Camden Local Plan Evidence Report Car-free development

February 2016

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Executive Summary

Camden has particular issues with poor air quality, obesity, traffic congestion and parking stress. Car free development can offer significant benefits by reducing traffic congestion and parking stress, improving air quality and creating opportunities to build safer and more welcoming environments that increase the likelihood of people making healthier and more sustainable transport choices.

Camden Local Plan policy T2 Parking and Car Free Development seeks to restrict car parking within both residential and non-residential developments to spaces designated for disabled people and essential operating or servicing needs where necessary throughout the whole borough. This extends the reach of the Council's adopted planning policies which seek car free development within areas with Public Transport Accessibility Level (PTAL) ratings above 4 (which covers most but not the entire borough). This paper sets out evidence to support this approach.

Evidence is presented on the following topics:

National and Regional Policy
- The Council considers that Policy T2 is consistent with national policy and the London Plan.

Operation of the existing car free policy
- Evidence shows that Camden's adopted car free planning policy has been effective in providing an increasing amount of car free developments.

Air Quality
- Details are given that poor air quality remains a significant issue within the borough as only limited gains regarding reducing Particulate Matter (PM10 and PM2.5) and Nitrogen Dioxide (NO2) have been made since the Council adopted its existing planning policies in 2010.

Public Health
- Camden now also has a legal duty to improve public health since the Health and Care Act (2012) was introduced. Evidence is therefore presented that a borough wide car free approach could assist in improving public health, particularly the Council's identified need to reduce levels of obesity.

Connectivity
- New tools published by TFL show that Camden actually has better levels of connectivity than may have initially been identified when the Council developed its adopted policies in 2010. Through neighbourhood planning and consultation meanwhile, the Council is aware that many residents in lower PTAL areas are concerned about high levels of congestion and parking stress which car free development in these areas may help alleviate.

Car ownership
- Car ownership and use rates are reducing in Camden and London generally.

<u>Viability</u>
- Evidence is presented that shows that car free development across the borough is viable and should not affect delivery of the Plan in general.

Introduction

1.1   The way people travel significantly impacts on people's health, well-being and quality of life. Motor vehicle traffic contributes to carbon emissions, deteriorating air quality and road danger, all of which affect health and which deter people from choosing active sustainable travel choices.

1.2   Reducing these negative impacts is central to Camden's approach to meeting both existing and future transport challenges; for these reasons Camden seeks to restrict car ownership and use while prioritising sustainable and active travel choices, as outlined in the Camden Transport Strategy (CTS - 2011)**.**

1.3   Local authorities now have a duty to protect public health as well as a legal responsibility to reduce pollution. In addition to transport policies outlined in the Camden Transport Strategy and the Mayor's Transport Strategy (MTS), local plan policies can also make a significant contribution to addressing the transport and other challenges facing the borough.

1.4   There is a strong relationship between levels of car parking provision and ownership and use. Results from Transport for London (TFL)'s Residential Parking Provision in New Developments report (2011) for example suggests households living in developments with up to 0.5 parking spaces per unit are significantly less likely to own a car than those living in developments with more than 0.5 spaces per unit. The report also includes evidence linking car ownership to frequent use in inner London, with a quarter of car owners choosing to drive five or more times a week during the weekday peak, even in areas of high public transport accessibility.

1.5   For many years therefore, Camden has operated car-free and car-capped planning policies for new developments to limit the availability of parking in order to reduce the negative impacts motor vehicle use can cause, such as congestion and poor air quality. The existing policy involves an assessment of Public Transport Accessibility Level (PTAL) when considering the appropriateness of car parking in planning applications, both on and off-street.

1.6   The Council's adopted planning policies (in combination with other borough and London wide transport strategies) appear to be having the desired effect. Between 2006 and 2014, trips by car in Camden reduced by 31%, whilst total motor vehicle trips in London reduced by 27%. The borough can also boast some of the lowest car use in London (see Appendix: A).

1.7   The Camden Local Plan provides an opportunity to further build upon this work and extend the Council's car free approach throughout the entire borough. Policy T2 therefore proposes that parking within both residential and non-residential developments will be restricted to spaces designated for disabled people and essential operating or servicing needs where necessary throughout the whole borough. Essential uses are regarded as businesses and services reliant upon parking where this is integral to the nature, operational and/or servicing

requirements of the business or service (e.g. emergency services, storage and distribution uses).

1.8   Since the adoption of the Council's current planning policies in 2010, further evidence has become available which the Council considers justifies the need for car free development throughout the borough. This paper brings together evidence supporting this approach based upon the following:

- The urgent need to improve air quality in Camden.

- The significant public health benefits offered by car free environments, particularly with regards to reducing Camden's high levels of obesity. Local authorities now have a statutory duty to protect public health under the Health and Social Care Act (2012).

- New methods of assessment that show that the Council's adopted planning policies, which rely on PTAL, do not reflect true levels of Camden's connectivity to local services and opportunities.

- Camden's high levels of traffic congestion and parking stress within lower PTAL areas, which is affecting the amenity of residents.

- The viability of a borough wide car free approach.

1.9   Although it is hoped that Policy T2 will facilitate the desired benefits outlined within this paper, the extent of its scope should also be considered. The car free policy applies to new development, which make a small proportion of the overall building stock within the borough. Car parking will therefore remain available across the existing building stock. With regards to residential developments for example in 2014, Camden contained just over 100,000 dwellings. Net annual additions to the stock of self-contained housing vary, however approximately 500 are completed per year in Camden. The policy is therefore only likely to apply to circa 0.5%-1% of the total housing stock in Camden.

Policy context

National and Regional Policy

2.1 The National Planning Policy Framework (NPPF) requires local planning policies on transport to be balanced in favour of sustainable transport modes (para 29). Encouragement should be given to solutions which support reductions in greenhouse gasses (para 30).

2.2 Of particular relevance is Paragraph 39 of the NPPF which states that:

"If setting local parking standards for residential and non-residential development, local planning authorities should take into account:

- *the accessibility of the development;*
- *the type, mix and use of development;*
- *the availability of and opportunities for public transport;*
- *local car ownership levels; and*
- *an overall need to reduce the use of high-emission vehicles."*

2.3 The London Plan supports car free development. Policy 6.13 (b) states:

"in locations with high public transport accessibility, car-free developments should be promoted (while still providing for disabled people)."

2.4 The London Plan sets maximum parking standards within Policy 6.13 E(a), which para 6.42 recognises need to be applied flexibly taking into account transport conditions in the local area:

"Boroughs wishing to develop their own standards should take the standards in this Plan as their policy context. But he (the Mayor) also recognises that London is a diverse city that requires a flexible approach to identifying appropriate levels of car parking provision across boundaries. This means ensuring a level of accessibility by private car consistent with the overall balance of the transport system at the local level."

2.5 Camden Local Plan policy T2 is consistent with the NPPF and London Plan policies. In order to assist with demonstrating this, evidence presented in this paper has been largely framed by the requirements of NPPF para 39.

Camden's adopted planning policy

2.6 Car-free development has no car parking within the site and occupiers are not issued with on-street parking permits. Policies CS11 of the Camden Core Strategy and DP18 and DP19 of our Development Policies document adopted in 2010 set the Council's existing car free approach. Guidance regarding how these

policies should be applied is contained within Camden Planning Guidance 7: Transport (CPG7), namely paragraphs 5.7-5.10.

2.7   Car free development is expected in the Central London Area, the town centres of Camden Town, Finchley Road/Swiss Cottage, Kentish Town, Kilburn High Road and West Hampstead (map), and other areas regarded as 'highly accessible' to public transport. Highly accessible areas are defined as sites which have a PTAL rating over 4 or above. If parking is justified by PTAL ratings below 4 however, only the minimum amount of parking should be provided. Maximum parking standards are set out within Appendix 2 of Camden's Development Policies document. Where a need for parking is accepted, the Council will seek to ensure that developments are 'car-capped' so that existing and future occupiers cannot apply for on-street parking permits.

2.8   The Council monitors the delivery of car free and car capped residential developments. As seen within Figure 1, the Council's adopted policies have been able to provide a steadily increasing amount of car free housing.

Figure 1: Net dwellings approved with a car free agreement. Section 106 database and London Development Database data.
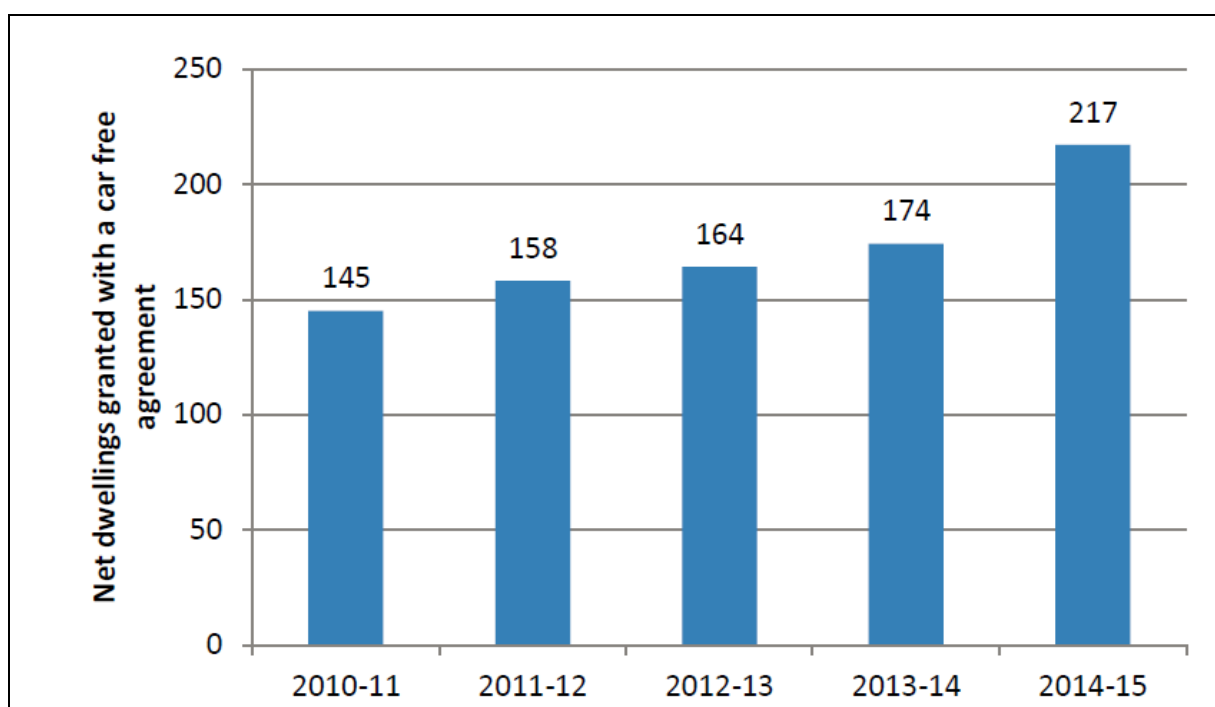
2.9   Providing parking is often very desirable within Camden, particularly for large, high value residential dwellings. The viability study accompanying the Local Plan for example estimates that each parking space provided could command as much as £50,000. When challenged, the merits of car free policies have been recognised by inspectors in planning appeals:

Appeal Ref: APP/X5210/A/14/2213004
3 Fellows Road, London NW3 3LR
Development description: *Installation of a dropped kerb to allow parking for two vehicles within existing front garden.*

The appeal site sat on the border of PTAL rating 3 and 4. In this instance, the Inspector ruled that the provision of 2x off street parking spaces within an area of high PTAL rating did not amount to sustainable development.

Appeal Ref: APP/X5210/A/14/2222537
368-372 Finchley Road, London, NW3 7AJ
Development description: *Erection of 2 x four storey plus basement buildings, with a glazed infill extension for the provision of 22 residential units…*

The proposal sought the inclusion of 10x basement level parking spaces. Both PTAL ratings of 3 and 4 were measured at the site, however majority of the site fell within PTAL 4. In this instance the inspector ruled that the proposed parking would prejudice the achievement of sustainable travel by undermining attempts being made to promote and encourage cycling, walking and public transport use.

Appeal Ref: APP/X5210/A/13/2203859
47 Belsize Square, London NW3 4HN
Development description: *Conversion of 9 x self-contained studio units into 2 x two-bed and 1 x three-bed self-contained dwelling flats to include alterations to front and rear dormer windows, installation of 3 x rooflights, 2 x window on flank elevation, installation new balustrade above bay window at first floor level and restoration works to entrance porch.*

The appeal site is within a PTAL 4 rated area. Permission was refused following the applicants refusal to commit to a section 106 agreement stating that on street parking permits would not be issued to new residents. In this instance the inspector ruled that despite the number of residential units decreasing, the resulting larger units would likely attract new residents favouring car use. The development would therefore cause unacceptable levels of on-street parking and congestion in the surrounding area.

Air quality

3.1 Para 39 of the NPPF requires that when setting local parking standards for residential and non-residential development, local planning authorities should take into account an overall need to reduce the use of high-emission vehicles. The use of high emission vehicles is closely linked to deteriorating air quality which is of increasing concern in London, particularly the impacts on health and wellbeing. A recent study by Kings College, commissioned by Transport for London (TfL) estimated that approximately 9,500 premature deaths a year in London are associated with poor air quality, particularly from Particulate Matter (PM10 and PM2.5) and Nitrous Oxide (NOx), for which road transport are the dominant sources.

3.2 Camden has a particularly poor air quality. Since 2001, Camden has been designated an Air Quality Management Area (AQMA). This is a designation is made by the Department for Environment and Rural Affairs (DEFRA) to areas that are unlikely to contribute to meeting national air quality objectives. Each AQMA is required to publish a Local Air Quality Action Plan. Despite a number of interventions, including those proposed and implemented by Camden's Clean Air Action Plan (2013-2015), it is apparent that these have only had limited effect. More detail on air quality in the borough is set out below.

Particulate Matter (PM10 and PM2.5):

3.3 Particulate Matter is a term used to describe tiny particles in the air, made up of a complex mixture of soot, organic and inorganic materials. Road transport is the dominant source of Particulate Matter emissions in London (see Figure 2), with exhaust emission and wear, tyre and brake wear and dust from road surfaces being the main factors. The notation PM_{10} is used to describe particles of 10 micrometers or less and $PM_{2.5}$ represents particles less than 2.5 micrometers in aerodynamic diameter. Particulate Matter is most associated with mortality and it is estimated that over 4,000 Londoners die each year as a result of long-term exposure to microscopic airborne particles.

3.4 Although the Council does not currently monitor levels of PM2.5, levels of this pollutant are monitored and reported by third parties. Within the Public Health Outcomes Monitoring Framework for example (discussed in further detail below), there is a specific indicator representing the proportion of adult deaths known to be attributable to PM2.5 (indicator 3.01). Data for 2014 concluded that in Camden this was a high as 7.4%, one of the highest in London and much higher than most of areas of the UK (Appendix B). Research commissioned by Public Health England used to inform the framework suggests that nearly 90 people per year in Camden die from diseases attributable to PM2.5.

Figure 2: Particulate Matter (PM10) emissions in Greater London (2010)
*Transport Emissions Roadmap (TfL 2014).*
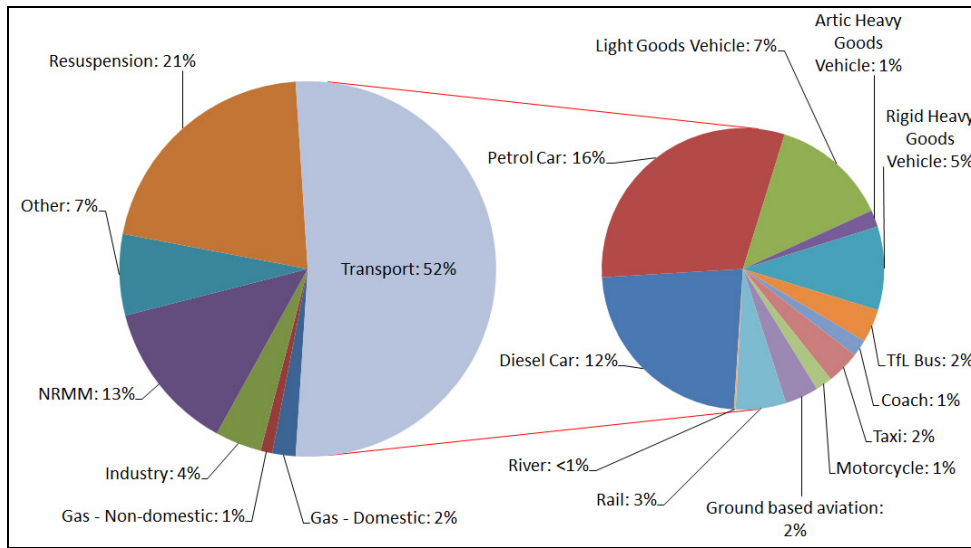
3.5 As Figure 3 and 4 demonstrate, although Camden has met targets for PM10 to ensure the pollutant remains within legal limits, there has been no great decrease in levels of this pollutant. This is significant as Particulate Matter has no safe levels.

Figure 3: Average measurements at Camden's air pollution monitoring stations.
(Camden Authority Monitoring Report 2014-15)
X = Annual target was not met.

| Pollutant	Target	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Particulate Matter (PM$_{10}$)*	Annual Mean Objective of 40 µg/m3	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓
	Daily objective of no more 35 days with a daily mean of 50 µg/m3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Figure 4: Annual mean PM10 concentration (micrograms) measured at Bloomsbury (LB), Swiss Cottage (SC) and Shaftsbury Avenue (SA). (Camden Authority Monitoring Report 2014-15).

Source: Corporate Sustainability Team, LB Camden
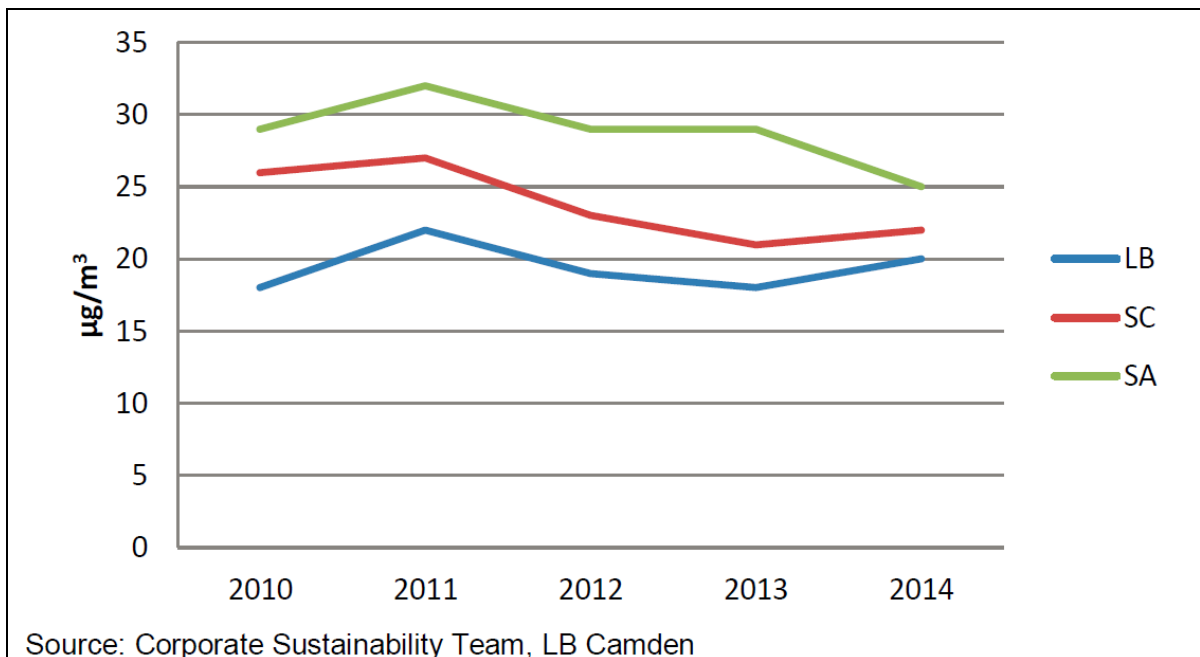
Nitrogen Dioxide (NO2):

3.6 Road transport is also the main source of NOx (see Figure 5). NOx is primarily made up of two pollutants - Nitric Oxide (NO) and Nitrogen Dioxide (NO2). NO2 is of most concern due to its impact on health and recent research suggests that this pollutant could have similar negative effects upon health as Particulate Matter. NOx easily converts to NO2 in the air - so to reduce concentrations of NO2 it is essential to control emissions of NOx.

Figure 5: Nitrogen Oxide (NOx) emissions in Greater London (2010) (TFL)
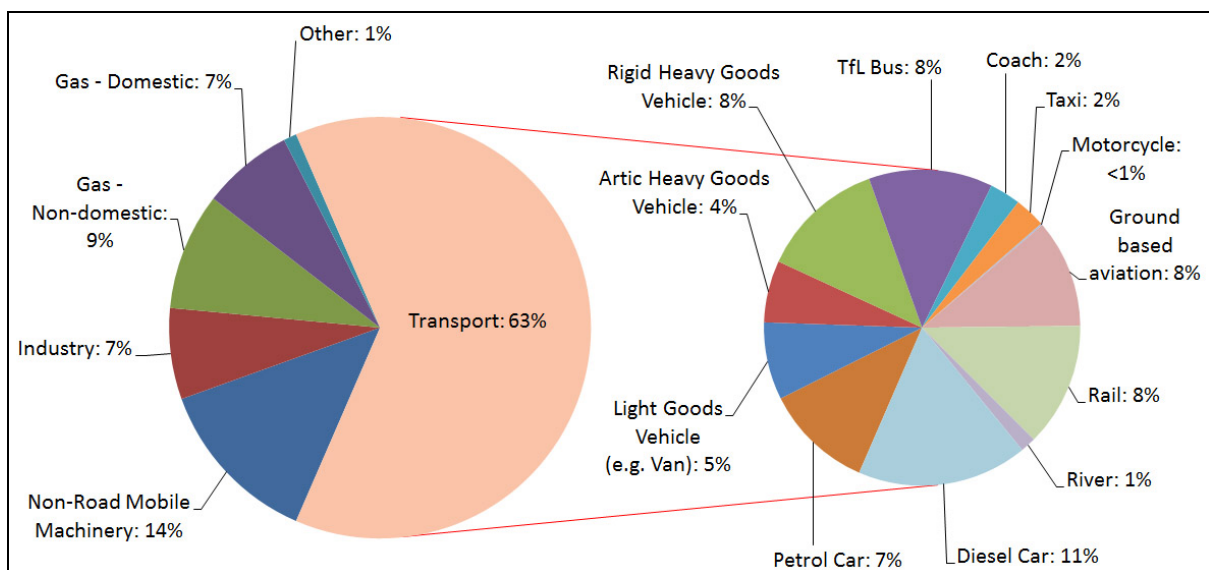
3.7 The Mayor has recognised that improving air quality is an urgent challenge requiring significant changes to be made, particularly within the context of a rapidly growing population. The compliance date for meeting EU legal limits of Nitrogen Dioxide (NO2) levels was 2010, at current levels of activity however, it is not expected that London will meet these legal limits until 2030. As a result of not acting with enough intent, London is now facing a Eu350 million fine.

3.8 As seen within Figures 6 and 7, unfortunately Camden has continually failed to meet air quality objectives for Nitrogen Dioxide (NO2) with relatively little progress has been made in reducing levels of NO2 since the borough was designated an Air Quality Management Area in 2001.

Figure 6: Trends in annual mean NO2 concentrations measured at automatic monitoring sites. (Camden Air Quality Progress Report - 2013).
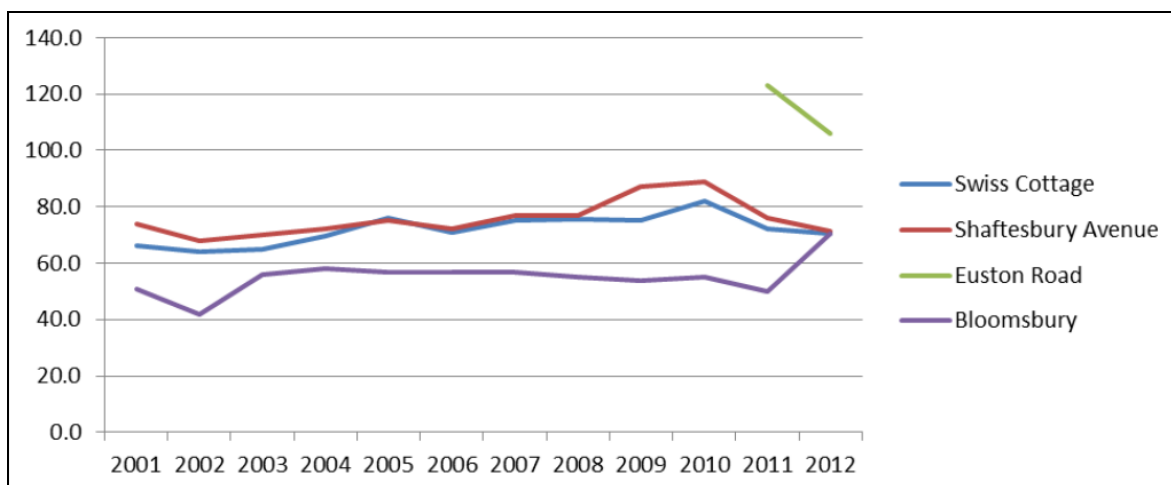

Figure 7: Average measurements at Camden's air pollution monitoring stations. (Camden Authority Monitoring Report 2014-15)
X = Annual target was not met.

Pollutant	Target	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Nitrogen Dioxide (NO₂)*	Annual Mean Objective of 40 µg/m3	x	x	x	x	x	X	X	X	X	X
	Hourly Objective of 200 µg/m3	✓	✓	x	x	x	X	X	X	X	X

3.9 Results from 2013 have been published by the London Air Quality Network show that EU limits for NO2 have been consistently exceeded at 2 sites, with Euston Road in particular, exceeding hourly limits 398 times, representing the second highest NO2 readings in London.

3.10 As demonstrated within Table 1 of Camden's Clean Air Action Plan (p4), the deadline for meeting UK objectives for NO2 levels was exceeded over 10 years ago. The fact that so little progress has been made is of grave concern to the Council. It is likely that a further package of actions will be required to tackle this

issue, however planning policies such as Policy T2 which aim to further reduce the main sources of NO2 are likely to help significantly.

Air Quality Concerns

3.11   Concerns regarding air quality are also shared by residents. One of the top issues raised by residents in consultations held by the borough's neighbourhood fora as part of their neighbourhood plan preparation is for action to be taken to improve air quality. For example, the draft Somers Town Neighbourhood Plan (for an area adjacent to Euston Road and therefore likely to experience the worst air quality in Camden) contains policies which seek to improve air quality. The concern is also evident within areas of lower PTAL: Hampstead Neighbourhood Forum are currently in the process of collecting their own air quality data as evidence to support their neighbourhood policies aimed at improving air quality.

Public Health

4.1.   The introduction of the Health and Social Care Act (2012) means that local authorities now have a duty to protect public health and allows them to integrate the wider determinants of health into the planning and delivery of local authority services. Health is therefore a key theme running through the Camden Local Plan policies. Camden experiences high levels of obesity. As part of the Council's approach to promoting sustainable and healthy travel choices, car free development can contribute towards tacking health issues in the borough.

4.2.   The Public Health Outcomes Framework is a set of indicators compiled by the Department of Health to measure how effectively the activities of each local authority are addressing the determinants of health. Within four domains there are a total of 68 indicators, and certain transport related measures, specifically those which aim to increase walking and cycling and restrict traffic, could contribute to a third of them. Indeed, no other area of intervention could impact on so many key aspects of population health.

4.3.   Lack of activity has implications for obesity, heart disease, stroke, cancer, Type 2 diabetes and depression. Instances of heart disease and stroke in particular are higher in Camden than in similar areas. It is estimated that at least 30% of Camden's population do not engage in any physical activity. Reducing levels of obesity, particularly childhood obesity (where it is estimated that 22.5% of Camden's children are obese compared to 19% nationally) has therefore been highlighted as a priority for Camden's Health and Wellbeing Board.

4.4.   Active travel (travel requiring a person to exercise - such as walking and cycling) is likely to be the main way that Londoners meet their physical activity needs. The UK Faculty of Public Health, in its position statement on the built environment and physical activity (2013), states that active travel is in fact the **only** viable option for significantly increasing physical activity levels across London's whole population.

4.5.   In London, 43% of adults do not achieve the minimum level of 150 minutes of physical activity each week that is recommended to stay healthy. It is widely accepted that the easiest way for most people to stay physically active is by incorporating activity, such as walking or cycling into their daily lives. Car ownership is linked to how much physical activity Londoners do (see Figure 8 below). Data from the London Travel Demand Survey suggests walking levels decrease significantly as the number of cars a household owns increases. It is estimated that 1.6 million car trips (22%) could however be walked or cycled. TFL's Transport and Health in London study however suggests that if Londoners swapped motorised trips that could reasonably be walked and cycled, 60% would meet the recommended 150 minutes of physical activity through active travel alone. As a result, the population of London would gain over 60,000 years of healthy life every year as a result and this would deliver an economic health benefit of over £2 billion annually.

Figure 8: Percentage of London's population meeting the 150 mins per week physical activity requirement, by household car ownership. (Travel in London no.7 TfL London p209).
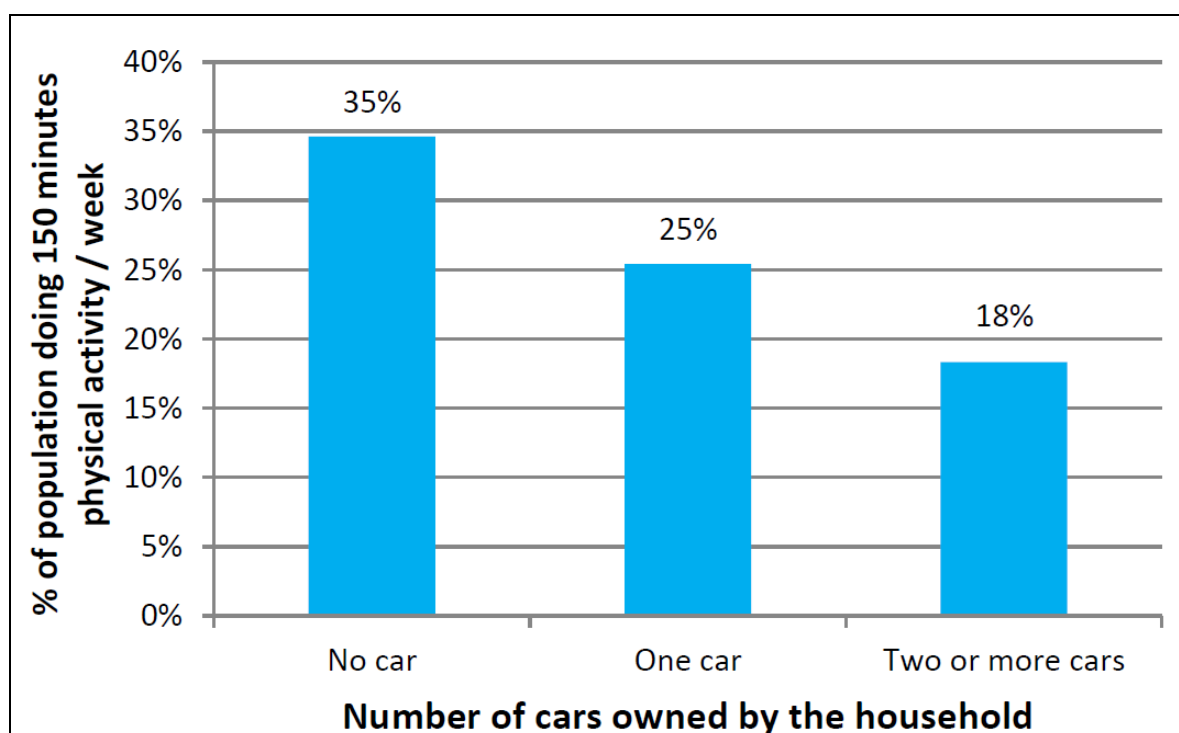
4.6.   In order to make streets attractive and encourage active travel, Camden adopts the approach recommended by both the National Institute for Health and Clinical Excellence (NICE) in its Public Health guidance (no 8), Physical Activity and the Environment, and the British Medical Association's Healthy Transport = Healthy Lives. Both recommend that local authorities should ensure that pedestrians, cyclists and users of transport modes that involve physical activity are given the highest priority alongside restricting motor vehicle access.

4.7.   Removing the real and perceived dangers caused by road traffic deters people from making active travel choices. TFL's Attitudes Towards Cycling survey 2014 suggested that 80% of respondents regarded safety as their primary barrier to cycling with significantly more cyclists stating that cycling is more dangerous in London than the previous year.

4.8.   Between 2006 and 2013 total casualties in Camden reduced by just 1.6% (from 872 to 858), with a similar reduction in those casualties categorised as Killed or Seriously Injured (KSI). However, cyclist casualties have risen over the period, both for total casualties (from 159 to 246 – nearly 55%), and KSI (from 16 to 40 – 140%). The Council has set targets to reduce all casualties by just over 11% by 2019-20 on 2007-2009 values, and by just over 25% for KSIs for the same period.

4.9.   As discussed above, Camden has high levels of obesity, particularly among children. However existing levels of traffic is an obvious barrier to the take up of healthier transport choices. Officers therefore consider that Policy T2 will be an effective means of further restricting the use of motor vehicles and therefore increasing health outcomes.

Connectivity and alternatives to car use

5.1   Para 39 of the NPPF requires that when setting local parking standards for residential and non-residential development, local planning authorities should take into account the accessibility of the development and the availability of and public transport. Similarly, London Plan Policy 6.13 promotes car free development in areas of high public transport accessibility.

5.2   This section demonstrates that Camden has high levels of public transport accessibility (which will further improve during the plan period) and high levels of 'connectivity'. The term 'connectivity' is much broader in its scope than public transport accessibility as it includes elements such as the proximity to jobs, shopping opportunities or essential services. Officers consider that it is appropriate to consider assessment of 'connectivity' under the NPPF and London Plan definitions of 'accessibility'.

5.3   Since the Council adopted its planning policies in 2010, new methods of assessing connectivity such as ATOS and TIM have become available which show that levels of connectivity within the borough are actually higher than represented in 2010 using Public Transport Accessibility Levels (PTAL) as the sole indicator and will continue to rise due to the delivery of infrastructure improvements during the plan period.

Public Transport Accessibility Level (PTAL)

5.4   Camden has excellent public transport provision and availability of a wide range of services and facilities, although PTAL ratings vary throughout the borough. To take account of this, Camden's policy DP18 *Parking standards and limiting the availability of car parking* currently considers PTAL when assessing private car parking provision for developments. The policy was adopted in 2010 (with subsequent guidance adopted within Camden Planning Guidance 7: Transport in 2011) and developed based upon PTAL measurements from 2010.

5.5   PTAL is a measure of the proximity and availability of public transport services to and from development sites, where higher PTAL levels (e.g. 4-6b) reflect good to excellent public transport, and lower levels (1-3) are poorer. PTAL measures combine walking time to public transport networks as well as wait times, with a maximum walk time to bus stops of 8 minutes and 12 minutes to rail/underground services at an agreed speed of 4.8kmph. By calculating PTALs for a grid of points the results can be converted into a map (see Appendix C)

5.6   As the map within Appendix C demonstrates, during 2010 a full range of PTAL levels existed within the borough, with much higher levels in the south and west of the borough. Very few areas however were regarded as having poor/very poor PTAL levels however. Camden's adopted car free policies (CS11, DP18 and DP19) reflect this variation and so car free development is sought within highly accessible areas (i.e. those within the 4-6b range).

5.7   Since 2010, TfL have refined the PTAL tool and are now able to provide a more accurate picture of PTAL levels in Camden. Appendix: D taken from TfLs WebCAT tool shows that in 2011 several areas of Camden actually have better PTAL scores than originally calculated during 2010.

5.8   A number of projects to significantly increase the capacity of Camden's public transport services are planned or currently under construction. This includes Crossrail (the biggest current transport project in Europe due to open in 2018), a significant upgrade of the London Underground network, increasing Thameslink services, and continuing improvements to the London Overground network and other suburban rail services. Several London underground stations will be open 24/7 over the weekend from September 2015 and TfL recently announced a £200 million investment programme for bus priority (2014), which includes a funding stream to support growth areas and Camden is working with TfL to deliver improvements to the bus network as part of this programme. Consequently, the WebCAT tool is also able to show the effect of planned infrastructure improvements to public transport up until 2031 (Appendix: E) where areas of lower PTAL scores (below 3) decrease further still.

Limitations of PTAL

5.9   While the new PTAL methodology is useful in understanding that Camden has better public transport accessibility than understood in 2010, the methodology still has fundamental flaws. PTAL only provides an indicator of distances to the public transport network, not to the actual places that people need to get to. It does not consider destinations, the ease of interchange or the location of services and facilities that people rely on and which are essential for well-being. Nor does an assessment based on PTAL alone consider alternative travel choices, particularly sustainable travel, such as cycling, or the availability of other options such as cycle hire or car clubs.

Cycling

5.10   PTAL does not recognise existing and potential cycle infrastructure. Cycling, however has huge potential in Camden and offers a real alternative to car use. TFL for example estimates that around 40% (1.4 million) of all the journeys in Inner London and 256,000 trips in Central London currently made by car, Tube or bus could be made by bike.

5.11   Between 2006-2014, travel in Camden by bicycle increased by 82% with transport data in the period 2006 to 2012 showing cycle flows increasing from 9% to 16% of the proportion of all traffic. The Council aims to further increase the take-up of cycling by prioritising cycling through transport planning, Local Plan Policy T1 and planned cycling infrastructure improvements such as an extensive programme of cycle parking, including the on-street lockable and secure cycle hangars for residents who cannot easily store a bike inside their premises. In partnership with other London boroughs and TfL, the Council is also helping to deliver the Mayor's Cycle Vision which includes developing a network of Quietways and the Central London Cycle Grid to significantly improve facilities for cyclists.

5.12 The Mayor of London has rolled out a programme of cycle hire; Camden benefits from several stations, mainly focused in the south of the borough at key destinations that people need to get to, including places of work (see Appendix G).

Car clubs

5.13 PTAL does not recognise the existence of Car Clubs. The Council however supports an extensive network of over 250 car club parking bays in the borough, which is the highest in London. As depicted within Appendix H, these are spread widely throughout the borough with a significant proportion of residents no more than 5 minute walk from a car club parking bay.

5.14 Growth in car club provision has stagnated in recent years, mainly because evidence shows that at present there is over-provision of on-street cars relative to the level of membership. Camden's Car club operators are undertaking more marketing and publicity to promote car clubs in order to increase membership, with efforts focusing on the northern part of the borough where car ownership is higher and PTAL levels are lower. Once membership levels have revived and warrant more cars, the Council will investigate opportunities to expand the programme.

Measures of connectivity

5.15 Officers consider that assessing planning applications based on PTAL is extremely limited and does not fully account for the high level of connectivity in the borough. TfL is also moving away from an assessment tool based solely on PTAL and has developed more thorough alternatives such as ATOS and TIM mapping analysis tools.

Accessibility to Opportunities and Services (ATOS)

5.16 A key objective of the MTS is to improve access to opportunities and services. In response, TfL developed a London specific measure of Access to Opportunities and Services (ATOS) which is based on a core list of indicators developed by the Dept for Transport (DfT) to improve access to services which will have the greatest impact on life.

5.17 Access to Opportunities and Services (ATOS) is a broader connectivity indicator which measures access to essential services and employment by public transport and/or walking (although other modes can be assessed), specifically the level of access to employment, education, health services, quality food shopping and open spaces. Details can be found within Figure 9.

Figure 9: Destinations included in the ATOS measurement - Assessing Transport Connectivity in London: TfL (2015)

Services or opportunities	Assumed mode of transport	Selection criteria	Data source
Employment	Public transport or walking	The nearest 10,000 low-qualified (blue collar) and high-qualified (white collar) jobs	Employment data from the Greater London Authority (GLA)
Education	Public transport or walking	The nearest three primary schools, secondary schools and further education (FE) colleges	The EduBase register, which includes primary schools, secondary schools and FE colleges
Health	Public transport or walking	The nearest three GP surgeries	NHS Direct data
Food shopping	Public transport or walking	The nearest town centre or large supermarket	Supermarkets of more than 15,000 square feet were included
Open spaces	Walking	The nearest publicly accessible open space	The GIGL dataset (Greenspace Information for Greater London)

5.18   ATOS defines those services and opportunities, that are of the most important and essential for the day-to-day well-being of residents. It therefore establishes those types of journeys which, because they are essential, should be facilitated and supported.

Factors affecting Camden's ATOS ratings:
<u>Public Transport</u>
5.19   Camden is a central London borough that can boast some of the best public transport connectivity within the UK. The public transport network includes 89 bus routes, many of which are high frequency (one every 3-4 minutes) as well as 24 hour and night time services. There are also 23 underground stations, some of which are due to open 24 hours a day at weekends. Eight overground and main line stations, including St Pancras International station, also serve the borough.

<u>Education and Health</u>
5.20   Camden has a wide range of education facilities including nearly 100 state funded and independent primary and secondary schools and 15 further education colleges and universities. There are also a wide range of health facilities serving the borough, including four major hospitals, 36 GP practices and over 150 other facilities, such as dentists, optometrists, and pharmacists

<u>Employment</u>
5.21   Camden is also a key centre of employment, and the third most significant in London, after Westminster and the City of London, with over 24,000 businesses offering significant job opportunities. Several locations in the borough are designated as growth areas, where job opportunities will increase in the future.

The southern part of the borough accommodates the majority of this employment, with 60 per cent of jobs located south of Euston Road, and a further 19 per cent in the Somers Town and Regent's Park areas. Leisure, entertainment and tourism are also important to the borough's economy, particular in central London and Camden Town.
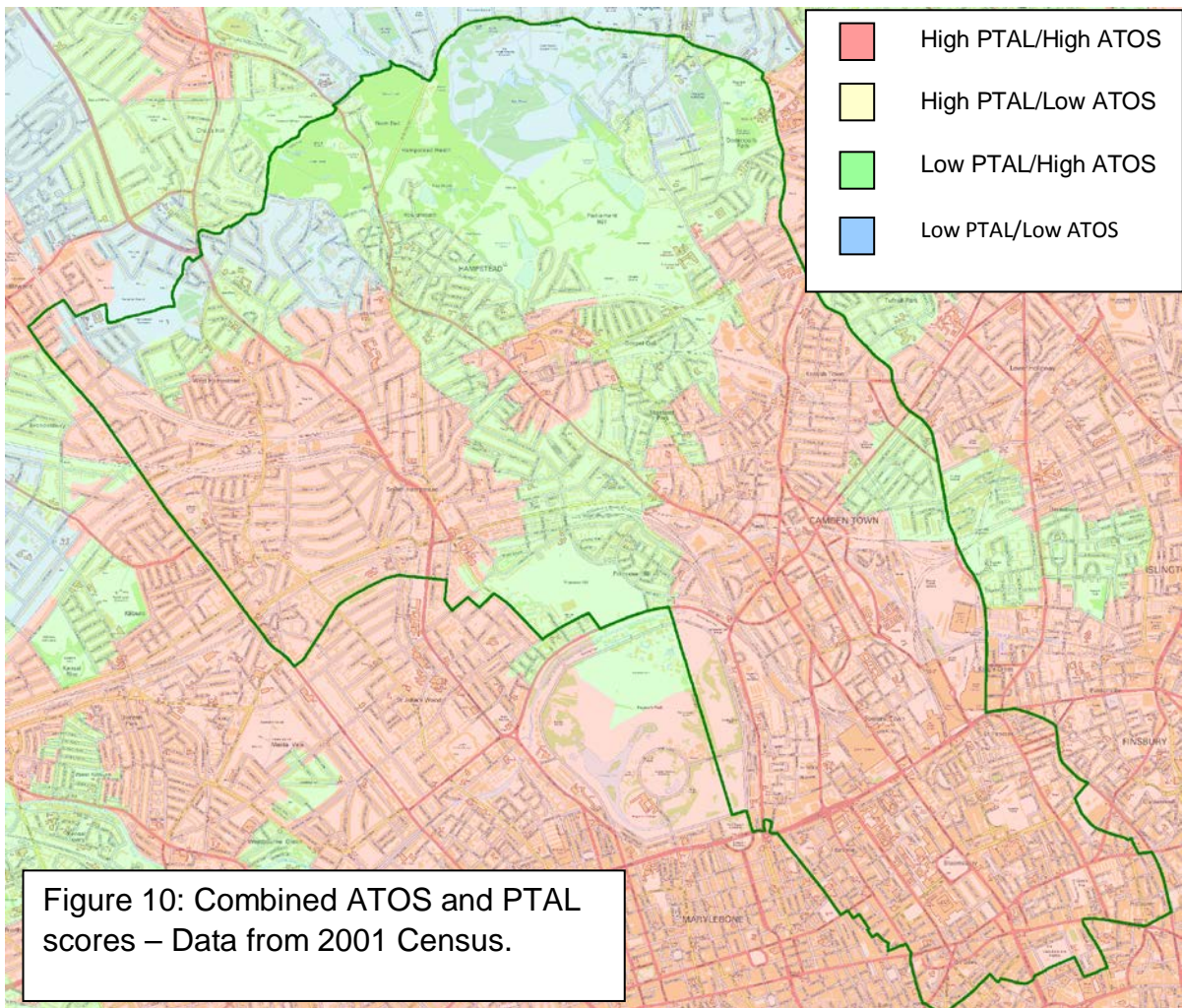
Food shopping

5.22   Camden has six key town centres (see Appendix: I) that provide important employment, education, shopping and visitor destinations, as well as essential local services for Camden people. 36 neighbourhood areas supplement the town centres with many small but specialised attractions, pubs, clubs and restaurants, and retail stores and services.

Open space

5.23   Camden has a relatively high quantity of public park provision for a London Borough, with some 1.8 ha of public parks per 1,000 / population. In addition to large green areas that include Regent's Park, Primrose Hill and Hampstead Heath, the borough has 293 smaller parks and open spaces that provide opportunities for recreation, leisure, sport as well as nature conservation (see Appendix: J).

Combined PTAL and ATOS measures for Camden:

5.24   As depicted within Figure 10, there are very few areas where there is a combined low PTAL and low ATOS score (blue areas). It should also be noted that large parts of the blue areas cover Hampstead Heath which is largely unpopulated.

5.25   The measurements suggest that although some parts of the borough may not have high PTAL ratings (green), these areas are still well provided by essential local services within a relatively short distance on foot or by public transport.

Figure 10: Combined ATOS and PTAL scores – Data from 2001 Census.

The legend shows:
- High PTAL/High ATOS
- High PTAL/Low ATOS
- Low PTAL/High ATOS
- Low PTAL/Low ATOS

Time mapping

5.26   TfL's WebCAT also provides a useful tool (known as TIM) which is able to plot the time taken from a specific point to reach different areas within London by public transport (all forms). Using this tool, we are able to further demonstrate Camden's high levels of connectivity. Even within Camden's few areas of low PTAL value, most areas of London are still accessible within a reasonable time frame.

5.27   An example is depicted below in Appendix K where a point has been positioned on Lime Avenue - in the middle of Hampstead Heath. Lime Avenue has been given a PTAL rating of 0. Even from this point the tool shows that using public transport, an individual is able to travel as far as Brixton, Stratford and even Richmond within 1 hour.

5.28   Town Centres contain concentrations of essential services and employment opportunities. A key element in the assessment of Camden's connectivity is the proximity to these areas. TfL have used the WebCAT tool to assess the average time from within Camden it takes to reach a town centre and the number of town centres that are accessible within 45 minutes. As seen within Figure 11, on

average 16 town centres would be accessible within just 17 minutes from Camden, rising to 20 town centres within just over 16 minutes in 2031 (resulting from planned infrastructure improvements). This represents some of the best connectivity in London.

Figure 11: Change in connectivity to metropolitan and major town centres in London 2011 to 2031 Travel in London report no. 8: TfL (2015)

Borough	Average no, of centres accessible within 45 minutes 2011	Average no, of centres accessible within 45 minutes 2031	Difference	Average time to the nearest centre 2011	Average time to the nearest centre 2031	% change
Barking & Dagenham	4	4	0	25.2	24.9	-1.3
Barnet	3	4	1	28.8	27.4	-4.9
Bexley	3	3	0	26.0	25.8	-1.0
Brent	6	8	1	22.4	22.2	-1.0
Bromley	3	3	0	25.8	25.7	-0.4
Camden	16	20	4	16.6	16.2	-2.6
City of London	25	30	5	21.1	20.1	-5.0
City of Westminster	22	27	5	19.0	18.0	-5.1
Croydon	3	3	0	25.9	25.8	-0.6
Ealing	7	8	1	23.6	23.4	-0.9
Enfield	2	3	1	27.1	26.8	-1.2
Greenwich	6	6	1	18.5	18.3	-1.1
Hackney	9	12	2	17.4	17.3	-1.0
Hammersmith & Fulham	13	15	2	15.1	15.0	-0.8
Haringey	6	7	2	19.8	19.4	-1.6
Harrow	3	4	1	24.3	23.8	-2.2
Havering	2	3	0	28.9	28.7	-0.8
Hillingdon	2	2	1	32.8	31.5	-3.8
Hounslow	5	6	1	22.0	21.8	-0.7
Islington	13	18	5	13.2	13.0	-1.0
Kensington and Chelsea	16	19	3	13.0	12.9	-0.8
Kingston	3	4	0	24.7	24.6	-0.4
Lambeth	14	16	3	18.5	18.2	-1.5
Lewisham	6	7	1	19.2	19.1	-0.6
Merton	8	9	1	20.4	20.1	-1.3
Newham	7	8	1	18.6	18.2	-2.5
Redbridge	4	5	1	25.9	25.1	-3.1
Richmond-upon-Thames	6	6	0	21.5	21.4	-0.5
Southwark	12	15	3	20.2	19.9	-1.6
Sutton	2	3	0	24.4	24.2	-0.8
Tower Hamlets	12	15	3	19.0	18.4	-3.0
Waltham Forest	5	6	1	23.3	23.2	-0.7
Wandsworth	13	15	2	16.3	16.1	-1.4

Congestion and Parking stress in lower PTAL areas.

5.29 As demonstrated within Appendices C, D and E Camden contains areas of lower PTAL values (below 4), largely in the north of the borough. These include areas within the wards of Hampstead Town, Belsize and Highgate.

5.30 Officers are however aware of significant problems regarding congestion and parking stress within these areas that are affecting the amenity of residents. Camden is completely covered by Controlled Parking Zones (CPZs) so travelling to and parking in a CPZ other than one for which the driver has a permit for is severely constrained. Many parts of Camden, demand from permit holders for local parking far outstrips supply.

5.31 A useful summary of the difficulties resident's currently face can be found within section 3.3 of the draft Highgate Neighbourhood Plan which also seeks to restrict parking and states:

"Traffic and parking issues ranked highest among respondents to the survey carried out by the Highgate Neighbourhood Forum during the early stages of community engagement. Clogged streets, with the attendant problems of noise and pollution, and the difficulty parking are issues that the community wants addressed".

5.32 Officers are also aware of significant concerns among residents of Hampstead and Belsize Park regarding high levels of congestion, particularly during the school run. These areas contain popular schools with wide catchments resulting in high volumes of traffic entering the area from outside the borough.

5.33 We received a number of representations to this effect during consultation on the draft Local Plan. In response, reference has been made within Policy C1 Community Facilities (para 4.32) that the Council will refuse applications for new schools or school expansion unless it can be demonstrated that the development will not cause further traffic movements.

5.34 The Council considers that, although these areas may have lower PTAL ratings, additional parking is likely to cause further congestion and parking stress, therefore exacerbating these existing problems. As discussed above however, Camden has high levels of connectivity demonstrated by using alternative means of assessment to PTAL. The Local Plan provides an opportunity to review our existing parking planning policies to assist in alleviating these problems.

Car use and ownership

6.1 Para 39 of the NPPF requires that when setting local parking standards for residential and non-residential development, local planning authorities should take into account local car ownership levels.

6.2 Data from TfL (Figure 12) for the whole of London shows that car use has decreased in the capital; this has occurred against a backdrop of a 12% increase in population between the two census years (2001 and 2011), as well as a significant increase in the total number of trips being made.

Figure 12: Aggregate travel volumes in greater London. Estimated daily average number of trips by mode of transport: TFL Travel in London report no.8 (2015)

Year	Rail	Under-ground /DLR	Bus (including tram)	Taxi/ PHV	Car driver	Car passenger	Motor cycle	Cycle	Walk	All modes
						Millions of trips				
1994	1.3	1.5	2.1	0.3	6.7	3.6	0.2	0.3	5.2	21.1
1995	1.3	1.6	2.2	0.3	6.6	3.6	0.2	0.3	5.2	21.2
1996	1.4	1.5	2.3	0.3	6.7	3.6	0.2	0.3	5.3	21.5
1997	1.5	1.6	2.3	0.3	6.7	3.6	0.2	0.3	5.3	21.8
1998	1.5	1.7	2.3	0.3	6.7	3.6	0.2	0.3	5.3	21.9
1999	1.6	1.8	2.3	0.3	6.9	3.6	0.2	0.3	5.4	22.4
2000	1.7	2.0	2.4	0.3	6.8	3.6	0.2	0.3	5.5	22.7
2001	1.7	1.9	2.6	0.3	6.8	3.6	0.2	0.3	5.5	22.9
2002	1.7	1.9	2.8	0.3	6.8	3.5	0.2	0.3	5.6	23.2
2003	1.8	1.9	3.2	0.3	6.7	3.5	0.2	0.3	5.6	23.4
2004	1.8	2.0	3.3	0.3	6.6	3.4	0.2	0.3	5.6	23.6
2005	1.8	1.9	3.2	0.3	6.5	3.4	0.2	0.4	5.7	23.4
2006	1.9	2.0	3.1	0.3	6.4	3.5	0.2	0.4	5.7	23.6
2007	2.1	2.0	3.6	0.4	6.3	3.5	0.2	0.4	5.8	24.3
2008	2.2	2.1	3.8	0.3	6.1	3.5	0.2	0.5	5.9	24.6
2009	2.1	2.2	3.9	0.3	6.2	3.5	0.2	0.5	6.0	24.8
2010	2.3	2.1	4.0	0.3	6.1	3.6	0.2	0.5	6.1	25.1
2011	2.4	2.2	4.1	0.3	5.9	3.6	0.2	0.5	6.2	25.3
2012	2.6	2.4	4.1	0.3	5.9	3.6	0.2	0.5	6.3	25.8
2013	2.7	2.5	4.1	0.3	5.8	3.6	0.2	0.5	6.3	26.1
2014	2.8	2.6	4.1	0.3	5.9	3.7	0.2	0.6	6.4	26.6
Percentage change 2013 to 2014	5.6	4.0	0.4	-0.9	1.2	1.2	4.1	11.3	1.5	2.0
2000 to 2014	69.9	30.8	71.6	14.4	-13.3	2.4	-10.9	103.7	18.0	17.5

Source: TfL Planning, Strategic Analysis.
1. Trips are complete one-way movements from one place to another.
2. Trips may include use of several modes of transport and hence be made up of more than one journey stage.
3. In tables 2.2 and 2.4 trips are classified by the mode that is typically used for the longest distance within the trip.
4. Round trips are counted as two trips, an outward and an inward leg.
5. Values for 'rail' include London Overground.

6.3 As Figures 13 and 14 below demonstrate, the use of car and other motorised vehicles in Camden is also falling. In the 10 year period 2004-2014 traffic flow in Camden reduced 22%, outperforming all London Boroughs in this regard.

Figure 13: Motor vehicle traffic (vehicle kilometres) by local authority in Great Britain, annual from 1993, annual from 1993 to 2014. Department for Transport (2014)
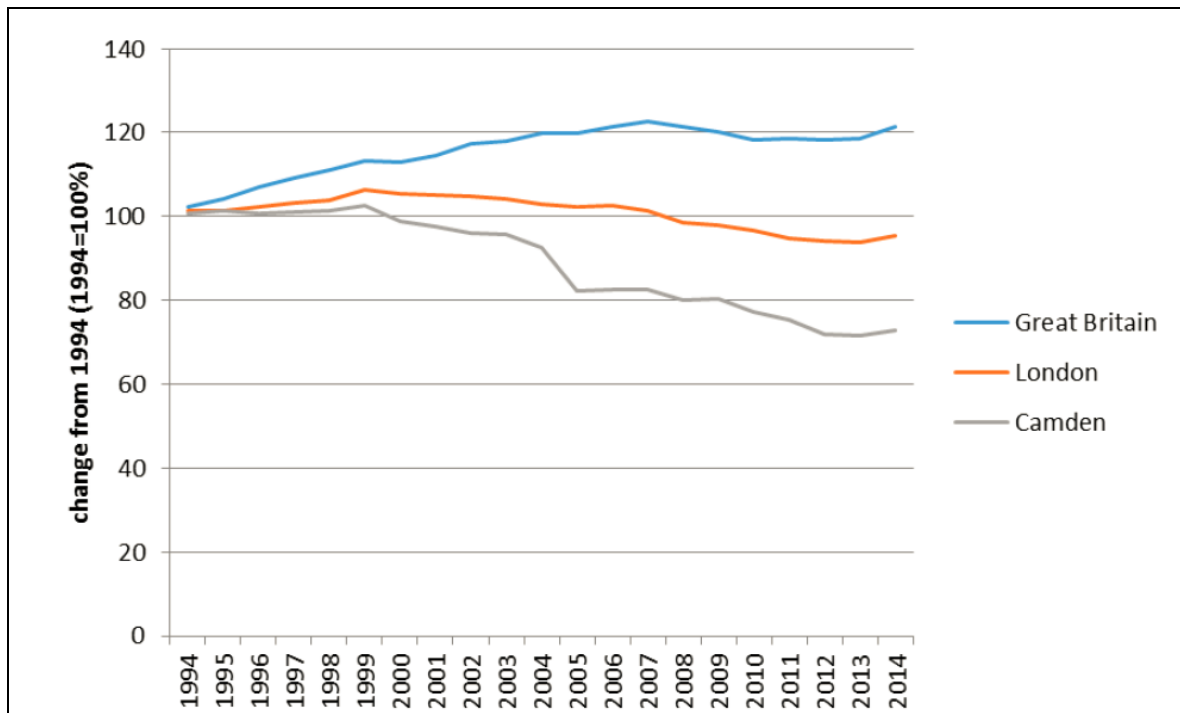

Figure 14: Camden traffic screen line 2006-2014

	2006	2007	2008	2009	2010	2011	2012	2013	2014
Cycle	35,792	31,161	43,010	37,035	59,815	59,002	62,399	59,197	55,851
Motorcycle	32,804	28,161	29,441	26,655	28,552	27,059	25,964	25,043	23,972
Car	225,730	211,628	203,906	203,226	199,533	200,635	197,419	191,174	197,760
Taxi	65,488	57,059	55,088	60,381	56,692	52,309	52,839	51,496	48,214
LGV	71,617	66,174	69,616	67,690	74,461	71,586	64,339	61,934	67,345
OGV1	18,672	18,782	16,547	15,757	12,877	10,698	17,650	17,820	12,400
OGV2	4,139	3,943	3,440	2,539	1,698	2,164	2,875	2,271	2,153
Bus/coach	16,942	16,429	17,448	17,101	17,805	17,019	16,982	17,735	16,536
TOTAL	471,184	433,337	438,496	430,383	451,431	440,471	440,467	426,670	424,231
Total motorised	435,392	402,176	395,486	393,348	391,616	381,469	378,068	367,473	368,380

6.4   The number of households within the borough without access to a car increased by 17% between the two census years (2001 and 2011) and the majority of households in Camden (66%) now do not have access to a car. At the same time, between the two census years, the number of households in the borough increased by approximately 6%.

6.5   This trend is also depicted at local level within Figure 15 below showing that growth in population has not correlated with an increase in car ownership. Of particular note, wards associated with lower PTAL ratings (below 4) such as

Hampstead, Belsize and Highgate have also experienced a drop in car ownership.

Figure 15: Change in vehicle ownership by ward 2001-2011: Camden parking report (2014)

	House-holds 2001	All cars or vans 2001	House-holds 2011	All cars and vans in 2011	% change in house-holds	% change in total cars or vans	% change in cars or vans per house-hold
Belsize	6,151	3,689	6,131	3,532	-0.3	-4.3	-3.9
Bloomsbury	3,977	1,165	4,819	1,134	21.2	-2.7	-19.7
Camden Town with Primrose Hill	5,371	3,119	5,905	3,004	9.9	-3.7	-12.4
Cantelowes	4,718	2,504	5,094	2,226	8.0	-11.1	-17.7
Fortune Green	4,768	3,267	5,324	3,015	11.7	-7.7	-17.4
Frognal and Fitzjohns	5,303	4,338	4,940	4,081	-6.8	-5.9	1.0
Gospel Oak	4,815	2,630	4,912	2,370	2.0	-9.9	-11.7
Hampstead Town	4,988	3,964	5,200	3,856	4.3	-2.7	-6.7
Haverstock	5,052	2,442	5,254	2,232	4.0	-8.6	-12.1
Highgate	4,844	3,494	4,788	3,316	-1.2	-5.1	-4.0
Holborn and Covent Garden	5,259	1,849	6,114	1,836	16.3	-0.7	-14.6
Kentish Town	5,204	2,752	5,793	2,535	11.3	-7.9	-17.3
Kilburn	5,223	2,375	5,758	2,105	10.2	-11.4	-19.6
King's Cross	4,394	1,385	4,594	1,072	4.6	-22.6	-26.0
Regent's Park	5,292	2,333	5,602	2,046	5.9	-12.3	-17.2
St Pancras and Somers Town	5,313	1,984	5,588	1,768	5.2	-10.9	-15.3
Swiss Cottage	5,843	3,847	5,860	3,662	0.3	-4.8	-5.1
West Hampstead	5,088	2,824	5,858	2,811	15.1	-0.5	-13.5
All	91,603	49,961	97,534	46,601	6.5	-6.7	-12.4

6.6   As seen within Figure 16, the majority of trips undertaken by Camden's residents (40%) are on foot, with public transport second at 39%. Cars are used for only 15% of trips, with some of these journeys being undertaken by motor cycle:

Figure 16: Travel in London Report No. 7 (TfL).

Table 1	Londoners' trips by borough of origin, trips per day and shares by main mode, average day (7-day week) 2011/12 to 2013/14.							
		Percentage of trips by main mode						
London borough	Trips per day (000s)	Rail	Under-ground /DLR	Bus/ tram	Taxi/ Other	Car/ motor -cycle	Cycle	Walk	All modes
Camden	804	7%	17%	15%	2%	15%	4%	40%	100%

6.7   As demonstrated, growth in the borough (and London generally), has not been accompanied by a corresponding increase in car use or ownership. Indeed car ownership and use – both in actual numbers/volume, and as a % of trips - has actually decreased as population has increased. Private car use is also not the mode of choice for a significant majority of trips within the borough as 80% of trips are taken by public transport and walking together. Meanwhile alternatives particularly bus and cycle trips have risen significantly in the same period.

6.8   Some of this may be partly explained by increased investment and provision in these modes, particularly buses where day, weekend and night time services have expanded significantly, together with bus priority lanes which have improved reliability and journey times. The number of bus kilometres operated between 2000 and 2013/14 increased by 41%. Other innovations such as Oyster card, information and improvements to bus stop accessibility have also played a role.

6.9   However, the reduction of car ownership and use is also due to constraints associated with driving and the significant parking pressures within the borough. There is also the impact of congestion and subsequent delays, in part due to growth, but also the removal of carriageway capacity and reallocation of space to alternatives such as bus priority and cycle lanes. The congestion charge is also an effective financial deterrent to people coming into the centre of London, which covers the southern part of the borough, and more recent initiatives such as the Low Emission Zone (LEZ) and the proposed Ultra Low Emission Zone (ULEZ) for 2020. Overall therefore, sustainable transport choices such as public transport, walking and cycling are becoming more appealing.

Viability

7.1 Para 39 of the NPPF requires that when setting local parking standards for residential and non-residential development, local planning authorities should take into account the type, mix and use of development. The Council has therefore commissioned a Financial Viability Study as part of the evidence to support the Local Plan. This tests the ability of a range of development types throughout the Borough to viably meet planning policy requirements of the Local Plan. The study tests the cumulative impact of the emerging draft policies in line with the requirements of the National Planning Policy Framework ('NPPF') and the Local Housing Delivery Group guidance '*Viability Testing Local Plans: Advice for planning practitioners*' (June 2012).

7.2 The study took a broad view of the likely impact of schemes being required to be car free as proposed by Policy T2 and identified that the policy could impact on the Gross Development Value (GDV) generated by residential developments by:

- between 0.48% to 3.92% of GDV with an average of 1.89% in areas of PTAL rating of 4 and above with potential for on-site car parking through compelling justification
- between 0.95% to 5.97% with an average of 2.97% in areas of PTAL rating of 3 and below.

7.3 Car parking commands high values in Camden, with each space potentially worth up to £50,000 in lower PTAL areas. The study acknowledges that the impact on scheme viability would vary from site to site, however overall, it concluded that Policy T2 would have only a minor impact on the viability of development across the borough. A difference of less than 5% of scheme GDV is considered unlikely to be the determining factor in a developer's decision making of the delivery of a site.

7.4 The study also notes however that where car parking is not required to be provided as part of a scheme, this would allow for more space to deliver larger residential units and more communal and/or amenity space, which would increase the likely revenues that could be generated. There would also be cost savings associated with not delivering car parking, which in the case of basements in particular could be very significant.

7.5 The study also made recommendations that flexibility should be included within the policy to allow for the reprovision of car parking where there has previously been parking on site. Policy T2 therefore continues with a similar approach from our adopted policies where reprovision will be considered if the existing occupants are expected to move back into a redeveloped scheme.

Review of wider evidence

8.1   Since the adoption of the Council's planning policies in 2010, further research has become available which illustrates the benefits that come from reducing the dominance of motor vehicles. A summary of some key studies can be found within Appendix L. In particular, the evidence highlights the economic, social and environmental benefits that could result from:

• Reducing parking in town centres,
• Reducing capacity for motor vehicles (even including buses)
• Transforming and investing in public realm
• Car-free communities
• Pedestrianizing streets
• Encouraging more walking and cycling

8.2   Of particular note is JMB's report discussing the benefits that have been derived from the Council's public realm improvements to Great Queen Street which provides a good case study of the benefits of traffic free environments.

8.3   Before the improvements the junction was dominated by vehicles, wide roads, a traffic signal-controlled gyratory and clutter including guard railings, signals and lamp posts – all severely restricting pedestrian movement. The evidence compiled after completion suggested that in addition to improving the quality of the area for pedestrians and cyclists, the project provided the estimated total uplift in the value of residential properties within 50m of the improvement to the public realm was between £4m and £25.9m, and the estimated total retail uplift was £2.2million.

8.4   The encouraging results of study were used to inform the vision behind the Council's West End Project which aims to transform the Tottenham Court Road Area. The project includes the addition of a number of new public spaces and cycle routes.

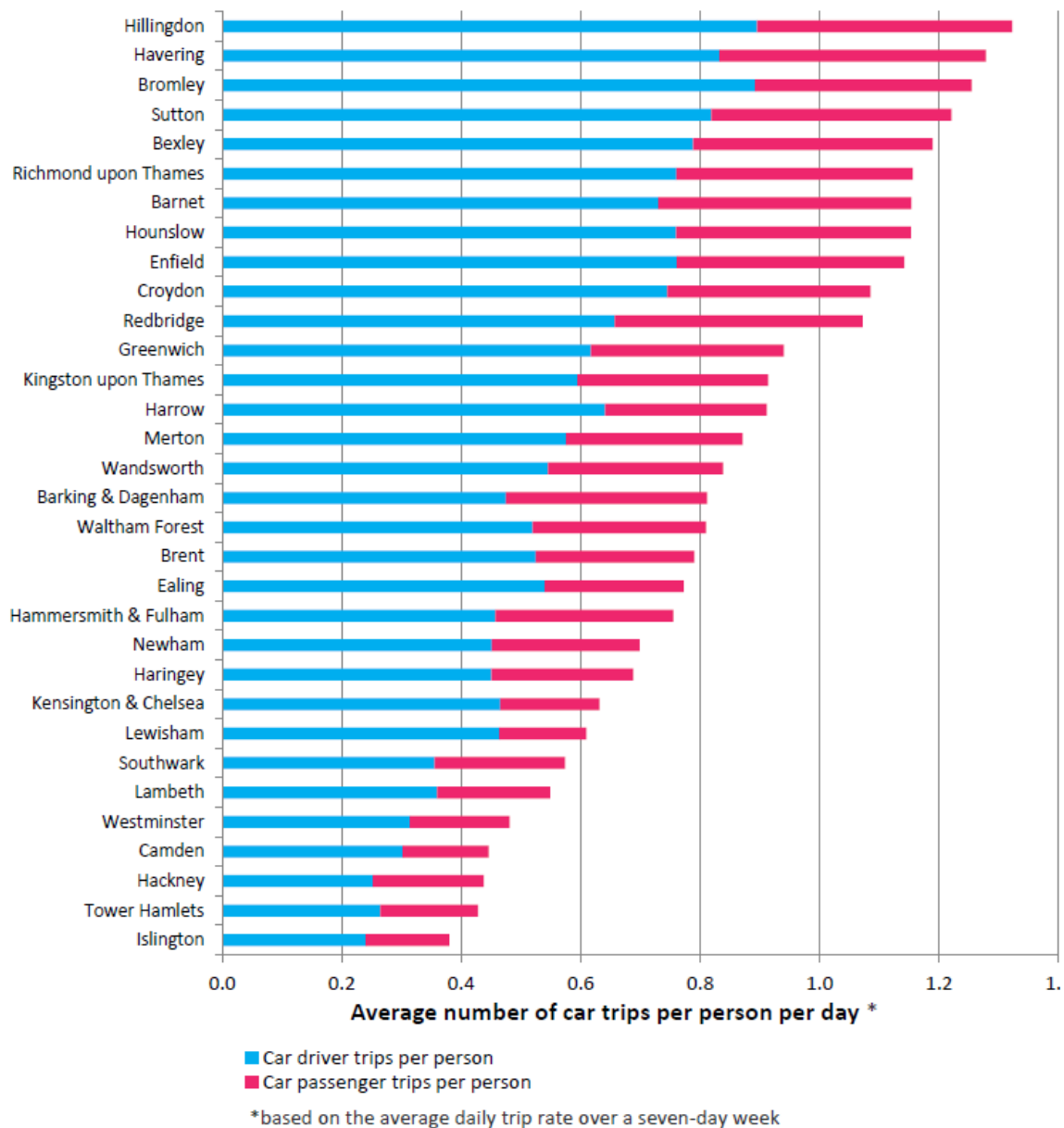*Alfred Place, West End Project: Existing and proposed images*

Conclusions

9.1   Due to Camden's unique situation and problems that need to be addressed, the Council considers that policy *T2 Car-free development and limiting the availability of parking* will deliver sustainable development and complies with relevant NPPF and London Plan policies.

9.2   As discussed within this document, car-free development can assist with providing solutions to the borough's urgent air quality and public health issues and create opportunities to build pedestrian and cycle friendly environments and enjoy the benefits these could bring. The evidence also outlines that Camden has some of the best connectivity in the UK to both public transport and essential services. Evidence shows that Car free development is viable and enables land previously allocated for parking to be used more efficiently.

Appendix

Appendix A:
Car use by borough 2013/14.
Health Impacts of Cars in London: Greater London Authority (2015)

Car use by borough 2013/14 — Average number of car trips per person per day *

Boroughs (top to bottom): Hillingdon, Havering, Bromley, Sutton, Bexley, Richmond upon Thames, Barnet, Hounslow, Enfield, Croydon, Redbridge, Greenwich, Kingston upon Thames, Harrow, Merton, Wandsworth, Barking & Dagenham, Waltham Forest, Brent, Ealing, Hammersmith & Fulham, Newham, Haringey, Kensington & Chelsea, Lewisham, Southwark, Lambeth, Westminster, Camden, Hackney, Tower Hamlets, Islington

Legend:
- Car driver trips per person
- Car passenger trips per person

*based on the average daily trip rate over a seven-day week

[24] TfL London Travel Demand Survey 2013/14
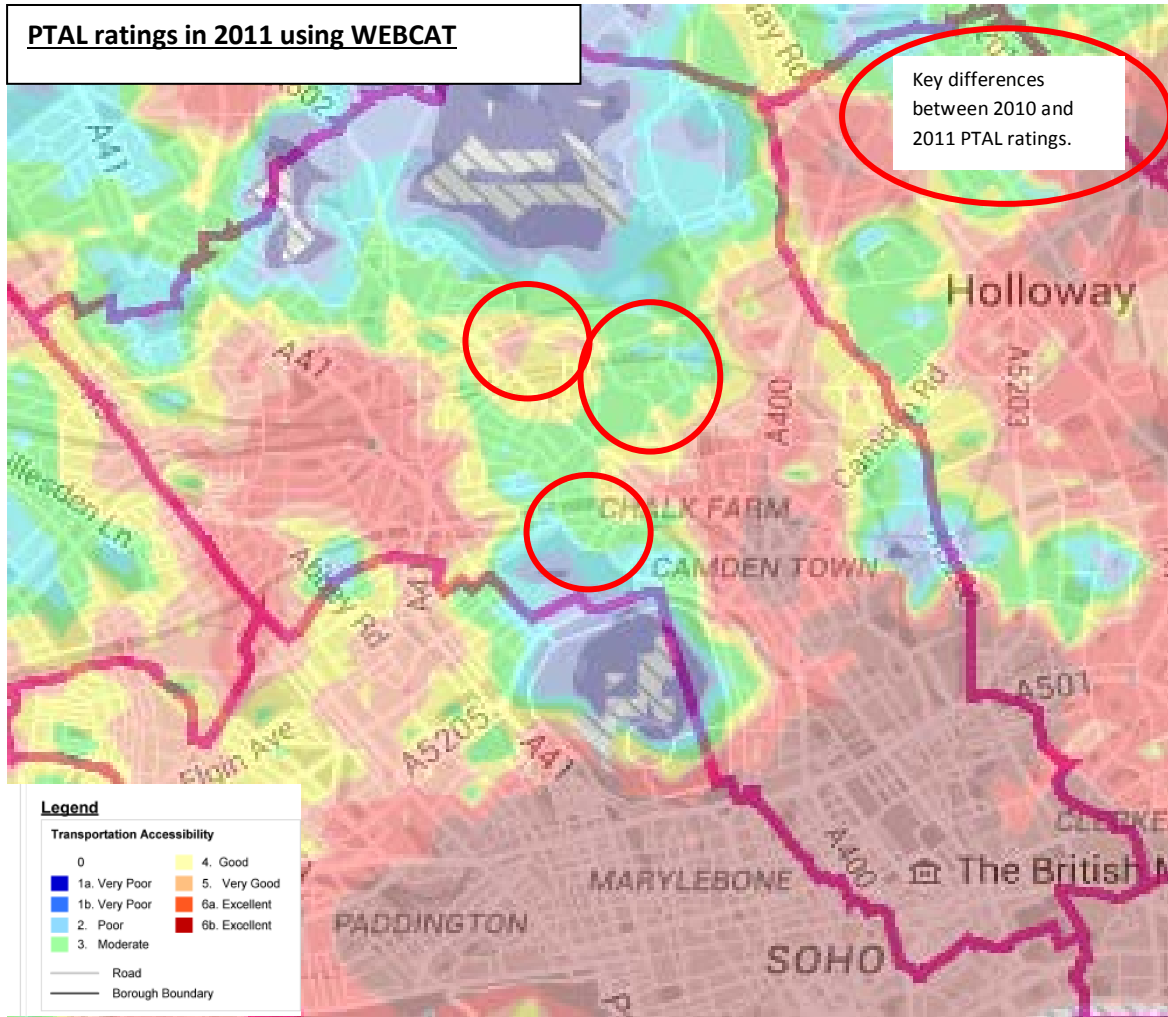[25] TfL London Travel Demand Survey 2013/14

Appendix B:
Fraction of adult deaths resulting from PM2.5 - Indicator 3.01 (Public Health Observatory 2012).

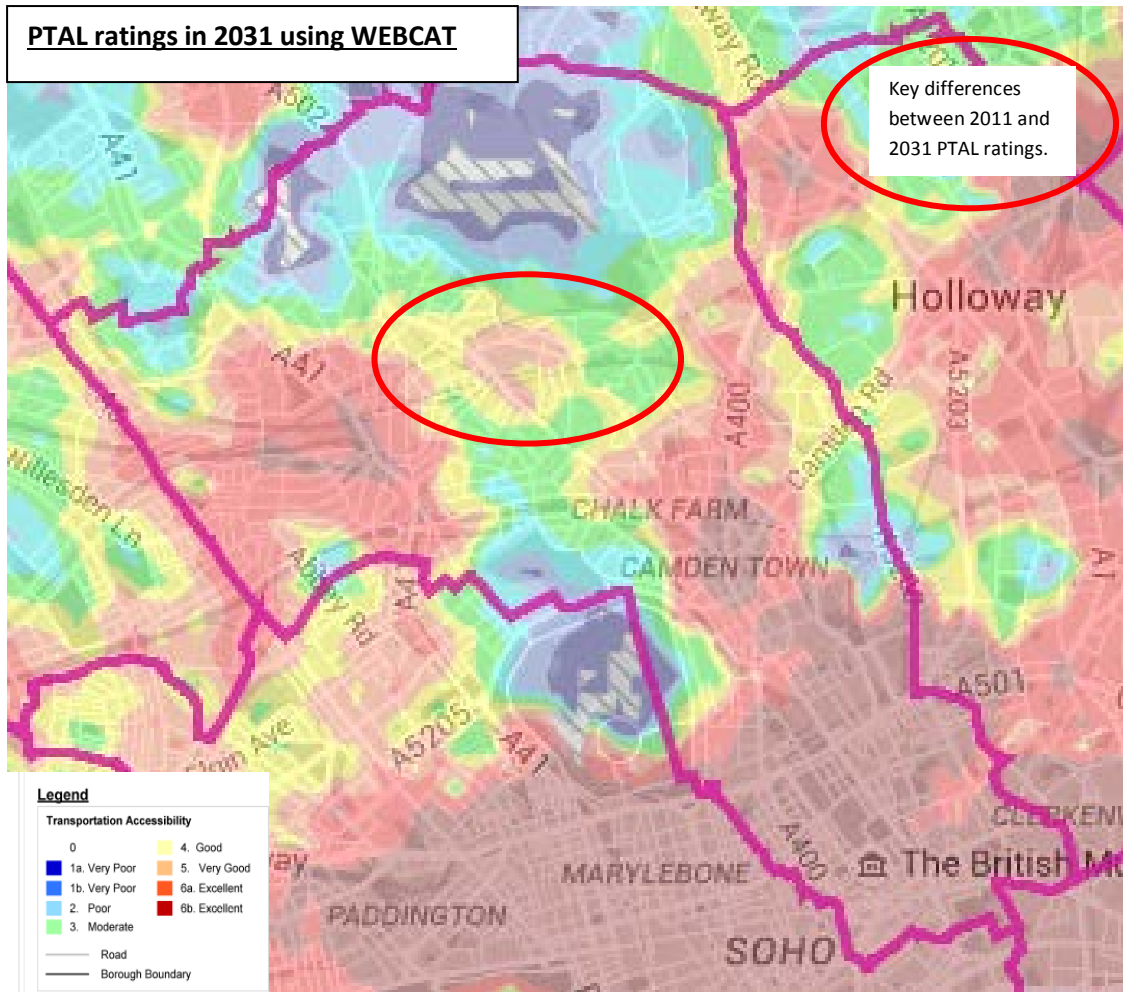| Indicator	Period		England	London region	Barking and Dagenham	Barnet	Bexley	Brent	Bromley	Camden	City of London	Croydon	Ealing	Enfield	Greenwich	Hackney	Hammersmith and Fulham	Haringey	Harrow	Havering	Hillingdon	Hounslow	Islington	Kensington and Chelsea	Kingston upon Thames	Lambeth	Lewisham	Merton	Newham	Redbridge	Richmond upon Thames	Southwark	Sutton	Tower Hamlets	Waltham Forest	Wandsworth	Westminster
3.01 - Fraction of mortality attributable to particulate air pollution	2013		5.3	6.7	6.6	6.5	6.1	6.9	5.8	7.4	8.4	6.1	7.0	6.4	6.6	7.3	7.3	6.8	6.1	6.0	6.3	6.7	7.5	7.8	6.2	7.1	6.6	6.4	7.0	6.7	6.3	7.2	6.0	7.5	6.9	6.8	7.9

Appendix C:
Public Transport Accessibility Level (PTAL) ratings 2010
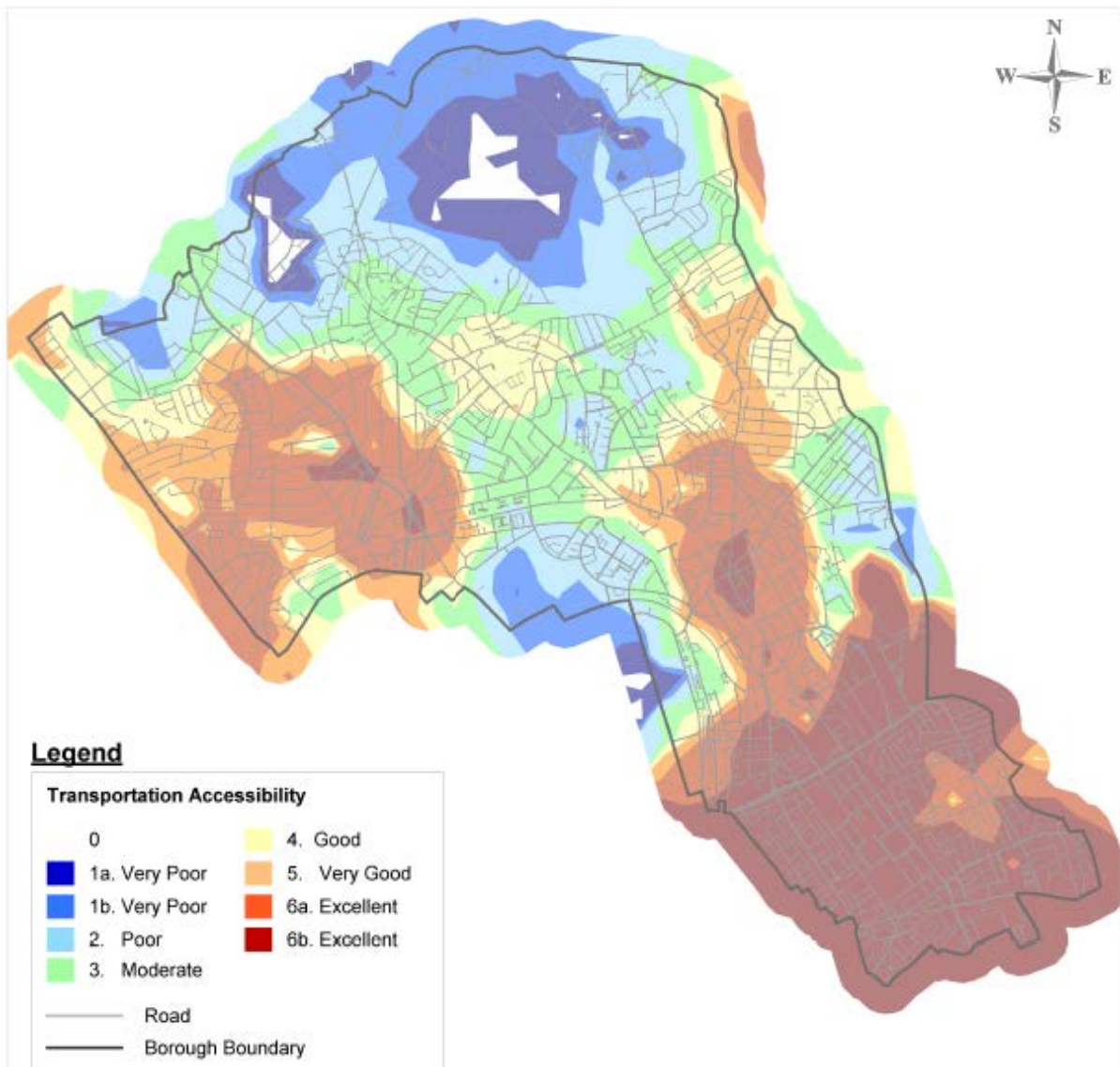
Appendix D:
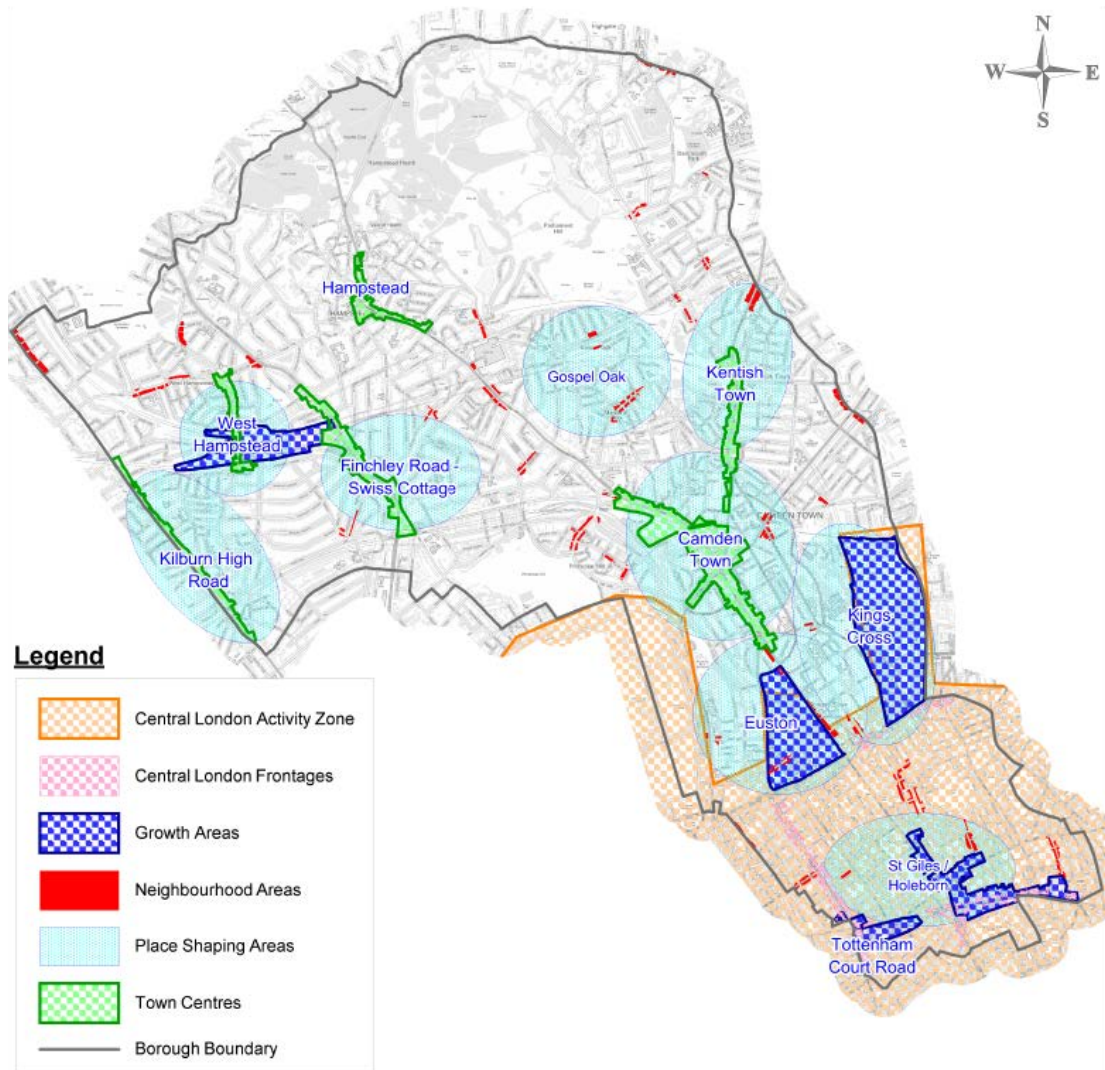**Public Transport Accessibility Level (PTAL) ratings 2011 using WebCAT**

PTAL ratings in 2011 using WEBCAT

Key differences between 2010 and 2011 PTAL ratings.

Legend

Transportation Accessibility

0		4. Good
1a. Very Poor		5. Very Good
1b. Very Poor		6a. Excellent
2. Poor		6b. Excellent
3. Moderate		
Road		
Borough Boundary		

Appendix E:
Public Transport Accessibility Level (PTAL) ratings 2031 using WebCAT

PTAL ratings in 2031 using WEBCAT

Key differences between 2011 and 2031 PTAL ratings.

Legend

Transportation Accessibility

0	4. Good
1a. Very Poor	5. Very Good
1b. Very Poor	6a. Excellent
2. Poor	6b. Excellent
3. Moderate	
— Road	
— Borough Boundary	

Appendix G:
Existing and proposed cycle hire docking stations in Camden.

Proposed docking stations in Camden
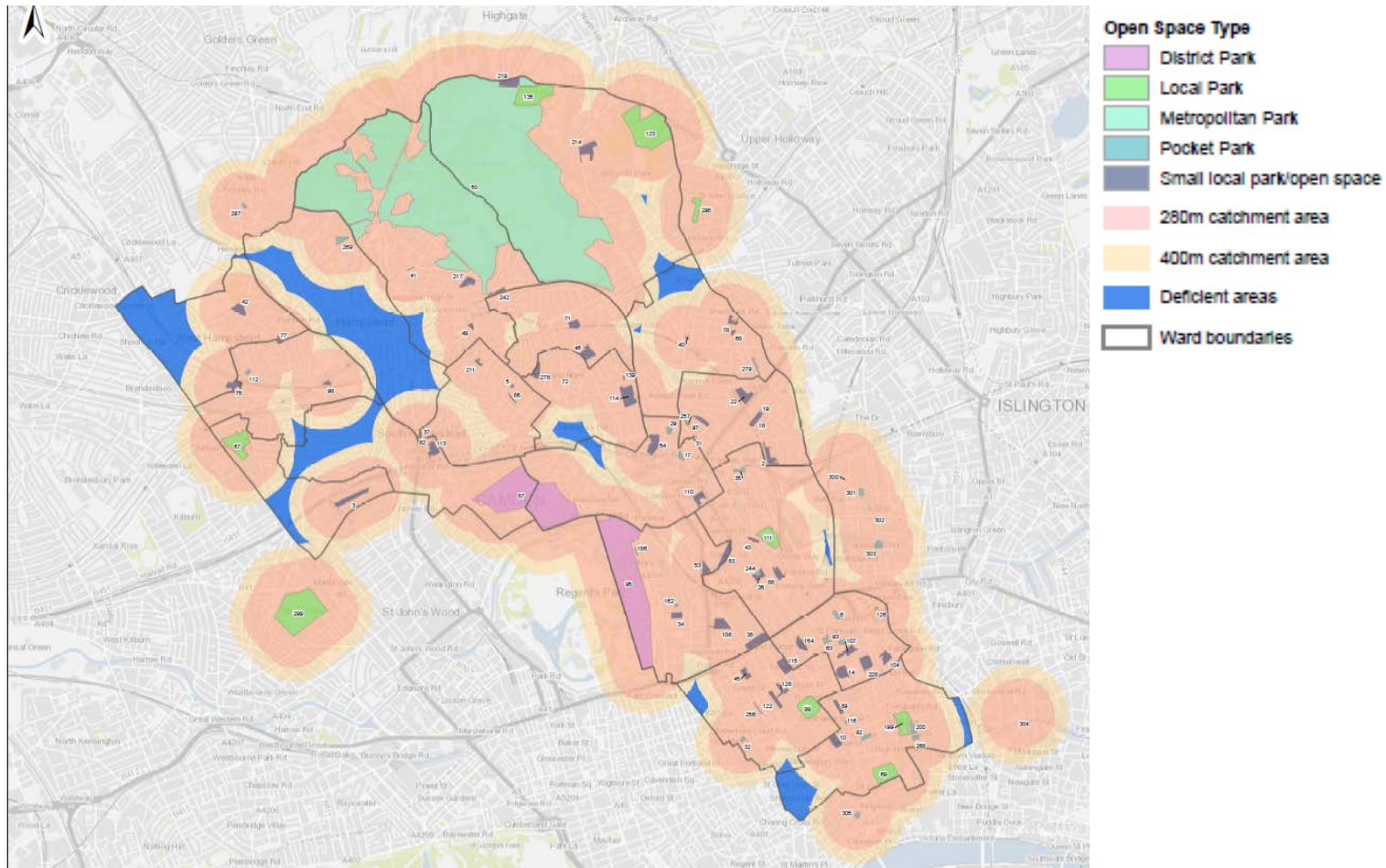
● Existing Stations
● Proposed Camden locations

Appendix H:
Car club parking bays (2014).

Appendix I:
Camden's town centres, growth areas and local neighbourhood centres (2010)

Legend

	Central London Activity Zone
	Central London Frontages
	Growth Areas
	Neighbourhood Areas
	Place Shaping Areas
	Town Centres
	Borough Boundary

Appendix J:
Camden's Open Spaces (Camden Open Space Study 2014)

Appendix K:
Time mapping using WEBCAT

A) Lime Avenue – PTAL rating 0
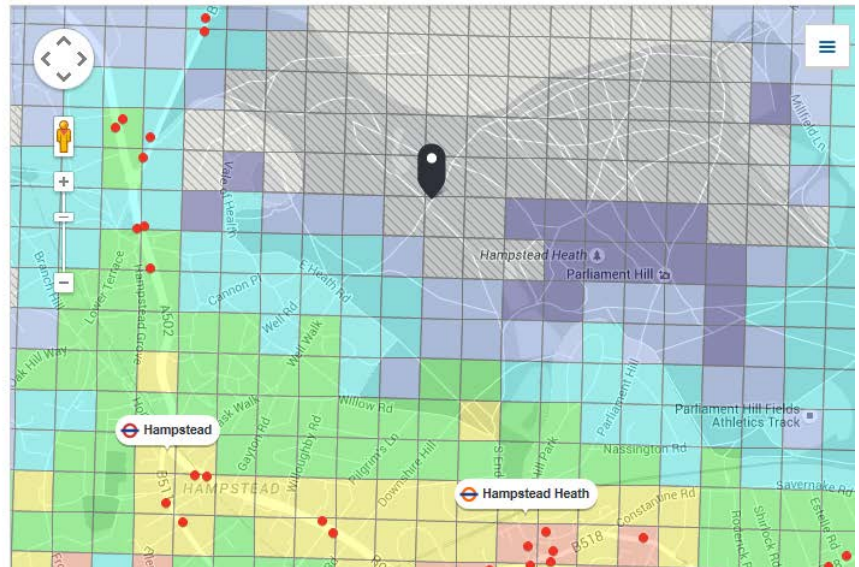
B) Time map from Lime Avenue
Most of London accessible within 60 mins from this location.

Appendix L:
Creating safe, attractive and prosperous places study library.

1. [The Pedestrian Pound: The business case for better streets and place](): Living Streets (2013)

   Brief Outline:

   This report brings together and reviews evidence from various sources to demonstrate how investment for walking can deliver a commercial return for business and a much needed boost for local economies too.

   Key Findings/ Evidence:

   - Research suggests that making places better for walking can boost footfall and trading by up to 40 per cent. For instance, a range of improvements to Coventry city centre, such as new pedestrian areas, a new civic square, clearer signage and better placement of street furniture, were credited with a 25 per cent rise in footfall in the town centre on Saturdays.

   - Pedestrians also spend more. In London town centres in 2011, walkers spent £147 more per month than those travelling by car.

   - 92% of British households are 15 minutes or less (on foot or by public transport) from a local shop.

   - Comparisons of spending by transport mode in Canada and New Zealand revealed that pedestrians spent up to six times more than people arriving by car.

   - Walking and other non-motorised transport projects typically increase retails sales by 30 per cent

2. [Relevance of parking to the success of urban centres](#): The Means (commissioned by London councils) (2012)

Brief outline:

The study involved looking at the evidence from academic and reports from foundations, industry associations and public agencies, such as Transport for London. In addition, a questionnaire was sent out to all London boroughs, requesting data on parking supply, charging and town centre economic indicators, such as footfall (number of visitors), empty retail units, business turnover and the rate of change in businesses in two town centre areas. Finally, data from market research carried out with shoppers at 3 outer London based shopping centres was analysed**.**

Key Findings/ Evidence:

- More parking does not necessarily mean greater commercial success.

- There is no such thing as 'free' parking. The costs of developing and maintaining parking spaces and then enforcing proper use to ensure good traffic flow have to be borne by somebody.

- Shopkeepers consistently overestimate the share of their customers coming by car. In some cases, this is by a factor of as much as 400%. In London, as well as other cities, the share of those accessing urban centres on foot or by public transport is much greater.

- Car drivers spend more on a single trip; walkers and bus users spend more over a week or a month. In 2011, in London town centres, walkers spent £147 more per month than those travelling by car. Compared with 2004, spending by public transport users and walkers has risen; spending by car users and cyclists has decreased.

- A good mix of shops and services and a quality environment are some of the most important factors in attracting visitors to town centres. If both these are poor, then changes to parking or accessibility are very unlikely to make a town centre more attractive.

3. Great Queen Street: Comparative Study: JMP Consultants Ltd (2011)

Brief Outline:

JMP Consultants Ltd (JMP) were commissioned by London Borough of Camden (LBC), on behalf of the Clear Zone Partnership (CZP) to undertake an assessment of the newly completed Great Queen Street public realm scheme. The assessment aims investigated:

- The effect and impact of the removal of traffic lights, and their replacement with a shared space, on traffic flow and queuing in the immediate area.

- The level of improvements delivered to the public realm through the introduction of the shared space.

- The level of economic uplift generated by the scheme on surrounding premises.

  The report assessed the economic benefits of the scheme three months after its implementation. As a result not enough primary data was available to carry out a comparison of economic return within the area before and after the scheme implementation. As a result JMP carried out an estimation of economic uplift (using the method adopted in CABE's 'Paved with Gold' and conducted a street user and business survey to identify elements of the design most valued by users and whether retailers have seen an increase in footfall and/or revenue.

Key Findings/ Evidence (these findings are estimations):

- The report suggested that the improvement works at Great Queen Street will result in a 7.05% increase in residential property values in the immediate area. This would suggest that the average residential property value in 2009 (£543,186) would be £581,480 in 2010, an approximate average increase of £38,294 per property.

- The calculation suggests that per one point increase in Pedestrian Environment Review System (PERS) score, retail rents will increase by 5.85% per m2; slightly more than the increases witnessed through the 'Paved with Gold' study. There are a number of factors which could explain this finding, including the proximity of Covent Garden as a high profile retail destination.

- The average floor space in retail premises along these routes is 322m2, which equates to a rental value increase of **£16,422 per shop.** Considering the approximate total retail floor space along Great Queen Street and Drury Lane, 44000.56m2, this equates to an economic uplift of **£2,244,028**. It should be

noted however, that the value of the scheme might be felt more widely than the relatively small number of retailers within close proximity of the new public space. If so, the value added to retailers could be significantly higher.

4. [Making the Case for Investment in the Walking Environment: A Review of the Evidence](): University of West England (commissioned by Living Streets) (2011)

Brief Outline:

Making the Case brings together and evaluates the multiple health, economic, social and environmental benefits of investment in walking friendly public spaces. It draws on inspiring case studies of schemes which have resulted in safer and more attractive public places in neighbourhoods and city centres in the UK and elsewhere.

Key Findings:

Economic benefits:

- Twelve public realm improvement schemes in London were associated with an above average growth in the sale price of nearby flats of between 0.9% and 28% per annum (average of 7%).

- Public realm improvement schemes that had an emphasis on pedestrian priority were associated with a 12% growth in the sale price of flats, those with an emphasis on de-cluttering or materials and fixtures a growth of 7% and 3% respectively.

- Street users in London were, on average, willing to pay an extra £14.78 to £17.35 per year on their Council Tax, 17 to 18 pence per journey on public transport and £1.90 to £2.02 per week on their rent for improvements to the walking environment

- Retailers felt that the public realm was important and, despite expressing a reluctance to pay for improvements, they were willing to pay a one-off payment of 1.03-4.15% of existing business rates.

- A study in Bristol found that retailers on a local high street overestimated the proportion of shoppers arriving by car by almost double at 41% compared with the actual proportion of 22%. In fact, over half of the shoppers had arrived there by foot, and greater proportions had arrived by bus and cycle than those estimated by retailers. The retailers also underestimated how far pedestrians had travelled to get to the high street; over 60% lived within 1 mile, possibly explaining the greater proportion that walked, and pedestrians generally visited more shops than those arriving by car.

- Improvements to the public realm in Exeter City Centre (see case studies) have resulted in an increase in retail zone A rental prices of £5 per square foot between 2006 and 2008, which have been maintained despite falling

prices in the region. In Exeter, the increase in retail rental prices corresponded with an increase in footfall of almost 20% over the same period.

- All the evidence reviewed of evaluations of walking environments showed positive cost-benefit ratios, of up to 37.6.

  Social benefits:

- A study, carried out in Ireland, found that residents of highly 'walkable', mixed use neighbourhoods exhibited at least 80% greater levels of four indicators of social capital (knowing neighbours, sociability, trust and political participation) than those in less 'walkable' neighbourhoods.

- In Glasgow, those who felt their neighbourhoods were safe to walk in after dark were 70% more likely to walk at least five times per week than those who did not feel their neighbourhoods were safe.

- Another study in Scotland found that those who felt their neighbourhood was not safe to walk in during the evening were 27% less likely to walk for fitness or pleasure more than four times per week, 39% more likely to report not being in good health, 49% more likely to have a long-term illness or disability and 19% more likely to be a frequent GP visitor than those who felt their neighbourhoods were safe.

- A study in Australia found that there was a 40-64% reduction in the likelihood of being fearful in neighbourhoods with high levels of walking friendliness.

- Improvements on Kensington High Street have retained the street's status as a premier shopping destination and traffic collisions have been reduced by more than 40%, with pedestrian casualties reducing by 59%.

- Overall, urban walking friendly environments are associated with between 25 and 100% greater levels of likelihood of walking.

Environmental benefits:

- A review of soft measures to promote active travel modes (e.g. personalised travel planning, active travel to school) found that between 5 and 13 kg of carbon could be saved per person per year taking part in walking initiatives, 17 and 57 kg could be saved through walking to work and active travel to school respectively, and 183 kg through personalised travel plans.

- A review of the UK's 'Sustainable Travel Towns' initiative, which included a comprehensive set of measures to achieve travel behaviour change, including enhancements of the walking environment, estimated that carbon savings of around 50 kg per person per year could be made.

- Unfortunately, the evaluation of changes to the walking environment has generally not included measurements of environmental outcomes such as air quality or noise. One exception is the evaluation of the ten 'Mixed Priority Routes' across the UK which found no consistent patterns for air quality but that noise levels generally decreased after implementation of the schemes.

5. [Cycling and the economy](): National Cycling Charity (2015)

Brief outline:

This report by the National Cycling Charity brings together and evaluates the multiple health, economic, social and environmental benefits of investment in cycling facilities

Key findings:

- If cycle use increases from less than 2% of all journeys (current levels) to 10% by 2025 and 25% by 2050, the cumulative benefits would be worth £248bn between 2015 and 2050 for England - yielding annual benefits in 2050 worth £42bn in today's money.

- In 2009, production losses due to mortality and morbidity associated with CVD (cardio vascular disease) cost the UK over £6bn, with around 21% of this due to death and 13% due to illness in those of working age. Physical activities, like cycling, help combat CVD.

- Occasional, regular and frequent cyclists contributed a 'gross cycling product' of c£3bn to the British economy in 2010. Around 3.6 million cycles ('units') are sold in GB each year.

- The average economic benefit-to-cost ratio of investing in cycling & walking schemes is *13:1.*

- Academics who studied the cost benefit analysis used by Copenhagen to decide whether to build new cycling infrastructure, concluded that cars cost society and private individuals six times more than cycling.

- On average, cycle commuting employees take one less sick day p.a. than non-cyclists and save the UK economy almost £83m.

- Although cyclists may spend less than car-borne shoppers per trip, their total expenditure is on average greater because they tend to visit the shops more often.

- On 9th Avenue (Manhattan), where a high quality cycle lane was rebuilt in late 2008, retail sales increased by up to 49%, compared to 3% borough-wide.

- Together, mountain biking and leisure cycle tourism contribute between £236.2m and £358m p.a. to the Scottish economy, with a cumulative gross value added of £129m.

6. [Good for busine$$](): Heart Foundation (2011)

Brief outline:

This report by the Heart Foundation brings together the evidence from around the world regarding the financial benefits to retailers and residents in making commercial streets more walking and cycling friendly.

Key findings:

- Streetscape enhancements add value to an area and are associated with higher rents and the attraction of new businesses. In addition there is good evidence to show that improving walking and cycling environments raises private property values by significant amounts.

- A high proportion of all retail expenditure comes from local residents and workers.

- Space allocated to bicycle parking can produce much higher levels of retail spend than the same space devoted to car parking.

- Many car-borne shoppers are "drive-through" shoppers, stopping to pick up one item on the way to their eventual destination, rather than people for whom shopping is their main purpose for visiting the area.

- It is difficult to estimate the value of non-drive-in spend for main streets. However, it is always bigger than we think.

- Retail vitality would be best served by traffic restraint, public transport improvements, and a range of measures to improve the walking and cycling environment.

[The benefits of regular walking for health, wellbeing and the environment](): C3 Collaborating for Health (2012)

This report by C3 brings together evidence of the benefits of walking for physical and mental health, as well as the features of the built environment necessary to facilitate and encourage this form of physical activity. Case studies demonstrating best practices in a variety of socio-demographic and geographical settings are used to exemplify the 'real life' positive effects of walking.

Key findings:

- Increasing levels of walking, in place of taking the car or other forms of motorised transport, can have benefits for the health of the environment as well as of individuals. Reduced car use decreases air pollution levels, which can have significant benefits for health, reduces traffic congestion and accidents, and contributes to reduced traffic noise (through lower traffic volume), which is one of the most pervasive forms of noise pollution.

- An average car emits around 287g of carbon dioxide per mile. This is greater for short journeys, as cars use more fuel when the engine is cold: a journey of 1 mile emits around 574g of carbon dioxide.

- Motorised transport is a major emitter of pollutants, responsible for an estimated 45 per cent of the ozone precursors and 38 per cent of the particulate matter emitted in Europe.

- Around 0.2kg of CO_2 is avoided for each mile walked rather than driven in the car.