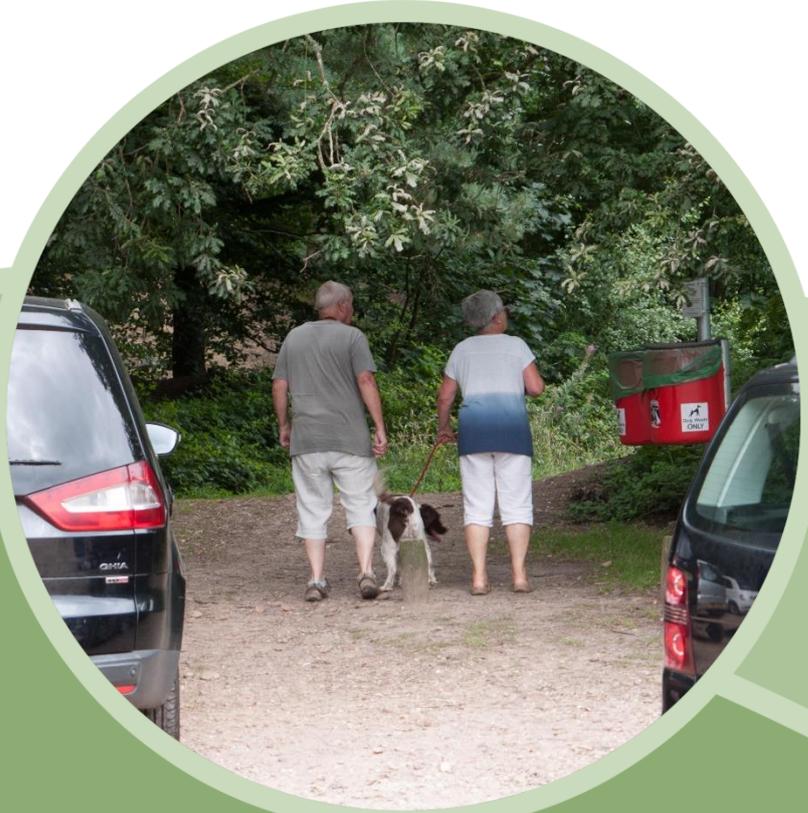




**FOOTPRINT
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Results of vehicle counts around the Thames Basin Heaths SPA in 2016

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Summary

This report summarises the results of driving transects, counting parked cars around the Thames Basin Heaths SPA. The counts provide a snapshot of visitor use across the SPA, at least for those visitors arriving by car.

Eleven transects were undertaken, spread across the year, with each transect involving six different surveyors, ensuring all parking locations were covered in a two-hour window.

A total of 5,211 vehicles were counted across all transects and all dates, with an average of 474 vehicles per transect.

The highest numbers of vehicles were counted on Broadmoor to Bagshot Woods and Heaths SSSI (21% of vehicles) and Colony Bog & Bagshot Heath SSSI (20%) of vehicles.

Broadmoor and Bagshot Woods & Heaths SSSI also had by far the most vehicles with bike racks (86% of all such vehicles counted) and MPV/minibuses (45%).

Colony Bog & Bagshot Heath had the highest proportion of commercial dog walking vehicles (25% of all such vehicles counted) and Horsell Common was also notable for this vehicle type (22%).

Compared to previous years, there have been relative decreases in use around Bourley/Long Valley, towards the east end of Yateley and at Caesar's Camp. There appears to have been a relative increase at Lightwater, Ockham & Wisley Common and towards the southern end of Ash to Brookwood Heaths SSSI.

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Acknowledgements

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1. Introduction

- 1.1 This report has been commissioned by Natural England to present the results of driving transects, counting parked vehicles around the Thames Basin Heaths Special Protection Areas (SPA) in 2016. The driving transects were undertaken by Thames Basin Heaths Partnership staff and broadly follow the approach taken in previous years. The aim of the counts is to provide monitoring data on the levels of visitor use (at least those arriving by car). These data will provide information on changes in overall use over time, picking up which locations have seen a change in access and overall trends in visitor use.
- 1.2 The first, trial driving transects were undertaken in September 2012 (Fearnley & Gartshore 2013) to set out and test a methodology for future counts. Following the trial in 2012, a full driving transect survey was carried out in June 2013 (Fearnley 2013) and repeated in 2014. In each year, six counts were undertaken in total, three on a week day and three on a weekend day. For logistical reasons the transects were undertaken on subsequent days (a Sunday and a Monday in 2013 and a Friday and Saturday in 2014), with three counts on each date. In both years, the surveys were carried out in mid-June. Each count involved six drivers following a predetermined route, the direction of which was alternated between subsequent transects.
- 1.3 No surveys undertaken in 2015, and in 2016 counts were undertaken by wardening staff working on the ground in the Thames Basin Heaths as part of the Strategic Access Monitoring and Mitigation Project, rather than by external surveyors. This provided the opportunity to spread counts over the year and therefore the approach differed slightly in 2016.

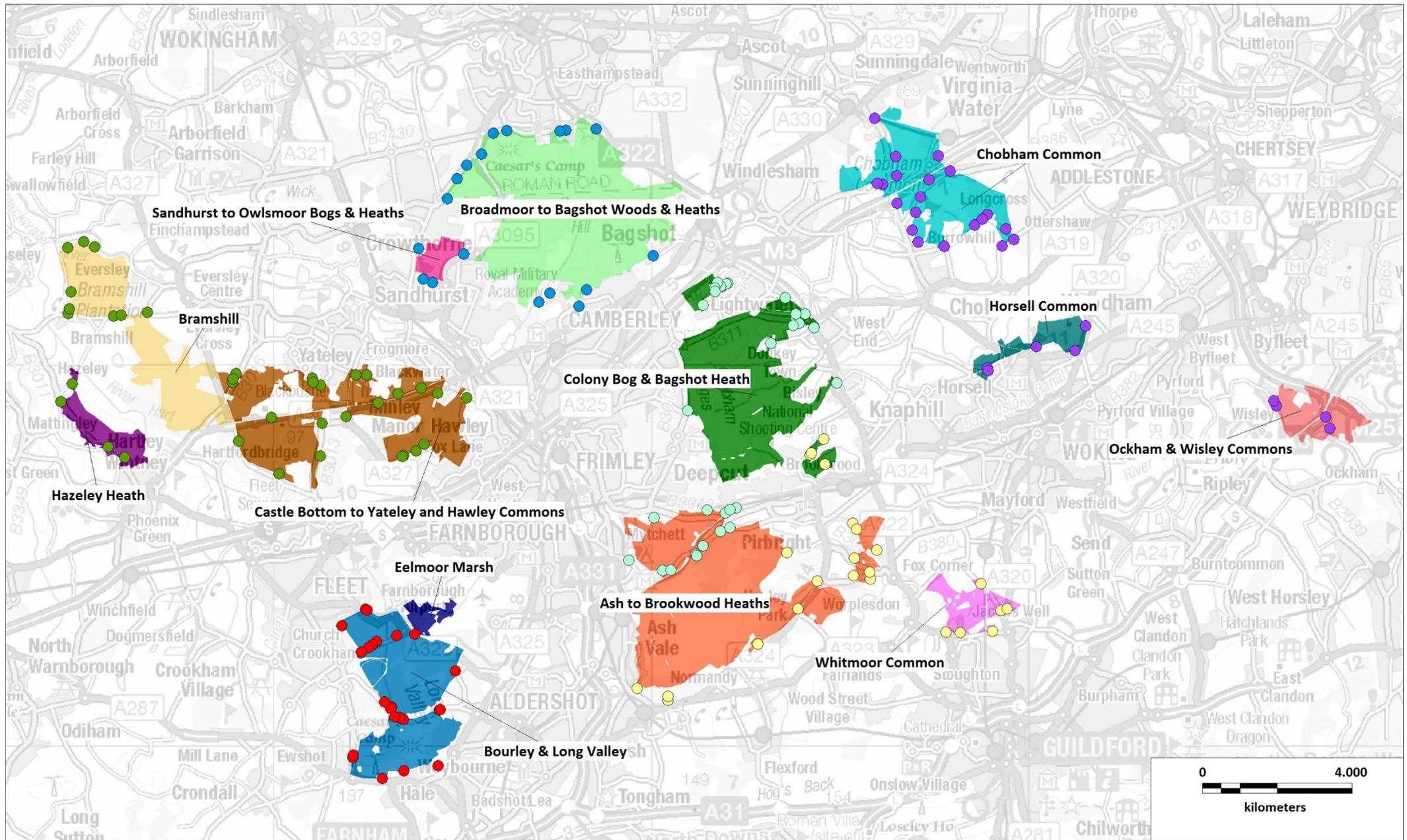
2. Methods

- 2.1 The parking locations were grouped into six geographical sections (Map 1) and one surveyor was allocated a single section to count on each date. This follows the approach used in previous years. Complete coverage of the SPA was therefore achieved with each transect, which required six surveyors, one per section to undertake the count. The car parking areas were grouped into six sections to keep the count window within two hours, so each count could be interpreted as a snapshot of visitor distribution across the SPA. Surveyors drove their sections simultaneously (i.e. the count start time was the same for each section) and the number of parked vehicles in the parking areas recorded.
- 2.2 Surveyors were provided with paper maps, grid references and descriptions of the car parks and recording forms. This follows the approach used in previous years and the same recording forms were used.
- 2.3 Surveyors drove the predefined route of their allocated section and recorded the total number of parked vehicles, categorised the types of vehicles and made any additional notes. The recording form distinguished between several vehicle types (commercial vehicles, camper vans, MPVs and minibuses).
- 2.4 Eleven driving transects, each consisting of six sections, were completed. There was some rain for five of the transects. Dates and start times are summarised in Table 1. Five transects started at 09:00, three at 14:00 and three at 18:00. Dates covered ranged from January to December.

Table 1: Summary of dates and start times.

Transect No.	Date	Start time	Day	Rainfall during count
1	08-Jan	09:00	Fri	✓
2	30-Mar	14:00	Weds	✓
3	25-Apr	18:00	Mon	
4	27-May	14:00	Fri	
5	29-Jun	18:00	Weds	✓
6	23-Jul	09:00	Sat	
7	25-Jul	09:00	Mon	
8	12-Aug	18:00	Fri	✓
9	12-Oct	09:00	Weds	✓
10	14-Nov	14:00	Mon	
11	16-Dec	09:00	Fri	

Map 1 : Car parks (points) shaded by section and shown in relation to the Thames Basin Heaths SPA (shading reflects different SSSIs)



Car-parks by section

1 (23)	4 (29)
2 (36)	5 (24)
3 (18)	6 (29)

3. Results

Overview of totals

3.1 A total of 5,211 vehicles were counted across all transects and all dates (Table 2). The highest numbers of vehicles were counted on Broadmoor to Bagshot Woods and Heaths SSSI (21% of vehicles) and Colony Bog & Bagshot Heath SSSI (20%) of vehicles. Broadmoor and Bagshot Woods & Heaths SSSI (which includes the Lookout, the largest car-park in the area) also had by far the most vehicles with bike racks (86% of all such vehicles counted) and a notably high proportion of MPV/minibuses (45%). Colony Bog & Bagshot Heath had the highest proportion of commercial dog walking vehicles (25% of all such vehicles counted) and Horsell Common was also notable for this vehicle type (22%).

Table 2: Overview of number (%) of vehicles by SSSI. Total vehicles column is the total for all vehicle types. Columns to the right are a subset. Percentages in all cases are based on column totals.

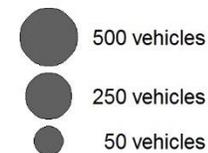
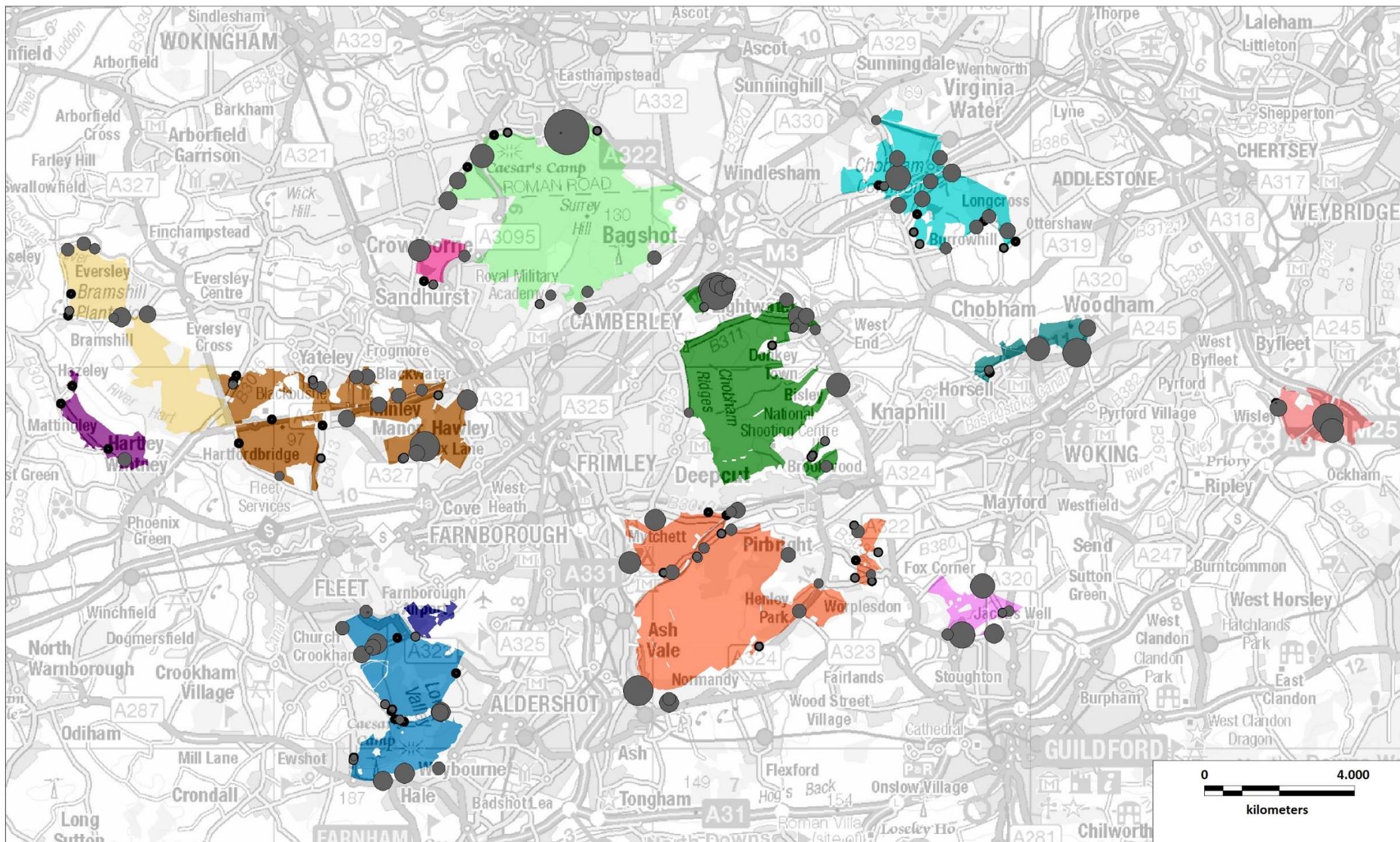
SSSI	Total vehicles	Commercial vehicles	Vehicles with bike racks	Commercial dog walking vehicles	MPV/minibuses	Camper vans
Ash to Brookwood Heaths	586 (11)	40 (19)	3 (3)	3 (8)	9 (16)	5 (29)
Bourley & Long Valley	377 (7)	18 (9)	1 (1)	1 (3)	1 (2)	3 (18)
Bramshill	126 (2)	4 (2)	0 (0)	0 (0)	0 (0)	0 (0)
Broadmoor to Bagshot Woods & Heaths	1,077 (21)	10 (5)	93 (86)	4 (11)	26 (45)	4 (24)
Castle Bottom to Yateley & Hawley Com.	479 (9)	26 (13)	1 (1)	0 (0)	11 (19)	1 (6)
Chobham Common	376 (7)	15 (7)	1 (1)	7 (19)	1 (2)	0 (0)
Colony Bog & Bagshot Heath	1,028 (20)	12 (6)	4 (4)	9 (25)	4 (7)	1 (6)
Hazeley Heath	19 (0)	2 (1)	0 (0)	1 (3)	0 (0)	0 (0)
Horsell Common	334 (6)	6 (3)	4 (4)	8 (22)	0 (0)	0 (0)
Ockham & Wisley Commons	366 (7)	57 (28)	1 (1)	1 (3)	1 (2)	2 (12)
Sandhurst to Owlsmoor Bogs & Heaths	96 (2)	1 (0)	0 (0)	1 (3)	1 (2)	0 (0)
Whitmoor Common	347 (7)	15 (7)	0 (0)	1 (3)	4 (7)	1 (6)
Total	5211 (100)	206 (100)	108 (100)	36 (100)	58 (100)	17 (100)

3.2 Data are summarised in maps 2-7, which all show the number of parked vehicles by location, with graduated symbols. These symbols are scaled using a log scale, which means car-parks with high totals (such as the Lookout and Lightwater Country Park) do not have such large symbols compared to a constant scale. Different scales are used for each map. Map 2 shows total vehicles and the other maps show the other categories of vehicle. Map 4 (bike racks) highlights the Lookout as the main focus for cycling. Commercial dog walking vehicles

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(Map 5) were predominantly recorded from the north-eastern part of the SPA and seem to avoid the Lookout.

Map 2 : Total vehicles across all locations (symbols graduated using log scale)



Temporal variation

- 3.3 Eleven different transects were undertaken. Numbers of cars counted are summarised by date in Figure 1. Counts ranged from 708 to 345 with a mean of 474.
- 3.4 The maximum count was on the afternoon on the 30th March, which in 2016 was the first Wednesday after Easter and therefore coincided with school holidays. Other high counts included the 23rd July which was the only weekend day surveyed, and started at 0900; the 8th January was also high, a Friday with the transect starting at 0900. The three evening counts (1800 start time) were the lowest counts, with the lowest on Wednesday 29th June.
- 3.5 Given that only one count was undertaken at the weekend and given the variation in times counted, sample sizes are too low to undertake any analysis to compare times of day or between days of the week.

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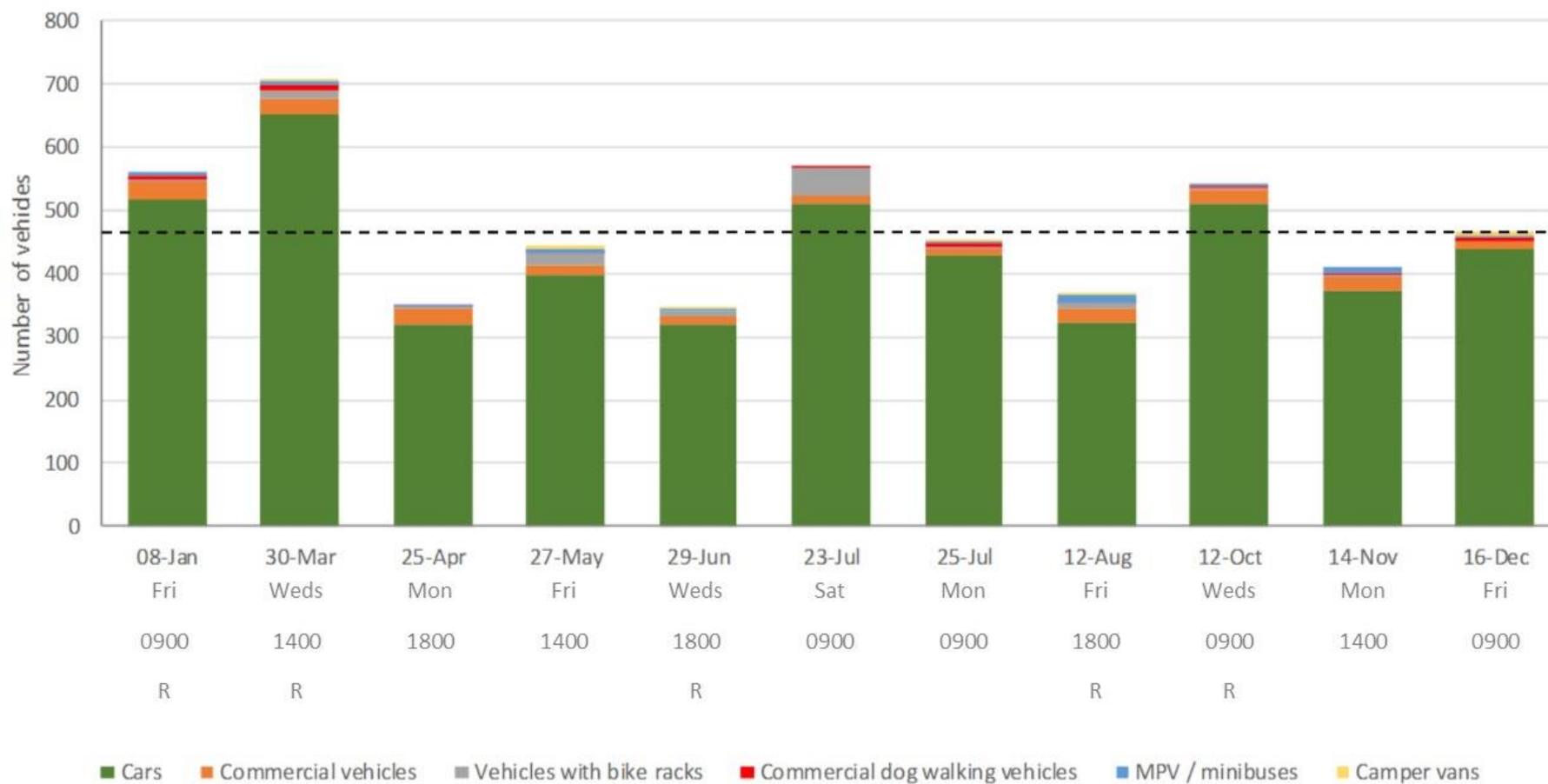


Figure 1: Numbers of parked vehicles by date. Annotations below the data indicate the day, the start time and an R denotes at least some rainfall during the transect. The horizontal, dashed line shows the mean for the eleven dates. The dashed horizontal line shows the mean (474 vehicles).

Comparison with previous years

- 3.6 Due to the different timing and different survey effort, comparison between 2016 and previous years is difficult. Totals of all parked vehicles and the difference categories of vehicle are summarised in Table 3. While the methods used were similar in 2012 and 2013, direct comparison with these data and the data in 2016 cannot be made. The 2016 total of 5,211 vehicles does not necessarily reflect an increase in access compared to 3,178 in 2014, as nearly double the effort was undertaken in 2016 and spread across the year.
- 3.7 The percentages indicate the relative contribution of the different categories of vehicle and do not suggest any marked changes for any particular category of vehicle.

Table 3: Summary totals by year, giving number (%) of vehicles. Percentages are calculated for each row.

Year	Total parked vehicles	Total commercial vehicles	Total Vehicles with bike racks	Total commercial dog walking vehicles	Total MPV/minibus	Total Campervans
2013	3,164 (100)	84 (3)	98 (3)	8 (0)	49 (2)	4 (0)
2014	3,178 (100)	129 (4)	112 (4)	10 (0)	146 (5)	13 (0)
2016	5,211 (100)	206 (4)	108 (2)	36 (1)	58 (1)	17 (0)

- 3.8 Another way to examine this was to calculate the average from the total number of cars recorded on each transect. In 2016 the average across each of the eleven counts was 474 cars recorded in a transect. This compared with an average of 542 cars per transect in 2013 and 529 cars per transect in 2014. Due to the differences in survey it is not comparable to state that average number of cars has reduced. Surveys in 2016 have considered a range of dates across the year, whereas 2013 and 2014 surveys were targeted to the busier summer period.
- 3.9 There was a highly significant correlation between the overall totals at each car-park from 2014 and 2016 (Pearson correlation coefficient=0.928, $p < 0.001$), indicating that relative values are similar, i.e. car parks that were busy in previous years were busy this year etc.
- 3.10 Count data for the two years are shown in Figure 2, where we have fitted a trendline through the data. We use this fitted line to identify car-parks that have a particularly high or low count in 2016 when compared with the 2014 data. The residual value – the extent to which the points are above or below the line –

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provides a means of highlighting locations where there appears to be a marked change. These values are shown in Map 8. Car-parks that are below the line are those where the count in 2016 was lower than would be expected, and these are shown as negative (red) points in Map 8. Points above the line are shown in blue in Map 8 and are those locations where the number of vehicles was higher than expected.

- 3.11 There have been relative decreases in use around Bourley/Long Valley, towards the east end of Yateley and at Caesar's Camp. There appears to have been a relative increase at Lightwater, Ockham & Wisley Common and towards the southern end of Ash to Brookwood Heaths SSSI.

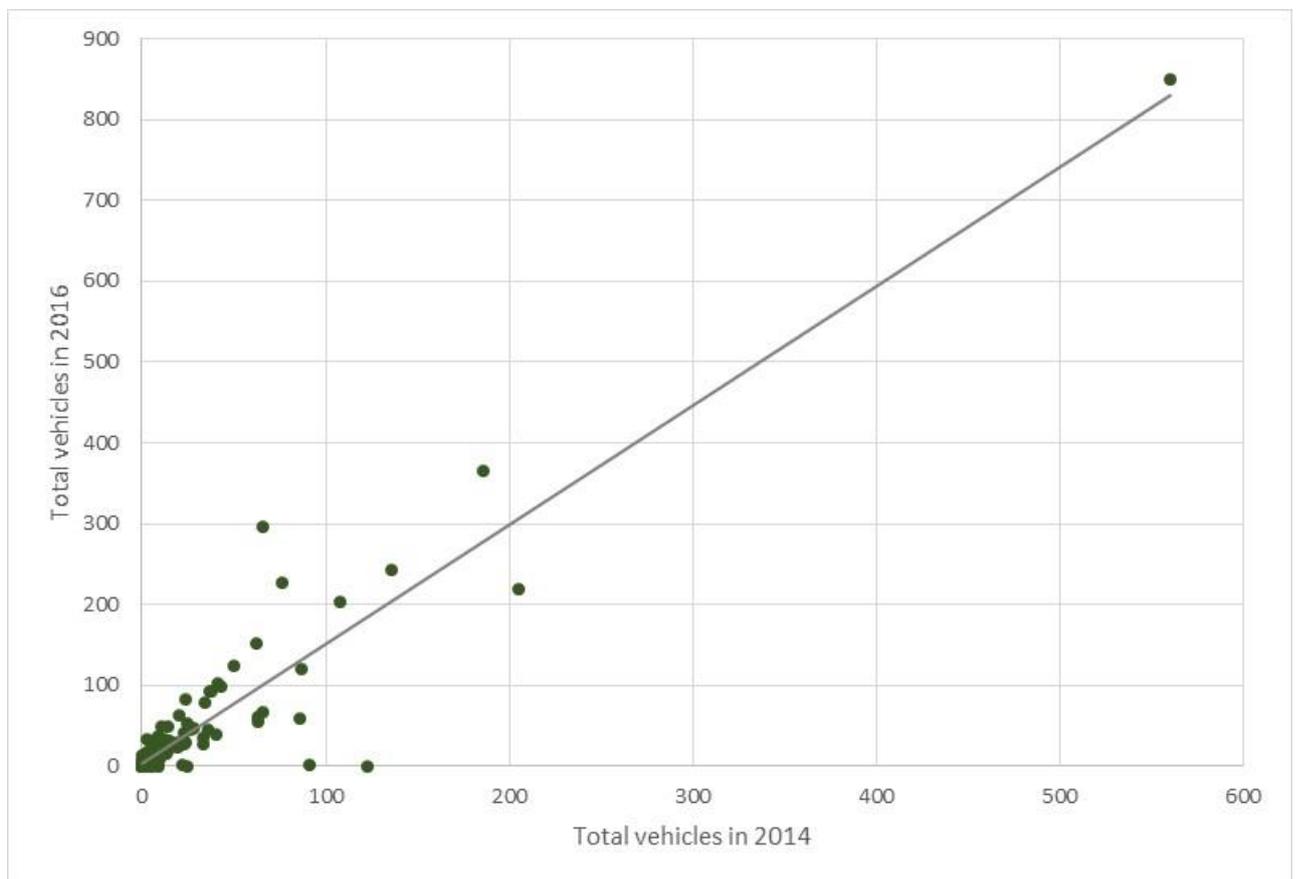
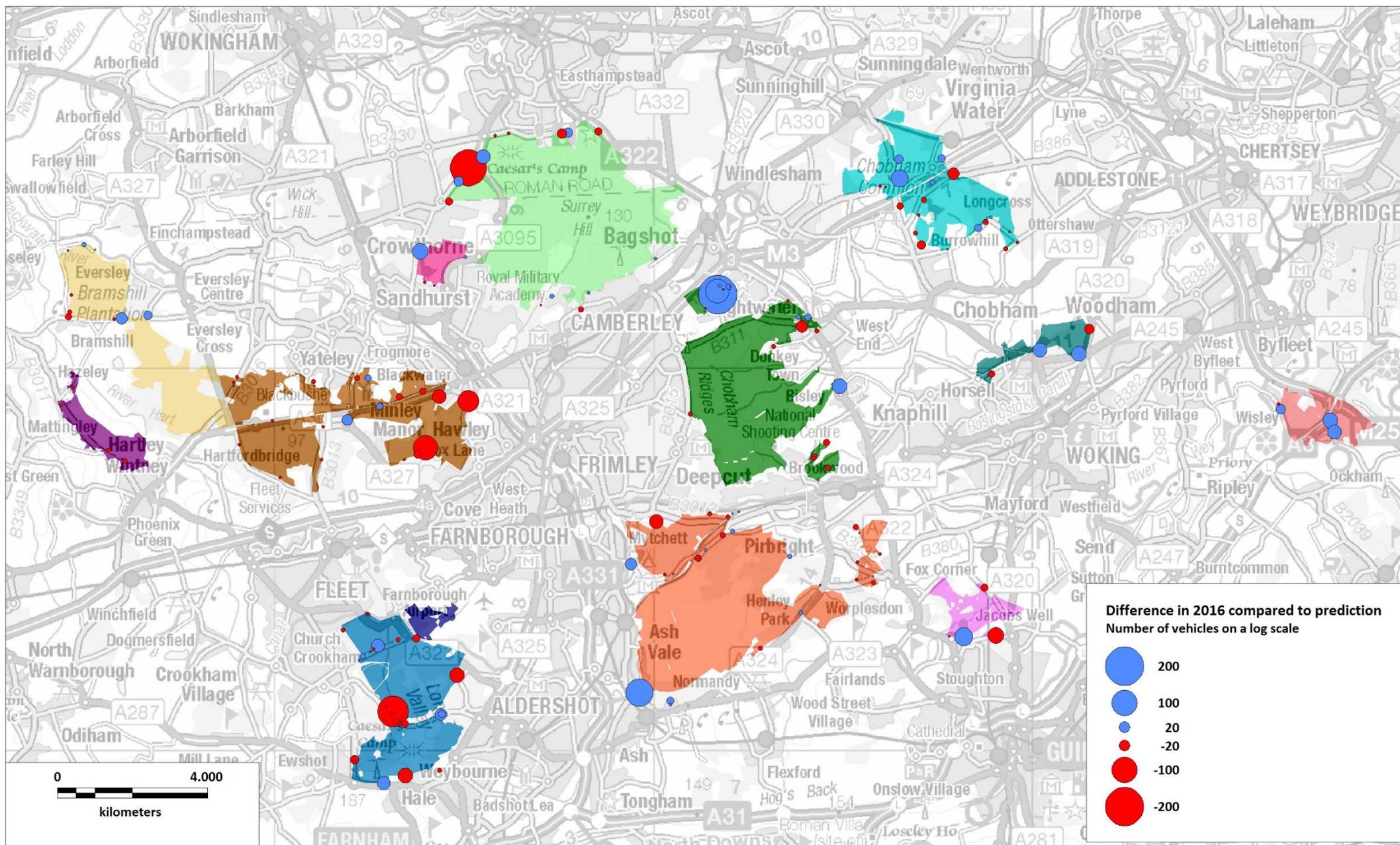


Figure 2: Scatterplot of data (total vehicles) from 2014 and 2016. Diagonal line is fitted using all data points, $y=1.476x+3.267$, $r^2=0.86$. Removal of the outlier (the Lookout, extreme top left) has little effect on the plotted line but reduces the $r^2=0.67$.

Map 8: Relative changes in total vehicles in 2016 compared to 2014. Red shows decrease compared to predicted and blue an increase



4. Discussion

- 4.1 The results are summarised here and provide an ongoing measure of visitor use across the Thames Basin Heaths SPA. 2016 saw a change in how the driving transects are conducted and subsequent years should aim to allow direct comparison in future years. In this section, we discuss key points relating to future monitoring and recording changes in parking.

Future monitoring

- 4.2 Future monitoring will need to match 2016 and we suggest that the dates are as closely aligned as possible. This can be done by ensuring transects are done at the same time and same approximate day (e.g. second Friday in January etc.) each year. Two key points warrant consideration.
- 4.3 In 2016 the transect on the 30th March was the busiest, and was undertaken on Wednesday 30th March. This date happened to be the first Wednesday after Easter. Easter changes dates each year and therefore always taking the last Wednesday in March each year will not yield comparable data. However, if the first Wednesday after Easter is always selected this could mean that this transect is done some years in later April and other years in March. We suggest in future years either the date is switched slightly (for example to mid-March) such that it is always outside the Easter holidays, or alternatively the first Wednesday after Easter is used, adding additional variation into the data each year.
- 4.4 A further point to make is the limited weekend coverage during 2016. One transect covered a Saturday. As weekend days make up just under a third of days in the year, more weekend coverage would provide a more balanced sampling regime. Weekend coverage may have logistical constraints, so one solution maybe to add in some additional weekend transects in some years. Such an approach is particularly important if the data are to be extrapolated to provide an overall estimate of visitor numbers to the SPA.

Changes in car-parks

- 4.5 Inevitably over time there will be some changes to car-parks, some parking locations may disappear and there may be some new locations. Some car-parks may change, for example different with regards to surfacing, introduction/changes to charging, signage or capacity. Over time it is important to document these changes such that any changes to use in car-parks can be checked and reasons for increased or decrease use explored. Given that two

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years has passed since the previous transects, an audit and check of parking would be warranted.

4.6 All parking locations have been mapped and entered into GIS. Each parking location has been given a unique number as an identifier. Data collection should always use this unique ID and alongside record the number of cars and the time. In the audits, each car-park should be visited and checked, with a record made of:

- Car-park type (formal parking, road verge, lay-by, roadside)
- Substrate type – i.e. whether surfaced,
- Any signage
- Interpretation present
- Any charging in place
- Presence of height restriction bars
- Organisation running/managing the car-park
- Estimate of parking capacity

4.7 Any changes in terms of new parking locations or old ones redundant should be recorded. For new parking locations, a new unique identifier should be used, and we recommend using a number outside the current sequence, e.g. starting at 2000, to denote new parking locations. This way it is easy to see which parking locations have been added over time.

4.8 We suggest each year a short annual report is produced, like this one, that sets out the monitoring work undertaken – number of transects, timing, weather etc. and sets the results in context. Apparent changes in use at individual parking locations or parts of heaths should be documented. These reports should provide a note of any changes in methods, such as changes in the number of parking locations included, so that these can be accounted for in long term analysis/comparisons. As a record, we have summarised notes recorded by the surveyors in 2016 in Appendix 1. These notes should be checked as part of the next audit.

Appendix 1: Surveyor notes relating to particular transects and parking locations]

Section 1

Majority of car parks now closed off

Points 1 & 2 don't look like they're used much. If I was looking for a place to park I wouldn't think I would be allowed to park there as they have raised curbs.

At point 3 there are two parking areas right next to each other. I counted the cars in both. The first car park had one car in it & the second had two.

Number 8 is a gated entrance to what looks like a car park behind it. However, the gate is locked & it is a private car park. There are big red signs up on the gate which say 'No Parking'. I believe this is why it is no longer counted on the transect survey.

Section 2

CP 19 Majority of vehicles probably attending sailing club

CP30 Closed

CP 36 Cars may be overflow from leisure centre

Still question whether to add Police College parking layby (make point 4?)

Between points 24 and 25, 2 cars parked at MOD gate/layby – add?

Point 31 – timber stacked in car park at cemetery therefore limited parking. Layby noted further up lane with one car parked.

Section 3

09 & 10: verges are disappearing through lack of use, soil creep, ruderal encroachment. No evidence of use, eg tracks. Number 10: van hardly fitted in & forced to park within centimetres of rapidly passing traffic.

11: capacity listed as 11 but 17 vehicles parked, some erratically spilling out onto main road.

12: no verge visible along this stretch so could not enter time.

Section 4

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25: Anthony's nr. Horsell. 3 cars in layby on left, but this layby now has a residents only plaque, so not sure if it should be recorded or not.

Section 5

Majority of cars in car Park 27 were visiting child nursery on opposite side of the road.

Section 6

Car park 18 now has no parking signs clearly posted.

New parking use noticed on Red Road (before car park number 15 by large Grenade Range sign)

2 pull-in's on Gapemouth Road before T6-9 new being used as parking spaces (the two vehicles parked in these places were added to T6-9's count).