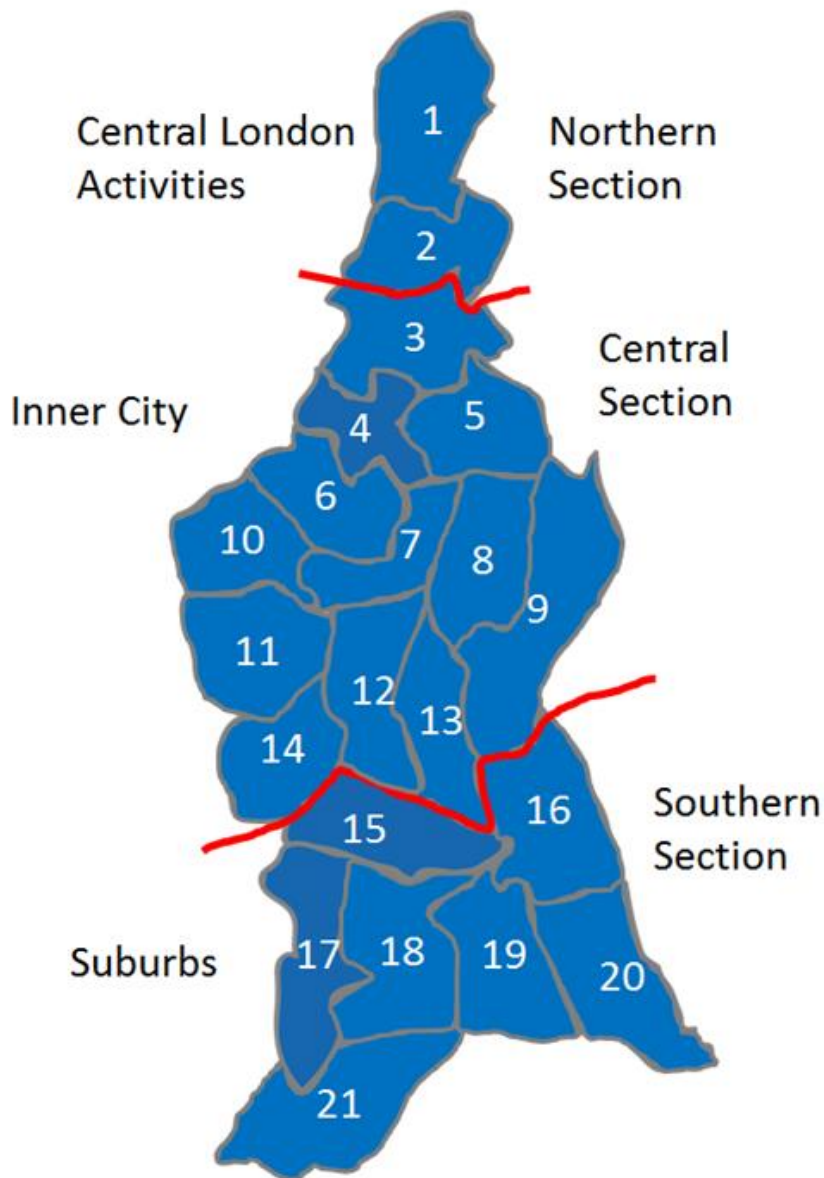
The next phase of the study will identify the future baseline transport network in 2026 and 2035. The Future Baseline Report (Part 2) will take into account future growth in population and committed transport schemes to identify areas of the network which will be capacity constrained in 2026 and 2035.

The final phase of the study will be the Long Term Transport Strategy (LTTS) which will be a prioritised list of transport schemes which could be delivered in the short, medium and long term to accommodate predicted future growth. The final strategy will aim to 'Link Lambeth' together via its communities and link Lambeth to major transport infrastructure and developments outside of the Borough. The proposed measures will be tested against future scenarios to take into account impact of future travel habits based on economic and societal changes.

The draft LTTS will conclude with a description of the preferred strategic transport system for Lambeth in year 2035, which will form the basis of stakeholder consultation.

It is clear that different transport solutions are required for the three distinct areas and that linkages within Lambeth are the key along with connections to other major transport infrastructure both within and outside the Borough.

# Appendix A. Ward Locations and Borough Sections



Northern Wards
Bishops (1)
Prince's (2)
Central Wards
Oval (3)
Stockwell (4)
Vassall (5)
Larkhall (6)
Ferndale (7)
Coldharbour (8)
Herne Hill (9)
Clapham Town (10)
Clapham Common (11)
Brixton Hill (12)
Tulse Hill (13)
Thornton (14)
Southern Wards
Streatham Hill (15)
Thurlow Park (16)
St Leonards (17)
Streatham Wells (18)
Knight's Hill (19)
Gipsy Hill (20)
Streatham South (21)



## Appendix B. Railplan Load Factors

Figure 15.1: National Rail Load Factors (Lambeth Stations)

<b>Southeastern (to Victoria)</b>										
<i>Seated Capacity Load Factor</i>	West Dulwich	2.57	Herne Hill	2.22	Brixton	2.05	Victoria			
<i>Total Capacity Load Factor</i>		1.44		1.25		1.15				

<b>Southeastern (to Charing Cross)</b>					
<i>Seated Capacity Load Factor</i>	London Bridge	1.73	Waterloo East	1.33	Charing Cross
<i>Total Capacity Load Factor</i>		0.87		0.67	

<b>Southern (via West Norwood)</b>									
<i>Seated Capacity Load Factor</i>	Crystal Palace	0.32	Gipsy Hill	0.57	West Norwood	0.42	Tulse Hill	1.12	North Dulwich
<i>Total Capacity Load Factor</i>		0.16		0.29		0.21		0.57	
					West Norwood	1.17	Streatham Hill	1.33	Balham
						0.59		0.67	

<b>Southern (via Streatham Common)</b>											
<i>Seated Capacity Load Factor</i>	Thornton Heath	1.01	Norbury	1.32	Streatham Common	0.49	Streatham	1.23	Tulse Hill	1.12	North Dulwich
<i>Total Capacity Load Factor</i>		0.51		0.66		0.27		0.63		0.57	
					Streatham Common	2.07	Balham				
						1.01					

<b>Southwest (all main lines combined)</b>					
<i>Seated Capacity Load Factor</i>	Queenstown Road	2.51	Vauxhall	1.94	Waterloo
<i>Total Capacity Load Factor</i>		1.28		0.97	

<b>Thameslink</b>											
<i>Seated Capacity Load Factor</i>	Tooting/Mitcham	1.41	Streatham	1.80	Tulse Hill	1.86	Herne Hill	2.04	Loughborough Junction	2.15	Elephant & Castle
<i>Total Capacity Load Factor</i>	Eastfields	0.73		0.97		1		1.09		1.16	

Source: Railplan (2011)

Figure 15.2: Underground Load Factors (Lambeth Stations)

<b>Bakerloo Line</b>													
<i>Seated Capacity Load Factor</i>	Elephant & Castle	0.52	Lambeth North	0.58	Waterloo	2.17	Embankment						
<i>Total Capacity Load Factor</i>		0.19		0.21		0.78							

<b>Jubilee Line</b>					
<i>Seated Capacity Load Factor</i>	Southwark	4.11	Waterloo	4.32	Westminster
<i>Total Capacity Load Factor</i>		1.17		1.23	

<b>Northern Line</b>															
<i>Seated Capacity Load Factor</i>	Clapham South	3.45	Clapham Common	3.66	Clapham North	3.97	Stockwell	3.10	Oval	2.65	Kennington	1.43	Waterloo	2.18	Embankment
<i>Total Capacity Load Factor</i>		1.26		1.34		1.45		1.13		0.97		0.52		0.80	

<b>Victoria Line</b>							
<i>Seated Capacity Load Factor</i>	Brixton	1.20	Stockwell	2.16	Vauxhall	2.84	Pimlico
<i>Total Capacity Load Factor</i>		0.40		0.73		0.95	

<b>Waterloo &amp; City Line</b>			
<i>Seated Capacity Load Factor</i>	Waterloo	3.86	Bank
<i>Total Capacity Load Factor</i>		1.22	

Source: Railplan (2011)

