

CAR LITE LONDON

HOW CAR CLUBS
WILL HELP MORE
LONDONERS
DRIVE LESS

A ZIPCAR UK PAPER,
WRITTEN BY MALCOLM FERGUSSON
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Executive Summary

London's Success Brings Mobility Challenges

London is a great city; perhaps the greatest in the world. It is international, open-minded and world-class. Whether you're looking for commerce or culture, sport or the arts, historic or high-tech, if you want the best, you can find it in London. In order to access and enjoy everything the city has to offer, people need to get around efficiently and London is also blessed with a highly effective public transport system – vital infrastructure upon which the health and success of the city depends. London, however, was not designed for cars; and current trends will push the road network (for both travelling and parking) to breaking point. New solutions are required urgently and one such solution – the benefits of which are already proven, but nowhere near maximised – is the 'car club' (also referred to under the term 'car sharing', although the latter includes other types of vehicle sharing as well).

The question this paper addresses, therefore, is: what should we be doing to maximise the positive impact offered by car clubs, for the continued benefit of London and its citizens?

From the work of Victorian visionaries to today's investment in Crossrail, there is so much about London's public transport system to celebrate. The reach of the network has been established for generations; and, more recently, this has been enhanced by a range of positive developments – more and newer buses, the Oyster card system, the development of the Overground, up-to-the minute information on the progress of trains, tubes and buses, cycle lanes, cycle hire, access to more information, mobile apps, and more. Unfortunately, for the last 30 years or so, there has been less to celebrate about car use in London. Most of the time, cars are parked rather than in use; and when they are driven, it is often with only one person in them, rather than the four or more for which they are designed and engineered.

They emit exhaust gases which are harmful to breathe and contribute to climate change. Parking, traffic, air quality and greenhouse gas emissions are all huge challenges for the city.

We are now moving quickly from congestion towards gridlock both on the roads and in available parking spaces. With a 14% increase in population forecast in the next decade, these new residents could bring around 350,000 more cars at current ownership levels, in addition to the 2.6 million vehicles already owned and parked in the city. Add congestion to increasing concerns about environmental issues such as air quality (London having some of the worst air quality in western Europe) plus the impact that traffic has on cycling and pedestrians in terms of injury and death, and it's clear that action needs to be taken.

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Car Clubs Are a Significant Part of the Solution

Nevertheless, for certain types of journeys, cars are and will continue to be either the only or the most suitable mode of transport to use, so we need to find ways of changing behaviour and supporting responsible car use, i.e. influencing Londoners to only use a car when it is really necessary. Car clubs have a major role to play in making this a reality and in reducing congestion and air pollution.

There is now years of London-based evidence, demonstrating that:

- Car clubs reduce the number of cars on the road - each car club car replaces at least 14 private cars;
- Car club members reduce the volume of traffic and drive fewer miles, for example, they drive seven times fewer short trips (less than five miles) than car owners;
- Car club members reduce congestion at peak times - they do not typically commute by car and usually only drive outside peak hours;
- Car club members tend to use public transport more - they are about twice as likely to use the tube, a train or bike as the average Londoner;
- Car clubs tend to operate vehicles that have a better environmental performance on a mile for mile basis than the average car on the road, because they are newer and more fuel-efficient;
- A typical car club member can save over £3,000 annually, compared to the cost of owning their own car.

Crucially, the relationship between car clubs and public transport, walking and cycling, is a symbiotic one. When the public transport system is good, as is the case in London, residents can feel confident that they will only seek occasional use of a car, which is better provided by a car club, compared to the expense and hassle of owning their own vehicle. When city dwellers know they can have convenient access to a car when appropriate, the evidence shows that they can fully commit to public transport, walking and cycling for the rest of the time. If car dependency is to be reduced substantially and a 'Car Lite' London is to thrive, we have to promote understanding of car clubs and their adoption by Londoners.

More widespread adoption of car clubs will help support the rebalancing of the road environment, allowing a safer environment for cyclists and pedestrians. Car clubs can help reduce demand for parking and also help reduce traffic volumes, so that more space on the roads can be planned and allocated to other road users such as cyclists, enabling the delivery of a liveable city.

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Just How Big Can Car Clubs Become?

There is no single magic solution to London's transport challenges, but car clubs are starting to prove that they could be a big part of the solution and Londoners are already voting with their feet. Currently, the UK has one of the highest car club memberships in the world with more than 150,000 members. The majority of these are in London, with the greatest density being in Inner London boroughs such as Westminster, Islington, Wandsworth, Lambeth and Hackney. Car trips have already declined in the past two years and now account for only 34% of the total trips each day, and car ownership in London is the lowest compared to other regions (305 cars per thousand as against 455 for the whole of England). This is a positive indicator, but we need to prepare now for future population growth by further promoting car club membership rather than private car ownership to reinforce this trend.

Both TfL and Carplus (the national body promoting sustainable car use) have forecast that by 2020 London could have one million car club members, taking more than 200,000 vehicles off our roads. This is a step towards a city where no one owns a car, but everyone has access to the vehicle of their choice, when and where they want. A car that is tailored to their journey needs and that is cheaper and cleaner to run. A car that is fully integrated into the public transport system, giving people access and choice when it comes to making the appropriate travel decision for their individual needs. Through car clubs, car use could be confined to the types of journeys for which alternative modes are not easily available, such as difficult cross-town trips; journeys at unsocial hours; trips involving heavy luggage or young children, etc. Overall, this would help cut levels of congestion and air pollution, as car journeys would be reduced to 'essential' trips.

It's worth noting that in New York City, car clubs have already reached double the scale of London. New York City has a total car club fleet of upward of 4,000 cars (more than twice the number in London), and its car club schemes have more than 200,000 members in total (more than in the whole of the UK).

In addition, under the direction of the Mayor, the New York Department of Transportation has partnered with Zipcar to reduce the size of the municipal fleet by 4,000 vehicles (13%) and, as a result, has saved valuable city funds.

New York City should serve as an illustrative example of what London could achieve.

Policy Support for Maximum Impact

Car clubs provide a cost effective, incentive-based approach to reducing London's congestion. Currently, there are not many other solutions available to deal with London's congestion crisis, as there is no more space to build more roads, and a great deal has already been done to manage traffic flows through our world-leading and highly sophisticated traffic management system, pioneering bus lanes, and more recently our Congestion Charge zone. There are few solutions left apart from more draconian measures such as road charging, which would hit the pocket of motorists even harder and be politically unpopular.

In the past, London had a clear and substantial strategy for supporting the development of car clubs, but in recent years that clarity has not been evident. As well as setting out the benefits of car clubs, this paper recommends how London could establish a new car club strategy in order to realise these benefits swiftly.

Specifically, the following five actions on strategies and policies are needed. These are in descending order of the impact they are likely to have on reaching the 2020 targets for car club adoption.

1. Integration through marketing

First and foremost, for these levels of car club membership to be reached, there needs to be a step change in levels of awareness of what car clubs can offer. While Londoners are entirely familiar with the majority of transport options available to them (not least because they are packaged under the TfL brand and systems), car clubs remain poorly understood by comparison. If London is truly to be a multi-modal city, all modes need to be packaged coherently so that Londoners are empowered to make the most appropriate choice for their particular trip - and sometimes that might include using a car. Hitherto, private car ownership has been the de facto way to use a car, but now car clubs are demonstrating that there is a better, cheaper, more sustainable alternative for urban car use. This awareness could be greatly increased if TfL would exert its influence to integrate car clubs fully into its stable of brands, through a more visible presence on the TfL website, improved signage at bay locations and wider general promotion.

2. Integration through systems

In addition to the above, full multi-modality will only be brought about if it is seamless for the consumer. This is currently the case for most modes, under for example, the Oyster card payment system, real time performance information system, etc.; but car clubs are not yet included. Access to similar data/services is currently through separate card, payment and information systems developed by the car clubs themselves. As Oyster evolves and is ultimately replaced, there is an opportunity for all modes to be fully integrated into London's public transport systems, including car club vehicles.

3. Behavioural incentives

With full integration through systems and marketing, there will be the opportunity to stimulate modal shift by incentivising optimal travel behaviours. With usage rates of private cars at such low levels, greater awareness of alternatives backed up by incentives could persuade significant numbers of Londoners away from personal car ownership and into car clubs. Incentives could include creating bundles of travel offers, such as discounted car club membership for those who join the Barclays Cycle Hire ('Boris bike') scheme, a percentage reduction in monthly travelcard cost for new members of car clubs, etc. Alternatively, along the lines of the 2009 national car scrappage scheme, Londoners could be given discounts on car club membership when they demonstrate that they have sold a private car and not replaced it.

4. Stronger guidance and leadership on car club strategy

Car club provision is currently patchy across London due to significant variations in policy stances between London boroughs. Whilst parking policy is likely to remain under the control of individual boroughs, and hence their capacity to provide or withhold car club bays, there is a greater opportunity for policy guidance and information sharing to ensure that all boroughs are at least making car club policy from a strong and consistent information base. This would encourage a more coherent approach and, therefore, more effective and consistent delivery.

5. Development planning

As London continues to develop and grow, it is vital that planning guidance keeps pace. Requiring new-build developments to include some dedicated car club parking spaces, rather than providing an individual parking space for each unit ensures that a growing population can be accommodated, without a significant rise in car numbers or space requirements. Under Section 106 provisions, developers can be required to capitalise on this opportunity through the provision of car club bays or car club memberships as appropriate. This is already happening in some places in London but, again, a more consistent approach is necessary to maximise the opportunity.

Adopting these strategic recommendations will enable an ever-growing London to continue to thrive and succeed through increased urban mobility; and as in so many other aspects of life, help London to set the world standard for a Car Lite lifestyle. Car clubs can make a major contribution to a more liveable London and Zipcar is ready to play its part, but this will need concerted action from the Greater London Assembly, Transport for London and the London borough authorities as well.

About This Paper

“Car Lite London - How Car Clubs Will Help More Londoners Drive Less” was commissioned by Zipcar UK as an initial contribution to the debate on cutting car dependency in London. The report was written and researched by Malcolm Fergusson, an established transport and environment analyst. “Car Lite London” draws on data and insights provided by Zipcar UK and a range of other stakeholders, and sets out the evidence base for Zipcar’s policy proposals. The information and views expressed reflect those of the author and of Zipcar UK.

The paper presents the evidence that car clubs reduce car ownership and that their members drive less and use bikes and public transport more than other Londoners. It argues that car clubs can make a real contribution to the future liveability of London and maps out what needs to happen to enable them to do it.

About Zipcar

Zipcar* is the world’s leading car club network, as well as the largest in London. In addition to its North American presence, Zipcar has major operations in London, Barcelona and Vienna, as well as smaller operations in the UK in Bristol, Cambridge and Oxford.

Zipcar’s mission is to enable easy and responsible urban living, which includes sensible and sustainable use of a car on the occasions when it is really needed. The company aspires to a future where car club members outnumber private car owners in major cities around the globe. Most residents of these cities will live within a five-to-ten-minute walk of a self-service car club vehicle. Zipcar will be an integral part of these vibrant communities of well-informed, connected people who enjoy urban life and a full range of modern transport options, without clogging the streets with their largely-unused private cars.

Zipcar plans to deliver on-demand mobility while leaving a small footprint on the environment - providing a fast and seamless service that frees up space in our cities and saves its members money at the same time.

About the Author

Malcolm Fergusson has twenty-five years’ experience of environmental issues, technologies and policy. For most of this time he has worked on climate change, energy and transport at national and European levels, with a particular focus on low-carbon transport. From 2008-2011 he was Head of Climate Change at the Environment Agency. Prior to that he was a Senior Fellow at the Institute for European Environmental Policy, Europe’s leading independent centre for the development and analysis of environmental policy, where he led the team working on a wide range of transport, energy and climate change policy issues. He is now an independent consultant.

He also has a long-standing interest in patterns of car ownership and use, including leading a major research review of European mobility services and car clubs in 2003-4. Recently, he has been researching the role of alternative car ownership models in the context of declining car ownership and new vehicle technologies.

Introduction

The 21st century is the world’s first ‘city century’, and London is one of the world’s leading and most iconic cities. Sustainable mobility is one of the major challenges we face as London’s population continues to grow. Total population is projected to reach 10 million people by 2030 – equivalent to adding the population of Birmingham and Leeds into London over the next 20 years¹. With these new residents bringing in ever more cars, London is in danger of moving from congestion to gridlock. Adding to this, issues such as air quality and the impact of traffic on cyclists and pedestrians, and it’s clear that urgent action needs to be taken.

Zipcar has commissioned this report to argue that car clubs have a crucial role to play in making a sustainable transport future for London and everyone in it. The report aims to provide a central source of independent evidence, international case studies and transport statistics to create a vision for how car clubs can have a significant role to play in delivering a Car Lite London. A Car Lite London seeks to support the rebalancing of the road environment, allowing a safer environment for cyclists and pedestrians. Car clubs can help reduce demand for parking and also help reduce traffic volumes, so that more space on the roads can be planned and allocated to other road users such as cyclists, enabling the delivery of a liveable city.

As well as providing the evidence, the report sets out the case for why a clear strategy on car clubs is needed and why they need to be put at the centre of transport and congestion strategies in London. In particular the report provides five policy actions that will enable the growth and take-up of car clubs across London and in turn deliver a reduction in London’s parking and congestion problems.

A CLEAR
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Urban Trends and Mobility in London

The Rise of the City

We live in a world where more than half the population now lives in urban areas², and the trend towards urbanisation is set to continue as more and more people migrate into the cities. The developed economies and societies of Europe are already well advanced down this path, with 41% of the EU's population living in predominantly urban regions, and a further 35% in intermediate regions with a majority urban population³. That is, more than three out of every four Europeans already lives either in a city or within easy access distance of one or more urban areas, and this trend looks set to intensify. Cities are the future, and a growing, thriving London will be part of that future.

The Rise of the Liveable City

Ever since human beings have crowded together in cities, noise, dirt and traffic have all been features of urban living. In the 20th century, however, the onset of motorised transport elevated these problems to a new level. As well as giving rise to specific environmental issues (see box below), motor vehicles – and especially private cars – made increasing demands for road and parking spaces. Gradually accommodating the car led to radical alterations in urban form, such as ring roads and car parks; and as a result, traffic ruled our town centres and pedestrians and cyclists were pushed ever further to the margins of the public realm.

Owing to its high and growing levels of public transport use, cycling and walking, London has already made great efforts to curb the environmental impact from road transport and to restore the balance in the use of public space. This was part of a concerted effort to make London a 'liveable city', characterised by a wide and diverse range of transport choices, lively and attractive public spaces, shopping areas and other facilities that are easily accessible by a range of transport modes, and a desire to move traffic to the margins of our urban centres and restore the people to centre stage⁸. The ultimate aim, of course, is to go beyond merely 'liveable' and to create a sustainable urban space offering a wide range of opportunities and a top class quality of life to all of its citizens.

However, what has been achieved so far is not enough to come anywhere near to solving the problems described above and to meet the challenges of a truly liveable city. Currently, congestion is estimated to cost London's economy circa £4bn per year, and is expected to increase by 14% by 2030 in spite of all the current and planned investment in public transport, cycle facilities, roads, etc⁹. Further efforts will, therefore, be required to tackle the impact of car use head on, as car use remains a major part – and in most cases, the main part – of the problem.

A vision for transport in a Liveable London might segment transport into three categories:

- 1) Short trips - best made by walking or cycling
- 2) Longer trips - best made by public transport
- 3) Special trips - best made using a car club vehicle (e.g. to help transport heavy luggage, elderly passengers, children etc.)

Policy, infrastructure and incentives are required to encourage people to make the right choice for each trip they take. By so doing, pedestrians and cyclists can rightly be regarded as equal partners in the overall transport mix.

London's Traffic and the Environment

- Air pollution in our cities has a major impact on people and the environment; in particular it increases the risk of respiratory and other diseases. Thousands of people die prematurely in London as a result of air pollution each year⁴. In some respects, great progress has been made in cleaning up London's air; but the level of decline has slowed in the last decade or more for two of the most important and dangerous pollutants – particulate matter (PM10 and PM2.5) and nitrogen dioxide (NO2). As in many other major cities across Europe, air quality limit values for these pollutants continue to be regularly exceeded, and London still has the worst air quality in the UK and the worst of any capital city in Western Europe⁵. Road traffic is the main source of the exhaust emissions that cause this problem: it produces 79% of the particulates in central London and 46% of all the nitrogen oxide emissions in Greater London⁶.
- Recent research suggests that 42% of London's population is exposed to a noise level of 55 decibels or more from road traffic alone⁷. Aside from being annoying and unpleasant, background noise can cause serious health issues, disrupt sleep, and interfere with children's ability to concentrate and learn. Noise is one of the major downsides of urban living, and road traffic is the principal source of noise in London and other major cities.
- Owing to its large population, London also accounts for a major part of the UK's greenhouse gas emissions, and future population growth is likely to increase emissions further. London has in fact seen a small reduction in average emissions per capita in recent years, and they are already substantially below the national average. However, the Mayor has set a target to reduce carbon emissions to 60% below 1990 levels by 2025, and this represents a huge challenge when set against the very modest reductions that have been made in recent years.

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The Rise and Rise of the Car

Since the 1950s, car ownership in Europe has risen more or less continuously to become the predominant mode of land transport (see Figure 1). The traditional pattern of private car ownership is for an increasing share of all households to buy their own individual car (or cars) once they have the financial means to do so. Initially, one main driver who was often also the head of household typically drove these vehicles. With growing economic prosperity, and particularly as more and more women have entered the job market and adult children have stayed in the family house, households with two or three cars, or even more, have become increasingly common. In the process, the car became one of the defining consumer durables of the 20th century.

Peak Car?

Whilst the car was the defining consumer durable of the 20th century, there is a growing body of evidence¹⁰ suggesting an altogether different trend is now developing across major European and North American cities. This phenomenon is sometimes referred to as 'peak car', whereby car usage per capita has peaked and now appears to be falling. This concept is not undisputed, as some argue that it is simply a function of the economic recession and, therefore, that car use will resume its inexorable rise as world economies recover.

Countering this, car use had already begun to fall in some parts of the population years before the recession set in, and there is evidence of a clear social trend whereby young people, and especially young men, are putting off or giving up on car ownership in the cities by comparison to earlier generations. This trend appears to be especially marked in the big cities where public transport is at its strongest and, therefore, where the car is not a necessity. Often these young city-dwellers never do go on to buy a car, or even if they do, they have a clear tendency to buy them later, use them less intensively than might otherwise be the case, and make more use of other modes of transport as well as the car.

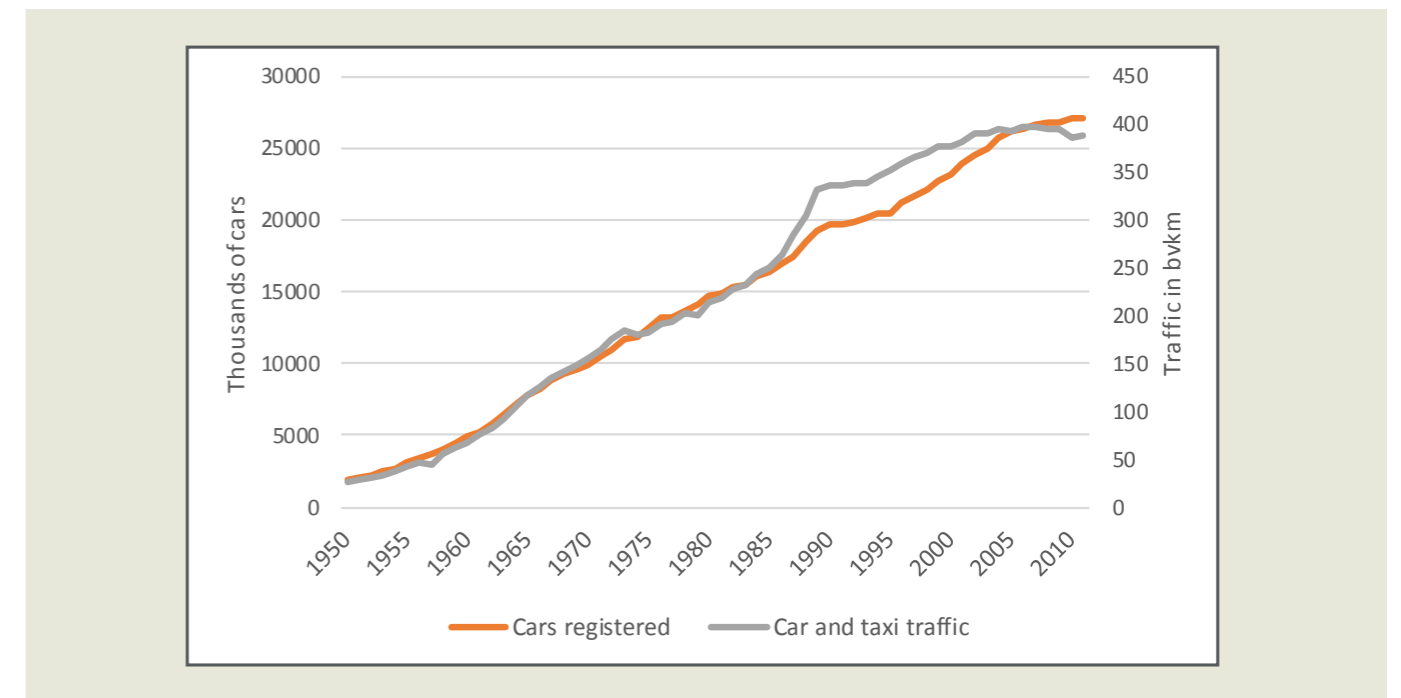
It is as yet too early to know precisely how large, widespread and long-lived this effect will prove to be, or to know with any certainty what has caused it. However, a number of possible causes have been suggested, and it seems very likely that most or all of these have played some part in changing patterns of car ownership:

- The rise of the 'digital native', who is more likely to value his or her smartphone or tablet computer than a car;
- Increasing availability and ease of use of well-connected, high-quality public transport;
- An actual or perceived increase in the cost of car ownership (for example, driving lessons, cost of insurance, price of fuel) such that it may exceed the benefits on offer;
- The 'hassle factor' of owning, parking, and maintaining a private car in town;
- Potential changes in travel patterns caused by changing behaviour, such as increased reliance on digital media, teleshopping, etc.

These new 'peak car' motorists represent a natural and growing market for car clubs. They value the flexibility of access to a car for specific journeys, but do not feel the need to own or look after one themselves and are quite happy to use public transport, walk and cycle at other times. They are also at home with the sort of digital devices and apps that allow them to access public transport, or indeed a car club car, very easily. They are part of a trend that places car clubs at the centre of any future efforts to reduce car dependency in London.

In these conditions, the relationship between car clubs and public transport, walking and cycling is symbiotic. When the public transport system is good, travellers can feel confident that they will only occasionally feel the need to use a car, and a car club can often better provide this. With this sort of convenient access to a car when appropriate, car club members can fully commit to using public transport, cycling and walking at other times. If car dependency is to be reduced meaningfully and a Car Lite London is to thrive, we now need to accelerate the switch to car clubs as the primary model of access to a car in London.

Figure 1: Cars and Traffic Year by Year in Great Britain



Source: Transport Statistics for Great Britain 2013, ONS

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The Car in London - Ownership

London's car ownership levels are generally low compared to the rest of the UK. In Inner London, as Figure 2 illustrates, the majority of households do not have a car at all, and households with more than one car are a rarity. This is likely to be accounted for by a number of factors, including the cost and difficulty of parking a car, the ready availability of public transport alternatives, and ease of access to nearby destinations on foot or by bicycle.

The picture is somewhat different in Outer London, where households with one car or more are far more common; but even here, close to a third of all households do not have any cars at all.

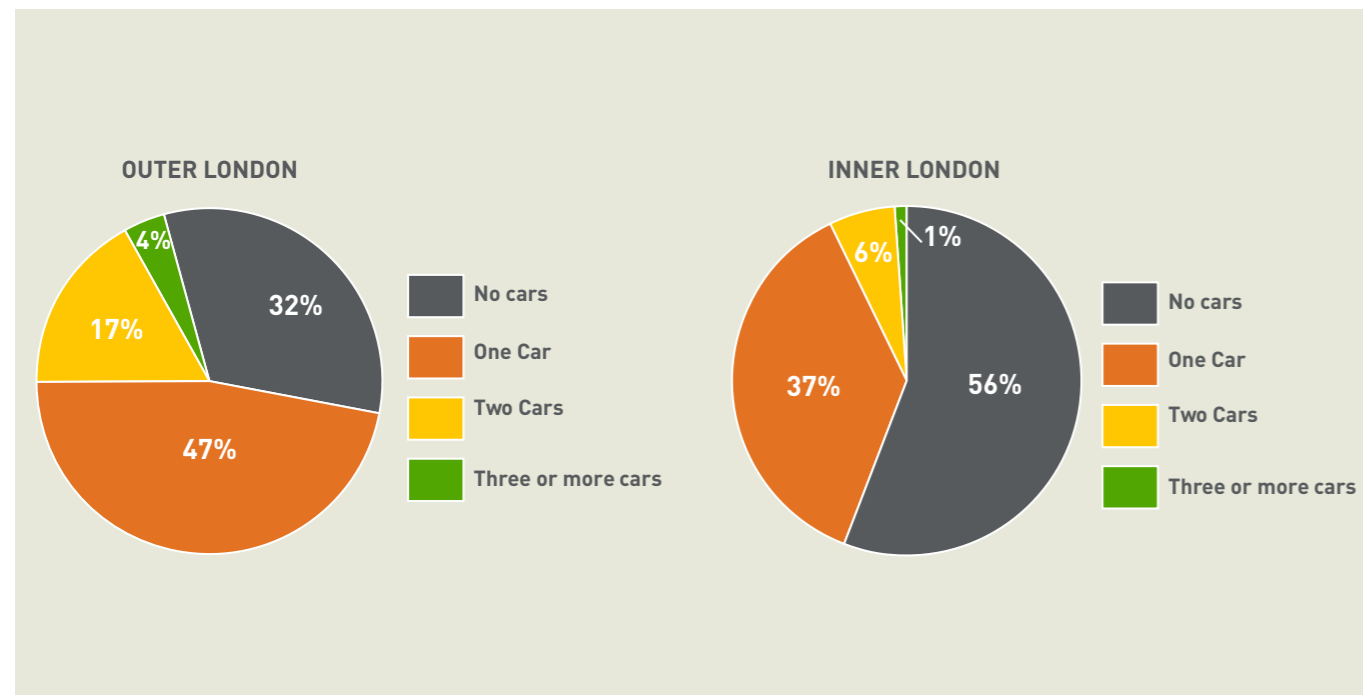
Not only are car ownership levels relatively low in London, they are actually falling, bucking the national trend. Figure 3 illustrates how the rate of car ownership in London is now far below that of any other region of England. There is less than one car for every three people in London, compared with more than one car for every two people in the rest of the South East of England.

Taken on its own, Figure 3 would indicate a strong positive trend in terms of traffic and parking space. However, the fall in per capita car ownership in London is almost entirely offset by the dramatic increase in population. Therefore, while rates of car ownership have fallen significantly, the absolute number of cars has only reduced very marginally over the last five years. Figure 4 illustrates the developing relationship between population levels and car ownership over time.

As can be seen, London's population has increased more or less exponentially over the past two decades. Through the 1990s and beyond, the growth in car ownership actually outstripped population growth, so the rate of car ownership also grew slightly. Since 2006, however, the rate of car ownership has fallen, and this trend accelerated from 2008 to the extent that total car ownership has actually fallen slightly in the last few years.

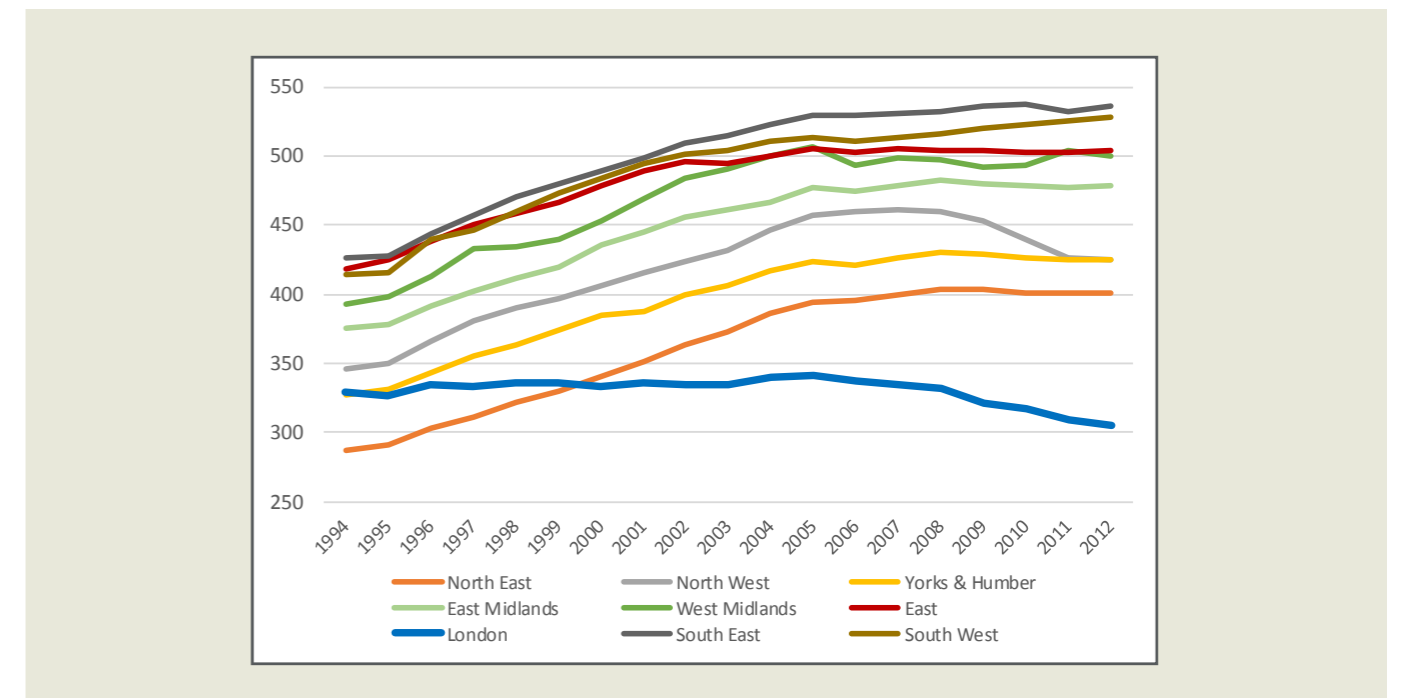
This fall is a significant achievement, but the challenge facing London is how to maintain or accelerate this trend both in the face of sustained, significant future population growth as well as in the context of a more positive economic outlook.

Figure 2: Cars per Household in Inner and Outer London



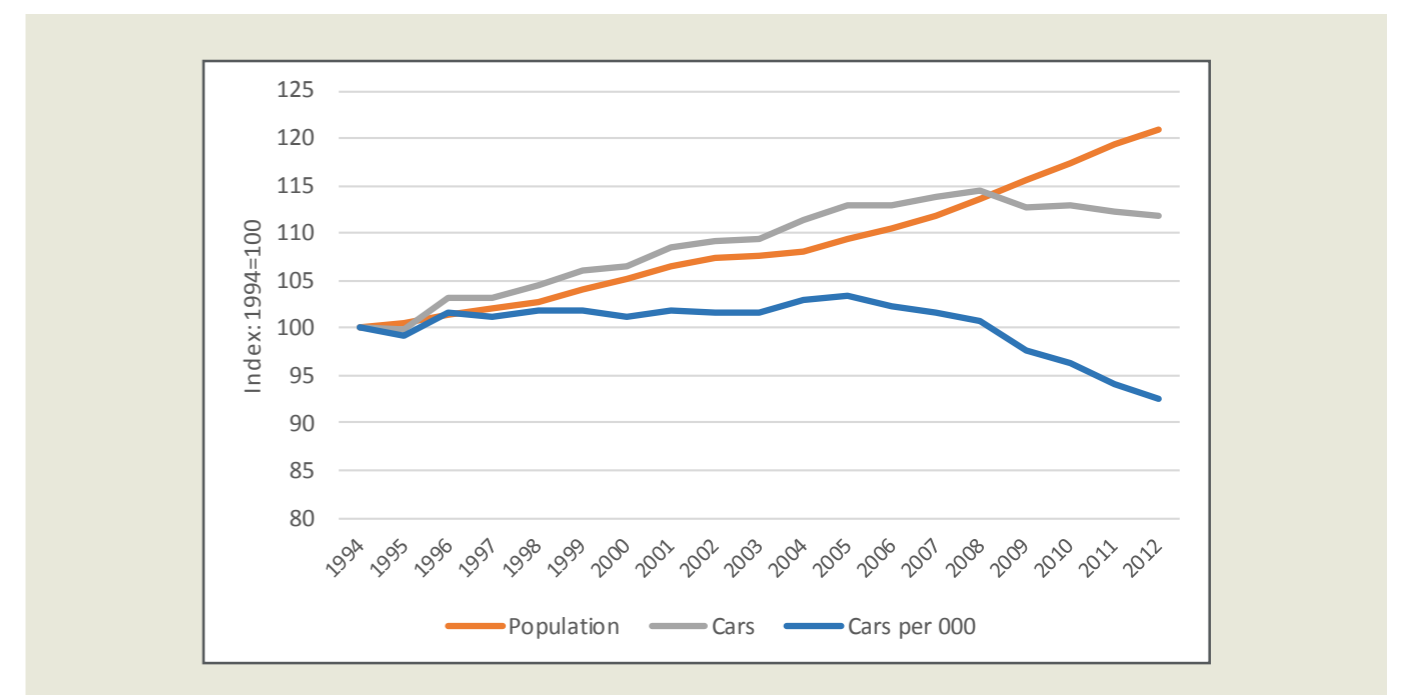
Source: London Travel Demand Survey, 2011, Transport for London

Figure 3: Trend in Cars Registered per Capita by Region



Source: ONS mid-year population statistics; Dept. for Transport car registration data, 2013

Figure 4: Population and Cars Registered in London



Source: ONS mid-year population statistics; Dept. for Transport car registration data, 2013

The Car in London – Trip Patterns

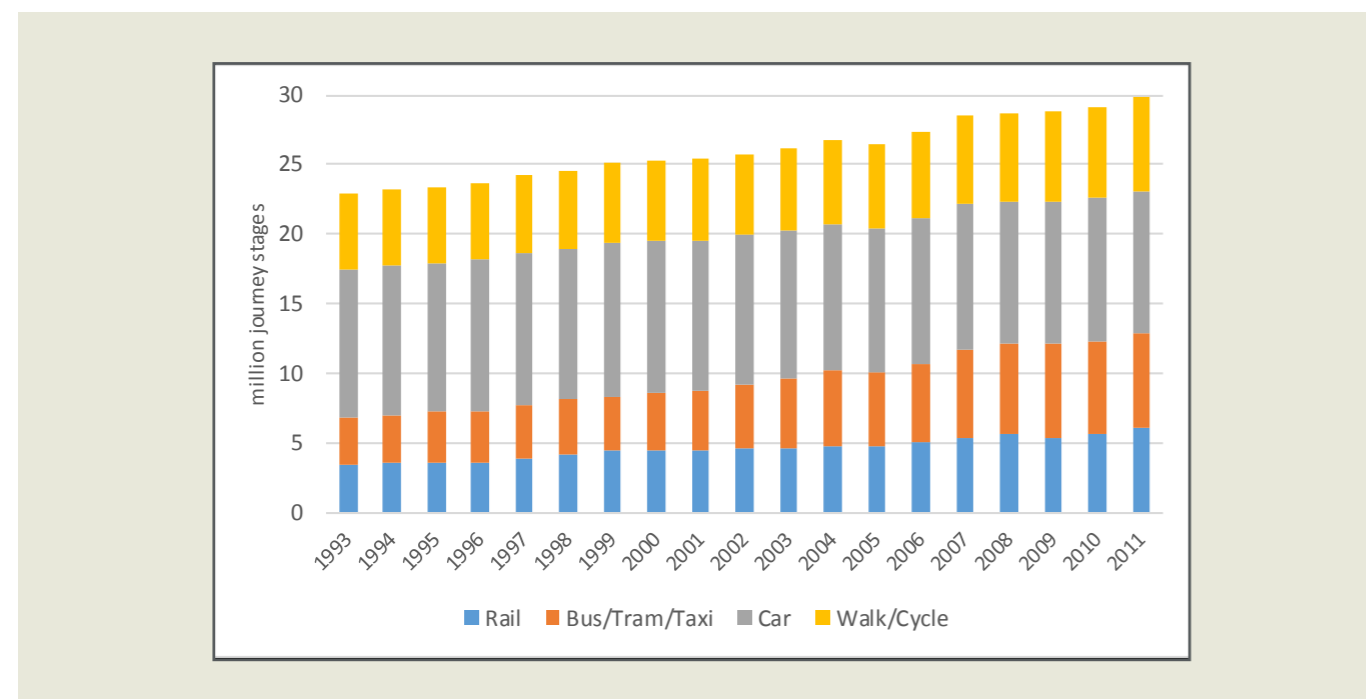
Where there are positive indicators for car ownership, the same can also be said for car trips in London. As Figure 5 illustrates, the average number of trip stages made in London continues to grow, broadly in line with the growing population. However, the modal balance of the trips is changing for the better. That is, bus use has doubled in the past two decades and cycling has increased dramatically in recent years. Rail trips have increased almost as fast. Over the same period, in contrast, car trips have actually declined in number and now account for only 34% of the total trip stages each day.

Reflecting this, total road traffic is actually in overall decline, especially in the central and inner zones. From the perspective of maintaining London as a liveable city, this is surely good news, and represents a major achievement for the Greater London Authority, the London boroughs and transport providers.

Two challenges though stem from this achievement:

- 1) As with car ownership, to maintain this progress in the face of further major population growth.
- 2) To realise all the benefits of this modal shift. This means fully translating fewer car trips into fewer cars (rather than just creating falling usage rates but no associated parking benefit).

Figure 5: Daily Average Trip Stages by Mode in Greater London



Source: London Travel Demand Survey, 2011, Transport for London

The Car in London – Parking

Our city is not just congested with moving traffic. It is also saturated with parked cars. London's residents between them own approximately 2.6 million cars, with many more coming into London during the working day¹¹.

Parking creates a number of challenges for any city. These are particularly acute though in a dense city like London. As car numbers have risen over the last 50 years, clearly, so has the demand for parking. There are some unfortunate by-products of the increasing scarcity of parking. Firstly is the increased congestion and emissions created. The more city dwellers struggle to find spaces, the more distance they travel (in the US, Donald Shoup, a professor of urban planning at UCLA, argued that as much as 30% of urban congestion is caused by people searching for parking¹², and there is evidence of a similar problem in London). Secondly, as we search for increasing space to park our cars, we do irrevocable damage to the liveability of our city. One tangible illustration of this is the progressive decline in the UK of the traditional idea of a front garden. According to the RAC Foundation, over the past two decades, 3.5 million front gardens across the UK have been replaced with tarmac for the purpose of parking (taking the total to seven million)¹³ - a practice entirely in conflict with the trend to create liveable cities.

As noted above, whilst the number of cars in London has fallen in the last 10 years, demand still exceeds supply in significant areas of Inner London in particular (e.g. Kensington & Chelsea, Westminster and Camden). With the projected increase in population by 14% over the next decade, even were we to maintain current rates of car ownership (as achieving ongoing reductions will become ever more challenging); this population growth would be expected to be accompanied by around 350,000 extra cars. To put this in perspective, based on the required size of each bay, this would need an additional parking area roughly the size of Islington at current rates of parking provision¹⁴.

Clearly, in reality, this kind of additional parking supply is impossible to create, so London has a stark choice between accelerating reductions in per capita car ownership or accepting worsening levels of parking stress. This paper will make recommendations as to how the former can be achieved. Currently, of course, the primary tool used by London boroughs to regulate parking demand is pricing, with little attention on less punitive solutions. Managing demand by creating positive alternatives to the private car, where city dwellers feel that they can maintain the freedom and convenience offered by the car for certain trip types without needing to own one, is an area of huge potential. With the average car in use only 4% of the time (and at home 80% of the time)¹⁵ and consumer trends already moving away from ownership and in favour of collaborative consumption, this opportunity should be well within our grasp.

THE AVERAGE CAR IS IN USE ONLY 4% OF THE TIME (AND AT HOME 80% OF THE TIME)

The Growth of Car Clubs in Britain

Car clubs came relatively late to the UK¹⁶, compared for example with Switzerland or Germany, but since 2003 have gone through a rapid growth curve. Starting at around the turn of the century, a network has developed from a handful of community-led car clubs to over 150,000 members across the UK. These members have access to more than 2,200 vehicles in 1,700 locations in over 50 cities and towns across England, Wales and Scotland. Zipcar has established a clear market leadership position, and represents the bulk of the UK's car club membership across London, Bristol, Cambridge and Oxford (with London representing the major part).

The growth seen in this sector can be attributable to several factors:

- 1) **The ambition of operators** – much of the growth has been achieved since Streetcar (acquired by Zipcar in 2010) launched in 2004. Through strong marketing of its service, a demand was created that simply hadn't existed prior to Streetcar's launch.
- 2) **Public sector support** – as the car club concept gained traction and momentum, it has been facilitated through support in the form of the provision of parking bays by local authorities. This, in turn, was facilitated by funding provided to the boroughs by Transport for London over successive years between 2008 and 2012. This funding formed part of the Mayor's Car Club Strategy for London¹⁷.
- 3) **Supporting external factors** – as noted above, other underlying factors such as the growing intensity of urbanisation, the rising cost of car ownership, increasing scarcity of parking spaces and changing consumer trends all now favour a greater uptake of car club membership.

Car Clubs of New York¹⁸

Whilst London has seen significant growth in car club adoption, New York (which is similar in size to London with a population of 8.3 million in 2012 and arguably one of its closest rivals for the title of world's top city) is still way ahead:

- It has a total car club fleet of upward of 4,000 cars (more than twice the number in London)
- Its car club schemes have more than 200,000 members in total (more than in the whole of the UK)

Arguably New York is ideal for car clubs, given its very high population density, chronic lack of road space and relatively poor public transport offerings; but concerted efforts have been made to capitalise on this opportunity as well.

In 2010 Mayor Bloomberg announced a strategic partnership between the New York Department of Transportation and Zipcar, designed to reduce the city fleet in order to save both money and space. City employees in Manhattan were all given Zipcar memberships, and continue to make active use of Zipcars in their everyday work, allowing a reduction in the municipal fleet from nearly 30,000 to just below 26,000. Through innovative, joined up policy thinking, the city has saved money, provided additional utility for residents and businesses alike, reduced car dependency (with all associated benefits) and achieved unprecedented scale of the car club concept.

Types of Car Clubs

The car club sector is growing fast and innovating rapidly. The Zipcar 'round-trip' model (where each car lives in a dedicated parking bay, is paid for by the hour and always returned to its home bay at the end of a booking) is proven to reduce congestion and pollution: every Zipcar takes at least 14 privately-owned cars off the streets; Zipcar members drive less, use public transport more and walk/cycle more than car owners (this is explained in more detail later in the paper).

As well as the round-trip model, new models are emerging, such as 'peer-to-peer' (where car owners rent out their cars to others during periods when they would otherwise not be used) and 'floating point-to-point' (where cars are used spontaneously for very short trips, paid for by the minute, driven from A to B and parked anywhere, ready for the next user). Without doubt, the floating point-to-point model is interesting and there is a level of demand for it, especially in cities where the public transport network is inadequate and road capacity is sufficient to handle the additional car journeys and on-street parking.

Whereas the data on round-trip car club impact is extensive, there is less information currently available for floating point-to-point; and there are open questions for a city such as London, where public transport is good and traffic/parking congestion is a challenge, as to whether the point-to-point short trips are ones that would otherwise be taken in a taxi, on public transport, by foot or – in London – using a 'Boris bike'.

At this stage, more research is required as to the extent to which point-to-point car sharing directly competes with the use of taxis, public transport, walking and shared bicycles; and thereby increases net car use in the city. If this is found to be the case, then the model might prove to be contrary to the objectives of reducing congestion and pollution in cities.

EVERY ZIPCAR
TAKES AT
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PRIVATELY-
OWNED CARS
OFF THE
STREETS

The Role of Car Clubs in Urban Mobility

As described above, private car ownership has become a major feature of the national transport landscape, even in London. For many people, however, this is not an economically rational model because the cost of car ownership and maintenance are high, while rates of utilisation are typically very low at only a few percent of the driver's waking hours. For the rest of the time, cars must be parked in dedicated parking areas or at the kerbside, typically taking up large amounts of valuable urban space and cluttering up the urban landscape. On-street parking provision alone is equivalent in area to the whole of the borough of Southwark. Furthermore, the typical family car is equipped with at least four seats and substantial luggage space, whereas for most of the time it is driven with only one or two occupants and little luggage. This is necessitated by the lack of flexibility in the ownership model, whereby most motorists buy a car which is sized for their maximum requirements (for example a family weekend excursion) rather than their typical everyday use (such as commuting alone to a place of work or shopping at a supermarket).














These and other factors render the traditional car ownership model extremely wasteful in terms of money, resources, space and pollution, especially in a crowded urban area like London where space is at a premium and private car traffic contributes a substantial share of polluting emissions. This suboptimal pattern of vehicle ownership and use has hitherto been perpetuated amongst other things by the high status value that drivers have attached to car ownership; by poor appreciation of the true costs of owning and running a car; and by a lack of perceived alternatives.

ON-STREET
PARKING
SPACE ALONE
IS EQUIVALENT
IN AREA TO THE
WHOLE OF THE
BOROUGH OF
SOUTHWARK

The Benefits of Car Clubs



In contrast, the greater the adoption of car clubs, the fewer cars that need to be parked and the fewer journeys that are taken by car. Car clubs offer a range of benefits to both their members and wider society, including:

-  Allowing people to dispose of their car (or one of their family cars), or to avoid or postpone buying a car in the first place;
-  Reducing demands for parking by effectively sharing one car between many users, making the streets more liveable and less cluttered;
-  Allowing people who do retain a car in the household to buy a smaller one, in the knowledge that they can borrow a larger vehicle from the car club, when appropriate;
-  Reducing the volume of traffic, by encouraging habitual drivers to limit their car use and use other modes of transport for more of their trips;
-  Improving social inclusion by offering the choice of a car for some purposes to those who would not otherwise have access to one;
-  Offering choice and flexibility to use a car occasionally at a lower cost than owning one outright;
-  Giving the option of an occasional second car to a two-driver household, avoiding the need for them to own and run a second car themselves;
-  Offering a range of vehicles to suit different requirements on different trips;
-  Passing over to a professional organisation the trouble of taxing, insuring, maintaining, cleaning, etc.;
-  Avoiding having to find and pay for one's own parking space;
-  Facilitating the use of newer and cleaner vehicles than the fleet average, potentially including those with advanced technologies such as hybrids and electric vehicles;
-  Greater flexibility to use a car for the final trip stage in conjunction with a long rail journey, for example;
-  Reducing the resources consumed and the pollution caused through more efficient utilisation of the vehicle fleet.

With ever-increasing pressure on space in our cities, and a growing expectation of clean, quiet and liveable space in the public realm, these benefits will become increasingly valuable to both consumers and policy makers alike.



The Benefits of Car Clubs – Travel Patterns and Modal Choice

For people who own their own car, it generally makes sense to use it for most purposes, as the marginal cost of driving it is quite low by comparison to the cost of buying it in the first place, or of using public transport. Especially in London, this is likely to include using the car for some unsuitable purposes, for example when traffic is heavy and other modes of transport are available.

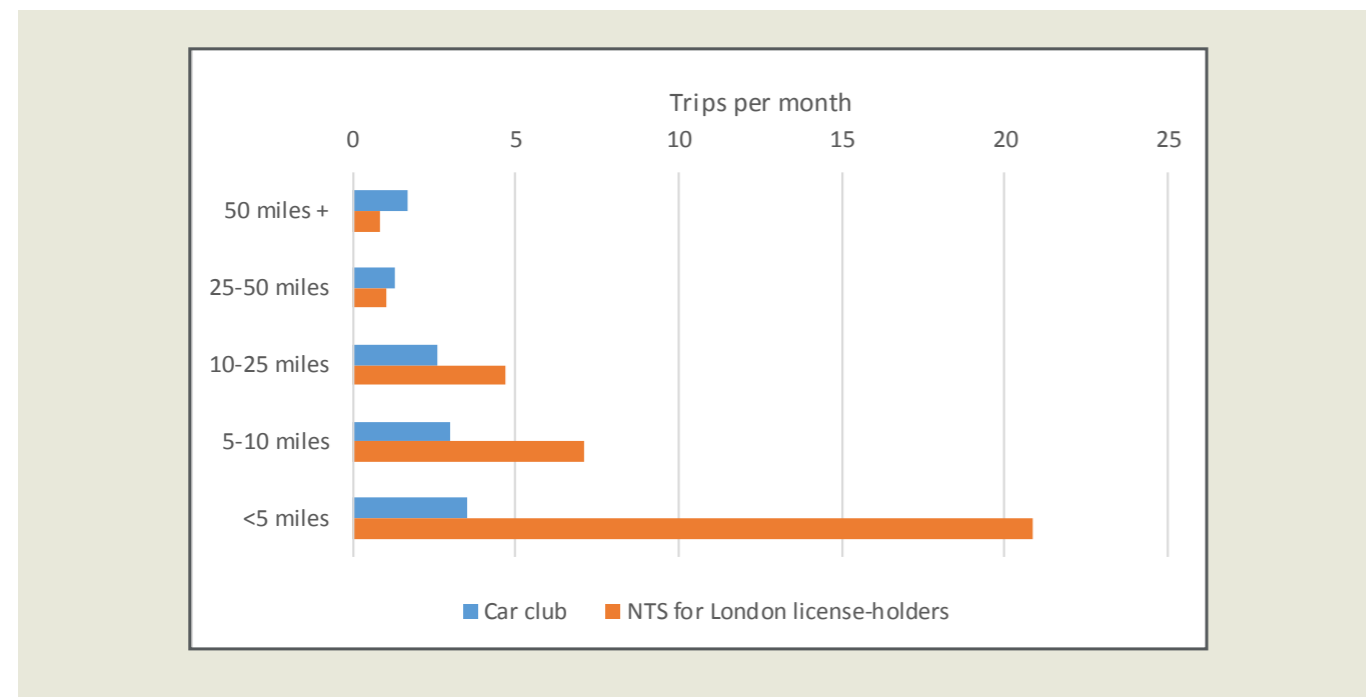
Car club members behave very differently, however, as they pay for car trips on a pay-as-you-go basis. As a result, they only tend to book a car when they feel it is really necessary – for example for the weekly supermarket shop, for that trip to the DIY store, for a trip out of town, or for a complicated journey across the city, either with a lot of luggage or on a route for which public transport would be difficult.

This is borne out by a recent analysis by the Transport Research Laboratory, as shown in Figure 6.

As this graph illustrates, a typical London driver will make more than one trip per day by car on average, whereas a car club member will make only a third as many trips. Car club members are particularly less likely to make short trips in town of below 25 miles. They actually make more trips than average at higher mileages, but in most cases these will be trips out of town, for example a weekend excursion or a visit to friends or family. Furthermore, it should be noted that the figures for the average London driver refer to all drivers, including those with no access to a car; the disparity would be far greater relative to those who actually owned and used a car regularly.

CAR CLUB MEMBERS DRIVE SEVEN TIMES FEWER SHORT TRIPS (LESS THAN 5 MILES) THAN CAR OWNERS

Figure 6: Number of Car Journeys by Car Club Members and Other Drivers in London



Source: Cairns and Harmer, TRL, 2012

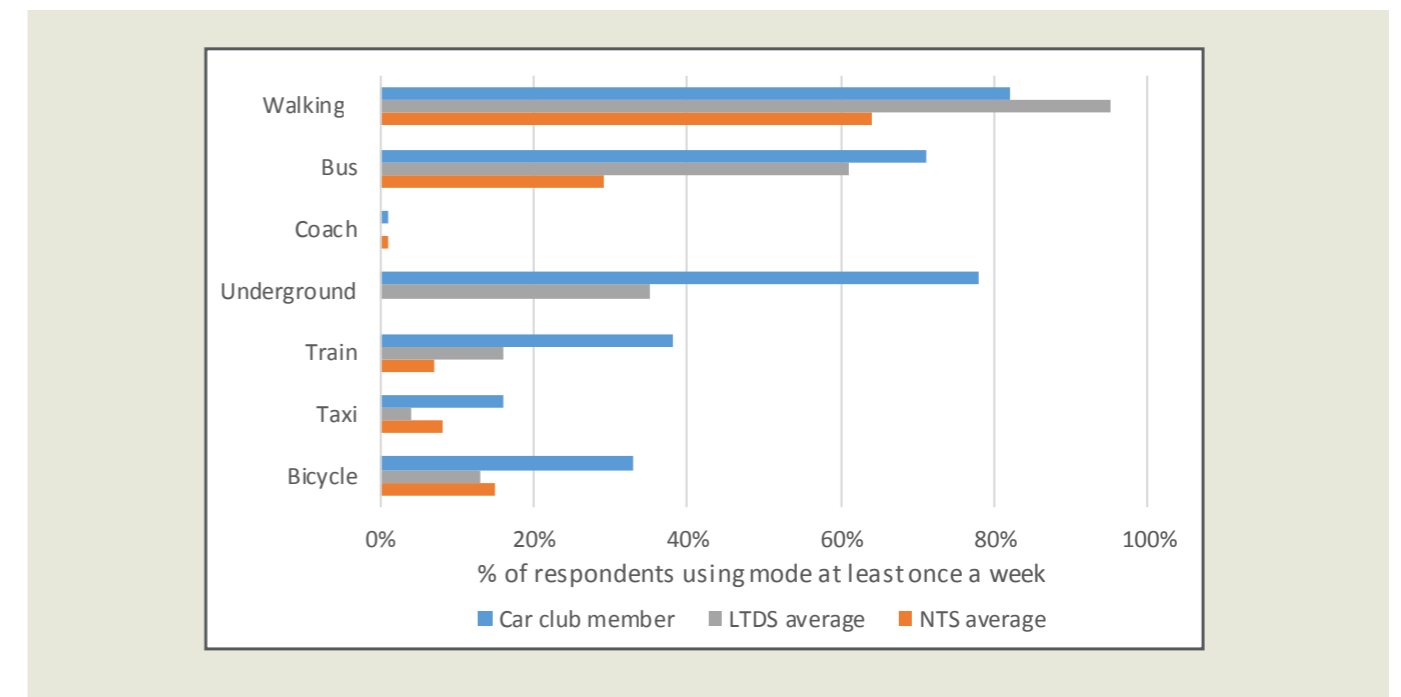
In addition, the Carplus Annual Survey for 2012/13 found that not only do car club members generally make fewer car trips, but they also do less mileage after joining the club than they did before. It found that 65% of members reported that their mileage had either stayed the same or fallen since joining the club. Only 21% of members said that they drove more now they had access to a car club vehicle, and these were generally those who would not otherwise have had any access to a car.

Aside from the car journeys that are made, the Carplus survey also confirmed that car club members behave much more like the people who do not own a car than those who do, and make far more use of public transport, walking or cycling. For example, 71% of car club members report using a local bus at least once a week and 50% at least 3 times a week; 82% make walking trips of 20 minutes or more at least once a week and 57%

3 times a week; 33% cycle at least once a week and 24% at least 3 times a week (vs. a London average of 13%). Figure 7 (Cairns and Harmer data) illustrates that car club members make above-average use of every mode of travel except cars, and are about twice as likely to use a bicycle or train as the average Londoner.

In summary, if city dwellers can be persuaded away from car ownership, the evidence shows clearly that car club members will make more rational decisions about the most appropriate transport mode for their particular trip. As a result, they are likely to drive less and be high consumers of more sustainable forms of urban mobility.

Figure 7*: Use of Other Modes by Car Club Members and Others



Source: Cairns and Harmer, TRL, 2012

* Ref Figure 7: walking data is not fully comparable between data sets, as different methodologies were used

The Benefit of Car Clubs – Car Ownership

The Carplus Annual Survey for 2012/13 (commissioned by Transport for London and sent to all UK car club members) concluded for the sixth year in succession that car club members were both selling cars to join the scheme as well as deferring otherwise planned car purchases. It reported that before joining a car club, 45% of members owned cars. Having joined a car club this falls to only 20%. As a result, for each car club vehicle on the road in London, six private cars have been removed equating to 13,620 fewer cars on the roads of the capital. This though is only part of the effect. A further 29% of car club members reported that they would have otherwise bought a car were it not for their car club membership. As a result, it can be estimated that for each car club car on the road, 14 cars have not been purchased that otherwise would have been, equating to a further saving of 31,780 cars.

In summary, the practice of sharing cars rather than owning them is already having a fundamental effect on car ownership levels, and, therefore, parking congestion in urban centres. As mentioned previously, if we are to meet the challenge posed by a growing population this needs to continue and be accelerated. For example, if all the 14.2% of additional people expected to be living in London a decade from now¹⁹ could be persuaded to join a car club rather than following the car ownership patterns of other Londoners, the number of extra cars entailed could fall from around 350,000 to about 23,000. Going beyond this, an ambitious expansion of car club membership amongst the current population could actually contribute to a stabilisation or fall in the total number of cars and in the parking problems that result.

Do Car Club Cars Create Congestion?

An obvious concern is that car club cars, whilst reducing car trips and the total number of cars on the road, might still add to congestion. Any car on the road at all, effectively adds to congestion, but it is important to note the patterns of Zipcar usage as a representative example. When are members using cars and for what kind of trips? The following sections answer these questions.

CAR CLUB MEMBERS BEHAVE MUCH MORE LIKE THE PEOPLE WHO DO NOT OWN A CAR THAN THOSE WHO DO, AND MAKE FAR MORE USE OF PUBLIC TRANSPORT, WALKING AND CYCLING

Overall Pattern of Car Club Car Use

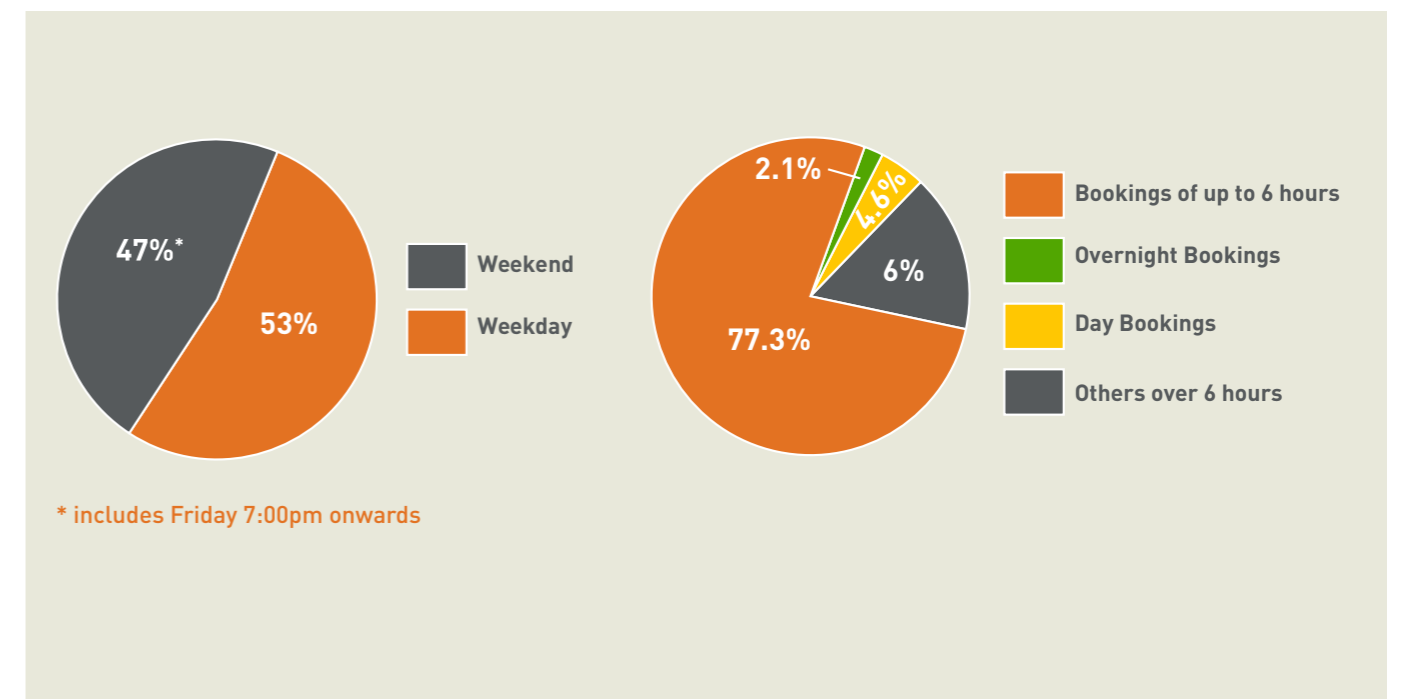
Analysis of Zipcar booking data shows that members are twice as likely to book a car at the weekend as during the week. Weekday journeys are also important; and separate survey evidence shows that these are primarily for shopping or running errands. Shopping and other personal errands at the weekend are also typical, supplemented by longer trips to visit family and friends. When Friday evenings are also included, weekends account for nearly half of the use of Zipcars by private individuals, as shown in Figure 8. Zipcar users generally only use a car when there is no easy alternative; for the rest of the time, they use other means of transport (walking, cycling and public transport) in much the same way as other households without a car.

As referenced earlier in this paper, the average private car in the UK is only driven for one or two hours every day, and spends the other 22-plus hours parked up somewhere. The situation is even more extreme in London, as most London car owners do not commute by car. As a result, TfL statistics indicate that the average car in London is used less than 45 minutes every day – about 3% of the overall hours of the day – and is parked for the rest of the time²⁰.

Unsurprisingly, Zipcars have a significantly higher utilisation rate than this. However, given that there are typically 40 to 60 car club members for every car club car in London, this confirms once more that the average distance driven by each car club member is still way below that of the average motorist driving their own car.

Figure 8 also shows a breakdown of the duration of Zipcar bookings for the past year. From this it can readily be seen that the vast majority of Zipcar hires are for short trips, with the modal value being two hours. Two thirds of all trips are of four hours duration or less, and three quarters are of six hours or less. Aside from the whole day (24 and 48 hour) bookings, only around one in every 10 trips is of the nine hours or more (say) that would be required for a round-trip commute. This accords with common sense, in that hiring a car club car for a whole day, only for it to sit idly in an office car park for much of that period, would represent poor value for money.

Figure 8: Zipcar Bookings by Day of Week and Length of Hire



Source: Zipcar Bookings Database (2012/2013)

Diurnal Patterns of Use

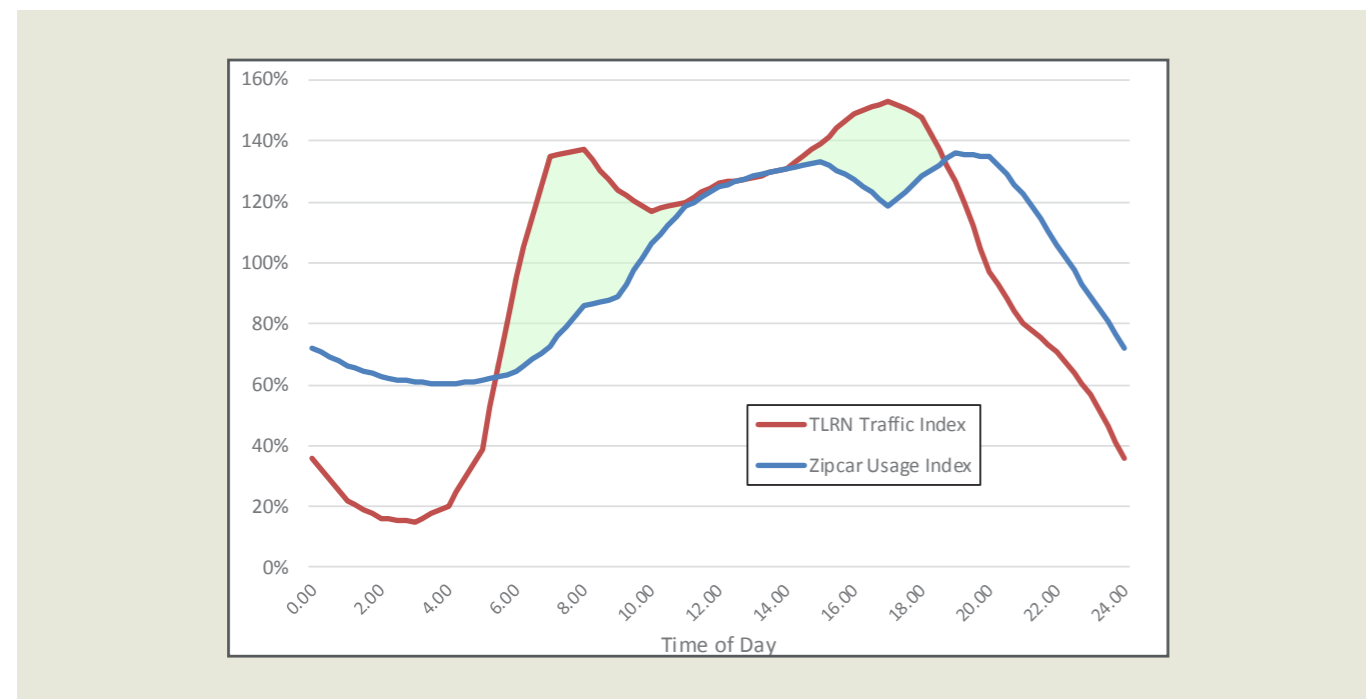
The diurnal pattern of Zipcar use also underlines that they are used very differently from other cars. Figure 9 compares the weekday traffic index on the TfL Road Network with the weekday usage pattern from Zipcar bookings data.

From this it is readily apparent that take-up of Zipcars in the week plateaus during the morning rush-hour and does not start to build up to its full daytime usage level until after 9:00am. Similarly, afternoon use of Zipcars actually falls away as the afternoon rush hour builds up, and only starts to increase again after 6pm as other traffic dies away, rising to its highest level for the whole day between 8:00 and 9:00pm. Note that this effect is accentuated by the popular take-up of a fixed overnight tariff for the period 6:00pm to 9:00am (Monday to Thursday), whereas in reality it is likely that the cars are actually used rather later in the evening for the most part. Note that some of the daytime traffic will also reflect the activity of Zipcar’s business users: this reflects in-work usage such as deliveries, visits to customer premises, but not commuting by car.

In summary, it can be seen that Zipcar members tend not to drive during the rush-hour and it seems that they can generally time their trips to take advantage of more free-flowing traffic.

ZIPCAR MEMBERS TEND NOT TO DRIVE DURING THE RUSH-HOUR

Figure 9: Weekday Traffic on London’s Roads



Source: Zipcar Bookings Database (2012/13) and TfL Road Network Traffic Index

Emissions from Car Club Cars

The second concern is that, even though fewer miles are done as a result of car club membership, a car club car still adds to emissions. As with congestion, this is undoubtedly, and almost unavoidably, the case.

Studies have shown that car club cars do though have a better environmental performance on a mile for mile basis when compared with the average car on the road²¹. There are three main reasons for this:

- Car club cars tend to be much newer than the average for the UK’s car fleet as a whole, so they meet the latest exhaust emission standards. The latest Carplus annual report showed that the average emissions of car club cars was around 110gCO₂/km as against the national average of around 160gCO₂/km, or even the average of new cars sold in the UK at around 133g/km. They also tend to be well maintained, so this too helps to keep them cleaner and quieter than the average.
- Car club members tend to choose the smallest car that is suitable for the task in hand, and car clubs typically operate cars which are among the most fuel-efficient available and reflect the needs of their members²². As a result, car club vehicles tend to have amongst the lowest CO₂ in class, and are much more fuel efficient on a mile for mile basis than most cars on London’s roads.
- Beyond this, car clubs have been at the forefront in experimenting with the use of the more advanced technologies including all-electric cars and hybrids. For example, Zipcar is now using four Vauxhall Amperas – these are primarily electric vehicles but with a conventional engine to provide extended range where needed. It is hoped that these will offer a combination of excellent environmental performance and the flexibility that car club members need.

Car Clubs and Electric Cars

A further note is necessary on the subject of electric vehicles (EVs) in car clubs. Car clubs are regularly cited as perfect test beds to encourage the nascent EV market. It is not difficult to see why – both deliver good sustainability benefits and both require fixed, dedicated, bays. Without doubt, the car club sector can play an important role in popularising EVs by providing a means of risk-free access to driving them; and, thereby, building acceptance of them. It is not a simple marriage though, or at least not yet.

Car club members require vehicles that are located nearby, that are suitable for a range of different journey types and that are ready to go (potentially over a significant distance) right from the start of their booking period. Car club operators, therefore, require vehicles which can be used by multiple members on the same day, for different reasons (and which are economically viable, in terms of purchase cost, depreciation and residual value). EVs also require reliable charging infrastructure and reasonable time to charge, and this is difficult to provide on a consistent basis. Hence, not all of the requirements for widespread use of EVs in car clubs can be met at the current time.

Whilst this is the case, Zipcar is keen to play a role in navigating a way through some of these hurdles and is well placed to do so, given its large member base, network of locations and knowledge of usage patterns. However, given the current economics of EVs and the required charging infrastructure, full widespread usage of EVs in car clubs will only come about through strategic collaboration and concerted effort from operators, cities and manufacturers alike.

The Benefits of Car Clubs for Business Use

Car clubs can be a sensible choice for businesses that are looking for a cost-effective, flexible and convenient way to manage their transport needs. Using a car club (instead of running an in-house fleet) provides companies with a scalable solution that can be altered to reflect changing business needs, and that minimises overheads and ongoing costs, and maintenance and management requirements.

Zipcar has a range of corporate customers including businesses, hospitals, universities, and local authorities.

Case Study - Public Sector: London Borough of Croydon

Zipcar has been working with Croydon Council (the largest London authority) since 2011. Zipcar provides the council with 23 Zipcars, which are situated in their car park at the main council building, for the exclusive use of Croydon Council employees during working hours on weekdays. During evenings and weekends, these same Zipcars are open for use and can be hired by any member of the public who is a Zipcar member. This 'split service' model offers benefits to the council and its residents alike.

A pilot scheme with Croydon showed substantial benefits in respect of reduction of car mileage, CO2 emissions and car costs to the council. Specifically, it delivered:

- A cut in car travel costs by 42%, from £1.3m to £756,000;
- A reduction in Croydon Council employee car users by more than half (52%), from 1,284 to 611;
- A drop in employee business miles by 42%, from 1.1m miles to 642,000 miles per year;
- A reduction in employee CO2 emissions by 36%, from 324 tonnes to 207 tonnes annually.

Business customer demand (during business hours) provides a useful balance to the needs of individual car club members, which as shown above is typically dominated by demand in the evenings and at weekends. Balanced utilisation of an entire car club fleet enables a better and more cost-effective service to be provided to all types of users. More vehicles and more choices can be offered to individual and business customers together than would be possible for either market segment alone.

Case Study - Private Sector: Sipsmith

Sipsmith Independent Spirits produces high quality handmade spirits, and was founded by three London based brothers. Since launching three years ago, their business has grown - winning 15 gold medals, and supplying hundreds of customers in London from bars and restaurants such as Claridges, Mandarin Oriental and The Ledbury to retailers like Harvey Nichols, Selfridges and Waitrose. Since the business started, the owners have used Zipcars and Zipvans to easily and efficiently make more deliveries to customers, more often.

Fairfax Hall, co-founder of Sipsmith, comments: "Zipcar for Business has enabled us to make a 20% saving in comparison to owning our own vans. As our business has grown, Zipcar has grown with us, allowing us to easily and efficiently expand to making more deliveries to more customers, more often. Rather than purchasing a fleet of vehicles, using Zipcar allows us to reinvest every last penny of our capital back into the business to drive growth, confident in the knowledge there will always be a road-worthy vehicle available and on demand to service our customers."

Potential Future Levels of Car Club Membership

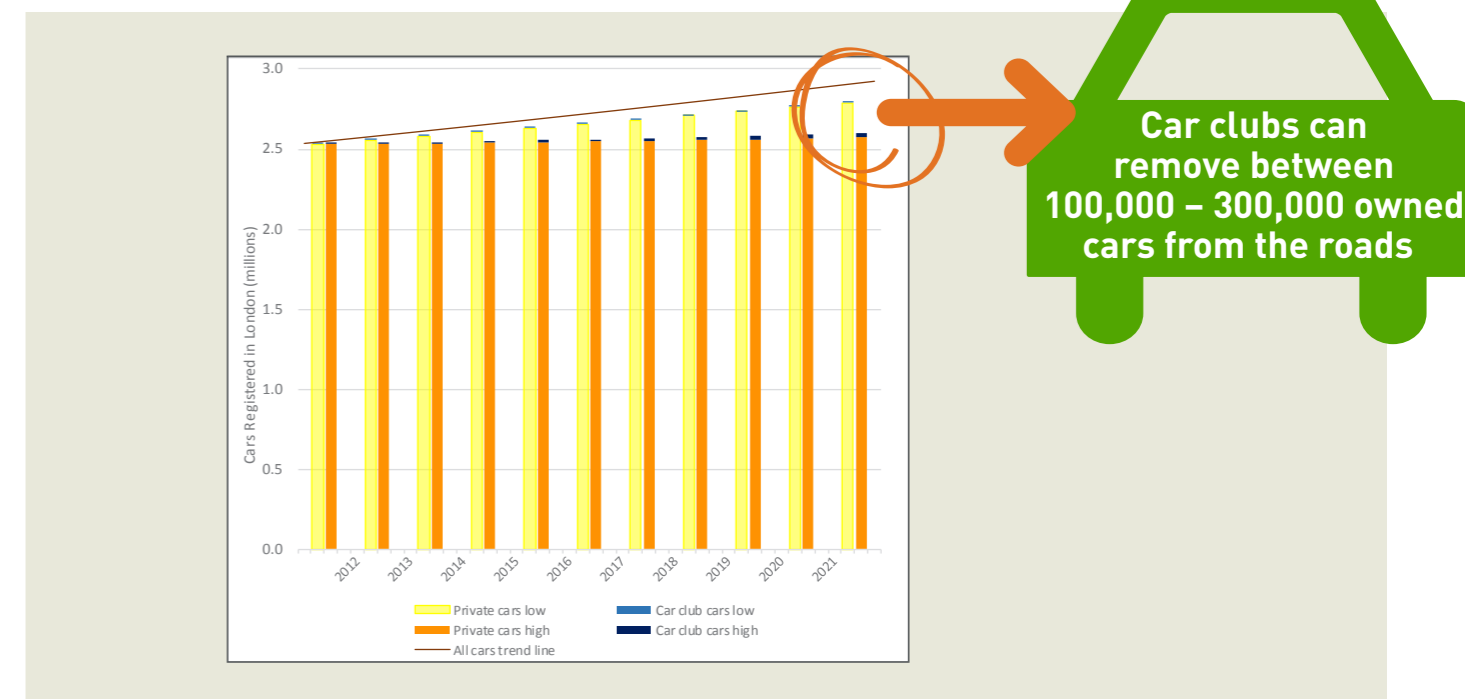
The RAC Foundation (in a preliminary and conservative estimate)²³ has forecast that by 2020 'back to base' (round-trip) car clubs could have 430,000 members in London. More ambitiously, both TfL²⁴ and Carplus²⁵ have previously suggested around a million car club members by 2020.*

We have, therefore, taken these two figures as a low and high car club membership estimate to calculate the likely effect of car clubs on total car ownership out to 2020 and beyond, comparing these to a baseline scenario where car club membership levels remain as they are now and private car ownership grows in line with London's population (14.2% over the next decade). Growth in car club membership towards the two estimates above is assumed to be linear, but the number of car club members per car (at around 50) and the number of private cars displaced by each car club car (currently 14 as set out above), remain as they are now. The results are illustrated in Figure 10.

As this projection illustrates, with no further action, total car ownership in London would grow to nearly three million by the early 2020s. Even in the lower car club scenario, however, the extra car club cars displace up to 100,000 privately owned cars and partly counteract the effect of growing population by 2020. In contrast, in the high scenario, car club cars alone could displace nearly 300,000 privately owned cars by 2020 and stabilise the size of London's total car fleet in the face of growing demand. If (as TfL believes) the growth in demand for cars were to be less than the growth in population, then encouraging a large take-up of car club membership could actually reduce the total number of cars. This would free up a very large area of London's roads and parking spaces for other more productive uses.

It can also readily be seen from the graph that the number of car club cars required to achieve this transformation (shown in blue but barely visible at this scale) is almost negligible by comparison to the total car stock, amounting to less than 2% of all the cars on the road even in the high scenario for 2020.

Figure 10: Projected Impact of Car Club Growth on Total Car Ownership in London



* In the past, transport modelling has paid little attention to the positive impact of car clubs. However, with the levels of car club membership projected, the impact will be material and it is recommended that future modelling does factor in the inherent benefits of car clubs. In London especially, the high availability of public transport, short supply of parking (and projected levels of car club membership), combine to create very specific and advantageous travel behaviours.

Policy Proposals

This paper has so far addressed the context in London and the growing need for solutions that will keep London moving in the face of a rising population. It has also presented analysis to show car clubs as a positive, non-punitive way to reduce car ownership and car trips and has demonstrated the associated benefits of a rising car club membership. The next section considers what policy support is already available for car clubs and makes some recommendations for how this can be developed to fully enable the concept to reach the potential that exists.

Official Support for the Growth of Car Clubs

London is now a key centre for car clubs at the global level. As this paper has already acknowledged, this is certainly, in part, due to support from successive Mayors, Transport for London and the London Boroughs.

Transport for London's involvement has been pivotal. The 2008 Car Clubs Strategy provided vital support to the growth of car clubs in London by making funding available, which boroughs could bid for, in order to grow their on-street car club networks (and at a time where access to dedicated car club bays was the largest barrier to growth of the car club model). Whilst the strategy was pivotal at the time, it lapsed in 2012 and to date there is no further strategic guidance on how Transport for London intends to help increase use of car clubs as a demand management tool. It is, however, understood that TfL has just begun working on car dependency, and while the potential outcomes of this work are uncertain, a new approach to this particular issue is very welcome. Zipcar will engage actively in any consultations that contribute to this end. Car clubs and other forms of car sharing deserve to be given major prominence in such an initiative, as they are unique in offering a major and positive new avenue to tackling parking and road congestion in London.

Unlike many cities where a case could be made to a single city-wide transport authority, London's multi-authority structure presents some unique challenges to anyone seeking to promote a transport initiative such as car clubs. Here, the case for support has had to be made borough by borough (albeit with the support of the TfL strategy document and funding). To a significant degree, this case has been made and accepted, with most boroughs now having some form of involvement with car clubs. However, as Table 1 shows, the level of engagement and activity ranges extensively, from those who have a significant number of bays and associated policies, to those who still have limited or no involvement at all (though it must be noted that in some Outer London boroughs the potential for car clubs appears relatively limited).

Table 1

The Boroughs and Car Clubs (key overleaf)

Boroughs	Car club involvement	Bay supply vs demand	Car club permit cost as % of business	Car clubs in Section 106 planning agreement	Car club Signage	Council business use of car clubs
Barking and Dagenham	Yes - with Zipcar	😊	0%	😞	😞	😞
Barnet	No	😞	—	😊	—	😞
Bexley	No	—	—	—	—	😞
Brent	Yes - Multi-operator	😊	0%	😬	😞	😊
Bromley	No	—	—	—	—	😞
Camden	Yes - Multi-operator	😊	75%	😞	😞	😞
City of London	No	—	—	—	—	😞
Croydon	Yes - Business use only	😬	—	😊	—	😊
Ealing	Yes - Multi-operator	😬	100%	😊	😊	😊
Enfield	Yes - with Zipcar	😊	0%	😊	😞	😬
Greenwich	Yes - with Zipcar	😊	73%	😬	😞	😞
Hackney	Yes - with Zipcar	😊	100%	😊	😬	😞
Hammersmith & Fulham	Yes - Multi-operator	😞	100%	😞	😞	😞
Haringey	Yes - with Zipcar	😊	50%	😬	😊	😬
Harrow	No	—	—	—	—	😞
Havering	No	—	—	—	—	😞
Hillingdon	No	—	—	—	—	😞
Hounslow	Yes - Multi-operator	😬	0%	😬	😞	😞
Islington	Yes - with Zipcar	😊	31%	😊	😞	😬
Kensington and Chelsea	Yes - Multi-operator	😊	N/A	😬	😞	😞
Kingston upon Thames	Yes - with Zipcar	😊	0%	😬	😞	😬
Lambeth	Yes - Multi-operator	😬	92%	😊	😞	😬
Lewisham	Yes - with Zipcar	😬	100%	😬	😞	😞
Merton	Yes - Multi-operator	😬	11%	😞	😞	😞
Newham	No	😞	—	😬	😞	😞
Redbridge	Yes - with Zipcar	😬	92%	😞	😞	😞
Richmond upon Thames	Yes - Multi-operator	😊	50%	😬	😞	😬
Southwark	Yes - with Zipcar	😊	82%	😊	😞	😞
Sutton	Yes - with Zipcar	😊	N/A	😞	😬	😞
Tower Hamlets	Yes - Multi-operator	😊	33%	😊	😞	😞
Waltham Forest	Yes - with Zipcar	😊	0%	😊	😞	😞
Wandsworth	Yes - Multi-operator	😬	127%	😊	😬	😞
Westminster	Yes - with Zipcar	😊	N/A	😊	😊	😬

Key to Table 1

Metric	Definition	Measurement
Bay supply vs demand	Ratio of number of bays to demand as defined by car club membership	<ul style="list-style-type: none"> 🟢 Sufficient bays available 🟡 Some bays, but not enough 🔴 No bays available or significant shortfall
CC permit cost as % of business permit	Ratio of car club permit cost to standard cost of business permit from council*	<ul style="list-style-type: none"> 🟢 Low or zero cost 🟡 Significant cost 🔴 Cost high or above business rate
Section 106	Whether appropriate car club bays/memberships are required under Section 106 agreements for new or refurbished buildings	<ul style="list-style-type: none"> 🟢 Wherever possible 🟡 Sometimes 🔴 Never
Signage	Whether each car club bay is adequately signposted (beyond legally required DfT sign plate)	<ul style="list-style-type: none"> 🟢 Yes - good signage 🟡 Some signage 🔴 DfT required signage only
Car club business usage	Whether council uses car club cars rather than its own vehicles/grey fleet	<ul style="list-style-type: none"> 🟢 Yes - significant uptake 🟡 Some usage 🔴 None

Table 1 shows that, whilst a good percentage of boroughs have now adopted a positive policy towards car club provision, this has not always resulted in the kind of practical, joined up action that will ensure the club’s success. Two examples of this are:

- **Charging** – there is a huge variation in the extent to which boroughs offer favourable permit rates to car clubs relative to the standard business permit cost. While some authorities charge little or nothing for each bay in order to encourage take-up, others expect a substantial return of income for each bay provided. In the latter cases, it is much more difficult to provide a service that covers its own costs and is able to invest in growth.
- **Signage** – the reluctance of most authorities to provide even basic signage at each car club location, to inform local residents what the bay is and how they can join the relevant car club in order to use the car which is parked in that bay, is also slowing the uptake of car club membership.

If we are to establish the car club network as an additional public transport mode and a serious alternative to private car ownership across the capital, such a varied and disparate approach to car clubs has to change. This will take more sustained engagement from some boroughs and a stronger leadership role from TfL. Zipcar intends to use this paper as a starting point for making the arguments for the benefits of car sharing more cogently and more forcefully to TfL and to those boroughs that have not so far embraced the benefits of car clubs and car sharing more widely.

The administrative structure of London should not be allowed to constrain innovation and development. London is rightly seen as a global innovator in transport, but for car clubs, it is still playing catch-up with other global cities in a number of key respects. For example, New York has twice as many car club bays, while other cities demonstrate best practice in the integration of car clubs into general public transport services, and the integration of car club infrastructure into the fabric of the city. These examples are illustrated in the case studies highlighted in this paper, and will only be replicated in London if some of the recommendations in this paper are accepted and acted upon.

Towards a Sustainable Transport Policy for London

Zipcar wants to contribute to the debate on London’s urban mobility in order to help improve the consumer experience, the urban environment, and overall system efficiency.

In order to achieve a transport system for London that is truly sustainable in environmental terms while offering an appropriate level of mobility to all its citizens, we believe that high quality public transport and facilities for walking and cycling, etc., must be accompanied by policies that tackle car ownership and use head-on. That is, we must recognise the following:

- That as London’s population continues to grow and the city becomes more crowded, we will be less and less able to accommodate a growing number of cars (and car journeys). Therefore, we should be aiming to reduce the proportion of public space that is given over to parking and car traffic by actively seeking to cut the number of cars in London in absolute terms. This would make more space available in the public realm, allowing more bus and cycle lanes, green spaces and pedestrian areas.
- That Londoners will not make optimal transport decisions unless they can be persuaded out of the private car. The chances of this happening increase significantly if they feel that the same freedom and convenience that a car can offer can be provided without the need to own a car themselves.
- That it is not realistic to seek to eliminate car use entirely, but rather to seek to reduce car dependency or promote Car Lite living.

Key components of such a model would include:

- That a car should be available to all Londoners on a pay-as-you-go basis, freeing them of the burden of having to own and look after one;
- That all Londoners would have easy access to a simply-packaged full range of transport modes so they can make the most appropriate, most informed and most rational decision as to which mode suits each individual trip they need to make.

By ensuring this, inevitably, car use would be confined to the types of journeys for which alternative modes are not easily available, such as difficult cross-town trips; journeys at unsocial hours; trips involving heavy luggage or young children, etc.

At the heart of reducing car dependency is the need for a fully multi-modal approach that includes responsible use of the car. Further improvements to the quality or quantity of services offered by conventional public transport are subject to diminishing returns – that is, the kind of modal shift necessary to ease congestion cannot easily be achieved by continued improvements to conventional public transport alone. Car clubs, however, have the potential to be real game changers as they redefine previously accepted norms for the city car. Alternative models of car use, including car clubs, now offer an essential and mainstream alternative that could help a substantial proportion of London’s car drivers to change their behaviour for the better, by giving up their car and using a car less often and other transport options more.

CAR CLUBS HAVE THE POTENTIAL TO BE REAL GAME CHANGERS

* Sutton and Kensington and Chelsea permit costs are marked as 'N/A' because there is no business permit price with which to make comparison.

Future Policy Proposals to Support Car Clubs

Provide a Joined Up, All Mode, London Transport 'Brand'

This report has argued that car clubs can and must form part of a holistic and integrated solution to fulfil London's future transport needs in order to tackle levels of car ownership. There is more work to be done to have this argument widely accepted and understood by London's residents and businesses. Where currently car clubs appear as an add-on to the transport mix, in future they could become a fully integrated, mainstream and critical component of the overall transport system – in effect as an auxiliary mode of public transport. Only when all transport options are packaged together coherently for the consumer will they be fully able to make smart, informed decisions on how best to use the different modes of transport available to them. This kind of packaging would not only dramatically increase the profile and awareness of car clubs, but would also lend the kind of authority and endorsement that would help shape public attitudes and accelerate the uptake of car sharing behaviour.

Such recognition in principle could be reinforced in practice by a range of policy measures that could facilitate or encourage a substantial acceleration of the rate of uptake of car sharing alternatives, as set out in the sections that follow.

The Branding of Autolib' in Paris

The Autolib' electric car scheme in Paris is hard to miss, on account of the scale and ambitious design of the system. Particularly prominent aspects of this include:

- The extremely bold and prominent design of the livery of the cars themselves;
- The numerous and well-designed recharging points scattered across the city;
- The futuristic kerbside booths in which new members can register;
- The ubiquitous signage and advertising for the scheme.

There is room for serious reservations about the high cost of the Paris scheme; the likely long-term performance of the battery packs; and the danger that these urban cars will compete directly with public transport for passengers, but the overall planning, prominence and ambition of the scheme sets an example for others to follow.

Provide a Seamless Consumer Experience Through Ticketing and Charging

One of TfL's greatest and most prominent achievements of recent years has been its drive to extend the scope of integrated ticketing and charging across larger and larger parts of the public transport infrastructure of London and its surrounding areas. This development, epitomised by the now-ubiquitous Oyster card, has in itself made London's transport systems far more accessible and easy to use by London's travellers and visitors alike.

It does not, however, currently give access to all transport modes. Should car clubs be accepted as this paper recommends into the London Transport 'brand', they should also be accepted and integrated into the mainstream public transport ticketing and charging systems in order to accelerate their uptake and use. As well as making it practically much easier to reserve a car club car (say) on arrival at an Overground station or terminus, this would further reinforce the idea in the public mind that car sharing was a legitimate and integral component of London's transport infrastructure.

As the box illustrates, integration of car clubs with public transport is being actively pursued on the Continent, is now under active consideration in Paris, and should be in London as well. Full integration is an ambitious aim, but a start could be made quite quickly by, for example, incorporating the locations and details of all car club bays into TfL's data systems.

INTEGRATION OF CAR CLUBS WITH PUBLIC TRANSPORT IS BEING ACTIVELY PURSUED ON THE CONTINENT AND SHOULD BE IN LONDON AS WELL

Car Clubs and Intermodal Transport

Since 2002, the Netherlands has led the way in fully integrating car clubs and bicycle schemes into the coverage of its public transport travelcard, the OV Chipcard. All public transport operators are now integrated into the system, which offers seamless door-to-door pay-as-you-go travel throughout the Netherlands. Currently there are 12 million active OV Chipcard users in the Netherlands.

Switzerland has also for many years pioneered car clubs based around the stations of its extensive railway system. Its MobiSys 2.0 mobility app allows access to a number of car clubs across Switzerland.

Similarly in Germany, Deutsche Bahn (DB) is piloting a fully intermodal 'BahnCard 25 mobilplus' – a travelcard that allows access to long distance rail, all local public transport, car club cars and a bike scheme. It includes monthly prepaid credit for both car and bike schemes, in order to encourage seamless intermodal journeys throughout Germany.

Provide Integrated Information Systems

Another key feature of the rapid evolution of London's transport systems over the past decade has been the development and propagation of real-time information systems. These have enormously improved the capability of the London traveller to plan in advance complex trips across London by public transport, and where appropriate, to book in advance as well. Real-time information on the location and progress of individual buses and trains has also allowed travellers to optimise the timing and convenience of their use of public transport services and transfers between them. Again, coupled with the advent of the smartphone in particular, these developments have had a transformative effect on the usability and popularity of public transport in London in particular.

Car clubs such as Zipcar have been developing their own information systems and smartphone apps, and these too have been decisive in facilitating the planning, booking and billing of car club car trips, and with other practical aspects such as locating the car and securing access to it (i.e. locking and unlocking the car). This in turn has contributed to the growing popularity of car clubs and other modes of car sharing.

As yet, however, these have developed in parallel to TfL's information systems. Again there are benefits – arguably in both directions – to be gained by fully integrating car club data into the TfL public transport data systems. Most notably, by allowing websites and apps to present the full range of transport options available to the traveller in a seamless and transparent way.

Provide Incentives

With integration of all transport modes, including the car, comes the ability to influence behaviour through price promotion – something that is almost entirely absent in London at the moment. Not only would this allow TfL to alter demand patterns for transport through price mechanisms, but it would also allow them to cross-incentivise complementary modes. For example, membership of the bike hire scheme could be incentivised through reduced-cost car club membership (or vice versa). This would enable TfL to encourage Londoners into beneficial, more sustainable, transport patterns. One incentive TfL could offer Londoners would be a Car Lite package where, in return for giving up car ownership, discounts could be offered on season tickets, car club memberships etc. The fact that the average car in London spends more than 96% of the time sitting unused should give confidence that, with the right package of incentives, Londoners could be persuaded away from such an irrational choice.

Provide Leadership

Given London's governance structure, the power to implement schemes such as car clubs lies with the London boroughs. It is, therefore, primarily through policy advice, a funding steer and thought leadership that TfL can seek to influence the provision of car sharing across the capital. A good example of how this has already happened is through the funding given to boroughs from 2008-2012 to grow their car club networks. This paper advocates the further extension of such policy guidance to increase both the breadth and intensity of car club provision. For example:

- Consistent pan-London guidance on parking, into which car club facilities were fully integrated from the outset, is needed. This, for example, should specify or advocate a consistent type and level of provision of car club parking bays to allow Zipcar and other clubs to make a comprehensive service offer across the whole of London and beyond, and to intensify provision to a sufficient density whereby a car club car would be within easy walking access of all London residents.
- Consistent pan-London guidance on charges and incentives for car clubs would also help provide a comprehensive service, as currently different boroughs treat car club bays very differently. This in turn leads to a heterogeneous pattern in the development and maturity of car clubs across London.
- Consistent pan-London guidance on car club bay signage as identifying bays to pedestrians and potential users would also make them easier to access, and again would reinforce the perception of the single uniform network across the capital, and the idea that car sharing was an integrated publicly endorsed component of the public transport network. TfL should play a lead in promoting a uniform approach and clearly apply its own brand and endorsement to the network of car club bays.
- Consistent pan-London guidance/approach to reducing car dependency including encouraging boroughs to set targets on metrics such as cars per household. This would hopefully encourage boroughs to look at measures such as graduated pricing. For example, a second or subsequent resident's permit for each household could be offered only at a much higher annual fee. Some local authorities already go further than this and restrict resident's parking permits to one per household.
- Consistent pan-London guidance on planning involving car clubs. Particularly where conditions for planning approval of new developments include a restriction on the parking spaces to be made available, future residents would benefit from additional flexibility in their transport choices if Section 106 agreements would specify a fixed number of permanent bays dedicated to car club cars. Again such practices are already becoming established in some areas, but are inconsistently applied across London.

THERE ARE BENEFITS – ARGUABLY IN BOTH DIRECTIONS – TO BE GAINED BY FULLY INTEGRATING CAR CLUB DATA INTO THE TFL PUBLIC TRANSPORT DATA SYSTEMS

Car Clubs as Part of the Property Planning Process

There are already numerous examples in and around London of where car clubs are being included as part of new-build property developments. They are either required by the authority as part of a Section 106 agreement, or included as a value-add amenity by the developer.

Case Study: Inner London: Putney Square – Barratt Homes

The London Borough of Wandsworth now proactively requires car club provision on almost all new build residential developments in the borough. It does this as a way of mitigating any negative impact on congestion and parking from a rising population, while at the same time improving general car club provision throughout the borough. In the specific case of Putney Square, a 200+ unit development in Putney, South-West London, the Section 106 agreement was intended to justify a low parking ratio by providing an alternative to private car ownership. It required that three car club bays were provided on site and two year's free car club membership with £10 driving credit was provided for each resident. Zipcar was chosen by Barratt Homes as the provider and there are currently three car club vehicles on site and 65 active Zipcar members. Barratt Homes, the developer, actively markets the free Zipcar memberships to its residents in welcome packs as a cheaper, greener, more convenient alternative to owning a private vehicle.

Case Study: Outer London: Colindale Hospital – Fairview Homes

The London Borough of Barnet also now proactively requires car club provision on all suitable new build residential developments in the borough. As with Wandsworth, it does this as a way of mitigating any negative impact on congestion and parking from a rising population, whilst growing the general car club provision in the borough. In the specific case of Colindale Hospital, an 800+ unit development in Colindale, North-West London, the Section 106 required 'lifetime' free car club membership for residents and up to five car club bays. There are currently three Zipcar vehicles on site and over 80 memberships have been claimed so far, even as the development is still in its early stages, with less than 50% occupancy. As more residents move in and join Zipcar, the company will continue to add additional vehicles on site to meet demand.

Conclusions and Five Policy Recommendations

In summary, this paper has argued that:

- London is a vibrant and growing city, but pressures from parking, traffic and other environmental problems could damage its future prospects as its population continues to grow;
- Existing 'carrots and sticks' such as parking controls, the Congestion Charge and improvements to public transport, walking and cycling facilities all have an important role to play, but are subject to diminishing returns;
- There is a wealth of evidence that car club members drive much less than other motorists, use bicycles and public transport more, and tend to drive at weekends and outside the rush hours;
- Car clubs now have the potential to provide a new urban alternative to conventional car ownership models which can cut car ownership and use dramatically;
- There are now numerous opportunities for London to capitalise on in this new space, in order to promote a truly sustainable transport system for the future.

Reflecting the findings of this paper, Zipcar has the following five policy 'asks' in descending order of impact, in order to reach the target of a million car club members in 2020.

1. Integration through marketing

First and foremost, for these levels of car club membership to be reached, there needs to be a step change in levels of awareness of what car clubs can offer. While Londoners are entirely familiar with the majority of transport options available to them (not least because they are packaged under the TfL brand and systems), car clubs remain poorly understood by comparison. If London is truly to be a multi-modal city, all modes need to be packaged coherently so that Londoners are empowered to make the most appropriate choice for their particular trip - and sometimes that might

include using a car. Hitherto, private car ownership has been the de facto way to use a car, but now car clubs are demonstrating that there is a better, cheaper, more sustainable alternative for city car use. This awareness could be greatly increased if TfL would exert its influence to integrate car clubs fully into its stable of brands, through a more visible presence on the TfL website, improved signage at bay locations and wider general promotion.

2. Integration through systems

In addition to the above, full multi-modality will only be brought about if it is seamless for the consumer. This is currently the case for most modes, under for example, the Oyster card payment system, real time performance information system, etc.; but car clubs are not yet included. Access to similar data/services is currently through separate card, payment and information systems developed by the car clubs themselves. As Oyster evolves and is ultimately replaced, there is an opportunity for all modes to be fully integrated into London's public transport systems, including car club vehicles.

3. Behavioural incentives

With full integration through systems and marketing, there will be the opportunity to stimulate modal shift by incentivising optimal travel behaviours. With usage rates of private cars at such low levels, greater awareness of alternatives backed up by incentives could persuade significant numbers of Londoners away from personal car ownership and into car clubs. Incentives could include creating bundles of travel offers, such as discounted car club membership for those who join the Barclays Cycle Hire ('Boris bike') scheme, a percentage reduction in monthly travelcard cost for new members of car clubs, etc. Alternatively, along the lines of the 2009 national car scrappage scheme, Londoners could be given discounts on car club membership when they demonstrate that they have sold a private car and not replaced it.

4. Stronger guidance and leadership on car club strategy

Car club provision is currently patchy across London due to significant variations in policy stances between London boroughs. Whilst parking policy is likely to remain under the control of individual boroughs, and hence their capacity to provide or withhold car club bays, there is a greater opportunity for policy guidance and information sharing to ensure that all boroughs are at least making car club policy from a strong and consistent information base. This would encourage a more coherent approach and, therefore, more effective and consistent delivery.

5. Development planning

As London continues to develop and grow, it is vital that planning guidance keeps pace. Requiring new-build developments to include some dedicated car club parking spaces, rather than providing an individual parking space for each unit ensures that a growing population can be accommodated, without a significant rise in car numbers or space requirements. Under Section 106 provisions, developers can be required to capitalise on this opportunity through the provision of car club bays or car club memberships as appropriate. This is already happening in some places in London but, again, a more consistent approach is necessary to maximise the opportunity.



CLOSING REMARKS

London is a world-class city, and car clubs can help deliver an efficient, cost-effective and world-leading sustainable transport system to match. Car clubs can enable a more liveable London where its inhabitants have a wide and diverse range of transport choices, lively and attractive public spaces, and shopping areas and other facilities that are easily accessible by a range of transport modes. With the car no longer at centre stage, London can instead become a city where its people, their lifestyles, the quality of life and work are put first, with a Car Lite transport system enhancing and supporting this change. Zipcar is ready to take on this challenge but believes that concerted action from the Greater London Assembly, Transport for London, the London borough authorities, and key stakeholders is also needed to help deliver this vision.



References

- ¹ GLA 2012 Round Population Projections: Intelligence Update 05-2013, February 2013, GLA
- ² World Urbanization Prospects: The 2011 Revision, 2012, United Nations, New York
- ³ Press Release: Around 40% of the EU27 population live in urban regions..., March 2012, Eurostat
- ⁴ See for example Something in the Air: The forgotten crisis of Britain's poor air quality, 2012, Policy Exchange
- ⁵ http://cleanairinlondon.org/wp-content/uploads/CAL-241-Update-on-EEA-2011-data_010613-V2.pdf, June 2013, analysis by Clean Air in London
- ⁶ Clearing the air: The Mayor's Air Quality Strategy, December 2010, Greater London Authority
- ⁷ London's Environment Revealed: State of the Environment Report for London, June 2011; Data updates, February 2013, Mayor of London et al
- ⁸ See for example Happy City: Transforming Our Lives Through Urban Design, 2013, Montgomery C
- ⁹ The vision and direction for London's streets and roads: Roads Task Force Report, July 2013, TfL
- ¹⁰ See for example Peak Travel, Peak Car and the Future of Mobility: Evidence, Unresolved Issues, Policy Implications, and a Research Agenda, October 2012, International Transport Forum
- ¹¹ Who travels by car in London and for what purpose?, July 2013, TfL Roads Task Force Technical Note 14
- ¹² Cruising for Parking, 2007, D Shoup
- ¹³ Spaced Out: Perspectives on parking policy, 2012, J Bates & D Leibling, RAC Foundation
- ¹⁴ This and subsequent figures based on parking surveys carried out in 1999 and 2005 by MVA for
- ¹⁵ Spaced Out: Perspectives on parking policy, 2012, J Bates & D Leibling, RAC Foundation
- ¹⁶ Mobility Services: Setting the Policy Framework, 2003-04, November 2004, Volvo Foundation
- ¹⁷ Car Club Strategy for London, 2008, Transport for London
- ¹⁸ This case study is based on Zipcar's own data
- ¹⁹ World Class? London's Response to the Megatrends Challenge, 2013, Siemens
- ²⁰ Author's calculation based on TfL data
- ²¹ See for example The emission impacts of Car Clubs in London, February 2012, Transport Research Laboratory
- ²² See for example The Carplus Annual Survey 2012/13: Results for London, June 2013, Carplus
- ²³ Car Rental 2.0: Car club innovations and why they matter, June 2012, RAC Foundation
- ²⁴ London Borough of Croydon Car Club Bay Demand Analysis Pack, 2011, Transport for London
- ²⁵ Car Clubs: A Cost-effective Route to a Low Carbon Britain, 2010, Carplus

