DOES CAR OWNERSHIP INCREASE CAR USE?

A STUDY OF THE USE OF CAR PARKING WITHIN RESIDENTIAL SCHEMES IN LONDON

COMMISSIONED BY THE BERKELEY GROUP

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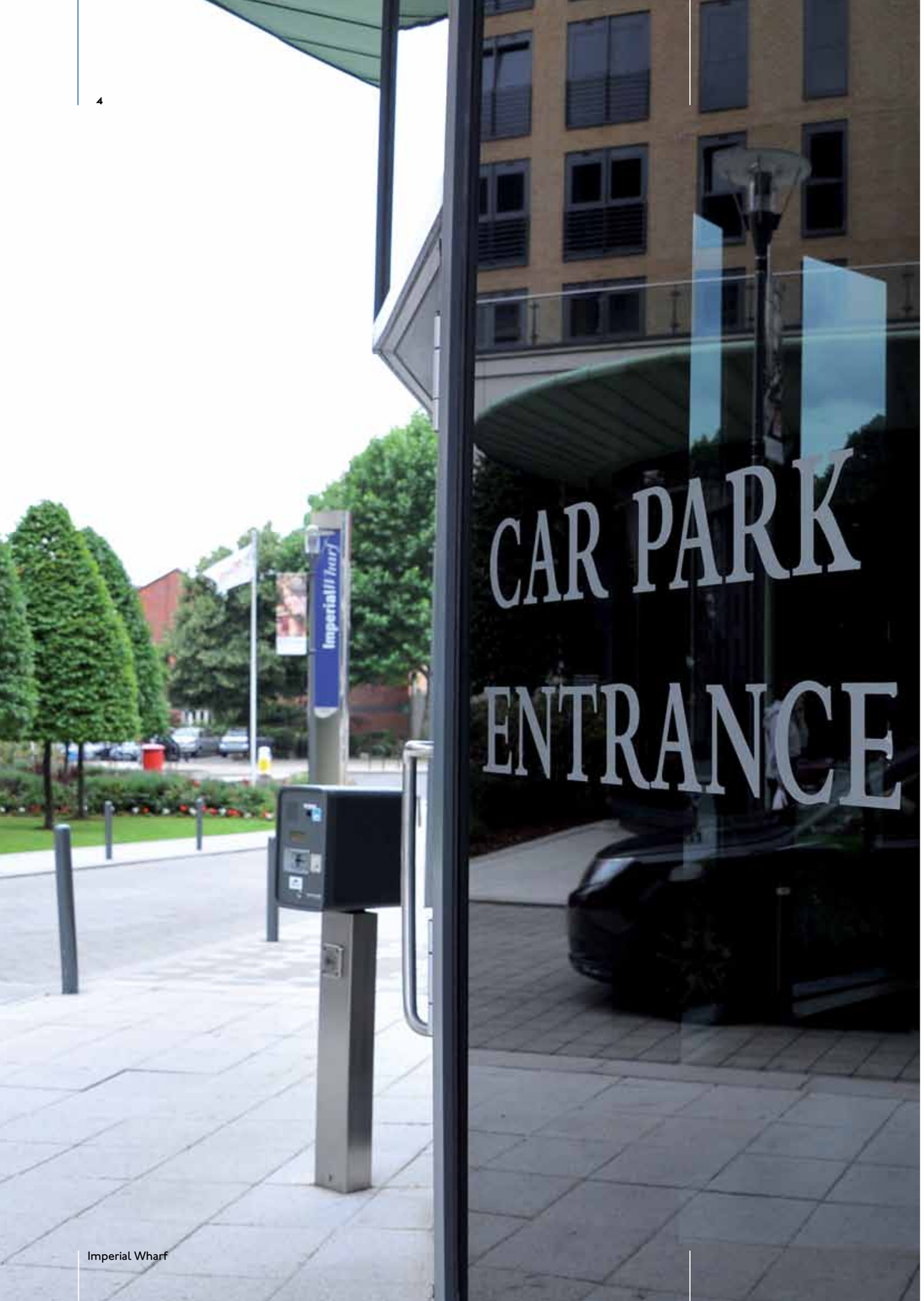


Imperial Wharf

Executive Summary

The Berkeley Group has commissioned WSP to prepare this study which considers the use of car parking within residential schemes in London. The aim of the study is to provide better understanding of the relationship between car ownership and car use, particularly in light of the Mayor's stated desire to adopt a more balanced approach to car parking and the Coalition Government's abolition of national maximum car parking standards.

There has been very limited research undertaken between car ownership and car use associated with residential developments. This study is intended to assist the Berkeley Group in seeking to deliver the appropriate balance within its developments between the provision of residential car parking and sustainable transport strategies in accordance with national and regional planning policy. It builds upon previous research undertaken for the 21 st Century Living report from 2003 and its subsequent update in 2010 on behalf of St George PLC (part of the Berkeley Group).

The study provides an overview of relevant existing planning policy and best practice guidance highlighting recent changes at both national and regional level. It goes on to detail the methodology and data used within the desktop review. The research data is provided from a range of sources including surveys of completed and occupied Berkeley Group developments.

The report highlights relevant factors from each development such as PTAL rating, trip rates, car ownership and daily trip profiles for the various developments. In respect of trip profiles, information on both car and all-mode trips are provided as comparison for each development as is the ratio of car use/car ownership. Findings of the resident travel behaviour surveys carried out at The Hamptons development on behalf of St James (part of the Berkeley Group) are also presented.

Findings of the research have found that there is no relationship between car ownership and peak hour car use. Daily trip profiles highlighted from recent development surveys show consistently low levels of car use throughout the day. For example, at St George Wharf results show that only 1 in every 32 residents cars is being used during the peak hour and at The Hamptons development only 34% of residents use their cars to travel to work (compared to 60% in the local area) even though car parking provision is higher than one space per dwelling. It would appear that many residents who own cars decide not to use them for peak hour travel and will instead walk, cycle or use public transport. This supports objectives behind planning policy which seeks to ensure residents have access to a range of sustainable transport choices available in the places where they live.

Overall, the study confirms that residential traffic is not sensitive to car ownership or parking levels. Whilst many residents wish to own a car, they do not use one for peak hour travel and overall use throughout the day remains low. Therefore, the application of car parking policies within the London Plan 2011 should allow parking provision to be agreed at a level which supports the viability of new developments, alongside the delivery of sustainable transport initiatives.

Foreword

In order to respond to the increasing need for new homes in London, we need to continue building our understanding of Londoners' travel behaviour. This should not simply mean counting people as they move around, it should also involve more research into people's attitudes and build our understanding of the factors which most influence their travel choices.

Of particular concern is to understand the relationship between car ownership and car use. There is an important need to plan ahead for future parking provision in residential developments so that the problems of under-provision or over-provision can be avoided, and achieving the optimal balance so that developments are sustainable and viable.

The Coalition Government's abolition of national maximum car parking standards for residential development was announced in January 2011, with a flurry of memorable quotes :

"Whitehall's addiction to micromanagement has created a parking nightmare with stressed-out drivers running a gauntlet of unfair fines, soaring charges and a total lack of residential parking. The result is our pavements and verges crammed with cars on kerbs endangering drivers, cyclists and pedestrians, increased public resentment of over-zealous parking wardens and escalating charges and fines."

Eric Pickles

"This is a key step in ending the war on the motorist. For years politicians peddled the pessimistic, outdated attitude that they could only cut carbon emissions by forcing people out of their cars. But this Government recognises that cars are a lifeline for many people - and that by supporting the next generation of electric and ultra-low emission vehicles, it can enable sustainable green motoring to be a long-term part of Britain's future transport planning."

Philip Hammond

"Limiting the number of drives and garages in new homes doesn't make cars disappear - it just clogs residential roads with parked cars and makes drivers cruise the streets hunting for a precious parking space. That's why I'm pleased today to get rid of another daft, interfering rule that has only succeeded in annoying people."

Greg Clark

"Today the Government is calling off Whitehall's war on the motorist by scrapping the national policy restricting residential parking spaces and instructing councils to push up charges. We expect councils to follow suit. From now on communities have the freedom to set competitive local charges that bring shoppers to the high street, proportionate enforcement and the right number of spaces for new development. We're getting out of the way and it's up to councils to set the right parking policy for their area."

Eric Pickles

Through the London Plan 2011, the Mayor wishes to see "an appropriate balance being struck between promoting new development and preventing excessive car parking provision that can undermine cycling, walking and public transport use" (Policy 6.13). This is a sensible and balanced approach, and appears to be a shift in emphasis from the 2008 London Plan's aim to "ensure that on-site car parking at new developments is the minimum necessary". It is also consistent with the Coalition Government's revision to national policy for residential parking and the "end of the war on the motorist".

The question for residential development is to know where that sensible balance lies. This issue arose during the 13 July 2011 Mayor's Question Time, with the response being:

"I do intend to look again at the complex issue of parking policy in the unique circumstances of London, recognising differences in different parts of the Capital and, seeking a careful balance between making the best use of scarce development land, encouraging use of public transport and other sustainable modes, meeting residents' needs for parking space and exploring the links between parking, car ownership and car use. Any new approach will be based on the best available evidence about the links between parking provision, car ownership and use, and about the effect on congestion and environmental impacts that any change in policy might involve."

Boris Johnson

However, developers in London still face pressure to reduce car parking provision well below the London Plan maximum standards. A better understanding of car ownership and car use is therefore required if we are to deliver the objectives of national and regional planning policy in planning decisions.

This report has looked at a range of evidence from occupied developments, concluding that no relationship between car ownership and car use can be discerned. The surveys suggest that most London residents who own cars will walk, cycle or use public transport for their peak period journeys. Residential car parking can therefore be provided to reflect the "appropriate balance" sought by the Mayor between development viability and excessive car parking provision which could undermine cycling, walking and public transport use.

These findings suggest that instead of a presumption to minimise residential car parking, there should be flexibility in the approach to agreeing parking provision within the London Plan 2011 standards so as to support the viability of new developments.

We hope you will find the results to be thought-provoking and helpful in understanding the complexities of travel decisions.

1.0 Introduction

1.1 THE NEED FOR RESEARCH

1.1.1 To deliver the objectives of national and regional planning policy in planning decisions, a better understanding of car ownership and car use is required.

1.1.2 TfL's 2010 "Travel in London Report 3" summarises key trends and developments relating to travel and transport in Greater London. Key points amongst its findings are :

- A shift in mode share away from car towards more sustainable public transport modes, walking and cycling
- 6 per cent fewer vehicle kilometres in London in 2009 compared to 2000
- During 2009, TfL has developed a clear policy focus and priority to smooth road traffic and improve journey time reliability for road users
- There have been significant additions to the transport networks since the start of 2009, for example the re-opened East London line, the Woolwich Arsenal extension to the DLR and completion of the King's Cross interchange project
- The successful launch of the Barclays Cycle Hire scheme in Central London, and completion of the first two Barclays Cycle Superhighways

Travel in London Report 3

1.1.3 Section 3.4 of the Travel in London report focuses on car ownership and travel behaviour. This highlights some recent work by TfL to explore patterns of car ownership and use in London. It notes that TfL is keen to improve the understanding of car use and its relationship with car ownership. This section concludes that "The emerging picture for London is therefore one of stable car ownership levels and declining car use – trends which have significant implications for transport policy development".

1.1.4 The Berkeley Group and other residential developers in London are also keen to demonstrate the relationship between car ownership and use. Developers need to plan for car parking provision in future residential developments, in order to avoid under-provision or over-provision. Travel in London notes that cars are a typical "consumer good" and so it lists the factors influencing car ownership, which include "tastes and preferences influenced by lifestyle, values, perceptions and interests, among other things". The development sector is therefore mindful of the link between car parking provision and development viability, particularly given the requirements for residential development to support a range of Section 106 items plus the forthcoming Crossrail CIL.

1.1.5 At an early stage in preparing the original London Plan, the GLA commissioned research on parking standards (SDS Research Report 12, "Parking Standards for London for Retail, Leisure, Mixed Use Development and Other Uses"). This drew some useful conclusions which formed the basis of the restraint-based policy for those classes of development. However, the report intentionally excluded any consideration of residential car parking and so a relationship between residential car ownership and car use was not established.

1.1.6 A distinction can be drawn between residential parking (which is at the "origin" end of a journey) and retail, leisure or office parking (which is at the "destination" end of a journey). There is evidence to show that limiting car parking at a destination can be effective in reducing the level of traffic which is attracted there. However, the same relationship has not been demonstrated for residential parking due to a lack of research to understand the relationship between residential parking, and the patterns of car use by those residents.

1.0 Introduction [continued]

1.2 OBJECTIVES

1.2.1 Given the lack of research into the relationships between car ownership and car use, and its implications for finding "an appropriate balance between promoting new development and preventing excessive car parking provision that can undermine cycling, walking and public transport use", WSP was commissioned by the Berkeley Group to review the available data from TfL and other sources.

1.2.2 The review was conducted objectively so that the Berkeley Group could understand the evidence base and obtain an independent view of the relationships between parking provision, car ownership and car use.

1.2.3 The Berkeley Group has a particular interest in finding the appropriate balance for residential car parking within the sustainable transport strategies of viable developments. The Berkeley Group is committed to investing in London and in helping to deliver the London Plan objectives for sustainable development. It takes a comprehensive approach to delivering sustainable transport strategies when promoting its development projects. In addition to the on-site delivery of initiatives such as car clubs and Barclays Cycle Hire stations it has made significant investment (through S106 contributions) in public transport, ranging from the enhancement of existing bus services to the delivery of new stations (Imperial Wharf). The following provides a summary of the range of initiatives the Berkeley Group has delivered as part of its development Travel Plans:

- Travel Plan co-ordinator
- Travel information packs for all households
- Development website with travel information
- Notice boards with travel information and travel plan promotion
- Initial household visit from site management team
- Cycle hire docking station
- Voucher to each household towards cycle purchase
- Secure cycle parking plus additional visitor cycle parking
- Cycle proficiency training
- Prepaid Oyster card to each household
- Improved public realm and walking/cycling environments
- Car clubs
- Free Streetcar membership to each household
- Concierge service to accept packages
- TRAVL-compliant monitoring surveys covering five and seven years (subject to meeting targets)

1.3 THE KEY FINDINGS

1.3.1 The apparent lack of a relationship between car ownership and peak hour car use seems to be consistent with the picture of stable car ownership but declining car use which comes from TfL's monitoring of longer-term trends.

1.3.2 Development surveys show consistently low levels of car use, particularly in Inner London, suggesting that most London residents who own cars will walk, cycle or use public transport for their peak period journeys.

1.3.3 Residential car parking can therefore be provided without undermining cycling, walking and public transport use. This avoids the overspill parking problems of under-provision, and reflects the "appropriate balance" being sought by the Mayor in London Plan 2011 Policy 6.13 between development viability and excessive car parking provision.

1.3.4 These findings suggest that instead of a presumption to minimise residential car parking, there should be flexibility in the approach to agreeing parking provision within the London Plan standards.

2.0 Planning Policy Context

2.1 OVERVIEW

2.1.1 The high-level principles of national transport policy for development proposals are set out in PPG 13 "Transport"; PPS3 "Housing"; PPS4 "Planning for Sustainable Economic Growth"; and PPG 12 "Local Spatial Planning". These principles are also reflected in the London Plan.

2.1.2 As an overview, these documents stress the importance of promoting sustainable transport choices and reducing the need to travel, especially by car. They aim to improve the integration of land use planning and transport in order to achieve more sustainable patterns of development.

2.1.3 The key recurring themes include the importance of complimentary land uses being accessible by public transport, walking and cycling, and for car parking levels to promote sustainable transport policies.

2.2 NATIONAL POLICIES

PPS3 (June 2010)

2.2.1 Planning Policy Statement 3 "Housing" (PPS3) superseded the previous PPG3 and related documents, and superseded paragraphs 12 – 17 of Planning Policy Guidance 13 "Transport" (PPG 13).

2.2.2 This meant that the former national maximum parking standard for residential use was replaced with a more flexible requirement for local planning authorities to "develop residential parking policies for their areas, taking account of expected levels of car ownership, the importance of promoting good design and the need to use land efficiently".

PPG 13 (January 2011)

2.2.3 This revision reflected the PPS3 changes by deleting the previous PPG 13 paragraph 49, which emphasised the importance of car parking in people's travel decisions.

2.2.4 The objectives of PPG 13 now include that local authorities should "use parking policies, alongside other planning and transport measures, to promote sustainable transport choices and reduce reliance on the car for work and other journeys".

2.0 Planning Policy Context [continued]

2.3 MAYORAL POLICIES

STRATEGIC APPROACH

2.3.1 The strategic approach to car parking generally is set out in Policy 6.13 of the London Plan 2011. As mentioned in the Introduction, the London Plan 2011 speaks of the Mayor's wish to see "an appropriate balance being struck between promoting new development and preventing excessive car parking provision that can undermine cycling, walking and public transport use", whereas the 2008 London Plan aimed to "ensure that on-site car parking at new developments is the minimum necessary".

2.3.2 The London Plan 2011 comments on promoting lower car parking provision in areas with good or high accessibility, however only the retail car parking standards show different levels of provision related to Public Transport Accessibility Levels. The employment standards vary accordingly to Central, Inner or Outer London, but the residential standards in each document relate only to dwelling sizes rather than locations or accessibility levels.

2.3.3 The London Plan 2011 (para 6.38) notes that "London is a diverse city that requires a flexible approach to identifying appropriate levels of car parking provision across boundaries. This means ensuring a level of accessibility by private car consistent with the overall balance of the transport system at the local level".

2.3.4 The residential car parking standards have not changed between the 2008 London Plan and the London Plan 2011.

Maximum residential parking standards

Number of beds	4 or more	3	1 - 2
	2 - 1.5 per unit	1.5 - 1 per unit	Less than 1 per unit

2.3.5 This extract from Table 6.2 of the London Plan 2011 shows that the standards envisage higher levels of parking provision for larger unit sizes, although a footnote says that in high public transport accessibility areas all developments should aim for less than one space per unit. A new footnote has been added since the consultation draft Replacement London Plan, saying that a forthcoming SPG on Housing will include a matrix of residential parking standards that reflect PTAL values. It will therefore be important to research the extent of any relationship between car ownership, car use and PTAL values.

TFL BEST PRACTICE GUIDANCE

2.3.6 TfL's most recent best practice guidelines for Transport Assessments were published in April 2010. Pages 36 and 37 provide guidance on implementing the London Plan policies, as follows :

- A requirement for the provision of electric vehicle charging points in new developments, in support of the Mayor's Electric Vehicle Delivery Plan for London (2009)
- An emphasis on the use of more sustainable modes of transport and the need to reduce reliance on the private car
- Justification for any on-site parking where the PTAL values are 5 or above
- A restraint-based approach to on-street parking close to proposed developments
- Reassurance that any potential overspill parking from developments will not unduly affect the TfL road network or public transports
- Measures to reduce the need for car ownership/use

2.3.7 Although these guidelines are not specific to residential land uses, the principles are to reduce car dependency while avoiding overspill parking problems and providing for electric vehicles (the Mayor has a target for 100,000 hybrid / electric vehicles in London as soon as possible), and Blue Badge parking. Good practice is to provide a development-specific assessment of residential parking requirements, taking account of all relevant factors identified by the GLA and TfL as part of a balanced approach.

More London

3.0 Study Method and Data

3.1 METHOD

3.1.1 The study involved a desktop review of existing surveys, drawing on a range of different data sources. The data was collated and checked so that any anomalous or outlying results could be identified.

3.1.2 Patterns of car use associated with each survey site were studied by plotting the daily profiles of person trips and car driver trips; plotting the relationships of car ownership versus peak hour traffic generation to see whether any correlations could be established; and by tabulating the car use / car ownership ratios (ie peak hour car driver trip rate divided by average car ownership).

3.1.3 The study used existing surveys which have recorded how developments actually operate in practice. In order to widen the pool of available information and to check whether consistent results would be obtained from different sources, a range of data were included. These were :

- TfL's TRAVL database (survey results from 2006 to 2010)
- iTRACE-compliant Travel Plan monitoring surveys (2010)
- "21 st Century London Living" by Barton Willmore, PFA Consulting, Symonds and WSP (2003)
- "21 st Century London Living Update" by Barton Willmore and PFA Consulting (2010)
- Residential trip generation surveys from Ballymore developments
- St James (part of the Berkeley Group) surveys of "The Hamptons" development including quantitative and attitudinal results (2006 to 2009)

3.1.4 The survey data reviewed by this report is less than five years old, in line with TfL's standard selection criteria when considering the trip generation of proposed developments. The 21 st Century London Living data from 2003 was used only for the purpose of a comparison with the 21 st Century London Living Update 2010, as the 2003 surveys were conducted prior to the London Congestion Charge being introduced. The principal finding from this comparison is that the gap between car mode shares and car ownership has grown. The surveyed sites had a significant drop in car mode share (from 34% to 17% in the privately owned units) whereas car ownership declined by only 7%.


Chelsea Bridge Wharf


Battersea Reach

3.0 Study Method and Data [continued]

3.2 TRAVL SITES

3.2.1 All TRAVL survey sites with data under five years old were selected for inclusion in the study. Five of these (Battersea Reach, Imperial Wharf, Kew Riverside Park, Riverside West and St George Wharf) were added to TRAVL after they were surveyed as part of the 21st Century London Living Update. A summary of the TRAVL description for each site is given below.

Battersea Reach

3.2.2 This Inner London site in the London Borough of Wandsworth has a PTAL of 3. The site is located on York Road in Wandsworth, 6-7 minutes walk from Wandsworth Town rail station and 10 minutes walk from Clapham Junction.

3.2.3 It is a mixed-use development consisting of 1,084 private residential apartments, convenience store, gym, pub and café. Part of the site was still under construction, so the number of occupied apartments at the time of the survey was 440. There is an underground car park for 650 cars, available to residents (permits) and visitors (pay-on-foot), and the recorded car ownership based on household numbers is 77%.

Chelsea Bridge Wharf

3.2.4 This Inner London site in the London Borough of Wandsworth has a PTAL of 4. The site is located next to Chelsea Bridge and is within 10 minutes walk of Battersea Park and Queenstown Road railway station. Sloane Square underground station is 15 minutes walk away.

3.2.5 It is a residential development consisting of 893 apartments. The site is approximately two thirds private ownership/renting from a private landlord (approximately 598 units) and one third affordable housing (approximately 295 units). The car park has 910 parking spaces, 220 of which are Pay and Display and the rest are allocated for residents. The Pay and Display spaces cater for visitors to the site. A hotel was being built adjacent to the site but was not included in the survey.

Discovery Dock

3.2.6 This Inner London site in the London Borough of Tower Hamlets has a PTAL of 4. The Discovery Dock towers at South Quay are adjacent to Canary Wharf underground station and are within walking distance of many retail outlets.

3.2.7 The development comprises 192 apartments, which are mostly 3-bedroomed, and has a 180-space car park.

Grosvenor Waterside

3.2.8 This Central London site in the City of Westminster has a PTAL of 2 and is approximately 15 minutes walk from Victoria station and Sloane Square underground station.

3.2.9 It is a large residential development comprising 917 apartments. The site was approximately 50% complete at the time of the survey. A gated underground car park serves vehicles on-site, with some off-street spaces scattered through the development, and the recorded car ownership based on household numbers is 66%.


Imperial Wharf


St George Wharf

3.0 Study Method and Data [continued]

Imperial Wharf

3.2.10 This Inner London site in the London Borough of Hammersmith and Fulham has a PTAL of 1, according to TRAVL. However, the PTAL is now in fact 3 due to the opening of Imperial Wharf station and other transport improvements which have been implemented since the site was developed. It is located in Hammersmith and Fulham on the banks of the River Thames next to the newly built Imperial Wharf station and Chelsea Harbour. Imperial Wharf railway station provides overground rail links to Clapham Junction and Willesden Junction. Fulham Broadway is the closest underground station at approximately 15 minutes walk or a short bus ride from the site.

3.2.11 There are 663 privately owned/rented residential units and 600 affordable residential units. An on-site car park provides 1,157 parking spaces. 788 are reserved for residents, 60 for Blue Badge holders and the remainder are visitor spaces. 688 right-to-park permits have been taken up, equating to a car ownership based on household numbers of 55%.

Kew Riverside

3.2.12 This Outer London site in the London Borough of Richmond upon Thames has a PTAL of 1. It is a gated, all residential development located on Bessant Drive, Kew. District Line services and London overground services are within 10 minutes walk at Kew Gardens station. The nearest shops are 300m away and the nearest school is 600m away.

3.2.13 The development consists of 192 dwellings, 144 of which are private, and 48 are affordable. The development is set within 3.5 acres of private parkland and overlooks the River Thames. The site has 202 parking spaces which includes 20 bays for the disabled that are allocated between the apartments. Car ownership based on household numbers is 58%.

Riverside West

3.2.14 This Inner London site in the London Borough of Wandsworth has a PTAL of 3. It is approximately 5 minutes walk from Wandsworth Town railway station, beyond which is Wandsworth town centre and the Southside Shopping Centre.

3.2.15 It is a mixed-use development consisting of around 517 privately owned/rented residential apartments, 16 affordable residential apartments. The non-residential uses include an Esporta Health Club, Hudson Convenience Store, Jigsaw Crèche, The Ship Restaurant and Pub and other restaurants on site. There are 578 parking spaces on site in an underground, barrier controlled car park for use by residents and visitors. Car ownership based on household numbers is 54%.

St George Wharf

3.2.16 This Inner London site in the London Borough of Lambeth has a PTAL of 6. It is located on the south side of the Thames, adjacent to Vauxhall Bridge and Vauxhall underground, railway and bus stations. The underground station is served by the Victoria line between Brixton and Walthamstow Central. National Rail services run between Portsmouth and Waterloo.

3.2.17 The development comprises 713 privately owned/rented and 214 affordable units, a small supermarket, healthcare services and restaurants. It includes barrier controlled underground car parking, with a total of 793 parking spaces (670 residential, 74 Blue Badge and 49 for visitors and staff). Car ownership amongst residents is 54%.


West3

3.0 Study Method and Data [continued]

Stanley Close

3.2.18 This Outer London site in the London Borough of Greenwich has a PTAL of 3. It is approximately 10 minutes walk from New Eltham Railway Station, 120m from local shops and 450m from the nearest school.

3.2.19 Stanley Close is a small enclosed modern residential development. The development comprises a mixture of private (72% are privately rented or owned) and affordable units (28% are affordable), in a mixture of terraced houses and apartment blocks. Parking on the site is controlled by a residents' permit system. Although there are 175 official parking spaces including garages, a number of cars were parked on street and the recorded car ownership based on household numbers is 68%.

3.3 iTRACE SITES

3.3.1 Recent survey data from iTRACE-compliant Travel Plan monitoring surveys of completed developments were collated. All of the surveys were completed during 2010 using the TfL approved survey specification.

West3

3.3.2 This Outer London site in the London Borough of Ealing has a PTAL of 2. It is located on Bromyard Avenue, north of Uxbridge Road between Acton and Shepherd's Bush town centres. Acton Central railway station and East Acton underground station are some 15 minutes walk from the development.

3.3.3 At the time of the survey in October 2010, the development comprised 604 occupied units, with a 282-space barrier controlled underground car park. The survey results provided a residential car ownership of 19% of households.

Kennington Park Square

3.3.4 This Inner London site in the London Borough of Lambeth has a PTAL of 3. It is located off Kennington Road between Vauxhall and Elephant & Castle. Kennington underground station is some 7 minutes walk away and Vauxhall underground, railway and bus stations are some 14 minutes walk or a short bus ride from the site.

3.3.5 At the time of the survey in March 2010, the development comprised 214 occupied units, with 403 sqm of retail community and facilities. There is a 64-space controlled underground car park. The survey results provided a residential car ownership of 19% of households.

Wingate Square

3.3.6 This Inner London site in the London Borough of Lambeth has a PTAL of 6. It is located between Clapham Common Northside and Clapham High Street. Clapham Common underground station is some 3 minutes walk from the development and Clapham High Street railway station can be reached in about 10 minutes walk.

3.3.7 The development comprises 170 flats, 1,290 sqm retail uses, and 1,843 sqm of office space, with a 76-space controlled underground car park (70 spaces allocated to residential units, 4 visitor bays, and 2 car club bays). The July 2010 iTRACE survey focused on the residential uses, finding a residential car ownership of 27% of households.

3.0 Study Method and Data [continued]

3.4 OTHER SURVEY DATA

3.4.1 Other data were collated from surveys completed on behalf of Ballymore and Berkeley Group.

Kempton Court

3.4.2 This Inner London site is located in the London Borough of Tower Hamlets and has a PTAL of 6. It is located between Whitechapel Road and Durward Street and is adjacent to London Underground and overground services at Whitechapel station. Alternative public transport facilities are available some 8 minutes walk away from the site at Bethnal Green railway station.

3.4.3 The development comprises 80 units and provides 80 car parking spaces. Surveys were undertaken by WSP in July 2006 and found that only 3 outbound vehicle movements took place in the one hour AM peak and only 4 inbound vehicle movements were recorded for the one hour PM peak.

City Walk

3.4.4 This Inner London site is located in the London Borough of Tower Hamlets on Cheshire Street between Fleet Street Hill and St Matthew's Row. The site has a PTAL of 5 and is located immediately north of the railway line and is a 7 minute walk from Bethnal Green railway station and a 9 minute walk from Shoreditch High Street railway station.

3.4.5 The development comprises 110 units and residential car parking is provided at 1:1 ratio. The surveys undertaken by WSP in July 2006 showed that only small numbers of car trips were recorded in the one hour AM and PM peaks at 2 outbound and 4 inbound trips respectively.

Bow Quarter

3.4.6 This Inner London site is located at the borough boundary between Tower Hamlets and Hackney on Fairfield Road and has a PTAL of 2. It is located approximately 13 minutes walk from Bow Road underground station.

3.4.7 It comprises 714 apartments spread across seven separate buildings with 733 car parking spaces provided. Again the July 2006 surveys undertaken by WSP demonstrated limited peak hour car travel (20 outbound AM peak trips, 20 inbound PM peak trips).

Beaux Arts, Holloway

3.4.8 This Inner London site is located in the London Borough of Islington on Manor Gardens just off the A1 Holloway Road and has a PTAL of 3. The nearest station is Upper Holloway on Holloway Road some 14 minutes walking distance from the development. Upper Holloway station provides access to London Overground services. London Underground services are provided further afield at Archway (approximately 17 minutes walk) and Tufnell Park (approximately 27 minutes walk).

3.4.9 The development comprises 189 residential units and car parking is provided at 1:1 ratio. The results of the WSP surveys undertaken in July 2006 indicated that 12 vehicles left the site during the AM peak hour and 8 vehicles entered the site in the PM peak period.

New Providence Wharf

3.4.10 This Inner London development has a central location on the Isle of Dogs in the London Borough of Tower Hamlets with access to underground and DLR services at Canary Wharf and Heron Quays, 15 minutes walk from the site. The site has a PTAL of 1.

3.4.11 WSP undertook surveys for Phase 1 of the New Providence Wharf development which comprises 559 residential units and 303 car parking spaces. The survey results indicated 18 outbound vehicle trips in the AM peak hour and 28 inbound vehicle trips in the PM peak period.

The Hamptons

3.4.12 This Outer London site in the London Borough of Sutton has a PTAL of 1. It is located at Worcester Park, between Motspur Park and Worcester Park railway stations on the Waterloo – Woking rail line. Worcester Park station is some 15 minutes walk from the development. The development comprises 645 units, with an average car parking ratio of 1.4 spaces per unit.

3.4.13 St James has undertaken two detailed surveys of the travel habits of residents. The first survey was carried out on the completed earlier phases of the development between May 2006 and June 2007. The second survey was carried out in the summer of 2008 after the completion of further development phases. In all, a total of 242 resident interviews were conducted.

Streetcar initiative

4.0 Findings

4.1 INTRODUCTION

4.1.1 This section summarises the available data for each development in terms of PTAL, car ownership and peak hour car driver trip rates. It then looks at the daily profiles of all-mode and car driver trips, and considers the relationship between reported car ownership levels and the recorded patterns of car use.

4.1.2 In addition to a review of quantitative data, further attitudinal and behavioural information from surveys undertaken by St James at "The Hamptons" development has been considered. This provides an insight into residents' travel choices and the range of factors they take into account when deciding how to travel.

4.2 TRAVL & iTRACE SITES

4.2.1 Key data from each of the surveys is summarised below. These include site location, public transport accessibility, car ownership (where known) and peak hour traffic generation.

TRAVL Surveys				Car Driver Trip Rate	
Site	Borough	PTAL	Car Ownership	AM	PM
Battersea Reach	Wandsworth	3	77%	0.095	0.081
Chelsea Bridge Wharf	Wandsworth	4	-	0.047	0.097
Discovery Dock	Tower Hamlets	4	-	0.073	0.031
Grosvenor Waterside	Westminster	2	66%	0.064	0.037
Imperial Wharf	Hammersmith & Fulham	3	55%	0.070	0.054
Kew Riverside Park	Richmond	1	58%	0.260	0.073
Riverside West	Wandsworth	3	51%	0.028	0.028
St George Wharf	Lambeth	6	54%	0.017	0.014
Stanley Close	Greenwich	3	68%	0.237	0.352

iTRACE Surveys				Car Driver Trip Rate	
Site	Borough	PTAL	Car Ownership	AM	PM
Bromyard Avenue, Acton	Ealing	2	22%	0.113	0.041
Kennington Park Square	Lambeth	3	11%	0.005	0.041
Wingate Square, Clapham	Wandsworth	6	41%	0.094	0.041

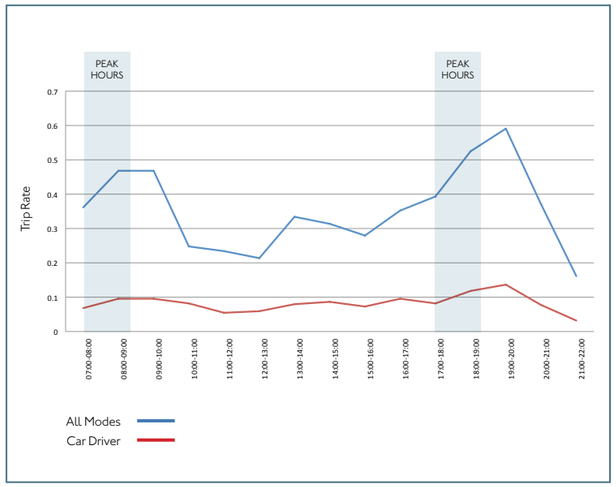
Other Surveys				Car Driver Trip Rate	
Site	Borough	PTAL	Car Ownership	AM	PM
Kempton Court	Tower Hamlets	6	100%	0.063	0.138
City Walk	Tower Hamlets	5	100%	0.009	0.036
Bow Quarter	Tower Hamlets/ Hackney	2	103%	0.041	0.024
Beaux Arts, Holloway	Islington	3	100%	0.063	0.074
New Providence Wharf	Isle of Dogs	3	54%	0.043	0.047
The Hamptons	Sutton	1	150%	0.284	0.289

4.2.2 This data demonstrates no direct relationship between PTAL and car use. This is significant given the suggestion that the forthcoming Major's SPG on Housing will include a matrix of residential parking standards that reflect PTAL values. It is clear that a number of other factors come into play when people consider whether to own a car and then how they wish to use their vehicle. These should be the subject of further research during SPG preparation.

4.0 Findings [continued]

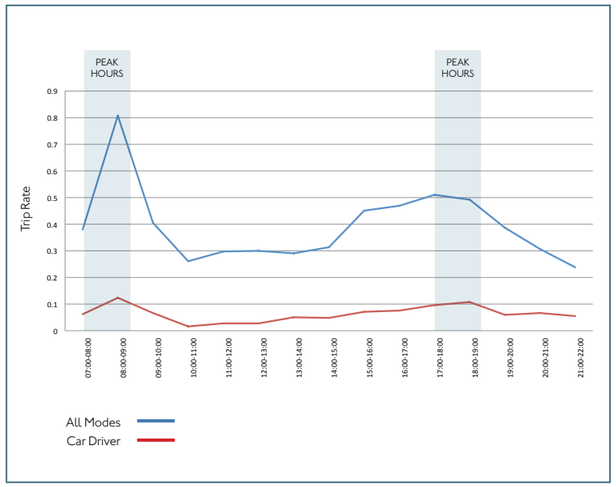
4.3 DAILY PROFILES

4.3.1 The following graphs present the all-person and car driver daily trip profiles for each of the TRAVL and iTRACE sites during the survey days. Whereas the preceding tables have quoted car driver trip rates during peak hours, these profiles allow the levels of off-peak car use to be reviewed.



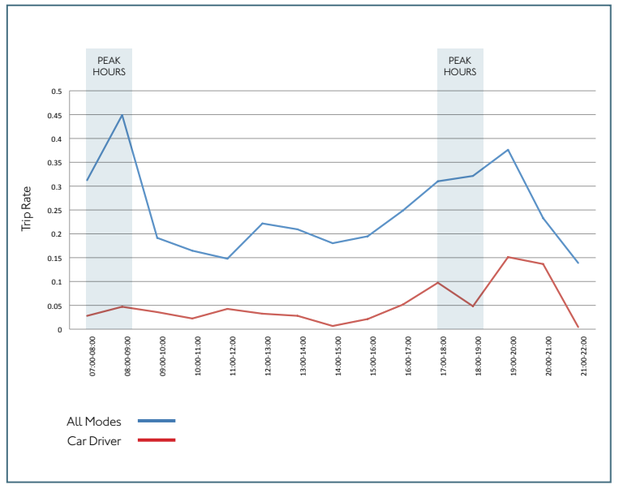
Battersea Reach Trip Rates

4.3.2
This profile shows a typical pattern of all-mode person trip demand, with morning and evening peaks and some increased lunchtime activity. The evening peak is longer than the morning peak, as is often the case. In comparison, the car driver profile is low and flat – peaking after 1900.



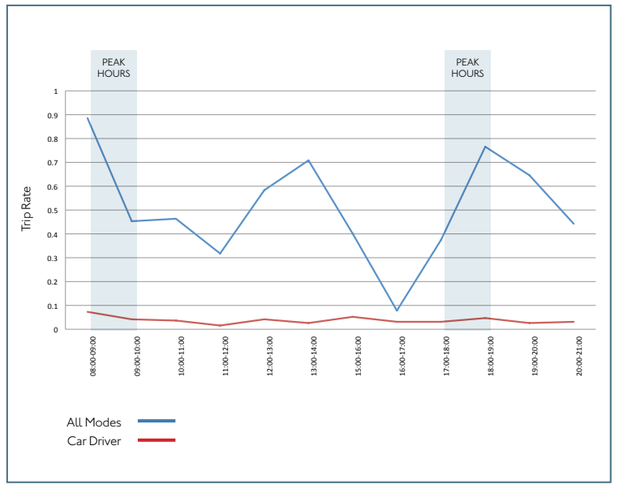
Bromyard Avenue

4.3.3
This Outer London site profile also shows a typical pattern of all-mode person trip demand, with morning and evening peaks and some increased lunchtime activity. Again, the evening peak is longer and flatter than the morning peak. In comparison, the car driver profile is low and flat throughout the day with only a low AM peak. It is clear that the peak hour car driver mode shares are a small percentage of the all-mode person trip totals.



Chelsea Bridge Wharf

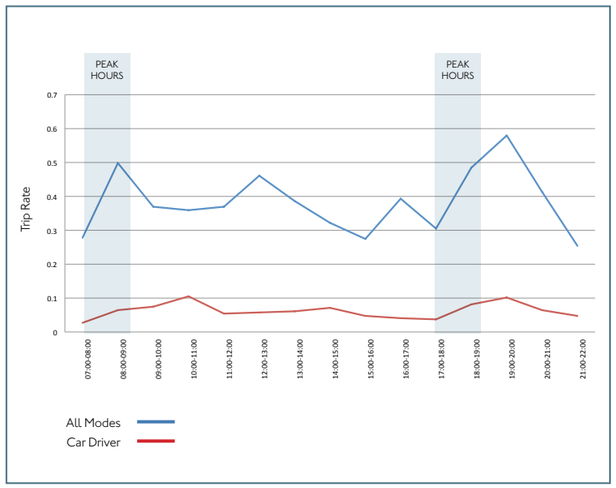
4.3.4
The all-mode person trip profile again has morning and evening peaks with some lunchtime activity. The car driver trips remain low throughout the day with the peak car driver activity occurring around 2100.



Discovery Dock

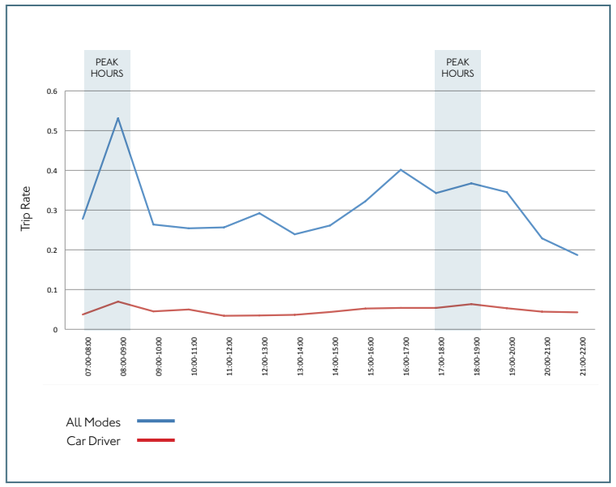
4.3.5
The all-mode person trip profile again has a similar pattern as before, but with higher trip rates probably reflecting the larger unit sizes in this development. The car driver trip profile shows little activity throughout the survey period.

4.0 Findings [continued]



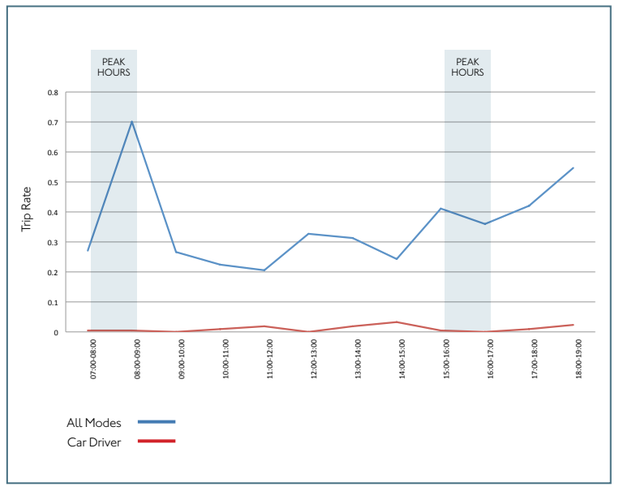
Grosvenor Waterside

4.3.6
The all-mode person trip profile has less obvious morning and evening peaks, and more daytime activity during the interpeak period. The car driver profile is again relatively flat, with a peak occurring mid-morning.



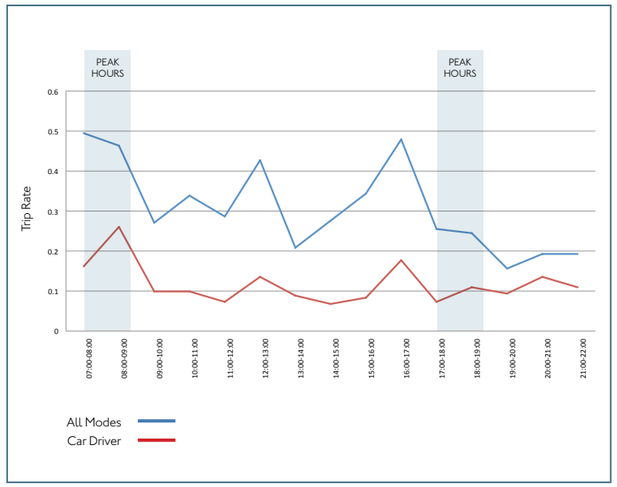
Imperial Wharf

4.3.7
The Imperial Wharf trip profiles are similar to the other Inner London sites, with a consistently low level of car driver activity throughout the day and the peaks being characterised by non-car travel.



Kennington Park Square

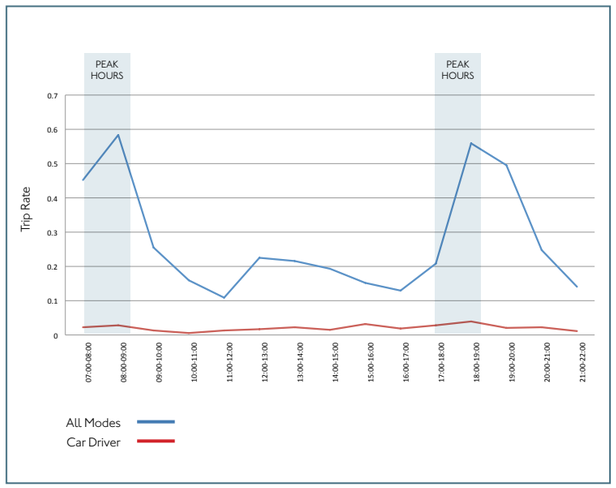
4.3.8
This is another example of the flat and low car driver profile, with the peaks being characterised by a much higher level of non-car travel.



Kew Riverside Park

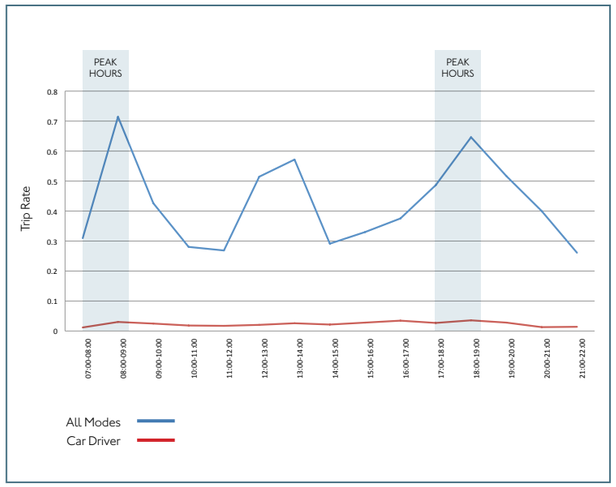
4.3.9
Kew Riverside Park has higher car driver trip rates, with more peak hour car movements as a result of its Outer London location.

4.0 Findings [continued]



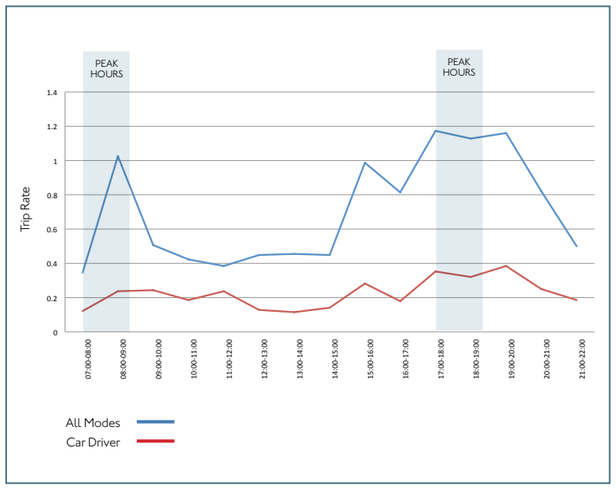
Riverside West

4.3.10
In common with the other Inner London sites, Riverside West has pronounced peaks with higher non-car trip rates, whereas the car driver profile remains at a low level of activity throughout the day. It is clear that the car parking provision at this and similar sites serves to store vehicles during weekdays, rather than contributing to higher car use.



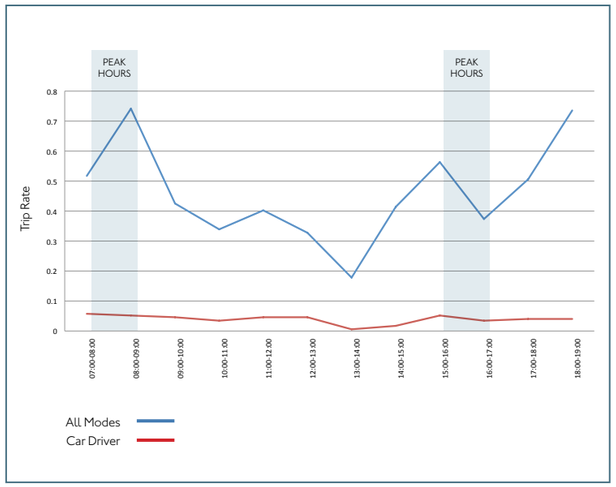
St George Wharf

4.3.11
The St George Wharf all-mode person trip profile has morning and evening peaks and a higher lunchtime peak than the comparable Inner London sites. This level of lunchtime activity could be a reflection of the mixed-use nature of this development. In contrast the car driver activity is consistently low throughout the survey period. Clearly, the 54% car ownership recorded at this development generates a negligible level of car use.



Stanley Close

4.3.12
Stanley Close, despite its Outer London location, is a further example where the peaks in all-mode person travel demand are being generated largely by non-car trips. The car driver profile is again relatively flat, and higher trip rates are probably a function of larger average household sizes.



Wingate Square

4.3.13
This final development profile again shows peaks in non-car activity with the car driver trips being at a low level throughout the day.

4.0 Findings [continued]

4.4 CAR USE / CAR OWNERSHIP RATIOS

4.4.1 The pattern of car use during the survey periods has been illustrated by the preceding graphs. However, a further measure has been derived in order to assess the car use / car ownership relationships of the survey sites. The car use / car ownership ratio has been derived in each case by dividing the peak car trip rates by the recorded car ownership ratio for that development.

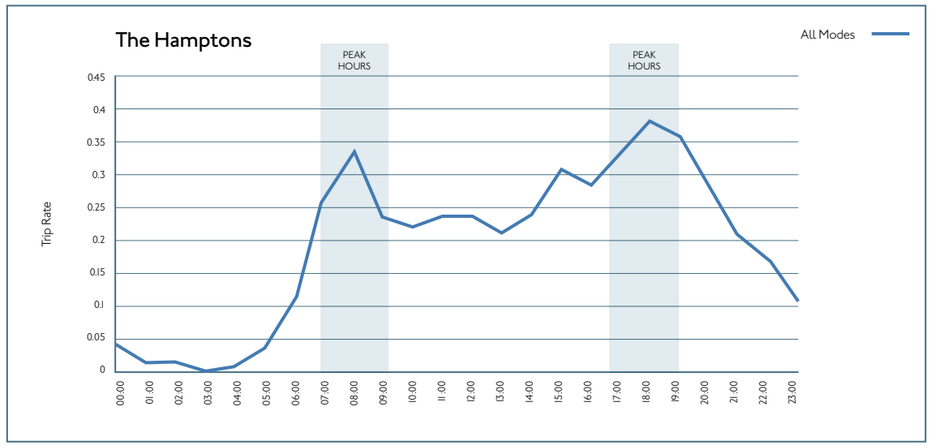
4.4.2 The tabulation shows a range in the car use / car ownership ratio of 0.031 (St George Wharf) up to 0.52 (Stanley Close). Both of these surveys are taken from TfL's TRAVL database. The lower the ratio, the less correlation is apparent between car ownership and car use. For example, the 0.031 ratio means that only one car in 32 is being used during the peak hour.

4.4.3 Only four of the 13 ratios exceed 0.1 trips per car, and three of these are Outer London sites. This simple tabulation and the daily profile graphs suggest that in the majority of recorded survey data there is no apparent relationship between levels of car ownership and levels of recorded car use.

Site	Car Ownership	Car Driver Trip Rate		Max Trip Rate / Car Ownership
		AM	PM	
Battersea Reach	77%	0.095	0.081	0.12
Chelsea Bridge Wharf	-	0.047	0.097	-
Discovery Dock	-	0.073	0.031	-
Grosvenor Waterside	66%	0.064	0.037	0.10
Imperial Wharf	55%	0.070	0.054	0.13
Kew Riverside Park	58%	0.260	0.073	0.45
Riverside West	51%	0.028	0.028	0.06
St George Wharf	54%	0.017	0.014	0.03
Stanley Close	68%	0.237	0.352	0.52
Kempton Court	100%	0.063	0.138	0.14
City Walk	100%	0.009	0.036	0.04
Bow Quarter	103%	0.041	0.024	0.04
Beaux Arts, Holloway	100%	0.063	0.074	0.07
New Providence Wharf	54%	0.043	0.047	0.09
The Hamptons	150%	0.284	0.289	0.19

4.5 RESIDENT TRAVEL BEHAVIOUR SURVEYS

4.5.1 St James commissioned two surveys at "The Hamptons" development in Worcester Park. These surveys did not capture all-mode person trip rates throughout the day, and only the Car Driver trip rates are shown below.



4.5.2 The car driver profile shows a higher level of car use, reflecting the Outer London location of this development and its larger unit sizes - which can be expected to accommodate larger average household sizes and hence higher trip rates per dwelling. However, in addition to gathering quantitative data, the surveys included questions on travel behaviour, and attitudes to different modes of travel.

4.5.3 St James commissioned independent consultants to undertake two detailed surveys of the travel habits of residents living within The Hamptons (comprising 645 units). The first survey was carried out on the completed earlier phases of the development between May 2006 and June 2007. The second survey was carried out in the summer of 2008 after the completion of further development phases, which included a high proportion of Housing Association units. The survey comprised telephone interviews with residents followed by the completion of a questionnaire. In all, a total of 242 resident interviews were conducted.

Imperial Wharf Train Station

4.0 Findings [continued]

4.5.4 The survey results were used to develop an understanding of the existing travel characteristics and the factors which influence travel choices being made by residents. It also recorded any issues residents had with non-car related travel in the local area, and possible solutions to these issues. The questionnaires gathered information on :

- age and gender
- employment locations and travel to work
- shopping habits : frequency and travel modes
- attitudes to :
    - car clubs
    - walking
    - cycling
    - public transport

4.5.5 Key findings included that, despite the Outer London location and low PTAL, in 2006/07 only 37% of respondents used a car as their main method of travel to work – and this decreased to 34% in 2008. The survey identified that of those residents using their car for work, 33% worked within five miles from The Hamptons. Therefore, the potential for a shift in modal share from cars to buses and cycling was considered to be high.

4.5.6 The surveys highlighted some interesting statistics. In 2006/07 the proportion of residents travelling by bus was 3%. Reasons given for the low patronage included reliability, frequency, convenience, difficulties of travelling with children and shopping, lack of bus shelters. However, in 2008 bus patronage increased to 14% which was assisted by improved access to the nearby S3 bus service and an increase in this frequency of this service (all funded by St James).

4.5.7 The findings influenced the Travel Plan proposed as part of the final phase of the development (to be retrospectively applied across the whole scheme). This has been tailored specifically to enhance opportunities to use public transport and improved footpath and cycle links with the aim of further reducing the number car trips in peak hours by 10% over a 5 year period.

4.5.8 The survey demonstrates that a higher level of car parking within this development has not led to an increase in car usage during peak travel times. The survey results show that only 34% travel to work by car. These figures compare well with the existing surrounding Worcester Park area where on average 60% of residents drive to work.

4.5.9 A copy of the full report is available from St James Group Ltd, Berkeley House, 19 Portsmouth Road, Cobham, Surrey KT11 1JG. The travel behaviour and attitudinal feedback from The Hamptons surveys has proved to be a useful evidence for refining the development Travel Plan and identifying any barriers to the uptake of sustainable transport. It is recommended that further research should be commissioned by those parties with an interest in understanding travel behaviour and attitudes.

5.0 Conclusions

5.1.1 This research has found no relationship between car ownership and peak hour car use, and this is consistent with the findings from TfL's "Travel in London" report finding of stable car ownership levels but declining car use.

5.1.2 It suggests that many London residents who own cars decide not to use them for peak hour travel and will instead walk, cycle or use public transport. There appears to be no simple relationship between car ownership and car use, and anecdotal feedback from residents and car park managers confirms that many vehicles are stored by their owners for use in the evenings or at weekends.

5.1.3 The positive outcome identified by the daily trip profiles is that recent development surveys show consistently low levels of car use throughout the day, particularly in Inner London. This evidence adds support to the policies which seek to ensure that residents have access to a range of sustainable transport choices.

5.1.4 A further positive outcome is that residential car parking can be provided in order to meet the level of car ownership, without generating significant traffic flows. This means that the problems associated with under-provision of car parking can be avoided, without undermining the cycling, walking and public transport use. This reflects the "appropriate balance" between development viability and excessive car parking provision being sought by the Mayor in London Plan 2011 Policy 6.13.

5.1.5 It has been found in many developments that an under-provision of residential parking results in overspill parking pressures and adverse impact on the surrounding community. Community consultations have highlighted this concern, such that proposals for low parking provision sometimes make it more difficult to gain local support for developments.

5.1.6 These findings suggest that residential car parking can be provided in accordance with the London Plan standards without undermining cycling, walking and public transport use, and there should not be a presumption to minimise residential car parking. It follows that there should be flexibility in the approach to agreeing residential car parking provision, while staying within the London Plan standards.

5.1.7 TfL's "Travel in London" report has identified that forecasting levels of car ownership involves a complex range of variables. There is a need for additional research to improve the understanding of residential car ownership so that future developments can be planned so as to avoid under-provision or over-provision. Further research on resident travel behaviour and attitudes, as at The Hamptons, would be highly beneficial.

5.1.8 In the meantime, the results of this review suggest that residential parking provision can be set at levels sufficient to avoid off-site parking pressures and to improve the viability of developments. There should be sufficient flexibility in the application of London Plan standards so that an appropriate balance can be achieved in each case, taking account of development locations; their characteristics; and the full range of measures in their sustainable transport strategies. Any emerging proposals to relate residential parking provision to PTALs should be considered carefully to ensure they will achieve outcomes consistent with the need for development viability.

5.1.9 In light of this research and its conclusion that residential traffic generation is not sensitive to car ownership or parking levels, the application of London Plan 2011 parking policies should allow for parking provision to be agreed at a level which supports the viability of new developments.

Holborough Lakes

6.0 Glossary

Inner London
Inner London includes the Cities of London and Westminster and the London Boroughs of Camden, Hackney, Hammersmith and Fulham, Haringey, Islington, Kensington and Chelsea, Lambeth, Lewisham, Newham, Southwark, Tower Hamlets and Wandsworth.

Outer London
Outer London comprises the London Boroughs of Barking and Dagenham, Barnet, Bexley, Brent, Bromley, Croydon, Ealing, Enfield, Greenwich, Harrow, Havering, Hillingdon, Hounslow, Kingston Upon Thames, Merton, Redbridge, Richmond Upon Thames, Sutton, and Waltham Forest.

TRAVL
The TRAVL (Trip Rate Assessment Valid for London) database is owned by Transport for London (TfL) and managed by the MVA Consultancy. The database contains multi-modal trip rate information for sites in London and is used by transport planners to predict the transport impacts of new developments within the capital.

Main Mode
Main mode is defined by TRAVL as the mode of transport used for the greatest amount of time.

PTAL
PTAL, or Public Transport Accessibility Level, provides a measure of the level of accessibility at a given location to the public transport network. The methodology was originally developed by the London Borough of Hammersmith and Fulham for use across the Capital. The variables of walk time and waiting time along with a reliability factor for each public transport mode are combined with service frequency to generate a PTAL level ranging from 1 (very poor) to 6 (excellent). Levels 1 and 6 are divided into two categories, 'a' and 'b', to provide greater clarity.

iTRACE
iTRACE is an innovation in Travel Plan Management Software, developed with funding from Transport for London. It provides a centralised software suite designed to monitor and report on the performance of Travel Plans. Travel Plan monitoring surveys are now required to have a format which is compatible for use with iTRACE.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