Carplus Annual Surveys 2013/14

Results for England and Wales

Summary Report

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Foreword

Background

The past year has seen expansion in the spread of car clubs. Over the past five years they have progressed from being an ‘alternative’ option to becoming a more mainstream travel option in many cities. The fastest growing urban car clubs (in England and Wales) outside London are York, Manchester and Brighton and Hove, whilst other major cities such as Leeds, Bristol, Cambridge and Oxford also have car club operations which have expanded over the past year.

Over this period, there has been sustained growth in both car club membership and the geographical coverage of car clubs across England and Wales. Despite a difficult economic environment for growth, during 2013/14 further progress has been made in terms of member numbers, network coverage and sector innovation. Member numbers grew to 20,400\(^1\) using a network of approximately 570 car club vehicles across England and Wales (excluding London). The coverage of car clubs has also grown with new operations launched in Chester, Shrewsbury and Liverpool and one currently planned in Nottingham. Several areas are in the process of considering the feasibility of developing a car club including Plymouth and Cornwall.

Car clubs across England and Wales are provided by a mixture of commercial and not-for-profit operators. There are around two dozen not-for-profit car clubs operating in the UK, serving one town or several small towns in a sub-region. These clubs, which are mainly constituted as co-operatives or community enterprise companies, have largely been established by local people to serve local populations. The expansion of rural car clubs continues apace with new clubs established in several locations over the past year, including Bakewell, Matlock and Ludlow.

Over the past twelve months an acceleration of the roll out of electric and hybrid electric vehicles has occurred across England and Wales with the launch of E-Car club, which only operates electric vehicles, further expansion of trials of EVs in car clubs by Co-Wheels and the continued growth of City Car Club’s fleet of petrol-electric hybrids.

Whilst financial and operational barriers to widespread adoption of electric and hybrid vehicles as part of the car club fleet do still exist, there is growing market interest making it more feasible to expand provision. Encouragingly, the average carbon emissions of the car club fleets in England and Wales continue to decline. In 2013/14 they were 33% lower than the national average car and 17% lower than the car club fleet average reported in 2011.

\(^1\) There are two membership figures quoted within this report. The figure quoted here from February 2014 has been compiled on a slightly different basis to the figure quoted in the operator survey (chapter 6) from November 2013. This is a result of a change in the reporting of membership numbers by some operators. Analysis in this report uses the membership total provided in November 2013 (22,754). These inconsistencies will be resolved in next year’s survey report.
Results for England and Wales

Car clubs make an important contribution to the achievement of national policy objectives on carbon reduction, improving air quality and reducing private car dependency as part of a broad range of sustainable transport measures. In rural areas, car clubs can help to build rural resilience, improve access to job opportunities and help to support local businesses by providing alternatives to the purchase of vehicles.

Whilst progress to date has been rapid (it is easy to forget that this market place had not existed to any real degree before 2005), the most exciting part of the car club story is what is still to be achieved. Market observers such as Frost and Sullivan predict a further 10-fold rise in car club membership by 2020, based on an expanding range of car sharing models. The rise of the sharing economy as well as evidence from countries such as Germany, Austria and Switzerland indicate significant untapped potential of car clubs to reduce the impacts of car traffic, support active travel and facilitate door to door journeys.

The Carplus Annual Survey 2013/14

The Carplus Annual Survey is the most comprehensive dataset collected across the car club sector on an annual basis since 2007. This year’s report represents an expansion of the data collected in previous years with the collection of data on journey purpose, use (and interest in using) EVs and hybrid vehicles. It also includes a more detailed survey of corporate users and administrators together with an expanded profile of the emissions of car club fleets.

Since its establishment, the Carplus Annual Surveys have highlighted the important and growing role that car clubs play in improving air quality, reducing private car ownership and congestion whilst also providing access to a car as a transport option when a journey cannot be made by other modes.

Chas Ball, Chief Executive, April 2014
1 Introduction

1.1 The Carplus Annual Survey is the only comprehensive and independently verified dataset collected on the car club sector in the UK. The Carplus Annual Survey has collected data on car club operations, membership profiles and the impact of car club membership on travel choices and the environment since 2007.

1.2 This is the seventh edition of the Carplus Annual Survey and covers the period 2013-2014. It has been administered by consultants Steer Davies Gleave on behalf of Carplus.

1.3 The data collected from the Carplus Annual Survey is compiled into 3 regional reports that reflect the principal geographical areas of operation of car clubs in Great Britain:

- London Report;
- Scotland Report; and

1.4 This document summarises the results of the 2013/14 Carplus Annual Survey for England and Wales.

1.5 All three regional versions of the Annual Survey are available from Carplus. For more information, visit the Carplus website: [www.carplus.org.uk](http://www.carplus.org.uk)

About Carplus

1.6 Carplus is a not-for-profit, environmental transport organisation that promotes accessible, affordable and low-carbon options, in shared transport and other new mobility solutions, as alternatives to traditional car use in the UK. While recognising the benefits that cars can bring to society, Carplus believes that a new approach to car use and ownership is needed in order to mitigate the financial, environmental, social and health costs of motoring today.

1.7 Carplus is the national accreditation body for car clubs in the UK and co-ordinates annual data collection and research for the sector.

The Carplus Annual Surveys

1.8 Carplus is committed to a standardised data collection system to assess the impacts of car clubs and inform development of car clubs in the UK. Since 2007, Carplus has worked with car clubs to collect a range of data from car club members and recent joiners about their travel habits and use of car clubs. The data collected by Carplus continues to grow: in 2012, additional surveys of corporate members and peer-to-peer car club users were conducted to complement the established survey of members and joiners. In 2013, these surveys were modified and conducted again with results of these surveys presented in this report. Due to the lack of a peer-to-peer operator in the UK, a peer-to-peer members survey was not undertaken in 2013.

1.9 This year a summary report has been produced for England and Wales. This reflects the funding received by Carplus to undertake the Annual Survey. At the present time we do not have specific funding for the work involved in England
Results for England and Wales

(outside London) or Wales, apart from the contribution provided by the car club operators. This document summarises the results of the 2013/14 Carplus Annual Survey for England (outside London) and Wales.

1.10 Table 1.1 summarises the surveys that were undertaken.

**TABLE 1.1 CARPLUS ANNUAL SURVEYS 2013/14**

<table>
<thead>
<tr>
<th>Survey Name</th>
<th>Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Members and Joiners Survey</td>
<td>Individual, private members and recent joiners of ‘back-to-base’ car clubs</td>
</tr>
<tr>
<td>Corporate Member Survey</td>
<td>Individual car club members whose membership is provided through their employer</td>
</tr>
<tr>
<td>Corporate Administrator Survey</td>
<td>Employees responsible for administrating car club corporate accounts</td>
</tr>
<tr>
<td>Operator Survey (including emissions profiling and analysis)</td>
<td>Car club operators</td>
</tr>
</tbody>
</table>

1.11 All of the main back-to-base car club operators in Great Britain that are accredited by Carplus have taken part in the survey. The 2013/14 surveys were co-ordinated in conjunction with:

- Zipcar;
- City Car Club;
- Co-wheels;
- E-car;
- Enterprise CarShare;
- Hertz 24/7; and
- Community car club operators.

1.12 The surveys were conducted using online forms (designed for completion on desktop, mobile or table devices) and each operator was responsible for communicating the surveys to their members and offering incentives for completion. The survey period was 4th November - 9th December 2013. Upon completion of the surveys, Carplus provided each operator with a file containing the responses from their members.

1.13 The 2013/14 surveys issued to car club members are described below.

**Car club members and joiners survey**

1.14 The survey of car club members and joiners was largely unchanged from the surveys that have been conducted since 2007. It contained questions on the following topics:

- Satisfaction with car clubs;
- Car mileage travelled using car club cars and private cars;
- Influence of car clubs on car ownership choices and miles travelled;
- Use of other modes of transport;
- Reasons for joining a car club; and
Results for England and Wales

1.15 The 2013/14 survey contained additional questions about the last journey made in a car club vehicle that aimed to establish a snapshot of how car clubs are used including:

- Type of vehicle used;
- Journey purpose;
- Number of people travelling; and
- Carriage of luggage or shopping;

1.16 The survey also included additional questions about use of electric or hybrid vehicles and asked respondents to rate the experience.

1.17 Finally, the survey included a new question which sought to establish the frequency of use of other forms of shared mobility, types of car clubs and rental including:

- Informal car sharing (borrowing a car from a friend or relative);
- Ride sharing (giving or receiving a lift in a private vehicle);
- Cycle hire (e.g. Barclays Cycle Hire);
- Point to point car clubs (using a car club car for a one way trip);
- Peer to peer car clubs (where you can lend or borrow vehicles belonging to members); and
- Traditional car rental.

1.18 In this report, members who had joined the car club in the three months prior to completing the survey are referred to as “joiners”. Respondents who had joined before this time are referred to as “members”.

1.19 Joiners were asked specific questions regarding satisfaction with the joining process and the information and guidance received during early bookings. Additionally, they were asked to describe their travel habits before and after joining the car club in order to identify any immediate changes in travel behaviour that may be related to car club membership.

Corporate member survey

1.20 A questionnaire survey was issued to corporate car club members. This group primarily comprises members who use car clubs for work-related trips and whose membership is paid for by their employer. Corporate members were asked to complete a short survey which included questions regarding:

- Satisfaction with their car club;
- Frequency of car club use;
- Modes of travel used for work-related trips before and after joining a car club;
- Types of car club vehicles used;
- Impacts of joining a car club on work-related travel behaviour; and
- Changes in policies or business travel arrangements.
Results for England and Wales

*Corporate administrator survey*

1.21 A separate, more detailed survey was issued to workplace contacts that are responsible for administering the corporate membership. This included questions about:

- Business sector and number of employees;
- Number of car club members in the organisation;
- Perceived benefits of joining a car club;
- Business mileage travelled using car club cars;
- Whether travel plans or other green travel policies were in place; and
- Types of travel policies and any changes since joining the car club.

*Operator survey*

1.22 Each of the main back-to-base car club operators provided details of their vehicle fleet, membership numbers and characteristics of members and data regarding use of car clubs by their members such as mileage travelled. The questions issued to operators were the same as for previous years, with the exception of the removal of questions requesting NOx and PM10 data for car club fleets. This information has been collected separately as explained below. Some not-for-profit, community car clubs also participated in the operator survey.

1.23 Emissions data was independently verified by Gfleet Services Ltd using vehicle registration marks (VRM) and published datasets from DVLA (Driver and Licensing Vehicle Agency), VCA (Vehicle Certification Agency) and vehicle manufacturers which enables the production of fuller and more accurate emissions profiling (including nitrogen oxides and particulates). The profiles are based on the vehicles each participating operator had in their fleet at 1st November 2013.

*Survey response*

1.24 The number of responses to each survey and the reporting region are shown in Table 1.2.

**TABLE 1.2 SURVEY RESPONSE AND REPORTING REGION**

<table>
<thead>
<tr>
<th>Survey</th>
<th>England and Wales(^2)</th>
<th>Scotland</th>
<th>London</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Members and Joiners Survey</td>
<td>902</td>
<td>415</td>
<td>2,413</td>
<td>3,730</td>
</tr>
<tr>
<td>Corporate Member Survey</td>
<td>216</td>
<td>41</td>
<td>229</td>
<td>486</td>
</tr>
<tr>
<td>Corporate Administrator Survey</td>
<td>22</td>
<td>6</td>
<td>96</td>
<td>124</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1,140</td>
<td>462</td>
<td>2,738</td>
<td>4,340</td>
</tr>
</tbody>
</table>

\(^2\) Excluding London.
Structure of this report

1.25 Following this introduction, the report summarises the results of the members and joiners survey, the corporate member survey, the corporate administrator survey, the operator survey and the emissions analysis and profiling.

1.26 The results of the corporate administrator and operator surveys are not disaggregated by reporting region; the results represent the responses of the Great Britain sample. The results of the members and joiners survey and the corporate member survey are specific to England and Wales.
2 Results

Members and Joiners Survey

2.1 The members and joiners survey was completed by 902 individual, private members and recent joiners of car clubs in England and Wales. Separate reports are available containing the results of the surveys completed by members and joiners in London and Scotland. Please visit the Carplus website at www.carplus.org.uk for more information.

Respondent profile

2.2 Table 2.1 shows the distribution of responses to the survey across the Local Authority areas in England and Wales. The greatest number of respondents were from local authorities where the urban areas of Brighton, Bristol, Oxford, Manchester, Leeds, York and Cambridge are located.

2.3 Car clubs tend to prosper in areas where most trips can be made using public transport, walking or cycling with car travel as a secondary mode. In these areas, there tends to be a higher proportion of young professionals, a key target market for car clubs, as well as a culture of using sustainable travel: a number of the cities mentioned above have relatively high cycle use for example. Brighton, Oxford, York and Cambridge are also relatively compact and have constraints on car use such as historic city centres (Oxford, York and Cambridge) or a natural geography which limits the extent of urban sprawl and car-borne developments.
### TABLE 2.1 DISTRIBUTION OF SURVEY RESPONSES BY LOCAL AUTHORITY AREA

<table>
<thead>
<tr>
<th>Local Authority</th>
<th>Survey Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sussex</td>
<td>130</td>
</tr>
<tr>
<td>Bristol</td>
<td>117</td>
</tr>
<tr>
<td>Oxfordshire</td>
<td>58</td>
</tr>
<tr>
<td>Greater Manchester</td>
<td>55</td>
</tr>
<tr>
<td>West Yorkshire</td>
<td>50</td>
</tr>
<tr>
<td>North Yorkshire (incl York)</td>
<td>38</td>
</tr>
<tr>
<td>Cambridgeshire</td>
<td>29</td>
</tr>
<tr>
<td>Tyne &amp; Wear</td>
<td>28</td>
</tr>
<tr>
<td>South Yorkshire</td>
<td>25</td>
</tr>
<tr>
<td>Norfolk</td>
<td>23</td>
</tr>
<tr>
<td>Somerset</td>
<td>20</td>
</tr>
<tr>
<td>Cardiff</td>
<td>20</td>
</tr>
<tr>
<td>Surrey</td>
<td>16</td>
</tr>
<tr>
<td>Hampshire &amp; Isle of Wight</td>
<td>13</td>
</tr>
<tr>
<td>Buckinghamshire</td>
<td>12</td>
</tr>
<tr>
<td>Berkshire</td>
<td>10</td>
</tr>
<tr>
<td>West Midlands</td>
<td>10</td>
</tr>
<tr>
<td>Authorities with fewer than 10 respondents</td>
<td>86</td>
</tr>
<tr>
<td>Unknown(^3)</td>
<td>162</td>
</tr>
</tbody>
</table>

\(^3\) Home postcodes were not provided, or were incomplete.
How car clubs are used in England and Wales

2.4 Respondents were asked to provide information about the last car club journey they made. This provides a snapshot of typical car club use in England and Wales during the survey period (November to December).

- 91% of car club journeys were made by car and 9% by van.
- 63% of respondents stated that they were travelling with other people, with 56% stating that they travelled with at least one other adult and 15% travelling with at least one child.
- 45% of respondents stated that they were carrying large items of luggage or shopping during the journey.
- 4% of respondents were travelling for the purpose of commuting, 22% for business, 3% for education (including giving a lift e.g. school run), 21% for shopping, 20% for personal business, 8% for giving a lift, 14% for visiting friends/family and 24% for leisure.
- 38% of respondents stated that they had used an electric or hybrid (diesel/petrol-electric) car club vehicle, 57% had not and 5% did not know.
- 48% of those that had used an electric or hybrid (diesel/petrol-electric) car club vehicle rated their experience as “very good” with a further 29% rating their experience as “good”.
- Respondents rated their interest in using electric car club vehicles on a scale of 1 to 5 where 1 is not at all interested and 5 is very interested. 45% gave a rating of 5 (very interested), 21% as 4, 23% as 3, 5% as 2 and 6% as 1.

Satisfaction with car clubs and their processes

2.5 Members and joiners were asked about their satisfaction with their car club’s service.

- 91% of members rate their car club’s service as “very good” or “good”.
- Satisfaction was similarly high amongst joiners with 93% stating that the service they receive is “very good” or “good”.
- 84% of joiners stated that the information they received from their car club operator both before and during early booking was either “very good” or “good”.

Car ownership and use before and after joining a car club

2.6 Members and joiners were asked about their car ownership before and after joining the car club.

- 61% of members owned at least one car before joining, falling to 35% after joining.
- Car ownership before joining was at a lower level for joiners (50% owning at least one car), but car ownership after joining was similar members with 37% of joiners owning at least one car.

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4 We expect commuting trips to include dropping off or picking up from work as part of a longer journey rather than a typical commute to work. It would be uneconomic to use a car club to commute to/from work and therefore it is unlikely that any car club members would do so.
Results for England and Wales

*Mileage travelled in car club vehicles*

2.7 Members were asked to state the approximate annual mileage travelled by their household in car club vehicles in the last 12 months.

- The annual household mileage of England and Wales car club members in car club vehicles remains low with 65% of all members’ households travelling less than 500 miles in the 12 months prior to completing the survey. 15% travelled between 500 and 1,000 miles whilst 8% travelled between 1,000 and 2,000 miles. 6% drove in excess of 2,000 miles whilst 6% were unsure.

*Mileage travelled in household cars (members)*

2.8 Members were asked to state the approximate annual mileage travelled in their household cars in the last 12 months.

- Just under two thirds (61%) of members in England and Wales did not travel any distance in household cars in the 12 months prior to taking the survey; 
- 15% travelled between 1 and 6,000 miles; and
- 22% travelled in excess of 6,000 miles.

*Mileage travelled in any car (joiners)*

2.9 Joiners were asked to state the approximate annual mileage travelled in any car in the last 12 months. The results showed that:

- 22% made no car journeys in the twelve months prior to joining a car club (including 20% who stated “Not applicable” and we may assume did not travel any miles by car);
- 30% travelled between 1 and 6,000 miles; and
- 34% travelled in excess of 6,000 miles.

*Influence of car club membership on car ownership and use*

2.10 Members were asked to state whether they had sold or disposed of a car in the 12 months prior to completing the survey. The results revealed that:

- 13% of members had sold or disposed of a car in the 12 months prior to completing the survey.
- Of these, 58% had travelled fewer than 6,000 miles in that car in the 12 months prior to the survey.

2.11 Using these findings, it is possible to estimate the impact of car clubs on removing private cars from circulation. As stated in the foreword, the number of car club vehicles in operation in England and Wales is 570. Results from the operator survey show that 14% of car club members (22,754 individuals) reside in England and Wales. The average number of car club members per car club car is therefore 40.

2.12 By applying the proportion of respondents in England and Wales who stated that they had sold or disposed of a car in the last 12 months to the number of car club members per car, we can estimate that, for each car club car in operation in England and Wales, approximately 5 private cars are removed from the road.
2.13 This assumes that the sale of a car by a car club member results in a car eventually being removed from circulation at the end of the chain. As a result of the 570 car club cars in England and Wales we have calculated that there are approximately 2,850 fewer private cars on the roads of England and Wales in 2013/14.

2.14 Those members who had sold or disposed of a car in the last 12 months were asked to state the extent to which the car club was a reason for this decision.

- 10% of members who had sold or disposed of a car in the last 12 months stated that the car club was the main reason they had done so whilst 29% stated it was a major factor, 24% a minor factor and 38% stated that it was not a factor.

2.15 Members were also asked to state the influence of joining a car club on their annual mileage.

- 36% of members reported a decrease in their annual car driver mileage after joining a car club compared with 18% reporting an increase.
- 34% stated that their annual mileage has not changed since joining a car club.

2.16 Those who stated that their mileage had changed were asked to state how many miles it had increased or decreased by. As shown in Figure 2.1:

- 65% of the 136 respondents who stated that their mileage had increased reported that the increase was less than 500 miles;
- Of the 269 respondents who stated a decrease in mileage, 19% stated that it was a decrease of less than 500 miles with a greater proportion stating that the decrease was between 500 and 6,000 miles (49%). In addition, 16% of respondents stated that the decrease in their annual mileage was more than 6,000 miles.
Results for England and Wales

FIGURE 2.1  CHANGE IN ANNUAL MILEAGE

2.17  Figure 2.2. shows that 28% of members and 27% of joiners would have bought a private car if they had not joined a car club. The remaining respondents were split between those who would not have bought a car (50% of members and 46% of joiners) and those who were unsure (22% of members and 27% of joiners). Based on these findings, the purchase of up to 6,400 private cars has been deferred as a consequence of the presence of car club cars (570) in England and Wales in 2013/14 (this equates to the purchase of 11 vehicles deferred for every car club car in England and Wales).

FIGURE 2.2  IMPACT OF JOINING A CAR CLUB ON PRIVATE CAR PURCHASE
2.18 The majority of members (64%) and joiners (53%) deem it less likely that they will buy a private car in the next few years now that they are car club members. 25% of members and 36% of joiners stated that it will have no effect on their future purchasing decisions.

### Calculation of deferred car purchases

\[
\begin{align*}
22,754 \\
\times \\
28\% \\
\end{align*}
\]

(proportion of members who would have bought a private car if they had not joined a car club)

\[
\text{deferred purchase of up to 6,400 private cars}
\]

### Travel behaviour

2.19 All respondents were asked to state how often they travel by different modes of transport (bus, coach, underground / metro / tram, train, private car, car club car, car as passenger, taxi/minicab, bicycle and walking).

2.20 Car club members in England and Wales frequently walk for 20 minutes or more: 58% stated that they make such journeys three or more times a week (64% in 2012/13) and 27% at least once a week (21% in 2012/13).

2.21 As shown in Figure 2.3, car club members in England and Wales make frequent use of public transport:

- 22% travel by bus 3 or more times a week (23% in 2012/13);
- 16% travel by train 3 or more times a week (17% in 2012/13); and
- Almost half of England and Wales car club members are regular cyclists: 43% use a bicycle at least once a week (42% in 2012/13).
Results for England and Wales

FIGURE 2.3 FREQUENCY OF USE OF OTHER MODES

2.22 Joiners were asked to state how often they used each of the modes noted in paragraph 2.13 before and after they joined the car club, in order to identify whether joining a car club had an immediate impact on travel behaviour. The most significant changes were:

- A 13 percentage point reduction in the frequency of trips made using private cars: 44% of joiners stated that they travelled by private car as car driver at least once a week before joining the car club, which fell to 31% after joining;
- A 13 percentage point increase in the proportion of joiners reporting that they make no private car trips as car driver from 24% before joining a car club to 36% after.

Frequency of use of other shared mobility options

2.23 The survey included a new question which sought to establish the frequency of use of other shared mobility options, types of car clubs and car rental. The results showed that:

- 13% used ride sharing at least once a week (giving or receiving a lift in a private vehicle);
- 4% used informal car sharing (borrowing a car from a friend or relative) at least once a week;
- 4% used cycle hire at least once a month;
- 3% used peer to peer car clubs (where you can lend or borrow vehicles belonging to members) at least once a month;
Results for England and Wales

2% used point to point car clubs (using a car club car for a one way trip) at least once a month; and
70% used traditional car rental at least once a year.

Reasons for joining a car club

As in 2012/13, the survey included a question that aimed to understand members’ motivations for joining a car club and their personal circumstances at the time.

The results show that the most popular reason stated by respondents was hiring on a short term basis (76% of members and 63% of joiners) followed by the ability to make trips that cannot be made using other modes (51% of members and 43% of joiners). 1 in 5 joiners became car club members because it was recommended to them, highlighting the importance of word-of-mouth and the need for car clubs to maintain a good reputation.

Table 2.2 outlines recent changes in personal circumstances amongst members and joiners at the time of joining a car club. Approximately a quarter of both members and joiners had moved to a new area at the time of joining a car club, while 1 in 5 had changed jobs or retired and 1 in 10 had a change in family circumstance. 53% of members and 44% of joiners noted no such lifestyle changes at the time of joining.

<table>
<thead>
<tr>
<th>Event</th>
<th>Members</th>
<th>Joiners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moved to a new area</td>
<td>25%</td>
<td>26%</td>
</tr>
<tr>
<td>Changed jobs/retired</td>
<td>17%</td>
<td>18%</td>
</tr>
<tr>
<td>Change in family circumstances</td>
<td>9%</td>
<td>11%</td>
</tr>
<tr>
<td>Change in financial circumstances</td>
<td>5%</td>
<td>6%</td>
</tr>
<tr>
<td>Children left home</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Children started at new school</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Respondent left home for the first time</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>None of the above</td>
<td>53%</td>
<td>44%</td>
</tr>
</tbody>
</table>

Corporate Member Survey

The corporate member survey was completed by 216 respondents based in England and Wales.

Analysis shows a high level of satisfaction with using car clubs for business travel; 84% of corporate members rate their car club’s service as “good” or “very good”. Corporate car club membership appears to benefit employees who need access to a car on an occasional basis, rather than for regular (e.g. daily) trips with 29% of business users stating that they use a club car at least once a week and 28% once a month. Most of this travel is made by car club cars (96%) rather than vans (4%).
Results for England and Wales

2.29 To identify any changes made to travel behaviour as a consequence of joining a car club, respondents were asked how often they used each of a range of transport modes for work-related trips before and after gaining membership. The survey found that use of car clubs for business travel is a replacement for the use of grey fleet (employees’ own cars) for many. 41% of respondents stated that they used their own car for business travel at least once a week before joining the car club; this figure fell to 24% after joining.

2.30 A small reduction in the use of public transport was also observed after joining a car club (from 34% at least once a month before joining to 31% after). However, corporate car club membership can facilitate the use of public transport for the commute to work by removing the need for an employee to bring his/her car to work in order to use it during the working day.

2.31 Although most respondents were either unaware of any changes to their employer’s travel policies since joining the car club or stated that there had been none, 35% stated that pool cars had been replaced by car club cars and 29% stated that employees were now actively discouraged from using their own cars.

Corporate Administrator Survey

2.32 In 2013/14 the corporate administrator survey was completed by 124 respondents nationally.

2.33 The survey shows that over 80% of organisations with car club membership are in the private sector. Smaller organisations are more likely to be car club members, with 65% of respondents stating that they work for an organisation employing less than 10 people and 80% employing less than 50 people. There are also some larger organisations which use car clubs: 6% of organisations who responded to the survey have more than 500 employees.

2.34 Administrators were asked whether their organisation collects information about car mileage travelled by employees on work-related trips. The survey found that:

- The majority of small (fewer than 10 employees) and medium sized organisations (between 10-99 employees) do not collect data on work-related car mileage; and
- Large organisations (100+ employees) appear to be more likely to collect data for work-related miles travelled in grey fleet vehicles, car club vehicles and pool cars compared to small and medium sized organisations.

2.35 The most common benefit of car clubs to organisations stated in the 2012/13 survey was financial benefits. To explore this in more detail the 2013/14 survey asked respondents in more detail what the perceived financial benefits of car clubs were. The most common responses included:

- A reduction in claimed business mileage;
- A reduced administration burden; and
- A reduction in the amount of parking required (particularly for smaller organisations).

2.36 Other benefit stated by administrators included improved employee satisfaction and, particularly for medium-sized organisations, enhanced staff mobility.
2.37 Car clubs are used as part of a range of travel options. Small businesses are more likely to use car clubs for a higher proportion of their total business mileage while larger businesses are more likely to use car clubs for a small proportion of business mileage.

**Operator Survey**

2.38 For the operator survey each participating car club operator has provided details of their vehicle fleet, membership numbers and characteristics of members and data regarding use of car clubs by their members such as mileage travelled. The data is reported on a national basis.

2.39 In 2013/14 the dominant market nationally remains in London with 80% of members based in the capital. However, the proportion of members in England and Wales grew to 14% in 2013/14, up from 12% in 2012/13.

2.40 Over the past five years, there has been sustained growth in both car club membership and the geographical coverage of car clubs across England and Wales. Member numbers grew to 20,400 using a network of approximately 570 car club vehicles and the coverage of car clubs extended to new operations in Chester, Shrewsbury and Liverpool.

2.41 The profile of members is male dominated; making up 67% of members. This proportion is up from 61% in 2012/13 but similar to the 2011/12 survey. The national age profile of members has remained very similar to the 2012/13 survey with a younger age profile than the national average (76% aged under 45, compared with 43% for licence holders nationally).

2.42 The frequency of car club use by active members (those who have hired a car in the last 12 months) has increased slightly between 2012/13 and 2013/14 from 8.2 hires per year to 9.2 hires per year. The average hire period has remained between six and seven hours over the last three survey years. For short term hires, car club vehicles are priced competitively compared to the alternative of traditional car hire vehicles which tend not to offer short term (e.g. hourly) rentals.
3 Emissions Analysis and Profiling

Introduction

3.1 The following section reports on the emissions profiles of the national car club operators in England and Wales. It is based on a comprehensive set of emissions data that has been collected about UK car clubs. The data has been independently verified by Gfleet Services Ltd using vehicle registration marks (VRM) and published datasets from the DVLA (Driver and Vehicle Licensing Agency), VCA (Vehicle Certification Agency) and vehicle manufacturers which enables the production of fuller and more accurate profiling (including NO\textsubscript{X} and Particulate PM\textsubscript{10}).

3.2 All car club operators were requested to provide the vehicle registration marks of the vehicles operational on the 1st November 2013, and in a new development for 2013 the clubs were also asked to provide vehicle mileage for the period 1st April 2013 to 1st November 2013 (7 months). All six of the national car club operators supplied this data together with eight community car clubs. The VRM data was then submitted to CarweB and a full performance and environmental data set was obtained for each vehicle based on the data held by the DVLA, VCA and the manufacturer. Where the air quality emission data (Nitrogen Oxides NO\textsubscript{X} and Particulate PM\textsubscript{10}) was not available from CarweB the data was obtained from the VCA published emission figures for the year and model of vehicle. In a few cases no data was available and so the maximum permitted emissions for the relevant Euro standard were used.

3.3 A further development for November 2013 was the addition of the results from the European New Car Assessment Programme (NCAP) which independently assesses vehicle safety. The data presented in the following section relates to the fleets of the five national operators in England and Wales (excluding London) hereafter referred to as England and Wales. Data for cars and vans is presented separately unless stated. All data is anonymous to protect the identity of the car club operators.

Carbon Emissions - Cars

3.4 When a car is registered with the DVLA its carbon emissions, measured in grams of carbon dioxide per kilometre (gCO\textsubscript{2}/km or g/km) must be submitted. The data is supplied by the manufacturer and may vary within a model range depending on the additional equipment fitted such as air conditioning. Since 2001 the carbon emission data has been used to determine the Vehicle Excise Duty (VED - the tax disk) payable on a car. For that purpose the emissions have been broken down into 13 bands from Band A (\leq 100 g/km) to Band M (over 255 g/km). No tax is payable on a Band A car while on a Band M car it is £490/annum.

3.5 To achieve a reduction in UK transport carbon dioxide emissions, fleet operators are encouraged to select vehicles under 120 g/km (Band C) and, where practical, under 100 g/km (Band A). There are some vehicle types such as large people carriers which are not yet available under 120 g/km and where a case can be made
Results for England and Wales

for their deployment it is good practice to seek out the lowest carbon vehicle that meets the requirement. Carplus Accreditation requires that Operators use vehicles that are less than four years old (for Full accreditation) and less than eight years (for basic accreditation). This is to ensure that the best quality, lowest emission vehicles are made available to car club members. All of the major car club operators are currently accredited with Carplus.

3.6 Table 3.1 below shows the number and proportion of car club cars in England and Wales in each VED emission band.

<table>
<thead>
<tr>
<th>CO₂ Emission Band (gCO₂/km)</th>
<th>Number</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Band A &lt;=100</td>
<td>206</td>
<td>43.9%</td>
</tr>
<tr>
<td>Band B 101-110</td>
<td>66</td>
<td>14.1%</td>
</tr>
<tr>
<td>Band C 111-120</td>
<td>128</td>
<td>27.3%</td>
</tr>
<tr>
<td>Band D 121-130</td>
<td>32</td>
<td>6.8%</td>
</tr>
<tr>
<td>Band E 131-140</td>
<td>28</td>
<td>6.0%</td>
</tr>
<tr>
<td>Band F 141-150</td>
<td>4</td>
<td>0.9%</td>
</tr>
<tr>
<td>Band G 151-165</td>
<td>4</td>
<td>0.9%</td>
</tr>
<tr>
<td>Band H 166-175</td>
<td></td>
<td>0.0%</td>
</tr>
<tr>
<td>Band I 176-185</td>
<td></td>
<td>0.0%</td>
</tr>
<tr>
<td>Band J 186-200</td>
<td></td>
<td>0.0%</td>
</tr>
<tr>
<td>Band K 201-225</td>
<td>1</td>
<td>0.2%</td>
</tr>
<tr>
<td>Band L 226-255</td>
<td></td>
<td>0.0%</td>
</tr>
<tr>
<td>Band M 256+</td>
<td></td>
<td>0.0%</td>
</tr>
<tr>
<td>No data available</td>
<td></td>
<td>0.0%</td>
</tr>
<tr>
<td>Total</td>
<td>469</td>
<td>100%</td>
</tr>
</tbody>
</table>

3.7 Figure 3.1 shows the profile of the England and Wales Car Club fleet in relation to the national fleet data\(^5\). Clearly the majority (85%) of club cars are in the lowest three emission Bands A to C with most club cars in Band A (44%). In the national fleet the largest proportion of vehicles (17%) are in Band G (151-165 g/km).

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\(^5\) DfT Statistics: Table VEH0206. Licensed cars by CO₂ emission band, Great Britain, annually: 2001 to 2012.
Results for England and Wales

FIGURE 3.1 COMPARISON OF EMISSION PROFILES: ENGLAND AND WALES CAR CLUBS AND NATIONAL FLEET

Note: Some car clubs have a policy of renewing fleet vehicles after a fixed number of years. Because new car carbon emissions are improving by about 4 g/km/annum\(^6\) a regular replacement cycle should result in a better carbon profile. It will also result in more rapid adoption of new Euro standards which regulate air quality emissions.

3.8 The distribution in Figure 3.1 is reflected in the England and Wales car club fleet average carbon emission which is shown in Table 3.2. In 2013/14, club cars in England and Wales are on average 33% lower than the national average car and 17% lower than the club average reported in 2011.

TABLE 3.2 AVERAGE CARBON EMISSIONS: ENGLAND AND WALES CAR CLUBS AND NATIONAL FLEET

<table>
<thead>
<tr>
<th>Carbon Emissions (gCO(_2)/km)</th>
<th>Club Cars 2011</th>
<th>Club Cars 2012</th>
<th>Club Cars 2013</th>
<th>National Fleet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average - All Vehicles</td>
<td>129.6</td>
<td>108.8*</td>
<td>107.4*</td>
<td>160.1</td>
</tr>
</tbody>
</table>

* excludes “zero emission” electric vehicles.

3.9 There is some variation in the carbon profiles of the five clubs operating across England and Wales as can be seen in Figure 3.2 below.

\(^6\) New Car CO\(_2\) Report 2013, SMMT.
Results for England and Wales

**FIGURE 3.2 COMPARISON OF CAR EMISSION PROFILES: ENGLAND AND WALES CAR CLUBS**

3.10 While some (e.g. Club 1) operate a limited range of vehicles with similar or the same carbon emissions, others (e.g. Club 4) provide a wide range of vehicle types, possibly to reflect the differing needs of users, and this results in a wider range of carbon emissions.

3.11 In terms of fuels used, clubs in England and Wales also show different strategies as shown in Table 3.3. Since the last report there has been a significant move away from diesel vehicles to petrol, petrol electric hybrids and electric cars.

**TABLE 3.3 COMPARISON OF FUEL TYPE AND CARBON EMISSIONS: ENGLAND AND WALES CAR CLUBS**

<table>
<thead>
<tr>
<th>Fuel Type and Carbon Emissions</th>
<th>Club 1</th>
<th>Club 2</th>
<th>Club 3</th>
<th>Club 4</th>
<th>Club 5</th>
<th>Club 14</th>
<th>England and Wales Car Club Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel</td>
<td>43%</td>
<td>8%</td>
<td>14%</td>
<td>60%</td>
<td>50%</td>
<td>0%</td>
<td>29.0%</td>
</tr>
<tr>
<td>Electric</td>
<td>0%</td>
<td>0%</td>
<td>14%</td>
<td>5%</td>
<td>0%</td>
<td>100%</td>
<td>3.4%</td>
</tr>
<tr>
<td>Petrol</td>
<td>57%</td>
<td>79%</td>
<td>71%</td>
<td>35%</td>
<td>48%</td>
<td>0%</td>
<td>60.8%</td>
</tr>
<tr>
<td>Petrol/Electric</td>
<td>0%</td>
<td>13%</td>
<td>0%</td>
<td>0%</td>
<td>2%</td>
<td>0%</td>
<td>6.8%</td>
</tr>
<tr>
<td>Average CO₂ g/km</td>
<td>108.3</td>
<td>107.2</td>
<td>110.5</td>
<td>107.9</td>
<td>105.6</td>
<td>0.0</td>
<td>107.4</td>
</tr>
</tbody>
</table>

3.12 Electric vehicles are rated as zero emission but their actual carbon impact will depend on the energy source; for that reason they have been excluded from the average CO₂ g/km calculation (Club 14 is 100% electric).

3.13 The VCA/DVLA reports electric vehicle energy efficiency as miles/kWh. Performance ranges from 3.6 miles/kWh (2001 Nissan Leaf) to 4.9 miles/kWh (2011.
Results for England and Wales

Peugeot iOn). Based on Defra 2013 UK grid emissions of 442 g/kWh and assuming a 15% reduction in real-world performance\(^7\), emissions at source range from 64.5 g/km to 87.8 g/km.

**Carbon Emissions - Vans**

3.14 There is no equivalent carbon banding scheme in place for vans and the car banding is not appropriate as it does not reflect the wide range in size and load carrying capability of vans. What would be very poor emissions for a car derived van such as a Ford Fiesta, might be excellent for a 3.5 tonne Ford Transit Luton van and any ranking should also take account of Light Commercial Vehicle (LCV) size category. Published carbon emission data (g/km) is available for most vans registered since 2009 but was not obligatory until 2010, nearly nine years after car data was mandatory and has not yet achieved 100% of registrations.

3.15 In 2013 there were 15 vans available to Car Club members in England and Wales\(^8\). They included a VW Caddy, an electric Renault Kangoo and 13 VW Transporter T28s (heavy van in the 2601-3500kg DVLA size class). With the exception of the Kangoo all were diesel powered. The VW Transporter has published carbon emissions of 198 g/km; no data was available for the VW Caddy as, although it was purchased in 2010, it was a pre-2010 model year.

**Air Quality - Cars**

3.16 As well as carbon dioxide emissions, internal combustion engines (ICE) also produce a range of other gases many of which are known toxins and these impact on local air quality. The toxic emissions are regulated by the Euro standards. The principal pollutants of concern in the UK’s towns and cities are \(\text{NO}_x\) (Nitrogen oxides and in particular Nitrogen dioxide, \(\text{NO}_2\)) and \(\text{PM}_{10}\) (particulates under 10 microns) and their output is measured in milligrams per kilometre (mg/km).

3.17 There are many areas of the country where levels of one or both of these two pollutants exceed EU maximum permissible limits and local authorities have had to declare an Air Quality Management Area (AQMA). Air pollution can have a significant adverse impact on public health and it is estimated that in 2008 up to 30,000 people across the UK suffered premature deaths due at least in part to poor air quality\(^9\). This is clearly many more premature deaths than the number that occur as a direct result of road traffic collisions.

3.18 The Euro emission standards for Diesel and Petrol cars are shown in Table 3.4. What is immediately apparent is that for any given standard the diesel vehicle is permitted to be more polluting; e.g. it is not until 2014 that a Euro 6 diesel car must meet the 2005 Euro 4 standard for \(\text{NO}_x\) emissions from a petrol car. Most petrol cars have very low particulate emissions, initially (1993) considered too low for available technology to measure, but a minimum standard was introduced in 2009 to ensure new types of petrol engine did not produce particulates. Concern

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\(^8\) Excludes Hertz on Demand vehicles at B&Q retail outlets.

\(^9\) Air quality: A follow up report - Environmental Audit Committee, October 2011.
Results for England and Wales

over the large number of very small (under 2.5 microns) but low mass particles being produced by modern diesel engines has led to the introduction in 2011 of a limit to the number of particles (PN) per kilometre (see Euro 5b in table).

**TABLE 3.4  EURO EMISSION STANDARDS FOR DIESEL AND PETROL VEHICLES**

<table>
<thead>
<tr>
<th>Standard</th>
<th>Implementation</th>
<th>CO</th>
<th>HC</th>
<th>HC+$NO_X$</th>
<th>NO$_X$</th>
<th>PM$_{10}$</th>
<th>PN</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIESEL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Euro 4</td>
<td>January 2005</td>
<td>500</td>
<td>300</td>
<td>250</td>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Euro 5a</td>
<td>September 2009</td>
<td>500</td>
<td>230</td>
<td>180</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Euro 5b</td>
<td>September 2011</td>
<td>500</td>
<td>230</td>
<td>180</td>
<td>5</td>
<td>$6.0 \times 10^{11}$</td>
<td></td>
</tr>
<tr>
<td>Euro 6</td>
<td>September 2014</td>
<td>500</td>
<td>170</td>
<td>80</td>
<td>5</td>
<td>$6.0 \times 10^{11}$</td>
<td></td>
</tr>
<tr>
<td>PETROL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Euro 4</td>
<td>January 2005</td>
<td>1000</td>
<td>100</td>
<td>80</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Euro 5</td>
<td>September 2009</td>
<td>1000</td>
<td>100</td>
<td>60</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Euro 6</td>
<td>September 2014</td>
<td>1000</td>
<td>100</td>
<td>60</td>
<td>5</td>
<td>$6.0 \times 10^{11}$</td>
<td></td>
</tr>
</tbody>
</table>

CO = Carbon monoxide (mg/km). HC = Hydrocarbons (mg/km). NO$_X$ = Nitrogen Oxides (mg/km). PM$_{10}$ = Particles under 10 microns in diameter (mg/km). PN = Particle number (number/km).

As shown in Figure 3.3, the car club fleet in England and Wales is 90% Euro 5/6 compliant (up from 80% in 2011) with a further 9% meeting the acceptable Euro 4 standard. There are, however, a small number of Euro 3 and even Euro 2 vehicles still in operation with emission standards that have now been superseded at least twice (these may be members cars which have been “donated” to the club). They did not appear in last year’s report.
The one Euro 2 vehicle is operated by Club 4. Of note is that Clubs 1 and 3 are 100% Euro 5 compliant while Club 14, which operates only electric vehicles, is 100% Euro 6 compliant.

Table 3.5 shows the impact on air quality emissions of fuel choice and Euro standards. Club 2 has a predominantly petrol or petrol/electric fleet so its NO\textsubscript{X} emissions are low. Petrol/electric hybrids in particular have very low NO\textsubscript{X} emissions; typically under 10 mg/km. However, Club 2’s small number of diesel vehicles are mostly older Euro 4 vehicles with high particulate emissions so, although the second lowest for NO\textsubscript{X}, the club has the second highest PM\textsubscript{10} emissions. Clubs 1 and 5 have diesels on fleet but the model chosen has a diesel
particulate filter (DPF) and has published $\text{PM}_{10}$ emissions of zero. Club 4 has some old Euro 2 and Euro 3 vehicles with high emissions.

**TABLE 3.5** COMPARISON OF FUEL TYPES AND AIR QUALITY EMISSIONS: ENGLAND AND WALES CAR CLUBS

<table>
<thead>
<tr>
<th>Fuel Type/Air Quality</th>
<th>Club 1</th>
<th>Club 2</th>
<th>Club 3</th>
<th>Club 4</th>
<th>Club 5</th>
<th>Club 14</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel</td>
<td>43%</td>
<td>8%</td>
<td>14%</td>
<td>60%</td>
<td>50%</td>
<td>0%</td>
<td>29.0%</td>
</tr>
<tr>
<td>Electric</td>
<td>0%</td>
<td>0%</td>
<td>14%</td>
<td>5%</td>
<td>0%</td>
<td>100%</td>
<td>3.4%</td>
</tr>
<tr>
<td>Petrol</td>
<td>57%</td>
<td>79%</td>
<td>71%</td>
<td>35%</td>
<td>48%</td>
<td>0%</td>
<td>60.8%</td>
</tr>
<tr>
<td>Petrol/Electric</td>
<td>0%</td>
<td>13%</td>
<td>0%</td>
<td>0%</td>
<td>2%</td>
<td>0%</td>
<td>6.8%</td>
</tr>
<tr>
<td>Average $\text{NO}_x$ mg/km</td>
<td>76.5</td>
<td>31.0</td>
<td>42.3</td>
<td>122.5</td>
<td>87.6</td>
<td>0.0</td>
<td>64.6</td>
</tr>
<tr>
<td>Average $\text{PM}_{10}$ mg/km</td>
<td>0.0</td>
<td>1.4</td>
<td>0.1</td>
<td>2.0</td>
<td>0.0</td>
<td>0.0</td>
<td>1.3</td>
</tr>
</tbody>
</table>

3.22 Overall the combined average emission data of car club fleets in England and Wales ($\text{NO}_x$ mg/km = 64.6, $\text{PM}_{10}$ mg/km = 1.3) meets the minimum requirements of the Euro 5 diesel standard ($\text{NO}_x$ mg/km = 180, $\text{PM}_{10}$ mg/km = 5).

3.23 The National Atmospheric Emissions Inventory for cars on urban roads gives average values (including cold start) of 408 mg/km $\text{NO}_x$ and 17 mg/km $\text{PM}_{10}$. Although not directly comparable it is clear that all the car club fleets are operating well below these levels.

**Air Quality - Vans**

3.24 All the car club vans available in England and Wales met the current Euro 5 air quality emission standard (up from 69% Euro 5 in 2011). The table below shows the maximum permitted emissions for a Class III (over 1760 kg) diesel van.

**TABLE 3.6** MAXIMUM PERMITTED EMISSIONS FOR VANS: EURO STANDARDS

<table>
<thead>
<tr>
<th>Standard</th>
<th>Implementation</th>
<th>CO</th>
<th>HC + $\text{NO}_x$</th>
<th>$\text{NO}_x$</th>
<th>$\text{PM}_{10}$</th>
<th>PN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Euro 4</td>
<td>January 2006</td>
<td>740</td>
<td>460</td>
<td>390</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Euro 5a</td>
<td>September 2010</td>
<td>740</td>
<td>350</td>
<td>280</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Euro 5b</td>
<td>September 2011</td>
<td>740</td>
<td>350</td>
<td>280</td>
<td>5</td>
<td>$6.0 \times 10^{11}$</td>
</tr>
<tr>
<td>Euro 6</td>
<td>September 2015</td>
<td>740</td>
<td>215</td>
<td>125</td>
<td>5</td>
<td>$6.0 \times 10^{11}$</td>
</tr>
</tbody>
</table>

CO = Carbon monoxide (mg/km). HC = Hydrocarbons (mg/km). $\text{NO}_x$ = Nitrogen Oxides (mg/km). $\text{PM}_{10}$ = Particles under 10 microns in diameter (mg/km). PN = Particle number (number/km).

3.25 As yet, manufacturers have not been obliged to publish van air quality emission data ($\text{NO}_x$ and $\text{PM}_{10}$) so all that is available is the maximum permitted values relating to the relevant Euro emission standard.
3.26 With no published vehicle specific data no further analysis of van emissions can be carried out. Therefore, it is only possible to comment that the current fleet of vans available to club members in England and Wales meets the highest commercially available standard for air quality emissions.

**Mileage and Carbon Dioxide**

3.27 All but one of the commercial car club operators provided mileage data for the period 1st April to 1st November 2013 (seven months). This represents the mileage driven in that period by the cars on the fleet as at 1st November, it does not identify mileage from vehicles that have been de-fleeted over the period. This data was then annualised (based on the age of the vehicle) to give an estimated annual mileage for the whole fleet.

3.28 The mileage was also used in conjunction with the published carbon emissions of the vehicle in g/km to estimate actual carbon emissions. The established Defra/EST methodology of uplifting the published carbon emission figure by 15% to reflect “real-world” operation and then multiplying this by the distance driven was used\(^\text{\footnote{2013 Government GHG Conversion Factors for Company Reporting: Methodology Paper for Emission Factors, DEFRA, London, 2013.}}\).

**TABLE 3.7 ESTIMATED ANNUAL MILEAGE AND CARBON DIOXIDE PRODUCTION (CARS ONLY)**

<table>
<thead>
<tr>
<th>Car Club</th>
<th>Miles Apr-Nov</th>
<th>kg CO(_2) Apr-Nov</th>
<th>Annual Mileage</th>
<th>Average Annual Mileage/Car</th>
<th>Annual kg CO(_2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Club 1</td>
<td>180,971</td>
<td>35,816</td>
<td>613,745</td>
<td>13,949</td>
<td>123,594</td>
</tr>
<tr>
<td>Club 2</td>
<td>945,254</td>
<td>180,555</td>
<td>1,621,768</td>
<td>6,786</td>
<td>309,767</td>
</tr>
<tr>
<td>Club 3</td>
<td>11,831</td>
<td>2,619</td>
<td>28,106</td>
<td>4,015</td>
<td>5,926</td>
</tr>
<tr>
<td>Club 4</td>
<td>651,381</td>
<td>127,970</td>
<td>1,117,394</td>
<td>9,312</td>
<td>219,521</td>
</tr>
<tr>
<td>Club 5</td>
<td>No mileage data supplied</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Club 14</td>
<td>9,136</td>
<td>0</td>
<td>28,475</td>
<td>4,068</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>1,798,573</td>
<td>346,960</td>
<td>3,409,488</td>
<td>8,176</td>
<td>658,808</td>
</tr>
</tbody>
</table>

3.29 It is therefore estimated that the England and Wales Car Club fleet of cars as at 1st November 2013 produces 659 tonnes of carbon dioxide in a year.

3.30 Assuming the same annual mileage was driven by the average UK car (Defra/DECC GHG reporting 2013) which has emissions (including uplift) of 181.4 g/km the emissions would have been 995 tonnes, a saving of 336 tonnes (34%) or 0.80 tonnes/car.
Results for England and Wales

Safety Assessment

3.31 Advances in vehicle safety are in part responsible for the year on year reduction in the number of fatalities on UK roads. Passive safety features such as seat belts and air bags assist in the survivability of collisions while active features such as Electronic Traction Control help drivers avoid the accident.

3.32 In coming years a range of new active features will become standard on new cars: e.g.

- Autonomous Emergency Braking; forward facing radar detects a possible collision and stops or slows the car.
- Lane Support Systems; warns driver of lane wander (often also linked to a blind spot warning system to detect vehicles in the blind spot).
- Driver Drowsiness Detection; detects driver behaviour typical of tiredness and warns all occupants.
- Secondary Collision Brake Assistance; tries to prevent or mitigate secondary impacts following a collision when the vehicle may still be in motion but the occupants unconscious.
- Pre-Crash Systems; detects driver collision avoidance and prepares vehicle systems for an impact, for example by tensioning seat belts pulling passengers back into seats.
- Adaptive Forward Lighting; one set of lights “look” around the corner while additional lights will come on in tight urban manoeuvres.

3.33 All new cars must meet minimum construction standards but the actual behaviour of a car in a collision is dependent on how well those mandatory standards have been integrated. Since 1996 the European New Car Assessment Programme (NCAP) has been independently testing cars to see how well they perform in collisions designed to represent the more frequent real-world events.

3.34 Vehicles are awarded stars from 1 Star to 5 Star depending on their overall performance. There are clear health and safety benefits in driving cars that are equipped to help avoid a collision and then mitigate the impact of an incident should it occur.

3.35 The chart below shows the NCAP profile of the England and Wales Car Club Club fleet. While 83% meet the NCAP 5 Star standard and 8% the acceptable NCAP 4 Star standard it was surprising to note that 9% were only NCAP 3 Star.
The 3 Star vehicles were all 2012/2013 Toyota Aygo models (also sold as the Citroen C1 and the Peugeot 107). When the new model Aygo/C1/107 was tested in 2012 it was downgraded from a 4 Star vehicle (2005 model) to a 3 Star vehicle. The 4 Star vehicles were a mix of vehicle types including VW Polo, Nissan Note, Renault Fluence and Citroen C-Zero.

A significant proportion of vehicles in the national fleet would not meet the NCAP 3 Star standard.

**Community Car Clubs**

As well as bringing environmental benefits, community car clubs facilitate social and economic opportunities such as the ability to access education and employment. They also allow households to downsize their car ownership levels and can help connect otherwise very isolated, transport-poor places to the wider transport network as part of a portfolio approach to mobility.

Six English and Welsh Community Car clubs provided data about their fleets. There were nineteen vehicles available to members and three were in carbon emissions Band A and B. The remainder were spread across the emission bands including one in each of the high emission Bands J and K.
### Results for England and Wales

#### TABLE 3.8  EMISSION BANDS FOR ENGLAND AND WALES COMMUNITY CAR CLUBS

<table>
<thead>
<tr>
<th>CO(_2) Emission Band (gCO(_2)/km)</th>
<th>Number</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Band A &lt;=100</td>
<td>1</td>
<td>5.3%</td>
</tr>
<tr>
<td>Band B 101-110</td>
<td>2</td>
<td>10.5%</td>
</tr>
<tr>
<td>Band C 111-120</td>
<td>1</td>
<td>5.3%</td>
</tr>
<tr>
<td>Band D 121-130</td>
<td>5</td>
<td>26.3%</td>
</tr>
<tr>
<td>Band E 131-140</td>
<td>4</td>
<td>21.1%</td>
</tr>
<tr>
<td>Band F 141-150</td>
<td>2</td>
<td>10.5%</td>
</tr>
<tr>
<td>Band G 151-165</td>
<td>1</td>
<td>5.3%</td>
</tr>
<tr>
<td>Band H 166-175</td>
<td>1</td>
<td>5.3%</td>
</tr>
<tr>
<td>Band I 176-185</td>
<td>1</td>
<td>0.0%</td>
</tr>
<tr>
<td>Band J 186-200</td>
<td>1</td>
<td>5.3%</td>
</tr>
<tr>
<td>Band K 201-225</td>
<td>1</td>
<td>5.3%</td>
</tr>
<tr>
<td>Band L 226-255</td>
<td>1</td>
<td>0.0%</td>
</tr>
<tr>
<td>Band M 256+</td>
<td>1</td>
<td>0.0%</td>
</tr>
<tr>
<td>No data available</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>100%</td>
</tr>
</tbody>
</table>

#### TABLE 3.9  AVERAGE CARBON EMISSIONS: ENGLAND AND WALES COMMUNITY CAR CLUBS AND NATIONAL FLEET

<table>
<thead>
<tr>
<th>Carbon Emissions (gCO(_2)/km)</th>
<th>Community Club Cars 2011</th>
<th>Community Club Cars 2012</th>
<th>Community Club Cars 2013</th>
<th>National Fleet</th>
</tr>
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<tbody>
<tr>
<td>Average - All Vehicles</td>
<td>No data</td>
<td>No data</td>
<td>133.7</td>
<td>160.1</td>
</tr>
</tbody>
</table>

The average England and Wales community car club car has emissions 16% below the national average car. As previously mentioned, given that there is a tendency for vehicles in more isolated/rural areas to be older than the national average, it is highly likely that this fleet is a significant improvement over the alternative of local, private ownership.

3.40
Air Quality - Community Cars

3.41 Only two vehicles were Euro 5 compliant, the remainder were Euro 4 (6), Euro 3 (6) and Euro 2 (3). However these vehicles are being used in largely rural areas where air quality is not a pressing issue. The poor emission standard of some reflects the age of the fleet: average 8.6 years with a range from 1.3 years to 15.8 years. The national fleet has an average age of about 7.4 years.

3.42 The fleet was a mix of petrol and diesel and this, combined with the age and Euro profile, gives high average Nitrogen oxide (NO\textsubscript{x}) emissions of 229 mg/km and particulate (PM\textsubscript{10}) emissions of 8.8 mg/km.

Fleet Mileage and Carbon Emissions - Community Cars

3.43 The data for the community cars was analysed in the same way as the commercial car club operators.

TABLE 3.10 ESTIMATED ANNUAL MILEAGE AND CARBON DIOXIDE PRODUCTION: COMMUNITY CAR CLUBS

<table>
<thead>
<tr>
<th>Car Club</th>
<th>Miles Apr-Nov</th>
<th>kg CO\textsubscript{2} Apr-Nov</th>
<th>Annual Mileage</th>
<th>Average Annual Mileage/Car</th>
<th>Annual kg CO\textsubscript{2}</th>
</tr>
</thead>
<tbody>
<tr>
<td>Club 8</td>
<td>43,143</td>
<td>8,573</td>
<td>73,959</td>
<td>14,792</td>
<td>14,697</td>
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<tr>
<td>Club 10</td>
<td>23,862</td>
<td>7,538</td>
<td>40,906</td>
<td>10,227</td>
<td>12,922</td>
</tr>
<tr>
<td>Club 13</td>
<td>2,774</td>
<td>862</td>
<td>4,755</td>
<td>4,755</td>
<td>1,478</td>
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<tr>
<td>Club 15</td>
<td>5,143</td>
<td>1,234</td>
<td>8,817</td>
<td>2,939</td>
<td>2,115</td>
</tr>
<tr>
<td>Club 16</td>
<td>13,705</td>
<td>3,974</td>
<td>23,494</td>
<td>11,747</td>
<td>6,813</td>
</tr>
<tr>
<td>Club 17</td>
<td>30,464</td>
<td>6,440</td>
<td>52,224</td>
<td>13,056</td>
<td>11,039</td>
</tr>
<tr>
<td>Total</td>
<td>119,091</td>
<td>28,621</td>
<td>204,155</td>
<td>10,745</td>
<td>49,064</td>
</tr>
</tbody>
</table>

3.44 Compared with the national average fleet (181.4 g/km including 15% uplift) the English and Welsh community car club fleet, as at 1st November 2013, is estimated to save about 10.5 tonnes of carbon dioxide each year (18%) or 0.55 tonnes/car.

Safety Assessment - Community Car Clubs

3.45 Of the 19 community cars in England and Wales 12 meet the NCAP 4 Star standard and five the NCAP 5 Star standard. One is NCAP 3 Star and one NCAP 2 Star.
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<th>Carplus Annual Surveys 2013/14</th>
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<tr>
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<td>Results for England and Wales</td>
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<tr>
<td>Client Contract/Project No.</td>
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### Issue History

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### Review

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<th>Originator</th>
<th>Jennie Rothera</th>
</tr>
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<tr>
<td>Other Contributors</td>
<td>Ian Bewick</td>
</tr>
<tr>
<td>Review by:</td>
<td>Print Matthew Clark</td>
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