Benchmarking London's Parks

Comparing Costs, Quality and Usage



Technical Report



London Parks Benchmarking
Research Project

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- CABE Space
- City of London
- English Heritage
- Forestry Commission
- Greater London Authority
- London Parks Benchmarking Group
- London Parks & Green Spaces Forum
- Natural England
- The Royal Parks
- Transport for London

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1 Introduction

1.1 Background

1.1.1 Colin Buchanan and The Access Company have been commissioned by the London Parks Benchmarking Research steering group to assist with its ongoing London Parks Benchmarking project. The role of this stage of the study is to assess the relationships between the cost to organisations of managing parks, the perceived quality of parks and the public's use of parks.

1.1.2 The steering group for the London Parks Benchmarking Research consists of the following organisations:

- CABE Space
- City of London
- English Heritage
- Forestry Commission
- Greater London Authority
- London Parks Benchmarking Group
- London Parks & Green Spaces Forum
- Natural England
- The Royal Parks
- Transport for London

1.2 The value of green spaces

1.2.1 What is the value of our green spaces? Although the value of high quality green spaces is intuitively apparent to all of us, the green space sector can struggle to demonstrate value for money for several reasons. In contrast to many culture and leisure services that charge for entry, visitor numbers are rarely systematically recorded. The benefits people experience from green spaces vary greatly and are generally intangible in their nature. Therefore quantified outputs and performance indicators are difficult to define.

1.2.2 The 2006 National Audit Office report *Enhancing Urban Green Spaces* highlighted a number of critical issues in green space management, including:

- Strategic targeting of resources – Prioritisation should be based on a needs assessment and audit of provision as set down in PPG 17. In some cases, the focus on Awards has increased the quality gap within local authorities, and the geographical scope of regeneration funding streams has limited the ability to target effectively.
- Demonstrating value for money – Costs are rarely linked to units of activity, quality measures or other outcomes.
- Informed and innovative procurement – The variation in costs indicated by limited benchmarking data suggests that improved efficiency can be achieved and innovative approaches including the voluntary and community sectors should be explored.

1.2.3 More recently, CABE's report *Making the invisible visible: the real value of park assets* highlighted the way in which parks can become invisible in local authority asset management. For example, it is common practice for parks to be notionally valued at £1. An alternative method of valuing parks based on the replacement value of the assets and the varying levels and types of use of parks and green spaces is proposed.

1.2.4 In March 2010, CABE published a major review of publicly owned green spaces in England entitled *Urban Green Nation: building the evidence base*. This report highlights

the fact that local green spaces had been visited by 81% of the population in the last year (87% in urban areas), compared to under a third of the population that had visited concert halls or galleries. Satisfaction with the quality of green spaces is a good indicator of how residents perceive local authority performance. On the other hand, the report also highlights the gap in access to and quality of green spaces. This is reflected in lower visits to green space and lower physical activity rates in the most deprived wards.

1.3 Study objectives

1.3.1 Parks and green spaces around London are managed by a multitude of agencies. CABE Space and the Audit Commission suggest that few agencies have accurate data on costs, quality and usage. Greater knowledge of these relationships is important since it could:

- Provide a stronger case for sustaining or increasing investment in parks and green spaces.
- Provide evidence to prioritise raising the quality of parks and green spaces in design, management and maintenance.
- Inform green space managers to decide how best to commission their services.
- Assist in s106 and community infrastructure levy negotiations.
- Quantify whole-life costs for different types of infrastructure assets in parks and open spaces.
- Provide a forum for local authorities to develop effective performance indicators in partnership.
- Support an evidence base for greater investment in maintenance to sustain the quality and lifetime of assets.

1.3.2 The London Parks Benchmarking project aims to analyse and interpret the relationships between the **cost** to organisations managing parks, the perceived **quality** of parks delivered, and the nature of the public's **use** of parks. The underlying assumption is that there are strong relationships across these three factors. The principal aim of the research is to explore the strength and significance of this relationship and to identify the most influential factors affecting this.

1.3.3 The approach to benchmarking costs and conducting customer research seeks to generate transparency across departmental and budgetary boundaries, focussing instead on measurable inputs and outputs. These principles are consistent with the aims of Total Place, seeking to empower local decision-making, improve the efficiency of cross-sector delivery and achieve better value for money.

1.4 Study approach

1.4.1 In the previous year of the benchmarking project, six case study parks were selected. These represent a variety of park typologies but were selected primarily due to the availability of Green Flag Award scores, usage counter data and the existence of important walking / cycling infrastructure (Table 1.1).

Table 1.1: Case study parks

Park	Size (ha)	Typology	London Borough	Managed by:
Richmond Park	954.1	Regional	LB Richmond	The Royal Parks
Tooting Bec Common	89.2	Metropolitan	LB Wandsworth	LB Wandsworth
Finsbury Park	48.4	District	LB Haringey	LB Haringey
West Ham Park	29.4	District	LB Newham	City of London
Central Park	10.0	Local	LB Newham	LB Newham
Newington Green	0.7	Small	LB Islington	LB Islington

1.4.2 Park user exit surveys and household surveys in the surrounding area were carried out for each of the parks.

1.4.3 In this year, the benchmarking research will use the data collected. The specific tasks of the research are to:

- Analyse and interpret relationships across the cost/quality/use data for each park including the consideration of walking/cycling assets within those parks
- Analyse and interpret individual parks spend against the local authority service spend profile
- Analyse and interpret use and satisfaction levels against other local and relevant national data sources for the area
- Make comparisons across the whole cohort and bring out the main themes of confluence and difference

1.4.4 The London Parks Benchmarking project is ongoing and this report also aims to make recommendations for the future work of the benchmarking group.

1.5 Data

1.5.1 Table 1.2 outlines the cost data available for each park and some of the challenges in collecting these data sources.

Table 1.2: Cost data available

Park	Cost data available
Richmond Park	- Complete dataset on administrative and operating costs - Difficult to extract robust information on average works budget per annum as this is managed centrally and differs significantly year on year
Tooting Bec Common	- Complete dataset on routine maintenance costs - Difficult to break down reactive and less frequent maintenance spend as parks budgets are managed centrally within Wandsworth Council and distributed on a needs basis – no historic record of spend available. - Formal play facilities, sports facilities and other infrastructure maintenance costs are handled by other Council departments, which makes the data collection process more difficult and lengthy.
Finsbury Park	- The council parks team and contractor costs are not separated out by park, which makes the breakdown of costs more difficult. The idea is to break costs out by category based on a detailed jobs list completed when maintenance of parks were still in-house - Formal play facilities, sports facilities and other infrastructure maintenance costs are handled by other Council departments, which makes the data collection process more difficult and lengthy.
West Ham Park	- Very complete dataset for both maintenance and capital costs - In-house management makes it easier to gather information and data on all cost elements.
Central Park	- Very complete dataset for all maintenance and administrative costs - Some capital costs for the ongoing HLF refurbishment programme also available
Newington Green	- Complete dataset for routine maintenance costs - Administrative and other one off costs based on the break down of Council costs by ha of green space managed by Islington Council.

1.5.2 Table 1.3 outlines the quality and usage data available for each of the six case study parks.

Table 1.3: Quality and usage data available

	Central Park	Finsbury Park	Newington Green	Richmond Park	Tooting Bec Common	West Ham Park
Green Flag Award scores	Yes	Yes	Yes	Yes	GFA dummy audit	Yes
Household survey sample size	202	373	260	672	259	203
Of which geo-coded	*157*	*298*	*209*	*529*	*206*	*143*
Field survey sample size	398	413	394	416	420	447
Of which geo-coded	*369*	*358*	*335*	*402*	*341*	*433*

1.6 Report structure

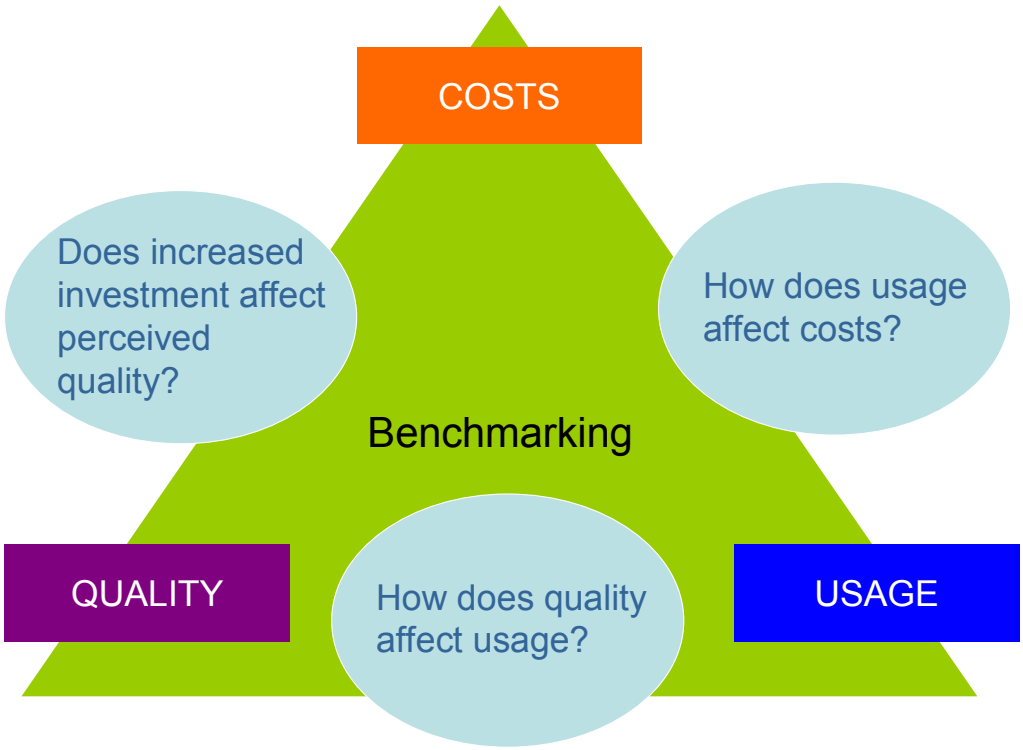
1.6.1 The remainder of this report is structured in the following manner.

1.6.2 Sections 2 to 4 deal with costs, quality and usage in isolation.

- *Section 2* describes the development of a cost framework for the benchmarking of costs;
- *Section 3* discusses how the Green Flag Award quality indicators rate against the findings of the surveys; and
- *Section 4* presents the different usage patterns in the parks and proposes a framework for benchmarking across parks

1.6.3 The second part of the report deals with the relationships between costs, quality and usage (Figure 1.1).

Figure 1.1: Analysis framework



- *Section 5* explores the relationship between costs and quality;
- *Section 6* identifies the relationships betweens costs and usage;
- *Section 7* discusses the relationship between quality and usage; and

1.6.4 Concluding remarks and recommendations for future research are contained in section 8.

1.6.5 In this report, all six case study green spaces are generically referred to as 'parks' for simplicity. However, it should be noted that they differ greatly in character and the term 'park' may not strictly be appropriate for some green spaces.

2 Costs

2.1 Approach

2.1.1 For this project, data was collected on a per annum basis from the park managers. Park maintenance costs (or mainly budgets available for park operations) appear to be available for all parks, but in different formats. The format of costs particularly depends on the way the park is managed (in-house or contracting arrangements).

2.1.2 Subsequently, the data available for

2.2 Routine maintenance costs

2.2.1 Taking into account the level of detail available for different works categories for the six parks, a number of cost categories were set out. For certain parks it was possible to break down costs in more detail, and for others the breakdown was too specific.

2.2.2 Definitions of what is counted as maintenance compared to capital spend can vary. In other words it is easy to pick up routine maintenance costs (such as admin costs, grounds maintenance, cleaning etc), but infrequent and reactive maintenance works are more difficult to categorise and account for (such as fencing repairs, replacement of park furniture etc). Due to the lack of detail in most datasets only routine cost elements have been broken down whilst one-off costs have been included in the calculations as a lump sum.

2.2.3 The following routine cost categories were set out:

- Park administration: for in-house operations (West Ham Park), the administration costs were based on salary costs divided by time spent on administrative tasks (taken from analysis of the job ticket allocation). For the other parks an estimate of time spent on managing the park by central staff was made and applied to total salary costs. For certain parks the costs of running events is also included in this category.
- Cleaning
- Entrances/fencing
- Feature gardens: this refers to kept gardens, flower beds etc
- General grass area, planting and trees: main element of grounds maintenance
- Security
- Buildings
- Formal play facilities
- Sports facilities

2.2.4 Other less frequent or reactive maintenance costs include:

- Buildings
- Sports facilities
- Formal play facilities
- Paths/surfaces
- Park furniture
- Transport and equipment

2.2.5 Income data when relevant was also collected but for the purpose of this study it is important to assess total costs rather than net costs (with income deducted from the costs), as we are looking to compare the total costs of parks with usage and park quality.

2.3 Findings

2.3.1 Table 2.1 sets out an initial framework for comparing different cost elements between parks. It suggests certain cost categories to look at for future comparison between costs, quality and usage. Currently available park costs have been calculated and included in this table on a cost per hectare basis. No further level of detail is published in this report and requests for further detail should be addressed to the London parks Benchmarking Group.

2.3.2 The majority of routine costs are based on 2009 budgets, and hence may not represent exact amounts of spend. Repairs and one-off costs on the other hand are generally based on trends in average annual spend based on past years. This may lead to some discrepancies in the way costs are estimated for each park that will need to be taken into account when comparing costs.

2.3.3 It is important to take into account a number of factors when comparing costs:

- Whether the parks are managed in-house or most of the work is contracted out (for example West Ham Park is low on maintenance costs for a number of categories, but administrative costs are much higher).
- The location and size of parks: you would expect higher costs for urban parks, of a smallish size such as Newington Green, where certain costs (e.g. security, cleaning etc) are likely to be higher and economies of scale less likely.
- The difference in infrastructure/features of each park will also have to be taken into account as this will have an impact on visitor numbers.

2.3.4 The preliminary framework seems to indicate that:

- Central London parks tend to have higher maintenance costs than parks in less densely populated areas (Newington Green costs are higher, for example, than West Ham Park overall costs).
- Parks with large open spaces and grassland require less maintenance than parks with a higher density of more formal uses such as West Ham Park or Newington Green.
- Administrative costs are higher for parks that are managed in-house although, conversely, some maintenance unit costs appear to be lower.
- Maintenance costs are related to intensity of usage, i.e. small green spaces with high usage such as Newington Green may require more intensive maintenance.

Table 2.1: Cost framework results by park (all costs per ha per annum)

Park	Richmond Park	Tooting Bec Common	Finsbury Park	West Ham Park	Central Park	Newington Green
Managed by	Royal Parks	Wandsworth borough council	Haringey borough council	City of London corporation	Newham borough council	Islington borough council
Typology	Regional	Metropolitan	District	Metropolitan	District	Small Open Space
Location	Outer London	Inner London	Inner London	Inner London	Inner London	Inner London
Size (ha)	954	89	48	29	10	0.7
Contracted/in house maintenance	contracted	contracted	contracted	in house	contracted	contracted
Cleaning	£114	£842	£2,571	£3,269	£1,818	£7,029
Security / policing	£801	£3,837	£103[1]	n/a	£4,111	£4,579
General grass area costs	£992	£1,736	£593	£1,134	£755	£3,282
Feature gardens, trees and planting costs			£773	£2,486	£3,557	£9,211
Administrative costs	£417	£150	£627	£14,893	£3,747	£2,009
Annual income	-£867	-£83	-£1,530	-£3,950	-£752	n/a
Sports facilities - maintenance costs	n/a	n/a	£231	£4,759	£760	£0
Formal play facilities - maintenance costs	n/a	£101	£35	£4,921	£461	£2,132
Total maintenance costs (including average one off and other maintenance works)	n/a	£8,618	£4,393	£31,747	£18,087	£42,863

[1] This figure only includes gate locking.

Maintenance costs for access

2.3.5 Currently the issue of access to/from parks, and access through parks, is of interest to the debate about encouraging physical activity and active travel. In other words this is of interest to the health and transport sectors, and greater visibility of expenditure would assist in identifying the funding requirements for achieving improved access to green spaces.

2.3.6 However, within the cost categories of the parks, it is not always possible to identify the amount spent on maintaining the infrastructure that manages access to the green space. In a broad sense, this could include the surface maintenance of paths/greenways, as well as the associated infrastructure that is required to manage people's access to the green space (fences, gates, car or cycle parking, lighting, signage, access features such as ramps etc.). This wider definition can represent a sizeable proportion of maintenance expenditure.

2.4 Capital costs

2.4.1 Data on major refurbishment and capital costs when available was also collected. However, very few parks have a record of all the replacement costs for each item of park infrastructure and their life span.

2.4.2 Another problem with regards to one off maintenance costs and capital costs is the centralisation of these types of budgets, and the fact that budgets are spent mostly on a per need basis rather than planned in advance. The way around this would be to either base capital costs on historic spend, or to produce a framework for capital costs with default asset replacement costs, and life span. The only infrastructure cost data available at a reasonable detail was for West Ham Park, where capital costs are based on an asset replacement schedule.

2.4.3 Major restoration works, and the timing thereof, are also an issue when analysing maintenance costs. Newington Green was refurbished in 2005, Finsbury Park recently underwent a £5 million Heritage Funded restoration and improvement programme along with Central Park that is in the process of implementing a £1.9million HLF restoration programme. As noted by some of the park managers, maintenance costs are altered with restoration of old infrastructure as well as the improvement of the quality of new infrastructure that require less maintenance. Therefore when analysing costs refurbishment programmes need to be taken into account.

Estimated capital replacement costs

2.4.4 Developing an asset register to complement the maintenance cost framework is a complex task. However, some indicative replacement costs and cost-categories can be obtained from several sources:

- CABE (2009) *Making the invisible visible: the real value of park assets*
- Forestry Commission working model for estimation of capital works
- SPONS

2.4.5 In the CABE report *Making the invisible visible: the real value of park assets* a value framework is set out based on the replacement cost of assets. Appendix B shows the elements of this framework, as well as slightly more detailed asset categories included in the Forestry Commission model.

2.4.6 For some of the elements in the framework, SPONS 2008 rates for these assets have been identified. These rates only include an estimate of supplying a replacement asset

and do not include any estimate of installation costs. The full installation costs can vary greatly depending on the time of year, location and access constraints, oil prices and inflation.

2.4.7 The table in Appendix B does not include costs for the more specialised elements included in the CABE framework – sports facilities, formal play facilities, water features and garden features

2.4.8 Therefore there is some information available to create, in parallel, a capital cost framework based on estimates of the replacement value of park assets, although this does require a robust asset register. However, this will not be included in the benchmarking exercise at this stage.

2.5 Approximation of cost indicators

2.5.1 Due to the gaps in the cost data received from the parks, some costs have been estimated for some of the parks in order to generate a comparable total annual cost estimate. This has been done by calculating unit costs for each element based on the remaining parks. The following costs were estimated using average unit costs from other parks:

- Sports and formal play facilities – As mentioned previously it is not always possible to isolate spending on these facilities when managed by other departments. Therefore unit costs have been to estimate these costs for Richmond Park (sports and formal play) and Tooting Bec Common (sports only)
- Feature gardens, trees and planting costs – For Richmond Park and Tooting Bec Common it was not possible to separate this grounds maintenance category from general grass areas. Therefore the total has been split between the two types of grounds maintenance using average proportions obtained from the other parks.
- Security – In West Ham Park internal staff contribute to security through gate-locking and general presence. However, the cost of CCTV and local area policing is not known and therefore an estimated unit cost has been added.

2.5.2 Table 2.2 shows the resulting summary of estimated annual costs for the parks. These can be expressed in several different ways. The main comparison between parks of different sizes is generally expressed on a per hectare basis. The per hectare cost is generally higher for the smaller green spaces. The cost for Finsbury Park appears surprisingly low, and suggests that caution needs to be taken in interpreting its results.

Table 2.2: Summary annual costs

Park	Total cost (£000's)	Cost per ha (£'s)	Cost per visit – place users (£'s)	Cost per visit – all users (£'s)	Cost per population in 1.6km buffer (£'s)
Richmond Park	24,149	25,312	8.99	7.63	218.54
Tooting Bec Common	1,403	15,734	0.95	0.79	8.42
Finsbury Park	349	7,210	0.37	0.26	2.45
West Ham Park	1,917	65,296	4.49	3.74	16.95
Central Park	332	33,295	0.76	0.63	3.64
Newington Green	49	72,894	0.30	0.19	0.47

2.5.3 However, green space costs also need to be expressed in relation to the number of users. In Table 2.2, costs per visit are shown in relation to all visitors and specifically in relation to place users (see section 4 for definitions). On a per visit basis there is a great deal of variation between green spaces, with Richmond Park and West Ham Park costing significantly more than the other parks.

2.5.4 Finally, the household surveys are sampled from within a 1.6km buffer and provide an estimate of the level of usage by local people. A comparable estimate of spend per local resident can be obtained by calculating the cost per population in the 1.6km buffer. The lowest spend per resident in the 1.6km buffer is under 50p in Newington Green, a small green space with high surrounding population density. Since Richmond Park has a much larger catchment than 1.6km and a low surrounding population density, the equivalent spend is over £200.

2.5.5 In summary, despite the numerous difficulties outlined, it has been possible to generate a broad cost framework to compare the annual costs of regular maintenance on a per hectare basis across the six parks. However, it is important to note that statistically robust conclusions on costs cannot be made on a basis of six London parks, and the differences in the way costs are accounted for also means that the comparison of maintenance costs for these parks will need to be subject to several caveats.

2.5.6 It has been possible to compare (at least partially) the annual expenditure on specific elements of the parks and green spaces, subject to some assumptions on the apportioning on central costs (e.g. administrative). These costs include walking/cycling infrastructure, sport facilities, formal play facilities and feature gardens. Comparable usage and quality data will be available for some of these specific park elements.

3 Quality

3.1 Approach

3.1.1 The LPBG aims to promote the value of and improve the quality of parks and green spaces. As part of its mission, it needs to collect data that can be used to measure and compare the standard of parks. The LPBG selected the Green Flag Award (GFA) as its quality benchmark for measuring standards of green spaces. The GFA is the main standard for parks and green spaces in England and Wales. Launched in 1996, it is a benchmark for excellence for parks and green spaces and aims to recognise the best green spaces. Parks must apply annually to be assessed to maintain their status.

3.1.2 In terms of defining quality, GFA focuses on the appropriate *management and maintenance* of open spaces; it cannot and does not aim to determine the subjective perception of quality of place of those spaces for all users. The GFA scores should therefore relate directly to parks funding and the work of park managers, and hence to the park costs analysed as part of this project. On the other hand, park usage is affected by the quality as perceived by users and potential users. Therefore the relationship between the individual elements of the GFA and LPBG survey responses should be tested to establish if and where they correlate.

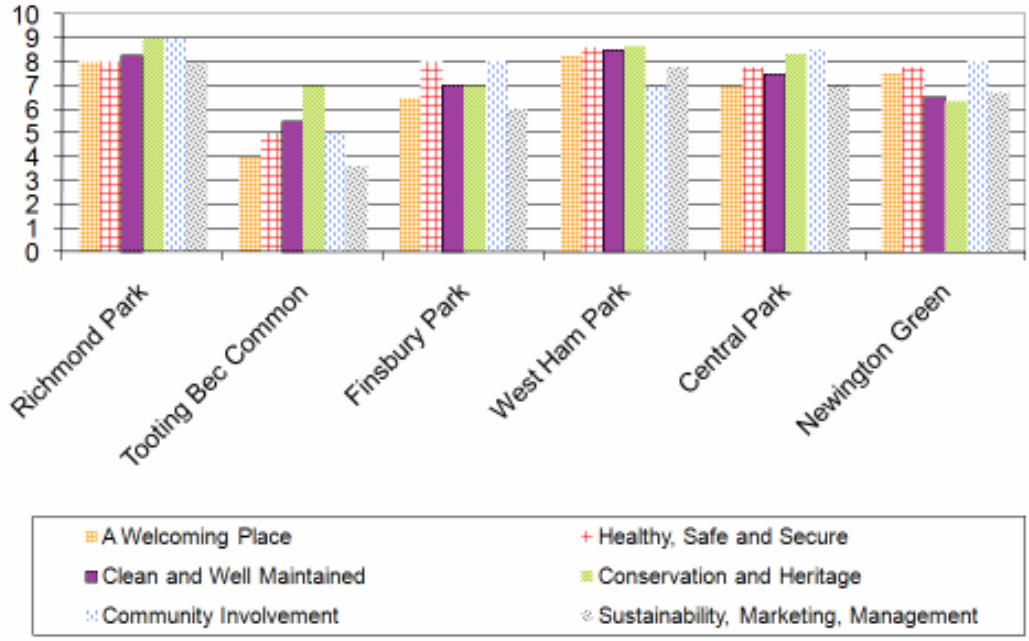
3.1.3 The GFA assessment has eight over-riding criteria (each with a number of sub-categories for assessment):

- A Welcoming Place
- Healthy, Safe and Secure
- Clean and Well Maintained
- Sustainability
- Conservation and Heritage
- Community Involvement
- Marketing
- Management

3.1.4 Not all of these criteria relate to quality factors that can reasonably be picked up through resident or user surveys. In particular sustainability, management and marketing will be difficult for users to assess.

3.1.5 Figure 3.1 provides a summary of the mean scores from the GFA assessment of the parks, split by the major criteria.

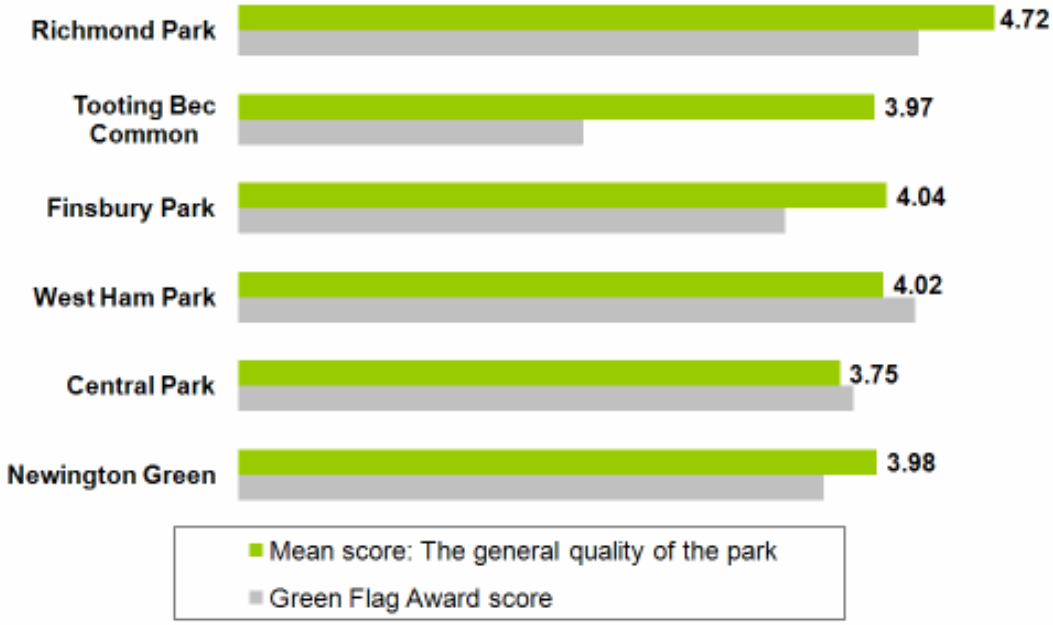
Figure 3.1: Summary of GFA scores



3.1.6 Data on perceived quality has been taken from the household surveys since these include frequent, occasional and non-user groups, and are therefore not biased towards regular users. As well as specific aspects of the parks in question, respondents were asked to rate the “general quality of the park” on a five-point scale.

3.1.7 Figure 3.2 overleaf shows the average score given for the general quality of each park in the household survey. The household survey shows less variation in the average score across the parks than the GFA scores, with mean scores between 3.75 and 4.72. The equivalent relative GFA scores are shown in grey. For the majority of the green spaces there is a rough match between the two measures, although the GFA fails to capture the exceptionally high rating given to Richmond Park. The greatest disparity is observed for Tooting Bec Common, which rates much higher in the household surveys. This is the only example of a *common* in the case studies and suggests that the GFA categories may not assess the elements of this type of space that residents value most.

Figure 3.2: (Q38s) – general quality of the park (and GFA score)



Initial statistical testing

3.1.8 Prior to the main stage of analysis, statistical testing was carried out to verify that observed variation in perceived quality between parks could not simply be attributed to variations in the surrounding population. The sampling method of the household surveys means that they reflect the demographic mix of the residents living within a 20-minute catchment area of the case study parks. The first step involved testing whether there was significant variation in the proportion of people from each demographic surveyed at each park.

3.1.9 This was done using a chi-square test of park location against a series of demographic variables (some variables have grouped in order to achieve robust samples):

- Age (29 or under, 30 to 59, and 60 or over)
- Gender
- Disability
- Ethnic background (white and BME)
- Employment status (economically active, inactive and in education)
- Household income
- Access to a garden
- Whether the respondent had visited the countryside in the last 12 months

3.1.10 Table 3.1 shows an example of the chi-square test for the age variable. The test result is significant at the 0.05 level and suggests that differences in this variable could potentially skew the comparison between parks.

Table 3.1: Chi-square test by age

Park	Age		
	29 or under	30 to 59	60 or over
Richmond Park	20	384	222
Tooting Bec Common	22	174	45
Finsbury Park	41	266	50
West Ham Park	33	122	32
Central Park	30	116	46
Newington Green	30	178	39
Total	176	1,240	434

Pearson Chi Square: 123.176 (Sig. 0.000)

3.1.11 This analysis found that for all variables apart from gender, there was significant variation in the household survey samples for each park (Table 3.2). This confirms that the socio-demographic profiles surrounding the case study parks do vary substantially, in particular in terms of age profile and the proportion of BME residents.

Table 3.2: Summary of chi-square test results

Variable	Chi-square	Sig.
Age	123.18	0.000
Gender	3.62	0.605
Disability	12.53	0.028
Ethnic background	374.21	0.000
Employment status	91.06	0.000
Household income	89.66	0.000
Access to a garden (Y/N)	176.82	0.000
Visited the countryside in the last 12 months (Y/N)	149.39	0.000

3.1.12 The second step was to test if there was a significant variation in how different types of people scored the parks. For example, if across all the parks older people consistently rated the park better than young people, the parks with more older persons living in the surrounding area would be systemically rated higher.

3.1.13 This analysis found that there was a significant variation between how different categories rated the park for the age, ethnic background and employment status variables (Table 3.3). Similarly significant variation in mean scores was observed with respect to access to a garden and visiting the countryside.

Table 3.3: Summary of ANOVA tests (all parks)

Variable	Category	Mean score	F	Sig.
Age	29 or under	4	19.47	0
	30 to 59	4.23		
	60 or over	4.45		
Gender			*Not significant*	*0.061*
Disability			*Not significant*	*0.237*
Ethnic background	White	4.32	58.86	0
	BME	3.87		
Employment status	Economically active	4.22	12.8	0
	Training / education	3.9		
	Economically inactive	4.38		
Household income			*Not significant*	*0.464*
Access to a garden (Y/N)	Yes	4.27	4.02	0.045
	No	4.16		
Visited the countryside in the last 12 months (Y/N)	Yes	4.28	12.21	0
	No	4.1		

3.1.14 The above variation in mean scores may be in part attributable to the exceptionally high scores of Richmond Park. This results in high mean scores for the dominant demographic groups in this sample. Therefore, the variation in quality ratings by age, ethnic background and employment status were assessed for each park separately. Table 3.4 shows an example of the ANOVA results for the age variable at West Ham Park. Although the mean scores vary slightly, the ANOVA test is not significant at the 0.05 level.

Table 3.4: One-way ANOVA for age (West Ham Park)

Age	N	Mean	Std. Dev.	Std. Error	95% Confidence Interval for mean	
					Lower Bound	Upper Bound
29 or under	30	3.93	0.828	0.151	3.62	4.24
30 to 59	112	4.04	0.864	0.082	3.88	4.21
60 or over	25	4.2	0.913	0.183	3.82	4.58
Total	**167**	**4.05**	**0.863**	**0.067**	**3.92**	**4.18**

ANOVA: F=0.651 (Sig. 0.523)

3.1.15 This analysis found that in only one case, variation by employment status for Finsbury Park, could significant variation be observed. Therefore it was concluded that, on the whole, variation in scores for the parks is not skewed by the differences in the socio-demographic profiles of the surrounding area.

Comparing GFA and survey results

3.1.16 The scores for each category in the GFA assessment were then compared against the mean scores for several broadly corresponding categories in the household survey to test if the GFA scores reflected public perception. This was extremely difficult as the number of case study parks is small, meaning that a statistically rigorous analysis of trends between the GFA scores and the household survey scores is not possible. Instead, judgement has to consider the strength of the observed relationship, whether there is sufficient variation in scores to highlight a potential relationship, and whether there is evidence of repeatedly correlating trends for similar variables.

3.2 Findings

3.2.1 A summary of the comparison between the GFA assessment and the household survey can be found in Table 3.5. The level of variance is relatively small for some of the categories contained within both datasets. Therefore the standard deviation values for both variables are provided in each case.

3.2.2 This analysis found that, for the majority of GFA criteria, there was no relationship between the GFA scores and the corresponding scores given in the household surveys. Some of the criteria tested showed a weak relationship, with few showing a strong correlation between the two sets of scores. This suggests that the GFA scores on the whole do not match the opinion of local households regarding the quality of the parks.

3.2.3 It should be noted that these findings could also translate to mean that there is no relationship in the 'correspondence' of the categories being used. This is feasible as the GFA focuses more on the maintenance and management of the facilities whereas the user perceptions (given by the household surveys) are more heavily affected by the facilities available.

Table 3.5: Comparison between GFA and household survey scores

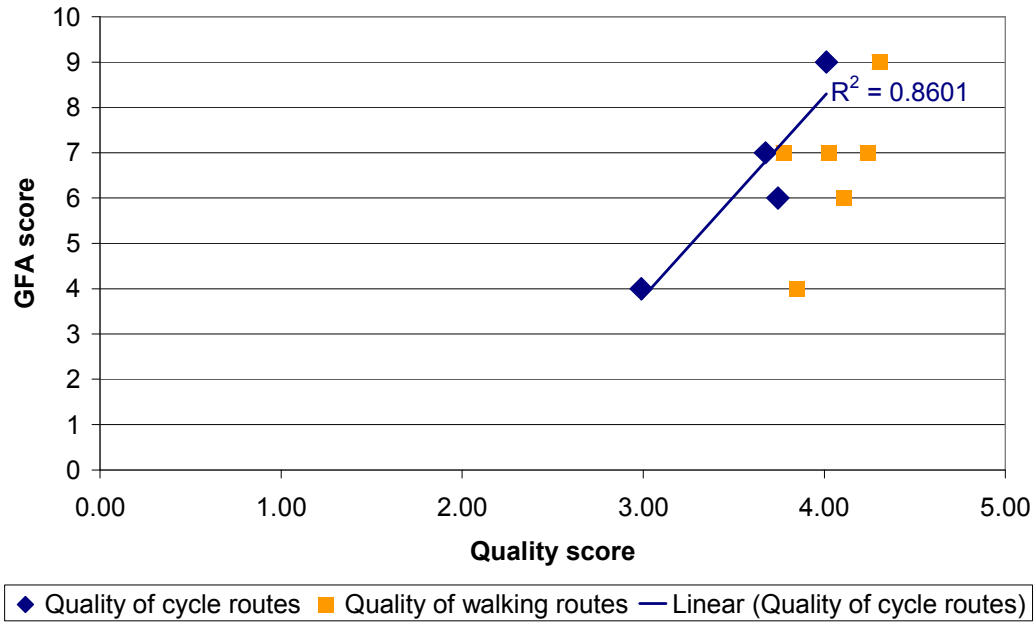
Green Flag Award criteria		Household survey variables	Trend	R^2	St Dev GFA score	St Dev Household survey scores
Overall mean GFA score		Q38s The general quality of the park	None	0.13	1.41	0.33
A Welcoming Place	1 Welcoming	Q15 How satisfied are you with the quality of the walking routes in this park?	Weak	0.38	1.63	0.21
		Q21 How satisfied are you with the quality of cycle routes and roads in the park?	Very strong	0.86	1.63	0.44
		q38r As an enjoyable place to visit	None	0.23	1.63	0.36
	2 Good and safe access	q38a Ease of getting to and using facilities	None	0	1.38	0.2
	3 Signage	q38m Signage	None	0.49	2.16	0.25
	4 Equal access for all	q38j Disabled access (mean of disabled respondents only)	None	0.02	1.67	0.45
Healthy, Safe and Secure	5 Safe equipment & facilities	q38h Play areas for under 5s (mean of respondents stating that they take children to play only)	None	0.18	0.84	0.45
		q38i Older play and youth facilities (mean of respondents under 20 only)	Very strong	0.84	0.84	0.59
		q38k Seats and bins	Strong	0.64	0.84	0.23
		q38l Lighting	Weak	0.39	0.84	0.25
		q38m Signage	Very strong	0.85	0.84	0.25
	6 Personal security in park	Q33 How safe do you feel in the park?	None	0.06	0.98	0.3
	7 Dog fouling	Q38b Cleanliness	None	0	1.86	0.33
	8 Appropriate provision of facilities	Q37xQ38 Meets local expectations	None	0.01	1.37	10.1
		Q35 Do you feel there is a need for any facilities not currently provided in the park?	None	0.21	1.37	0.13
	9 Quality of facilities	Q1b Do you feel satisfied with the provision in your area?	Weak	0	1.75	0.11
		Q1c Do you feel your local parks/open spaces need improving?	Weak negative	0.02	1.75	0.18

Green Flag Award criteria		Household survey variables	Trend	R^2	St Dev GFA score	St Dev Household survey scores
		Q38s The general quality of the park	Strong	0.24	1.75	0.33
		Q28c Quality of the sports facilities (mean of sports facility users only)	Weak	0.03	1.75	0.37
Clean and Well Maintained	10 Litter and waste management	Q38b Cleanliness	None	0.22	2.07	0.33
	11 Grounds maintenance and horticulture	Q38c Grass cutting	None	0.05	0.98	0.15
		Q38d Flowers and shrubs	Strong	0.53	0.98	0.38
	12 Building & infrastructure maintenance	Q38e Toilets	None	0.17	1.21	0.57
		Q38g Car Parking	None	0.01	1.21	0.54
		Q38k Seats and bins	None	0.03	1.21	0.23
		Q38l Lighting	None	0.02	1.21	0.25
		Q38m Signage	Weak	0.23	1.21	0.25
	13 Equipment maintenance	Q33 How safe do you feel in the park?	None	0.02	0.55	0.3
		Q38b Cleanliness	None	0.56	0.55	0.33
		Q38h Play areas (under 5s)	None	0.01	0.55	0.45
Conservation and Heritage	19 Conservation of natural features, wild fauna and flora	Q29 Do you feel this park is natural/formal?	Strong	0.46	1.22	0.29
		Q30 Do you like the park as it is?	None	0.16	1.22	0.1
		Q31 If no should it be more formal/natural?	None	0.11	1.22	0.07
	20 Conservation of landscape features	Q29 Do you feel this park is natural/formal?	Strong	0.62	1.1	0.29
		Q30 Do you like the park as it is?	Weak	0.2	1.1	0.1
		Q31 If no should it be more formal/natural?	Weak	0.11	1.1	0.07
	21 Conservation of buildings & structures	Q32 Does this park give you the opportunity to feel connected to the history and heritage of the area?	Weak negative	0.06	1.3	0.18
Community Involvement	22 Community involvement in management & development including outreach work	Household survey response rates (%)	None	0.27	2.07	-
		Q38p Events	Weak	0.56	2.07	0.41
	23 Appropriate provision for the community	Q38p Events	Weak	0.74	0.84	0.41

A Welcoming Place

3.2.4 The GFA criteria for A Welcoming Place were tested against household survey responses for quality of walk routes, quality of cycle routes, an enjoyable place to visit, ease of getting to and using facilities, signage and disabled access. Of these variables, the GFA criteria only showed a strong correlation with the quality of cycle routes (see Figure 3.3), while showing little or no correlation for the other variables tested against.

Figure 3.3: Correlations for 'Welcoming'



3.2.5 It can also be seen that, like many variables, there is relatively little variation in the perceived quality of the walking routes. Conversely, although based on only four parks with provision for cycling, there is much greater variation in perceived quality of cycling facilities.

Healthy, Safe and Secure

3.2.6 The GFA criteria for Healthy, Safe and Secure were tested against thirteen variables from the household survey. The GFA criteria showed a strong relationship with several quality scores (see Figure 3.4):

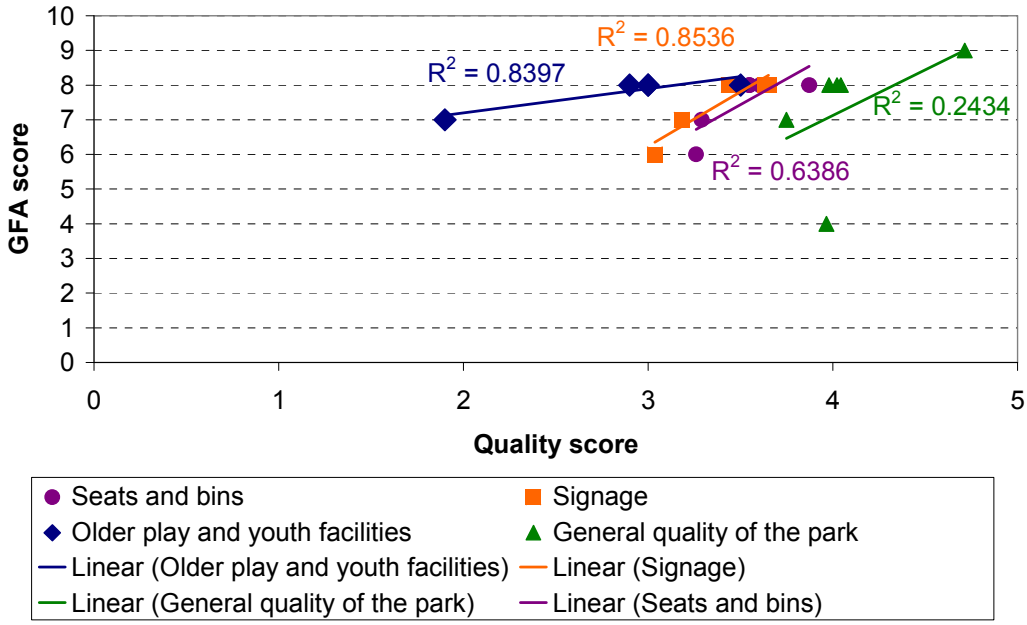
- Older play and youth facilities (based on the mean of respondents under 20 only)
- Seats and bins
- Signage
- The general quality of the park

3.2.7 The latter relationship is less strong and Tooting Bec Common appears to lie outside the general trend. The low GFA score attributed is not reflected in the household survey results.

3.2.8 The GFA criteria also displayed a weak link with household scores for 'Lighting', 'Do you feel satisfied with the provision in your area?' and 'Quality of the sports facilities'. The criteria did not have a strong relationship with safety, local expectations and the need for more facilities at the park.

3.2.9 The Healthy, Safe and Secure criteria showed a strong relationship with a number of variables from the household survey, illustrated in Figure 3.4. This corresponded well with households' scores for Seats and bins, Signage, Older play and youth facilities and General quality of the park. Yet the relationship for signage in particular is characterised by very low variation in both scores.

Figure 3.4: Correlations for 'Safe equipment and facilities'



Clean and Well Maintained

3.2.10 The Clean and Well Maintained criteria only showed a strong relationship with Flowers and shrubs (see Figure 3.5), while showing no relationship with eight variables including grass cutting, toilets, car parking and safety.

Figure 3.5: Correlations for 'Grounds maintenance and horticulture'

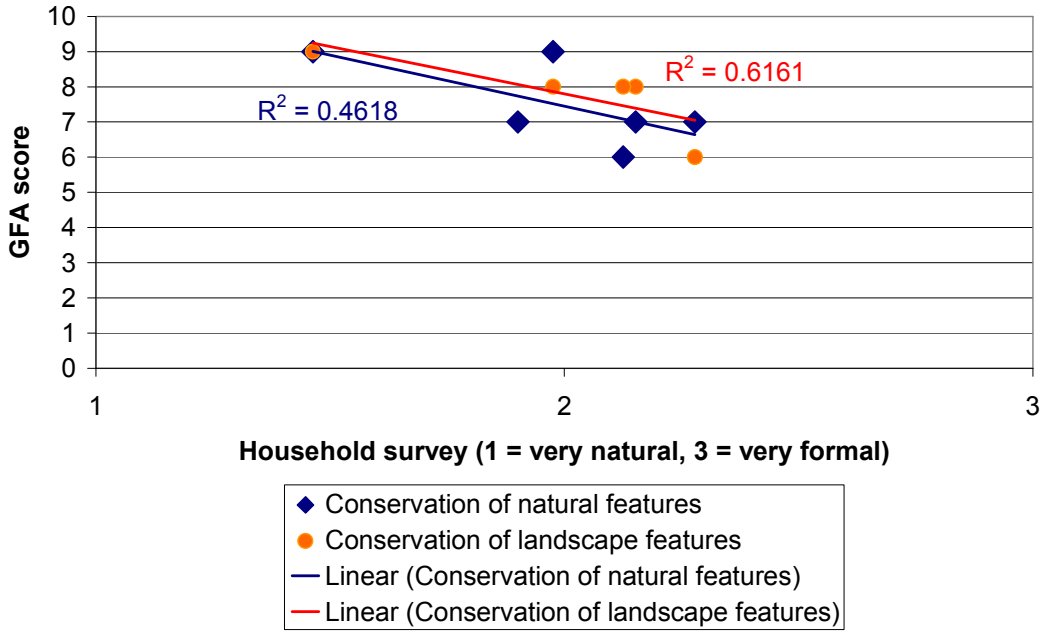


Conservation and Heritage

3.2.11 The Conservation and Heritage section of the GFA assessment only corresponded with households' views on whether the park was natural or formal. As shown in Figure 3.6, households' views on whether green spaces are 'natural' or 'formal' display a relatively good match with the GFA conservation criteria.

3.2.12 However, the GFA criteria did not show a strong link with households' views on whether they were happy with its current condition or whether it should be made more or less formal.

Figure 3.6: Correlations for conservation



Community Involvement

3.2.13 The criteria for Community Involvement only showed a weak relationship to household scores for Events.

3.3 Implications

3.3.1 18 of the 27 GFA criteria were tested against the household surveys. Of these, only five showed some sort of relationship with the household survey responses:

- 5 Safe equipment & facilities, is the only criterion which showed a strong relationship with a number of variables from the household survey
- 9 Quality of facilities
- 11 Grounds maintenance and horticulture
- 20 Conservation of natural features, wild fauna and flora
- 21 Conservation of landscape features

3.3.2 The other criteria generally displayed no or weak correlations with the household survey.

3.3.3 Of the five criteria showing a relationship, the latter two criteria do not provide a measure of quality since household preferences for conservation or more formal treatment of green spaces varies.

3.3.4 The other criteria relate to relatively tangible indicators. In particular, there is agreement between GFA auditors and local households about the maintenance of park furniture (e.g. seats, bins, signs).

3.3.5 In the subsequent stage of the benchmarking exercise, the quality scores have been tested at the following levels:

- The overall mean GFA scores and scores for specific elements will be used for comparisons with individual cost elements.
- The quality scores from the household survey results can be incorporated into the usage models to examine whether there is evidence of a relationship between perceived quality and usage.

4 Usage

4.1 Approach

4.1.1 A large amount of usage data for the case study parks was collected as part of the LPBG research. This includes estimates of total annual usage from counts as well as usage profiles from surveys.

4.1.2 Different usage profiles emerge for differing groups of park users, requiring the investigation of distinct relationships for each group. As a starting point, this analysis considers those using the park to complete part of a journey (*link* users) separately to those using the park as their main destination (*place* users). Although there is a considerable grey zone between these two categories, this framework provides a meaningful platform for developing a usage model. The link user category is of interest since it relates directly to efforts to encourage walking and cycling by providing high quality green routes. The place user category can also be further subdivided into the activities identified in the user surveys (walkers, cyclists and those playing sport).

Place usage

4.1.3 Within this theoretical framework, it is hypothesised that place usage will vary by the following factors:

- *Distance from the park* – Local people use the park more frequently
- *'Competition' from other green spaces* – The availability of other nearby green spaces will affect the above relationship
- *Type of activities* – People are willing to travel different distances to participate in different pastimes
- *Demographics* – Certain demographic groups are able to visit their local park more frequently

4.1.4 The first two factors have been calculated through GIS-based analysis, as demonstrated in Figure 4.1. West Ham Park is shown in dark green at the centre of the image along with its 1.6km buffer (the region containing everything within 1.6km from the park), within which all household survey respondents were sampled. This is shown against a series of isochrones, which represent the area which within actual walking distances, i.e. the 400m isochrone shows the area that is within a 400m walk of the park.

4.1.5 The postcode locations of two of the respondents are shown in Figure 4.2 in red and blue. The 'as the crow flies' distance to West Ham Park can be calculated for each of these locations individually. 400m, 800m and 3.2km buffers have been drawn around the red and blue example postcodes. These buffers relate to the London Plan thresholds for calculating access to different types of green space, which assumes people are prepared to travel 400m or 800m to reach regular green space and up to 3.2 km to visit Metropolitan or Regional parks (>60 hectares). The blue respondent has some green space within the 400m and 800m buffers, mostly consisting of West Ham Park. The red respondent, on the other hand, lives adjacent to Wanstead Flats and has a large amount of green space within the 400m and 800m buffers.

4.1.6 For distance in the following analysis, buffers have been used to determine the amount of green space in the vicinity of households close to the parks. The isochrones have been used as a measure of distance that people travel to use the parks.

Figure 4.1: Example of household survey sample area and isochrones

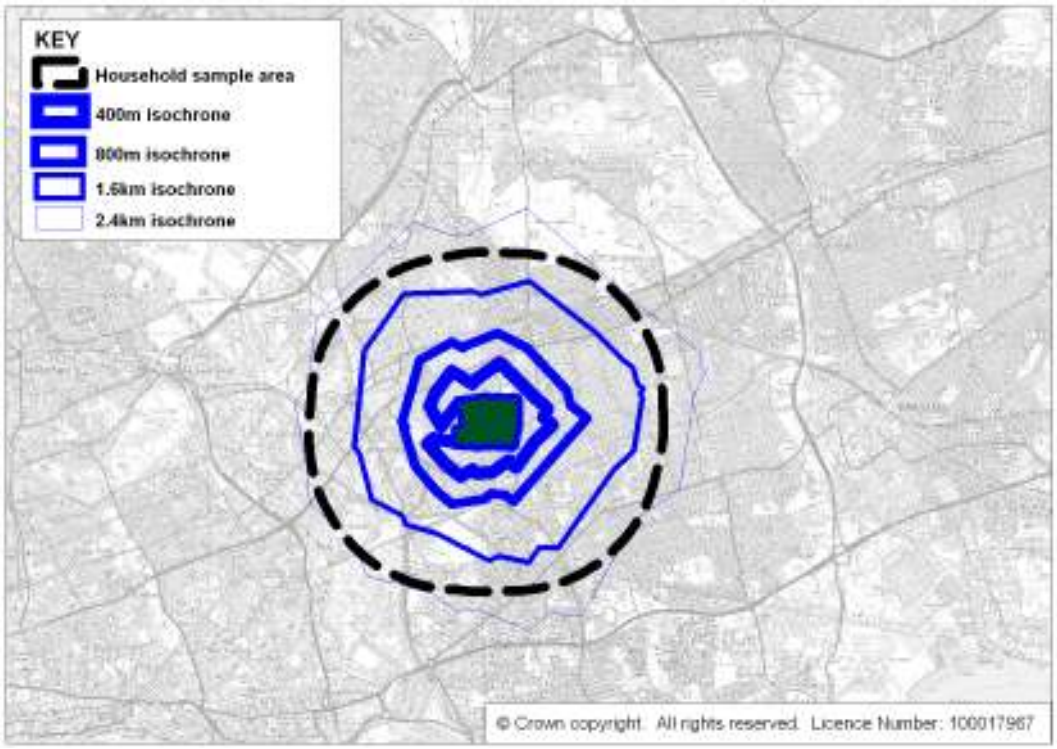
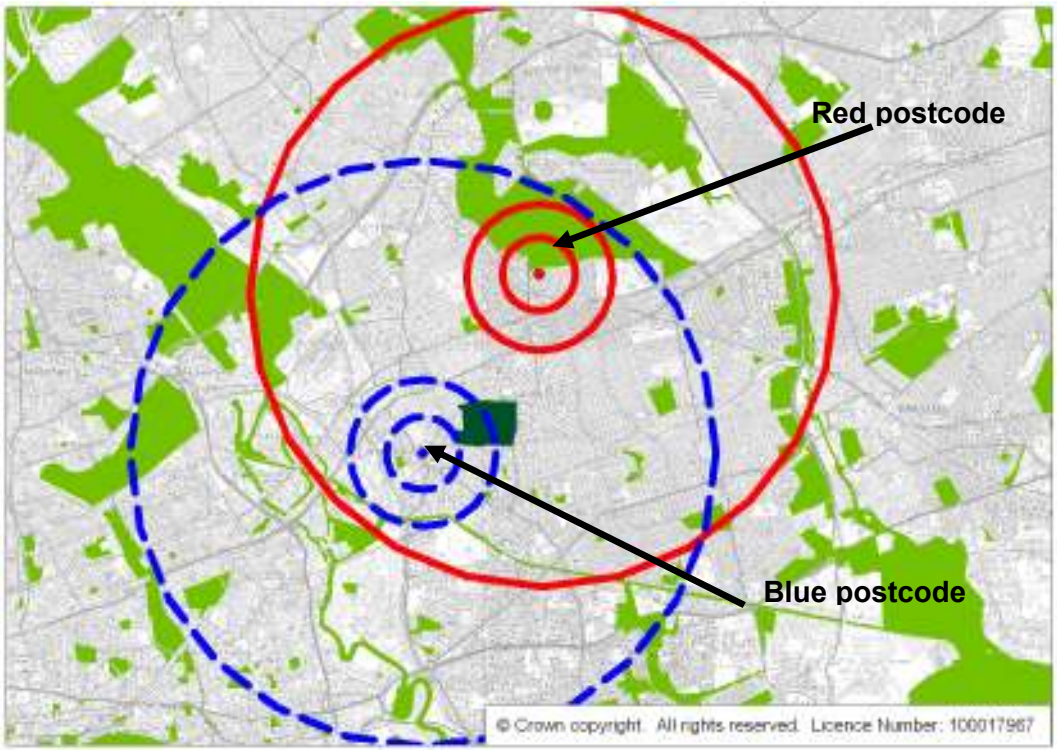


Figure 4.2: Example of calculation of place usage distance variables



Link usage

4.1.7 Link usage, on the other hand, will be defined through a different range of factors. Again using the example of West Ham Park, Figure 4.3 shows how this has been calculated. The green dots show the postcode locations of respondents stating that they walk or cycle through the park to get to other destinations. The red dots show all other respondents.

4.1.8 The blue squares represent the gates to West Ham Park. The surrounding areas show the sections of the 1.6km buffer from which households were sampled, divided into the areas from which it is quickest to walk to each gate of the park. The proportion of link users in each of these *gate regions* has been calculated. For example, 29% of respondents in the Main Gate region state that they are link users.

4.1.9 It is hypothesised that the proportion of link users in each gate region can be explained using the distance ratio from Main Gate to each other gate and the relative pull factor of the other gate regions.

Distance ratio:

The distance between Main Gate and Margery Gate is 450m through the park and 550m using the streets around the edge, giving a distance ratio of 0.82. This ratio can be calculated for all gate to gate combinations, and it is assumed that incentive to walk/cycle through the park increases with lower ratios.

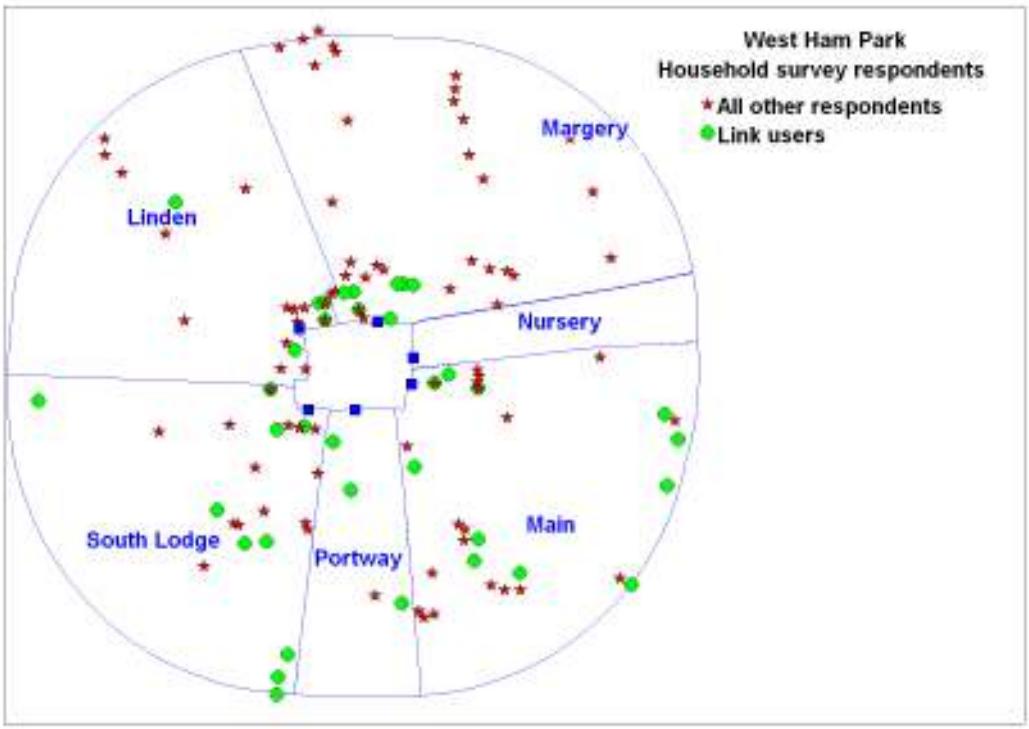
Pull factor:

Employment data can serve as a proxy for actual data on the number of facilities within an area. Number of jobs within several employment categories has been calculated for each of the gate regions using the NOMIS dataset. For example, the Linden Gate region, including Stratford town centre, represents a large pull factor (1,668 jobs, 38% of the total 1.6km buffer).

4.1.10 Therefore the proportion of link users in the Main Gate region is predicted to correlate with the following:

Σ_1^n((Distance ratio Main Gate to Gate 1) x (Gate 1employment / total employment))

Figure 4.3: Example of calculation of link usage variables



4.2 Total park usage

4.2.1 The park usage survey method conducted for the LPBG research in 2008 includes an estimate of annual usage from manual counts (Table 4.1). These are based on counts at sample gates and grossed up to account for factors like seasonality. Automatic counts also exist for two of the parks. The Central Park counter estimate matches the manual counts well whereas the counter estimate from West Ham Park is very different (and has produced inconsistent results over the last years).

4.2.2 Therefore, although the manual counts are subject to a large margin of uncertainty, it is suggested that they be used since the error is likely to be similar across all six parks.

Table 4.1: Total park usage counts

Park	Area (ha)	Manual count (persons/yr)	Automatic count	Persons/ha/yr
Richmond Park	954.1	3,164,000	-	3,316
Tooting Bec Common	89.2	1,787,000	-	20,033
Finsbury Park	48.4	1,343,700	-	27,790
West Ham Park	29.4	512,000	975,566	17,437
Central Park	10.0	526,900	513,451	52,835
Newington Green	0.7	256,500	-	384,616

4.2.3 As explained above, the approach taken assumes that link usage is independent from place usage. The proportion of place and link usage has been estimated from the household surveys (in the user exit surveys, the proportion of link users is very low since they are less likely to stop to respond to a survey). This is simply based on number of responses and frequency of usage has not been factored in. Where respondents have stated that they are both link and place users, their use has been split between both categories. Link usage is high at all parks, with the proportion at Newington Green and Finsbury Park being 37% and 29% respectively, with the remaining parks all being at a similar proportion of around 15-18%.

4.2.4 The estimated proportion of place users is applied to the 2008 annual usage counts to produce an estimate of place users per hectare per year (Table 4.2).

Table 4.2: Estimated annual place users per park

Park	Area (ha)	% of place users	Annual place users	Place users /ha/yr
Richmond Park	954.1	85%	2,687,200	2,800
Tooting Bec Common	89.2	82%	1,474,100	16,500
Finsbury Park	48.4	71%	953,300	19,700
West Ham Park	29.4	83%	427,100	14,500
Central Park	10.0	83%	434,900	43,600
Newington Green	0.7	63%	160,700	241,000

4.2.5 The sampling framework for each of the parks is based on households within a 1.6km buffer of each of the parks. Since the density of population of the surrounding areas will vary, it is fair to compare annual place usage on a per capita basis (Table 4.3).

Table 4.3: Estimated annual place user visit rates per park

Park	Population within 1.6km buffer	Annual place user visits per capita
Richmond Park	110,500	24.31
Tooting Bec Common	166,700	8.84
Finsbury Park	142,500	6.69
West Ham Park	113,100	3.78
Central Park	91,200	4.77
Newington Green	102,500	1.57

4.2.6 The per capita calculation shows a great deal of variation between the parks. For the larger parks, especially Richmond Park, the 1.6km (20 minute walk) buffer underestimates the catchment size, hence the very high per capita visit rate. Conversely,

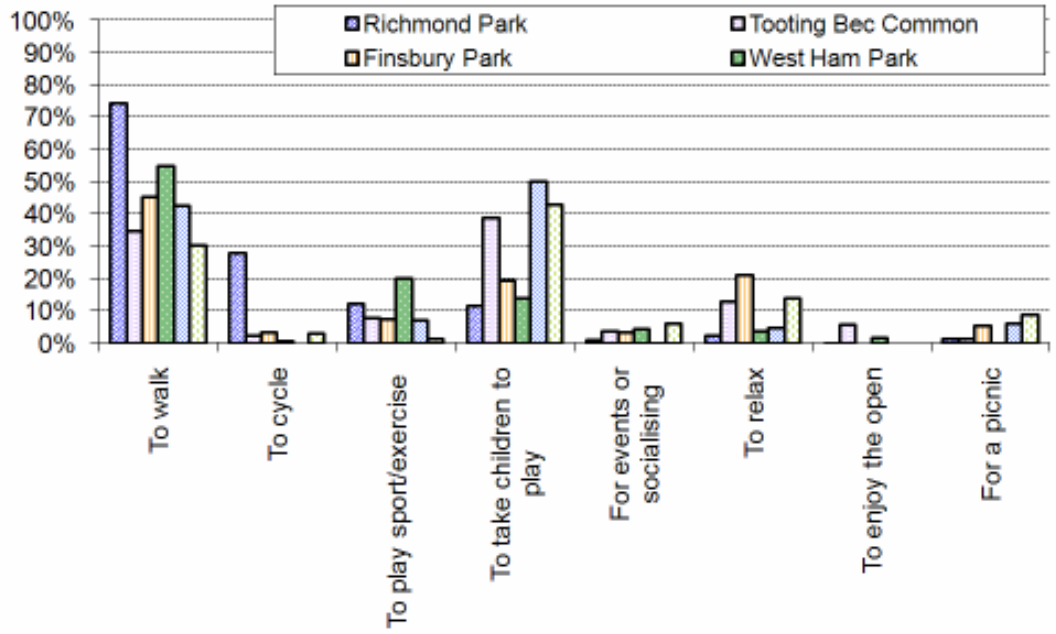
for Newington Green, it is likely that the 20-minute catchment area is too large and the per capita visit rate therefore appears low.

Place usage

4.2.7 The user exit surveys from the parks provide a picture of the different user profiles of the parks. Respondents were asked in general for the reasons they visit the six parks (see Figure 4.4). It should be noted that this variable is a multiple response question and it not possible to gauge the frequency with which respondents visit the parks for specific purposes.

4.2.8 Richmond Park and West Ham Park have a similar profile in that they are used by over half of respondents for walking and by over 10% of respondents for sport/exercise. Richmond Park is also by far the most popular park for cycling. On the other hand, it is interesting that Central Park, Newington Green and Tooting Bec Common have a very different profile and are most commonly used to take children to play.

Figure 4.4: Type of usage by park

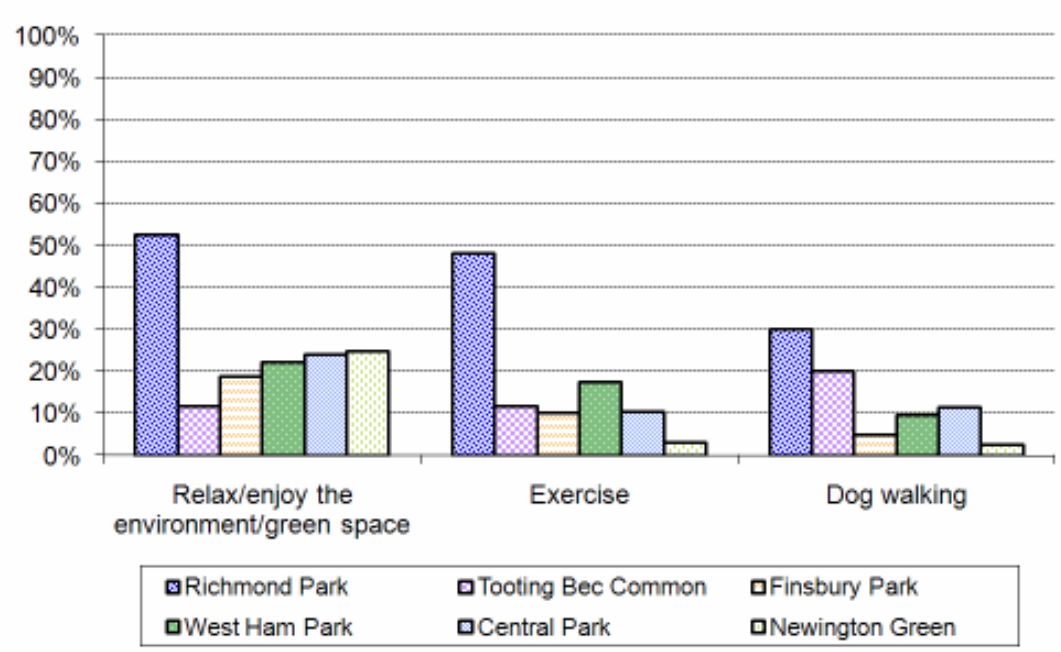


Base: all responses (N=2,234)

4.2.9 In order to understand these usage categories more, respondents were asked about their reasons for walking/cycling, and about the sports they undertake in the parks.

4.2.10 As shown in Figure 4.5, around half of respondents surveyed at Richmond Park walk there for relaxation and for exercise, and around 30% walk a dog in the park. Around a fifth of users of Tooting Bec Common also walk a dog here, the highest group of walking users. The remaining parks are characterised by 19-25% of respondents stating they walk in the park for relaxation.

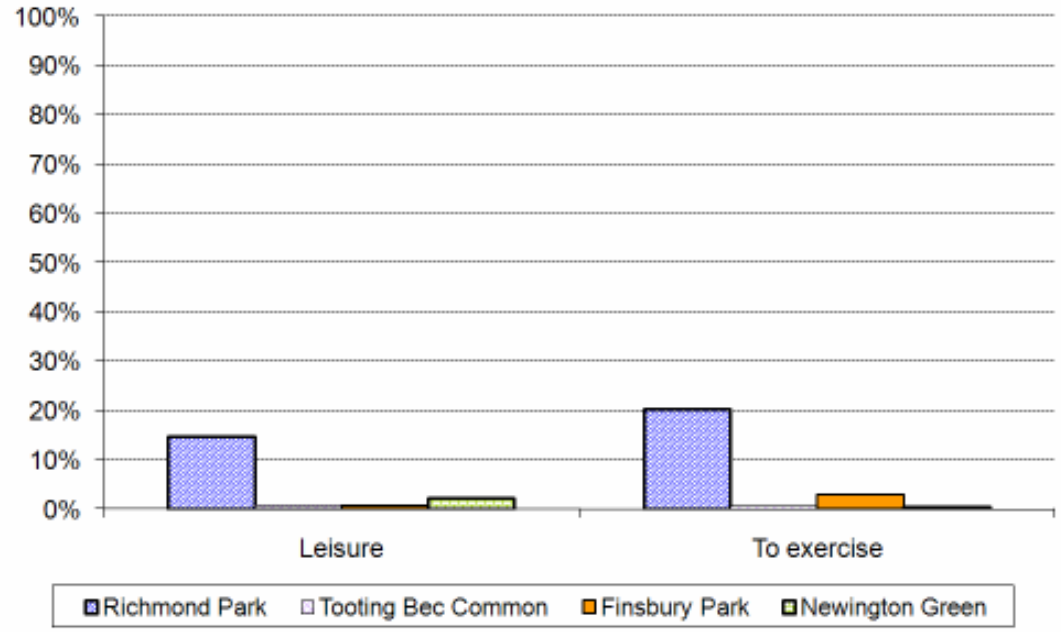
Figure 4.5: Type of walking usage by park



Base: all responses (N=2,234)

4.2.11 By contrast, cycling rates are much lower in the majority of the parks. Cycling is not permitted in Central and West Ham Parks. Of the other parks, only Richmond Park is regularly used by a significant proportion of users for leisure cycling (Figure 4.6)

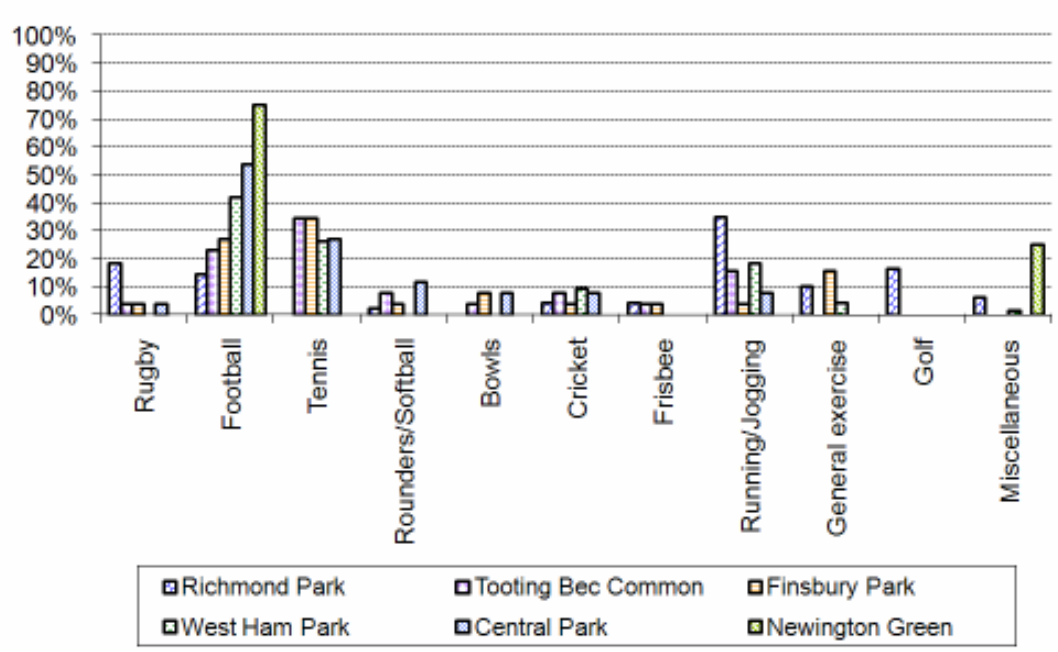
Figure 4.6: Type of cycling usage by park



Base: all responses in cycling parks (N=1,433)

4.2.12 Figure 4.7 shows that the parks cater for a wide range of sport types, depending on their provision. Football, tennis and jogging are the most widespread sport activities undertaken in the six case study parks.

Figure 4.7: Type of sport usage by park



Base: all sport users (N=207)

Type of activity

4.2.13 The various activities people participate in when visiting the parks can be grouped together by the nature of the activity into three groups – active, passive and social. For example, active activities include exercise or playing sports, passive can be enjoying the environment of the park, while social might be having a picnic. The classification of activities into these categories is shown in Table 4.4.

Table 4.4: Type of activity classification

Generally why do you come to this park?	For what reasons do you walk/cycle in the park?	Type of activity
To walk	Relax/enjoy the environment/green space	Passive
	Exercise	Active
	Dog walking	Active
	Travelling through/short cut	*Link user*
	Commuting to work	*Link user*
	For events or socialising	Social
	For friends or family	Social
	To enjoy the animals	Passive
	For a picnic	Social
	To visit the cafe	Social
To cycle	Leisure	Active
	To exercise	Active
	Travelling through / short cut	*Link user*
	Commuting to work	*Link user*
	For the children	Social
	To walk the dogs	Active
	For the environment	Passive
To play sport/exercise		Active
To take children to play		Social
For events or socialising		Social
To walk the dog		Active
To relax		Passive
To enjoy the open		Passive
To enjoy the animals		Passive
As a shortcut		*Link user*
For a picnic		Social
To visit the cafe		Social

4.2.14 The distance people travel and the mean frequency of visits was tested against these types of activities, with the results shown in Table 4.5. People using the park for passive activities were on average willing to travel further than other users. People taking in part in active pursuits visited the park more often than other users.

Table 4.5: Mean distance and mean frequency of visits by type of activity

Type of activity	Mean distance to park[a]	Mean frequency of visits (summer)[b]
Active	3.20	5.26
Passive	3.29	4.90
Social	3.03	4.93

[a] *1 = 400m isochrone, 2 = 800m isochrone, 3 = 1,600m isochrone, 4 = 2,400m isochrone, 5 = outside 2,400m isochrone*

[b] *4 = Fortnightly, 5 = Once or twice a week, 6 = Most days*

4.3 Findings – place usage

4.3.1 The frequency scale employed in the household and user exit surveys used the following 7-point scale, based on the Greenstat questionnaire:

1 Not used
2 Seldom / never during this season
3 Once a month
4 Once every two weeks
5 Once or twice a week
6 Most days
7 Every day

4.3.2 Theoretically it would be possible to estimate total annual park usage from the frequency of use of the park and other parks in summer and in winter. In practice, however, this is an unsatisfactory solution for statistical analysis. All results are highly sensitive to the assumptions about the mean frequency of visits associated with the highest three categories.

4.3.3 Therefore, in the frequency of usage analyses a simple ordinal scale is used[2]. An ordinal scale is a scale of categories with a defined order but no information on the interval between categories. By simply using the 1 to 7 scale, the analysis is more sensitive to variation throughout the scale and not simply amongst the most frequent users.

4.3.4 The definition of overall summertime parks usage has been derived by extracting the maximum of two variables, namely (a) summer usage of the surveyed park and (b) summer usage of other parks. Table 4.6 shows the two mean frequencies calculated from the household surveys.

Table 4.6: Mean level of park usage

	Summer use of park surveyed	Overall summer park usage
Mean	4.27	4.81
Standard deviation	1.758	1.521
Standard error of the mean	0.040	0.035
Median	5	5

Base: All responses (N=1,969)

4.3.5 The median frequency cited in the household surveys is 'once or twice a week'. This may indicate that the household surveys are slightly biased towards regular users, as could be expected. The mean frequencies for both summer usage of the surveyed park and overall summer park usage falls between 4 and 5, i.e. somewhere between once a fortnight and twice a week. In the subsequent analysis, significant variation around these two means can be demonstrated.

Demographics

4.3.6 As demonstrated in Chapter 3, there is significant variation in the demographics of the populations living around the six case study parks. Mean frequency of park usage has been tested (across all six sites) against these variables to identify which groups use the parks most frequently. Table 4.7 shows the mean summer frequency of use of the surveyed park and overall summer park use (only relationships where the F value is significant at the 0.05 level are shown).

[2] It should be noted that some statisticians have argued that in strict terms, analysis using means and standard deviations should not be applied to ordinal scales since they imply knowledge of more than simply the relative rank order. However, it is common practice in the social sciences to conduct analyses using scales that are in actual fact simply ordinal in nature.

Table 4.7: Frequency of park usage by demographic variables

	Summer use of park surveyed	Overall summer park usage
Gender	-	-
Age	-	29 or under – 4.70 30 to 59 – 4.88 60 or over – 4.67
Disability	Yes – 3.61 No – 4.29	Yes – 4.10 No – 4.85
Work status (categories with 100+ responses only)	Working full-time – 4.15 Working part-time – 4.48 Retired – 4.30 Looking after home – 4.85	Working full-time – 4.70 Working part-time – 5.09 Retired – 4.68 Looking after home – 5.53
Income	-	Under £25k – 4.56 £25-50k – 4.78 £50k or above – 5.03
Ethnic background	-	British / other white – 4.84 Non-white – 4.58
Access to a garden?	Yes – 4.32 No – 3.98	-
Day out in the countryside in the last 12 months?	Yes – 4.38 No – 3.77	Yes – 4.93 No – 4.23

Base: All responses (N=1,969)

4.3.7 These figures show mixed findings. Frequency of visit is highest amongst persons who state that their employment status is either looking after the home or working part-time time. This could be related to households with children (although unfortunately household composition was not asked directly in the questionnaire).

4.3.8 Frequency of usage increases with income, and for age groups between 30 and 59. Conversely, disabled respondents show a starkly reduced frequency of usage. Respondents with no access to a garden actually visit parks less frequently than respondents with access to a garden. Likewise, respondents who had not had a day out in the countryside in the past 12 months also use the park less frequently.

4.3.9 However, care must be taken when drawing conclusions from these findings since some of the correlations may simply be linked to income. For example, the largest sample obtained was at Richmond Park, which has the highest park usage, the highest perceived quality scores and is likely to have the wealthiest catchment area. The causal effects are difficult to unravel since proximity to high quality green spaces is one of the factors attracting wealthier residents, who in turn have greater financial and political resources to maintain high quality green spaces in their local area.

4.3.10 As Table 4.7 shows, the demographic groups that show high levels of park usage are:

- Age – people aged 30-59
- Disability – people who are not disabled
- Work status – people looking after home
- Income – households earning £50k or above
- Ethnic background – British/other white
- People with access to a garden
- People who have been on a day out in the countryside in the last 12 months

4.3.11 The groups that show the lowest levels of park usage are:

- Age – people aged 60 or over
- People who are disabled

- Work status – those who are retired or working full-time
- Income – households earning less than £25k
- Ethnic background – non-white
- People without access to a garden
- People who have not been on a day out in the countryside in the last 12 months.

4.3.12 This shows that vulnerable users such as the elderly and disabled are less likely to use the parks. This could be for a number of reasons such as health, opinion of safety, etc. Further analysis was carried out to ascertain who in particular within these groups were less likely to use the parks but no significant results were found.

Distance to the park

4.3.13 Across most of the parks surveyed, a clear correlation between distance from the park and place usage of the park can be established (Table 4.8). For distance, responses were grouped into isochrones of varying distances from the parks, and the correlation with usage was tested. The results for summer and winter usage are similar so only the results for summer are displayed.

4.3.14 The weakest relationships were established for Central Park (see Table 4.8). The relationship across all six case study parks together is generally less strong than for each park individually. This suggests that other intervening factors differentiate the local role of the parks.

4.3.15 The correlations between frequency of use of the park surveyed and the green space within varying distances provides a useful indication of their spatial scale of influence (this was calculated using buffers rather than isochrones). Whereas the strongest relationship for West Ham Park is with the 400m buffer, Tooting Bec Common is correlated with the 800m buffer, and both Finsbury Park and Richmond Park at the 3.2km buffer level. The presence of negative correlations for Central Park and Newington Green can indicate the attraction of another local park (see Competition from other green spaces below).

Table 4.8: Place usage – correlation with distance to park surveyed

Park	Distance to park surveyed	Green space within 400m buffer	Green space within 800m buffer	Green space within 3.2km buffer
Richmond Park	-.287**	-	.101*	.232**
Tooting Bec Common	-.336**	.210**	.222**	-
Finsbury Park	-.320**	-	-	.297**
West Ham Park	-.403**	.266**	.189*	-
Central Park	-.157*	-	-	-.267**
Newington Green	-.277**	-	-.225**	-
All parks	**-.149****	**.161****	**.237****	**.269****

*Base: All geo-coded responses (N=1,542), **significant at the 0.01 level, *significant at the 0.05 level*

Competition from other green spaces

4.3.16 The frequency of usage data for other local parks can be used to establish the impact of other 'competing' green spaces at a variety of scales (see Table 4.9). Again findings for summer and winter usage are highly correlated so only the results for summer are displayed.

4.3.17 This table shows a great deal of variation between parks, with the use of Central Park being most closely correlated to distance to the nearest park, whilst Newington Green is most strongly linked to green space within 800m. The comments help describe these relationships, with Newington Green for example surrounded by several larger, accessible areas of green space ensuring that it is not the most dominant green area within its immediate vicinity.

Table 4.9: Correlation with place usage of other local parks

Park	Green space within 400m buffer	Green space within 800m buffer	Green space within 3.2km buffer	Distance to nearest park	'Competing' green spaces
Richmond Park	-	-	-	-	-
Tooting Bec Common	-.144*	-	-	-	-
Finsbury Park	-	-	-.280**	.302**	Hampstead Heath/ Alexandra Park?
West Ham Park	-	-	-	-	Wanstead Flats
Central Park	-	-	-	.274**	Beckton District Park
Newington Green	-	.223**	-	-	Highbury Fields, Clissold Park, Hackney Downs, London Fields
All parks	**-**	**-**	**-**	**.085****	**-**

*Base: All geo-coded responses (N=1,542), **significant at the 0.01 level, *significant at the 0.05 level*

4.3.18 The figure in Appendix A-1 also examines summer use of all green space, providing a visual representation of distance to each of the 6 parks included within the study. Some interesting trends can be suggested, namely:

- Richmond Park has pockets of high use (e.g. to the north around East Sheen gate) and areas of lower use (e.g. Putney and Kingston) which are not necessarily solely a function of distance to the park.
- For Tooting Bec Common, proximity to the park increases use, although surrounding highway infrastructure (A23 and A24) could possibly be creating a barrier to the use of green space.
- At Newington Green, there is little correlation between distance to this park and use of green space, suggesting that proximity to competing green spaces could be more significant than distance to this particular park.
- Central Park shows a pocket of high use to the south-west of the park, where there is access to the Greenway and Beckton District Park

4.3.19 Is it therefore possible to explain overall usage of the six case study parks as a function of access to green space? Table 4.10 shows that the correlation between overall summer park usage and green space within the 400m, 800m and 3.2km buffers is weak but highly significant. This demonstrates that in combination with other variables, access to green space does go some way to explaining variation in its usage.

Table 4.10: Correlations of overall park usage

	Pearson correlation	Sig.
Distance to park surveyed	-.006	.805
Distance to nearest park	-.044	.093
Green space within 400m	.094**	.000
Green space within 800m	.147**	.000
Green space within 3.2km	.145**	.000

*Base: All geo-coded responses (N=1,542), **significant at the 0.01 level, *significant at the 0.05 level*

Activity

4.3.20 However, the distance people are willing to travel to reach the park also depends upon the reasons for going there. Since these distances can vary greatly from the 1.6km buffer defined for the household surveys, the field user survey data has been used for this analysis.

4.3.21 Table 4.11 shows the mean distance people live from the park (based on the ordinal scale of isochrone distances as shown below the table). It shows that people walking in the park for exercise or dog walking or users playing sports tend to live close by. People using the parks to take children to play, to cycle or in particular for events/socialising are more likely to travel further to get to the parks than those using the parks for other activities.

4.3.22 Similarly, frequency of visit also depends on the reasons for going to the parks. As Table 4.12 shows, people walking in the park, in particular dog walkers, or cycling in the park visit very regularly. Users attending events, visiting for the purpose of relaxing or having a picnic tend to use the parks less often.

Table 4.11: Mean distance to park by activity

	Sample (N)	Richmond Park	Tooting Bec Common	Finsbury Park	West Ham Park	Central Park	Newington Green
To walk	1,071	4.22	2.75	3.11	2.98	2.34	2.85
Relax/environment/green space	584	4.35	2.38	2.93	3.06	2.60	3.00
Exercise	392	4.33	2.70	2.56	3.16	2.13	2.10
Dog walking	296	4.23	2.66	2.47	2.63	1.74	2.13
To cycle	142	4.21	2.29	3.17	3.50	-	2.90
To play sport/exercise	217	3.78	2.85	2.88	2.97	2.65	1.25
Football	69	3.29	3.17	3.14	3.19	2.79	1.33
Tennis	45	-	3.00	2.56	2.60	3.29	-
Running/Jogging	38	3.76	2.75	3.00	2.50	3.50	-
To take children to play	634	4.37	3.03	3.10	3.54	2.65	2.58
To relax	207	4.11	2.84	3.12	3.06	3.00	2.83
For events or socialising	66	4.00	3.08	3.42	4.00	5.00	3.30
For a picnic	80	3.40	3.25	3.05	2.00	2.77	3.38
All respondents	**2,238**	**402**	**341**	**358**	**433**	**369**	**335**

Ordinal scale – units:
1 = 400m isochrone, 2 = 800m isochrone, 3 = 1,600m isochrone, 4 = 2,400m isochrone, 5 = outside 2,400m isochrone

Table 4.12: Mean frequency of visits (summer)[a] by activity

	Sample (N)	Richmond Park	Tooting Bec Common	Finsbury Park	West Ham Park	Central Park	Newington Green
To walk	1,170	4.79	5.67	4.82	5.55	5.62	5.12
Relax/environment/ green space	634	4.79	5.80	4.73	5.52	5.37	5.05
Exercise	419	4.78	5.76	4.93	5.34	5.55	5.18
Dog walking	322	5.38	5.83	5.05	6.23	6.58	6.00
To cycle	153	4.75	5.21	4.92	5.50	-	6.00
To play sport/exercise	241	5.06	5.08	4.82	5.03	5.66	4.83
Football	78	4.86	5.60	4.44	4.64	5.67	5.50
Tennis	52	-	4.62	4.67	5.18	5.13	-
Running/Jogging	38	5.47	5.00	5.00	5.43	4.50	-
To take children to play	721	4.69	5.13	4.76	6.05	5.21	4.78
To relax	220	4.89	4.44	4.23	4.69	4.59	4.52
For events or socialising	77	4.50	4.14	3.94	5.28	5.00	3.42
For a picnic	87	4.67	4.00	4.55	6.00	4.95	4.24
All respondents	**2,480**	**412**	**419**	**412**	**447**	**397**	**393**

Ordinal scale – units:
4 = Fortnightly, 5 = Once or twice a week, 6 = Most days, 7 = Every day

4.3.23 The distance travelled in reaching the park to take children to play and to participate in sport and/ exercise is demonstrated graphically in Appendix A-2 and Appendix A-3 respectively. Immediately evident are the strong local pull factors exerted by Newington Green, Central Park and Tooting Bec Common in taking children to play and in West Ham Park for those participating in sport/exercise. However, the distances travelled also vary by park, and the facilities contained within. For example, some users are willing to travel relatively far to Finsbury Park and West Ham Park to use sports facilities there.

4.4 Findings – link usage

4.4.1 Walking link usage was evaluated using data from the household surveys, with those falling in this category determined from the answers to questions 12 and 13 (i.e. those using the park for a short cut, travelling through or as part of a commuting journey to work). Question 19 was used to filter out link users who use the park only as a cyclist but not a pedestrian. Cyclists were excluded since the scale of analysis required is likely to be much larger than for pedestrians.

4.4.2 The distribution of link users is demonstrated in Appendix A-4. This shows a high number of link users at Richmond Park, which was anticipated due to both the high number of potential shortcuts offered by this large park and the attractive walking environment. Tooting Bec Common appears to have a high number of east to west and west to east link users, whilst those at Finsbury Park are grouped along the railway and highway infrastructure. The other 3 parks all experience a wider distribution of link users.

4.4.3 As explained in section 4.1, the process for evaluating the probability of a park being used as a link is essentially based on the distance saving that it can offer in comparison to the local highway infrastructure, and the employment pull factors associated with the catchment of the park gates. Household surveys allowed the proportion of link (as opposed to place) users using each gate to be determined, with a relationship then sought between this and the employment and distance saving factors associated with each gate.

4.4.4 The findings will now be explained in detail for West Ham Park, with a summary of findings then provided for all other parks.

4.4.5 GIS software was initially used to discover the journey distance savings offered by using the park as a ‘link’. This simply compared the distance between travelling between 2 gates through the park to the distance that would be required to complete the same journey by surrounding streets. This produced a simple ratio, with values less than 1 signifying a journey saving. Table 4.13 demonstrates the output for West Ham Park.

Table 4.13: West Ham Park link ratios

	Margery Gate	Nursery Gate	Main Gate	Portway Gate	South Lodge Gate	Linden Gate
Margery Gate	-	1.00	0.82	0.65	0.65	1.00
Nursery Gate	1.00	-	1.33	1.05	0.98	0.96
Main Gate	0.82	1.33	-	1.16	1.03	0.71
Portway Gate	0.65	1.05	1.16	-	2.23	0.69
South Lodge Gate	0.65	0.98	1.03	2.23	-	0.85
Linden Gate	1.00	0.96	0.71	0.69	0.85	-

4.4.6 A 1.6 km buffer was created around each of the parks, which was then further subdivided into regions allocated to each gate. The extent of these regions was determined directly from pedestrian distances to each of the gates, allowing the entire 1.6km buffer to be allocated to a nearest gate. A simple function then allowed each of the household survey respondents to be allocated to a 'nearest' gate, assumed to be the most likely to be used.

4.4.7 The next stage of the analysis attributed *'pull'* factor to each of the gates. The question of what data to use as a pull factor is a difficult one, since the types of walking trips through parks can vary greatly. Employment data can be a good proxy for local centres that generate high numbers of pedestrian movement. The data was taken from the NOMIS Annual Business Enquiry small area statistics (provided for Lower Super Output Areas), and calculated for the 1.6km catchment areas of each gate. Different types of employment were considered as a proxy for local centres (i.e. all, health, education, retail etc), with retail employment taken as being most indicative of demand as it strongly aligned to urban town centres.

4.4.8 A ratio linking distance and employment was then created, considering the employment pull exerted by each individual gate against the total employment across the 1.6km buffer. An example of the equation used is shown below in relation to Margery Gate at West Ham Park:

> Combined employment and distance ratio = x*(Retail employment in Margery gate region/Total retail employment in 1.6km buffer)*(1/Margery Gate distance ratio)

4.4.9 The output of completing this step for West Ham Park is shown in Table 4.14. The total summarises the overall pull factor for each gate.

Table 4.14: Employment and distance ratios (West Ham Park)

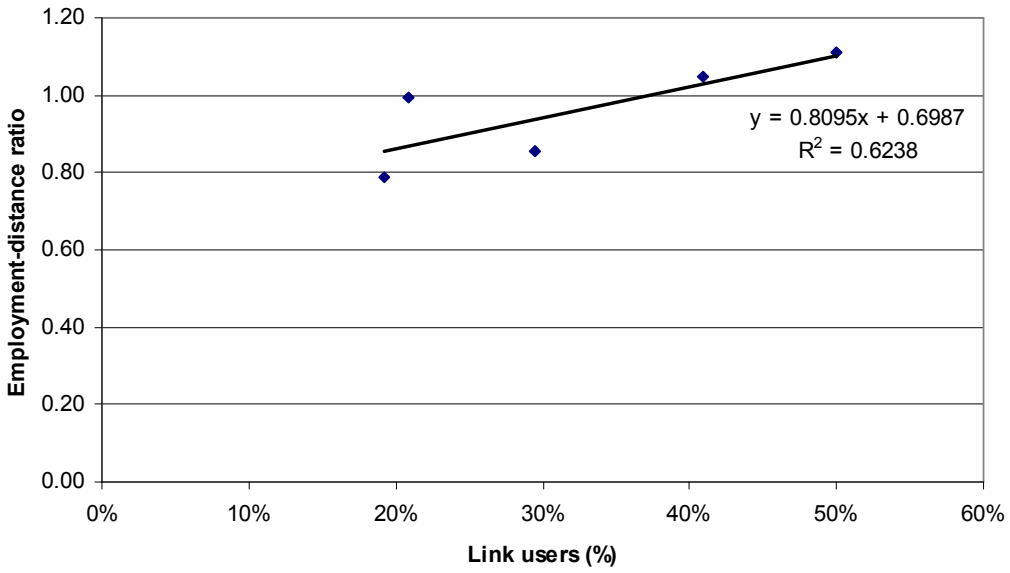
	Margery Gate	Nursery Gate	Main Gate	Portway Gate	South Lodge Gate	Linden Gate
Margery Gate	-	0.14	0.17	0.22	0.22	0.14
Nursery Gate	0.04	-	0.03	0.04	0.04	0.04
Main Gate	0.39	0.24	-	0.27	0.31	0.44
Portway Gate	0.10	0.06	0.06	-	0.03	0.10
South Lodge Gate	0.08	0.06	0.05	0.02	-	0.06
Linden Gate	0.38	0.40	0.54	0.56	0.45	-
TOTAL	**0.99**	**0.89**	**0.85**	**1.11**	**1.05**	**0.79**

4.4.10 A relationship was now sought between the ratios highlighted in Table 4.14 and the actual link usage (walking only) of gates, as derived from the household surveys. This was expressed as a percentage of total park users, with the output summarised in Table 4.15 and Figure 4.8.

Table 4.15: Link users and final ratio (West Ham Park)

Gate	% Link users	Total employment distance ratio
Margery Gate	21%	0.99
Nursery Gate	No responses	0.89
Main Gate	29%	0.85
Portway Gate	50%	1.11
South Lodge Gate	41%	1.05
Linden Gate	19%	0.79

Figure 4.8: Link users and final ratio (West Ham Park)



4.4.11 In this instance an R^2 value of 0.62 suggests a moderate correlation between the link users and the factors that were used to predict/explain link usage. The results for the other parks are summarised in Table 4.16.

Table 4.16: Summary of R^2 values

Park	Relationship	R^2 Value
Richmond Park	Weak	0.0459
Tooting Bec Common	Weak	0.1136
Finsbury Park	No	0.0027
West Ham Park	Strong	0.6238
Central Park	No	0.0031
Newington Green	Strong inverse	0.9915
All parks (combined)	**No**	**0.0004**

4.4.12 This shows that the correlation between link usage, employment and distance savings at the other parks included in the study is minimal, as is the case when all the parks are combined into one dataset, and indeed the relationship at Newington Green is strongly inverse.

4.4.13 It appears that this method of analysis is unsuitable to capture the wide variety of local trips at the smaller parks. There are some weak to strong relationships in the larger parks, but a number of shortcomings of the link usage tool still exist:

- The buffer areas around Finsbury Park and Tooting Bec Common are characterised by severance caused by major roads and railways. Therefore a better link usage tool, e.g. using isochrones, would incorporate this.
- No notion of frequency of link usage was included, with all link users categorised in the same way regardless as to whether they used the park on a daily, weekly, monthly or annual basis.

4.5 Implications

4.5.1 Estimates of total annual usage of the six parks are available. In order to test if the intensity of park use is linked to annual maintenance costs, annual usage can be expressed on a per hectare basis. Alternatively, a measure per metre could be calculated for link usage.

4.5.2 However, with regards to testing the relationship between quality and usage, the findings suggest that there is an opportunity to test the relationship across the full sample of household surveys. For the moment, it is recommended that this analysis focus on place usage since the link usage findings are not yet conclusive enough. A number of relationships have been established, demonstrating that the frequency of visiting a local park is linked to:

- Distance from the park;
- Relative attractiveness of other local parks;
- Types of activity undertaken in the park; and to a limited extent
- Household demographics.

4.5.3 Therefore it is proposed that the perceived quality scores are incorporated into the existing place use model(s), e.g.:

Probability of place use = (a*1/distance) + (b*quality)

5 The relationship between cost and quality

5.1 Introduction

5.1.1 A simple regression analysis of costs, quality (measured by GFA scores and quality scores given in the household surveys) and usage was carried out to determine whether any relationships could be found between the three factors, as shown Figure 1.1. For example, costs and usage was compared to see if there was a relationship showing that parks with a higher number of users also incur higher costs. The sample size is small so finding statistically significant results is difficult, but any reasonable trends have been identified.

5.1.2 Three levels of analysis can be used to compare costs, quality and usage amongst the parks:

- High-level benchmarking of the parks as a whole;
- Benchmarking specific facilities / activities; and
- Testing perceived quality within a model of usage.

5.1.3 The latter method uses the household survey respondents as its base and is therefore based on a much larger sample.

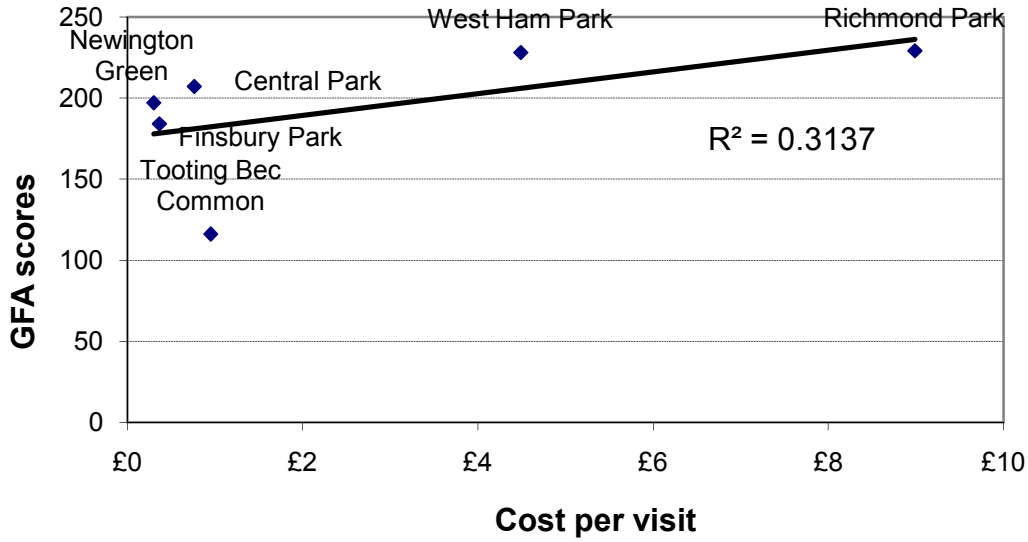
5.1.4 This section outlines the analysis carried out to link cost and quality. Analysis of the relationships between cost and usage and between quality and usage is shown in sections 6 and 7.

5.2 High-level benchmarking

5.2.1 A regression analysis was carried out to test whether there is a significant relationship between total cost and overall quality of the parks, and variations of these measures. The parks are of varying sizes and popularity, and costs vary greatly between them, so it was felt that analysing costs per hectare and per visit would be a more appropriate measure than total costs. Both GFA scores and quality scores obtained from the household surveys were tested.

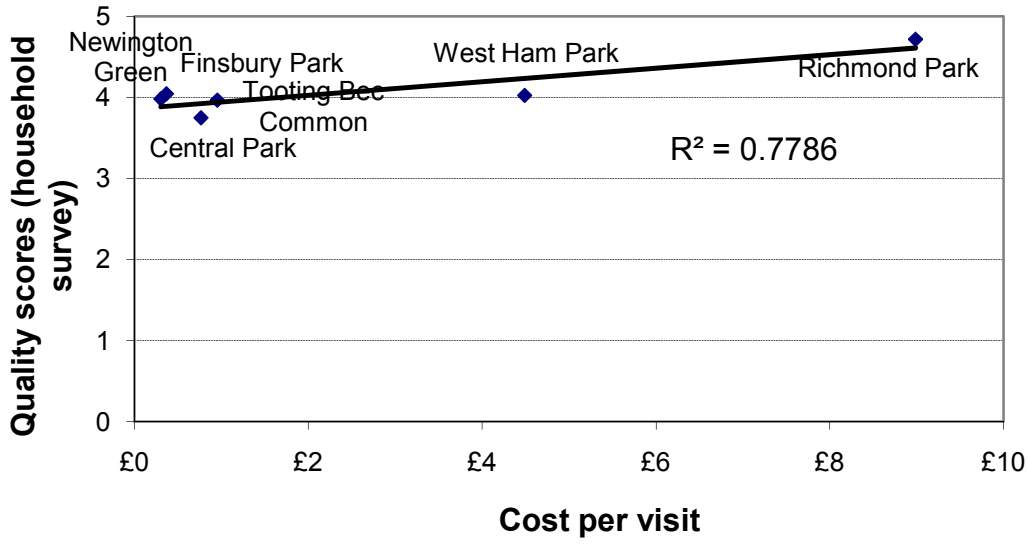
5.2.2 Comparing cost per hectare with quality scores does not produce any strong relationships. However, cost per visit is positively correlated to both GFA scores (Figure 5.1) and overall quality scores from the household survey (Figure 5.2). However, the relationship between GFA scores and cost per user is very sensitive to the low score for Tooting Bec Common (without Tooting Bec Common, the R^2 value increases to 0.72).

Figure 5.1: Cost per visit v GFA scores



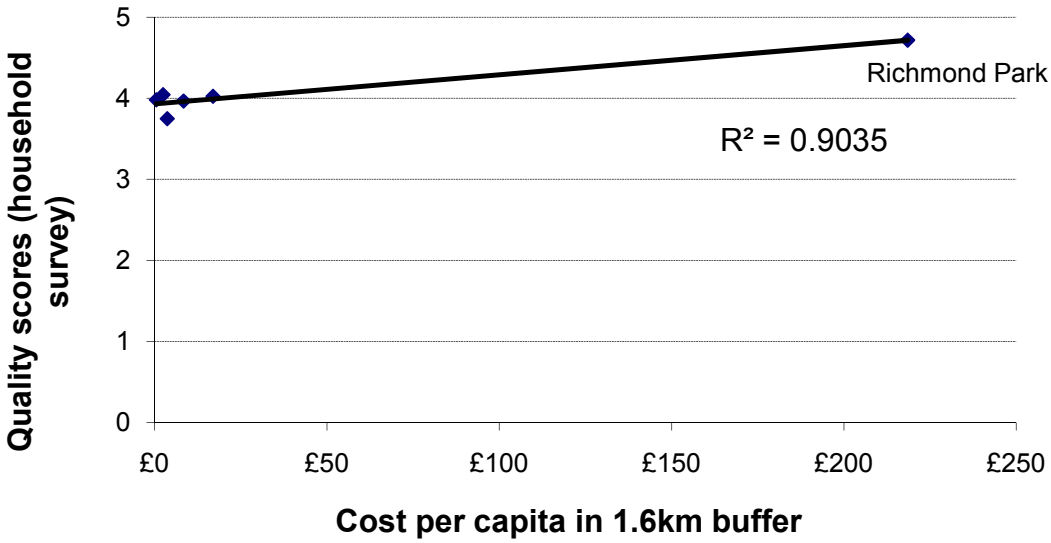
5.2.3 The relationship between the household survey quality scores and cost per visit is more robust. Four of the parks are tightly clustered with much lower costs per visit of between 30p and 95p, and quality scores of between 3.75 and 4.04. West Ham Park and Richmond Park have considerably higher costs per visit, as well as better quality scores.

Figure 5.2: Cost per visit v quality scores (household survey)



5.2.4 The relationship between spend per resident in the 1.6km buffer area and the quality scores is even more striking (Figure 5.3). However, this relationship is entirely dependent on Richmond Park (without Richmond Park, no relationship is discernible).

Figure 5.3: Cost per capita in 1.6km buffer v quality scores (household survey)



5.3 Specific benchmarking

5.3.1 At the second level of detail, specific aspects that attract people to the park have been explored. This stage is limited by the data available for the breakdown of costs, scores for quality in the GFA scores and questions asked in the household survey. The categories investigated are:

- Sports
- Children's formal play facilities
- Feature gardens
- Security

Sports facilities

5.3.1 There is only very limited reliable data on the accurate costs of maintaining sports facilities, and Newington Green was excluded from this test as there are no sports facilities in this park. No significant relationship could be found nor any links identified.

Children's formal play facilities

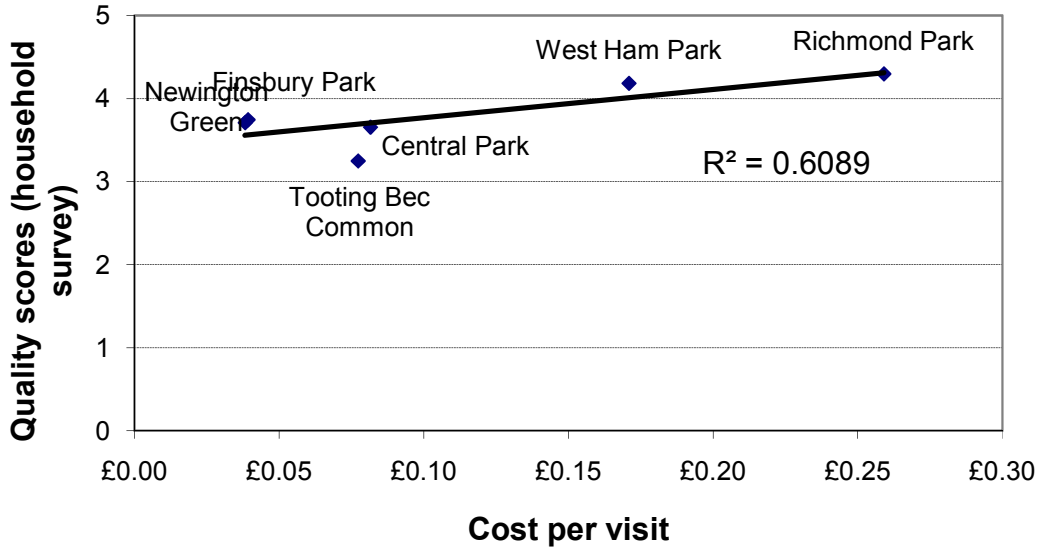
5.3.2 The costs of maintaining children's formal play facilities and the quality of these facilities (based on the scores given by stated users in the household survey) were tested. No significant relationships could be found.

Feature gardens

5.3.3 Analysis of the household survey results showed that the quality rating for 'flowers and shrubs' displayed a significant level of variation between parks. Therefore this was compared to the maintenance costs spent on feature gardens. The results show a

positive correlation with both the GFA scores for natural and landscape features, as well with the household survey scores for 'flowers and shrubs' (Figure 5.4).

Figure 5.4: Feature gardens cost per visit v quality scores (household survey)



5.3.4 It is interesting that specifically the planting and bedding aspect of quality is seen as such a strong indicator. It is no surprise that the GFA judges with a specialist background capture variation in spend on feature gardens. Yet it appears that the 'traditional' view of a local park is very much engrained in many people's perception of how parks are managed.

Security

5.3.5 Security/policing costs and the perceived quality of personal security in the parks were tested for trends. No relationships could be identified.

5.4 Conclusions

5.4.1 Overall these results appear to demonstrate that there is a positive relationship between parks spending and the perceived quality of the space. This can be demonstrated when comparing total parks spending but it is much more difficult to demonstrate the link between spending on specific elements of the parks and perceived quality.

5.4.2 This analysis has highlighted the fundamental difficulty in conducting benchmarking exercises with different sources of cost data. The transparency of overall spending on parks is affected by different institutional structures, accounting practices and third party contractual arrangements. Although it has been possible to estimate total spend per park, there remains a possibility that some measures a partial and these issues make it very difficult to isolate spending on specific types of asset.

5.4.3 The results for Finsbury Park, which recently underwent a £5m HLF refurbishment, illustrate a wider issue. The quality scores for the park are high, indicating user satisfaction with the improved park facilities. On the other hand maintenance costs appear very low. Is this partly because regular maintenance and one-off capital expenditure is more difficult to separate for the years where the work is taking place? But

it does pose the question whether the longer term maintenance budget is sufficient to maintain the newly upgraded assets to an appropriate standard?

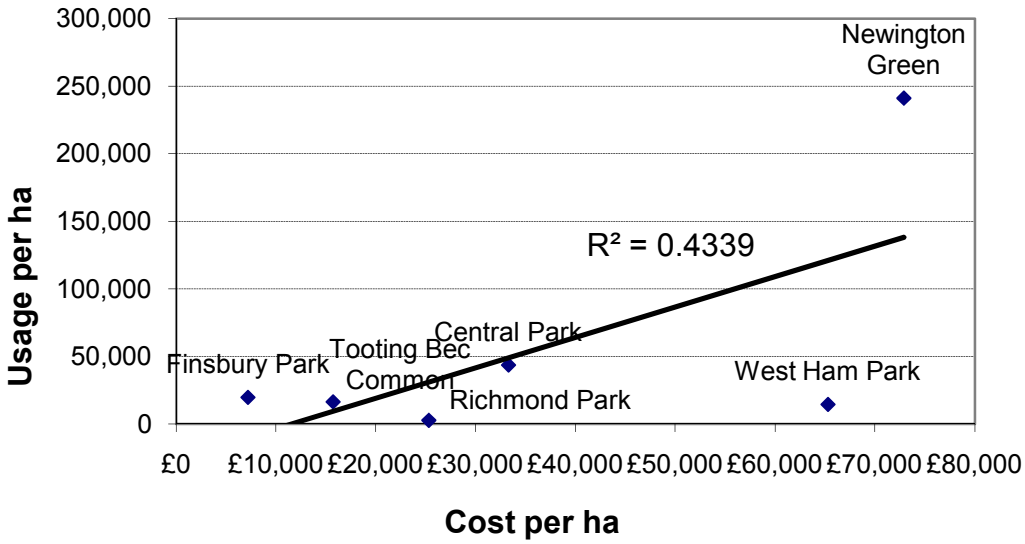
6 The relationship between cost and usage

6.1 High-level benchmarking

6.1.1 As for the analysis relationships between cost and quality described in section 5, a regression analysis was carried out to test whether there was a significant relationship between cost and usage of the parks. The same cost measures as shown in Table 2.2 were employed.

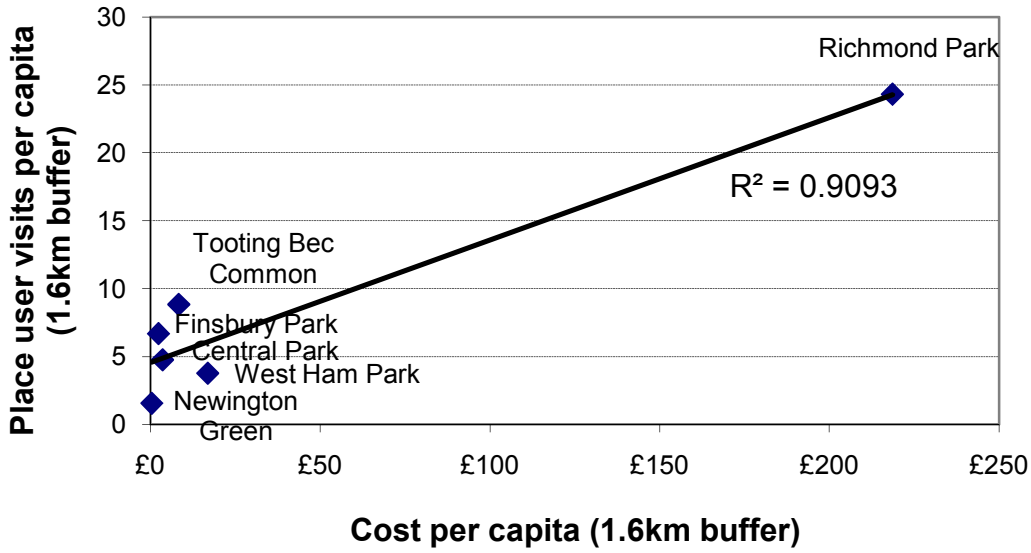
6.1.2 There is a clear relationship across the case study parks between overall costs and usage. However, this does not account for the differing size and nature of the parks. A fairer measure of comparison is therefore to consider cost and usage on a per hectare basis. Figure 6.1 shows that a weak relationship between user numbers and costs per hectare can be identified.

Figure 6.1: Cost per hectare v place user visits per hectare



6.1.3 Another measure of usage considers the rate of usage compared to the size of the population within the area from which the household surveys were sampled, as shown in Table 4.3. Annual cost per capita within the 1.6km buffer can then be compared to this rate of usage, as shown in Figure 6.2. Although this relationship shows strong positive correlation, it is highly sensitive to the inclusion of Richmond Park (without Richmond Park the R^2 value falls to 0.02).

Figure 6.2: Cost per capita v place user visits per capita (1.6km buffer)



6.2 Specific benchmarking

6.2.1 As in section 5, the relationship between costs and parks usage was explored for specific activities and facilities.

Sports

6.2.2 Again there is only very limited reliable data on the accurate costs of maintaining sports facilities (since two parks are estimated on the basis of unit costs), and Newington Green was excluded from this test as there are no sports facilities in this park.

6.2.3 The results of the remaining three parks appear to show that, firstly, the relationship between cost/hectare and usage/hectare applies to sports facilities. Secondly, the cost per sports user is positively correlated to the proportion of park users stating that they use the park for sport.

Children

6.2.4 When the costs for children's formal play facilities and the usage of these facilities were tested for any correlations, the results are skewed by the high costs recorded for the maintenance of formal play facilities at West Ham Park. With the exception of this park, the cost/hectare and usage/hectare are very strongly correlated.

6.3 Conclusions

6.3.1 The results of high-level benchmarking suggest that when comparing total costs, spending per hectare on parks and their usage per hectare are correlated. Yet this is only a partially satisfactory measure to compare cost and usage since it ignores the time that people spend in the park. Newington Green has very high annual user numbers but users may spend less time there than, for example, Richmond Park and West Ham Park.

6.3.2 There is also some evidence that spending on specific infrastructure within parks, namely sports and children's formal play facilities, is also correlated to their usage.

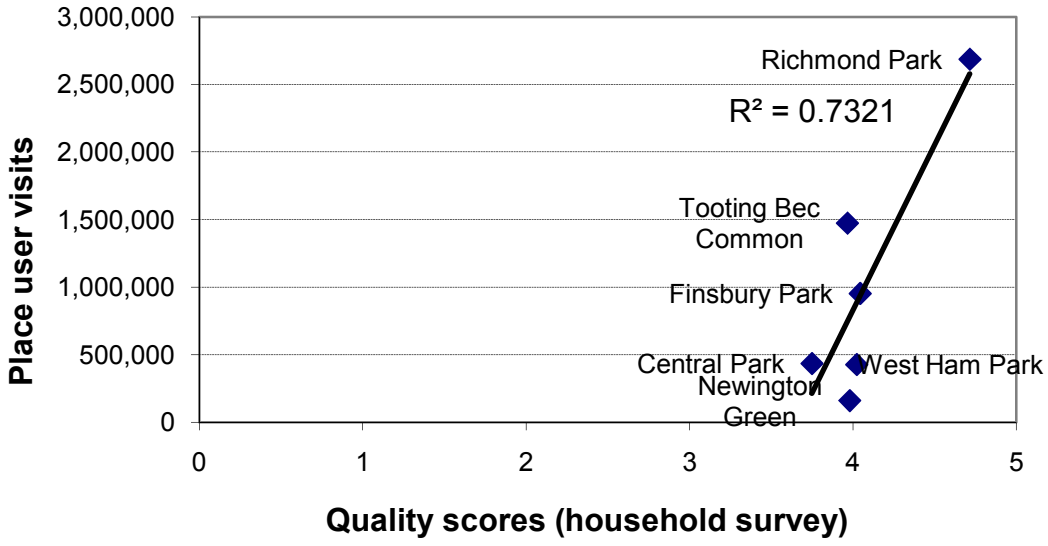
7 The relationship between quality and usage

7.1 High-level benchmarking

7.1.1 An equivalent high-level benchmarking exercise was carried out for quality and usage. Again both GFA scores and quality scores from the household surveys were employed.

7.1.2 There is a clear positive relationship between total usage and perceived quality as measured in the household surveys (Figure 7.1).

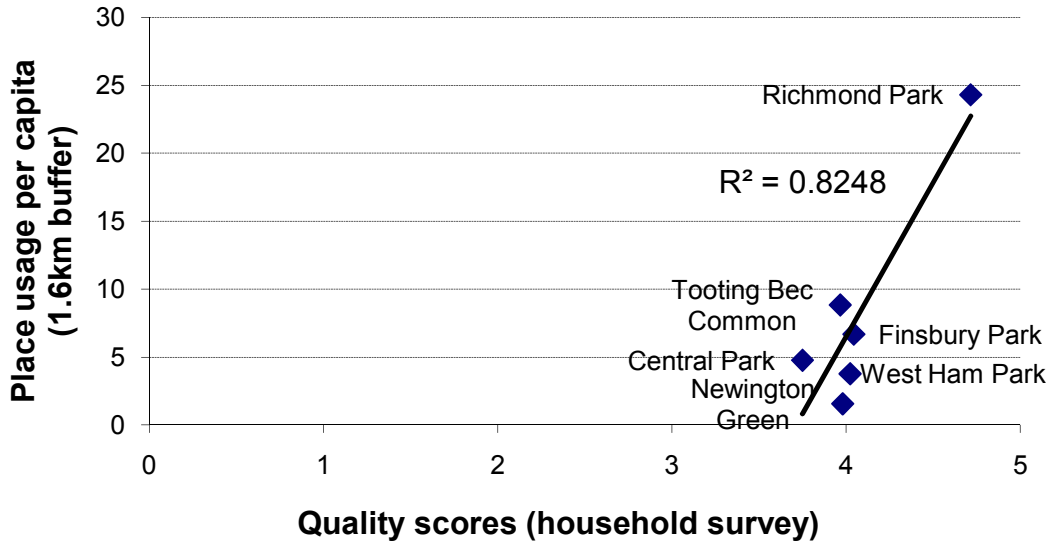
Figure 7.1: Total usage v quality scores



7.1.3 The above relationship does not take into account the size and nature of the different green spaces. Indeed the size of the green space may be one factor that influences people's perception of its quality. So when comparing quality and usage per hectare, no significant relationship can be identified.

7.1.4 Therefore it is reasonable to compare the estimate of the intensity of usage, namely place user visits per capita within the 1.6km buffer (as shown in Table 4.3). There is a very strong correlation between perceived quality and the intensity of usage by local people (Figure 7.2).

Figure 7.2: Place usage per capita (1.6km buffer) v quality scores



7.2 Specific benchmarking

Sports

7.2.2 The quality of sports facilities (measured by quality scores given by users in the household surveys) and the usage of sports facilities were tested for correlations. There was a weak positive correlation between quality scores (household survey) and usage, both for total place usage and when measured as intensity of usage.

Children

7.2.3 The perceived quality of children's formal play facilities and the usage of these facilities were tested for any trends. Quality s cores (household survey) and usage were found to have a strong negative relationship for these six case studies.

Security

7.2.4 Perceived personal security and the overall usage of the parks were tested for any strong trends. A weak positive correlation can be identified with usage, both for total place usage and when measured as intensity of usage.

7.3 Testing within the household survey usage model

7.3.1 Although some broad correlations can be identified using the six case study parks, the sample size remains exceptionally small and therefore all findings need to be treated with some caution. Yet as explained in section 4.5, the household survey sample provides an

opportunity to test the relationship between quality and usage over all of the geo-coded respondents.

7.3.2 In simple terms this means explaining frequency of usage as a function of the distance respondents live from the green space (using isochrones to represent actual walk distance) and the perceived quality of the park. However, a word of warning is required with the use of multiple regression for this statistical test. All of the variables included are ordinal scales, i.e. they indicate an order or ranking of attributes but the intervals in the scale are not necessarily the same size. For this reason, care must be taken when employing them in multiple regression and hence no constant has been included in this model. In this case, the results will not be suitable for predictive modelling but they should be sufficient to test whether the perceived quality score is one factor of frequency of park usage. The results of this analysis are summarised in Table 7.1.

Table 7.1: Relationship between distance, quality and usage

Park	Bivariate correlation to distance to park	Multiple linear regression		
		Adjusted R^2	Distance coefficient	Quality coefficient
Richmond Park	-.287**	0.928	-.197**	1.165**
Tooting Bec Common	-.336**	0.88	-0.005	1.161**
Finsbury Park	-.320**	0.888	-0.032	1.085**
West Ham Park	-.403**	0.856	-.264*	1.120**
Central Park	-.157*	0.856	.382*	.883**
Newington Green	-.277**	0.878	-0.045	1.031**
All parks	**-.149****	**0.896**	**-.130****	**1.125****

***significant at the 0.01 level, *significant at the 0.05 level*

7.3.3 As previously demonstrated, a bivariate analysis of distance and usage shows that there is a significant negative relationship between distance to the parks and usage of the parks. The multiple regression shows that usage can be partially explained by a combination of distance and perceived quality[3]. Of these two variables, it is perceived quality rather than distance that is consistently significant across all six parks. The consistency of these findings adds weight to the suggestion that perceived quality is a major factor affecting frequency of usage.

[3]The multiple regression results shown are from a test that does not include a constant. Please note that the R^2 test is not directly comparable to a multiple regression including a constant.

7.3.4 A further test can be conducted to determine which of the individual quality scores correlate most with frequency of usage (Table 7.2).

Table 7.2: Elements of perceived quality and frequency of usage

Household survey quality rating	Bivariate correlation to frequency of usage
Q38r As am enjoyable place to visit	0.261**
Q38s The general quality of the park	**0.199****
Q38a Ease of getting to and using facilities	0.193**
Q38g Car parking	0.189**
Q33 How safe do you feel in the park?	0.160**
Q34a I feel unsafe because of threatening/unlawful behaviour/people or a past incident	-0.162**
Q38b Cleanliness	0.139**
Q38o Information	0.123**
Q38n Staff	0.114**
Q38m Signage	0.113**
Q38c Grass cutting	0.103**
Q38q Guided walks	0.100*
Q38d Flowers and shrubs	0.099**
Q38f Catering café etc	0.080**
Q38e Toilets	0.075**
Q38j Disabled access	0.073
Q38k Seats and bins	0.071**
Q38h Play areas (under 5s)	0.065*
Q38p Events	0.043
Q38l Lighting	0.031
Q38i Older play and youth facilities	0.028

***significant at the 0.01 level, *significant at the 0.05 level*

7.3.5 From this analysis it is possible to derive a clear pattern of five principal elements of perceived quality (in rank order):

1. Enjoyment
2. Access
3. Personal security
4. Cleanliness
5. Information and staff

7.3.6 Beyond these five basic indicators of quality, the relative importance of different factors can vary between users. There is also some evidence of a generational divide with the quality of facilities for children and youths not strongly correlated usage overall.

7.4 Conclusions

7.4.1 The high-level benchmarking shows evidence of a strong relationship between perceived quality by households and usage. Yet again, this does not take into account time spent in the parks. A relationship was also found between the perceived quality of specific infrastructure within the parks and the usage of these facilities.

7.4.2 There is no evidence of a relationship between GFA scores and usage. This suggests that these scores do not necessarily reflect the perceptions of local residents.

7.4.3 An analysis of how different elements of perceived quality affect usage highlights some clear pull factors that encourage greater usage of parks. These include enjoyment of the park experience, access, perceived security, cleanliness and information. Although the 'pull' factors are generally stronger than 'push' factors that can dissuade people from using parks, one particular push factor that clearly affects behaviour is the previous experience of threatening behaviour.

8 Conclusions

8.1 Key findings

8.1.1 The dataset from the six London green spaces has provided a wealth of information from which comparisons of London's parks can be drawn.

How does quality affect usage?

8.1.2 Perhaps the most important message to emerge from the parks benchmarking data is that usage of green spaces is strongly affected by their perceived quality. The data available clearly shows a positive relationship between usage of parks by local people and the mean rating given to the parks. Furthermore multiple regression of over 1,500 household survey responses again reinforces the clear positive link between quality and usage. This also provides a strong argument for improved measurement of the usage of green spaces as a measure of quality, and indeed as a very tangible indicator of satisfaction with local authority service delivery.

8.1.3 An analysis of the quality rating scores shows the five main quality indicators that have the greatest impact on frequency of usage:

1. Enjoyment
2. Ease of access
3. Personal security
4. Cleanliness
5. Information

8.1.4 Although this is the most important factor, definitions of an *enjoyable* experience of green space can vary according to residents' needs and motivations. There can be numerous motivations for visiting green spaces but a simple categorisation in terms of active, passive and social users provides a useful framework for exploring usage patterns. People taking in part in active pursuits visited the park more often than other users. This group includes, for example, dog walkers and people playing sports informally or as part of a team. The analysis also shows that people using the park for passive activities visited less frequently but were on average willing to travel further than other users. In other words, people seeking space to relax and enjoy nature may need to travel further to a larger green space where they can experience a greater change from their daily environment.

8.1.5 There is a strong relationship between the frequency of visiting green spaces and socio-demographic indicators. As shown in Table 8.1, the pattern of green space visits reflects differences in leisure time and priorities, as a result of professional and family commitments. Yet in light of the findings of the recent *Urban Green Nation* publication highlighting the inequality of access to green space, the effect of social divisions in London is also observed in this dataset, showing that income and ethnic background are correlated with the use of green space.

Table 8.1: Indicators of frequency of visits to green spaces

	Higher frequency	Lower frequency
Age	Aged 30-59	Aged 60 or over
Disability	No	Yes
Employment status	Looking after home	Retired or working full time
Household income	£50k or above	Less than £25k
Ethnic background	White	BME
Access to a garden	Yes	No
Visited the countryside in the last 12 months	Yes	No

Does increased investment affect perceived quality?

8.1.6 Sustained improvement to green spaces requires sufficient levels of investment coupled with proactive long-term asset management to achieve best value. In spite of the hurdles encountered in producing a comparable estimate of annual expenditure on the parks, the data available demonstrates that increased spend per visit and perceived quality are positively correlated.

How does usage affect costs?

8.1.7 The more intensively green spaces are used, the more it costs to maintain them. Based on the evidence from the data available, this relationship is confirmed by the total £'s spent per hectare of green space. There is also limited evidence that this relationship is important for more intensively used parks infrastructure, such as formal play or sports facilities.

8.1.8 Analysis of the cost framework data for the six green spaces also suggests that:

- Parks with large open spaces and grass areas require less intensive maintenance than parks with a higher density of more formal uses; and
- Administrative costs are higher for parks that are managed in-house although, conversely, some maintenance unit costs appear to be lower.

8.2 Lessons learned and recommendations

8.2.1 During the successful analysis of the benchmarking dataset a number of lessons have been learned. The annual parks benchmarking project is ongoing and a number of immediate recommendations for the collection of further benchmarking data are summarised in this section.

8.2.2 Data collection can be expensive and resource-intensive and therefore the following recommendations are restricted to what is regarded as the key information required to draw meaningful comparisons between different green spaces. Local authorities are increasingly tasked with defining their own local priorities and performance indicators. This challenge presents an opportunity for London authorities to develop benchmarking indicators that enable meaningful comparisons with other authorities and are cost-efficient to collect. It is proposed that the most important indicators are incorporated into the Annual Benchmarking Comparison Project. There is also scope to increase the number of case study parks participating in the benchmarking research in order to generate a wider cross-sectional comparison. However, in the current funding climate this will not be possible without additional support.

8.2.3 What then should be the criteria for the selection of a wider selection? The potential selection will be narrowed down by the fact that the participating management authorities will need to have the resources to collect and pull together the necessary benchmarking data. To reduce the bias towards flagship parks, there would also be value in including green spaces without Green Flag Award status.

8.2.4 The findings of this report also provide some suggestions for a refined sampling method.

- There is a great deal of variety in the catchment areas of parks of different sizes. People's motivations for visiting these spaces vary, as well as the frequency of visit and how far they travel to get there. Therefore it is suggested that the sampling specifically target separately a number of large (regional and metropolitan), medium (district and local), and small green spaces. For example, 10-15 large parks and both a medium and small green space from each of the London boroughs would be a challenging but realistic target in the short term future.
- It has also been demonstrated that the usage of green space is correlated with the demographic profile of the surrounding areas. Therefore the sample size can be further refined by specifically targeting parks surrounded by residential areas with similar resident profiles (e.g. using data from the census).
- The analysis in this report focussed predominantly on place usage, i.e. people visiting the park as their main destination. However, as highlighted in section 8.3, the issues around active travel and linked networks of green space are becoming increasingly important and there is value in selecting parks with known variation in levels of link usage.

Future cost benchmarking

8.2.5 In order to make the case for sustained or improved funding levels in times of ever greater pressure on public sector budgets, green space managers need to focus on greater transparency and visibility of expenditure. Therefore the London Parks Benchmarking Research Project has produced a simple cost framework and recommends that expenditure on parks in London is recorded in this fashion on an annual basis. The framework (as shown in Table 8.2) includes ten categories of expenditure.

8.2.6 Furthermore the green spaces sector is under pressure to move to more proactive asset management. In light of a perceived over-reliance on periodic injections of capital funds coupled with otherwise reactive maintenance spending, there is a need to move towards

realistic whole-life costing of assets and their maintenance. Thus it is recommended that annual expenditure also be categorised in terms of revenue, budgeted or reactive capital maintenance, or one-off capital grants.

Table 8.2: Proposed cost framework

Annual expenditure		**Revenue**	**Capital maintenance (allocated budget)**	**Capital maintenance (unallocated budget / reactive)**	**One-off capital grant**
1. Cleaning	All waste and litter collection, recycling				
2. Security	Policing, gate locking				
3a. Grounds maintenance (general grass areas)	It is proposed that this category is split to differentiate between the maintenance of grass areas and others types of planting				
3b. Grounds maintenance (feature gardens, trees and planting)					
4. Access	Paths, roads, gates, fences, ramps, car or bicycle parking etc.				
5. Buildings	Any park buildings (except sports facilities)				
6. Sports facilities	Maintenance and operation of sports facilities (football pitches, tennis courts etc.) including pavilions and associated infrastructure				
7. Formal play facilities	Formal children's play facilities				
8. Administration costs	All administration costs including a proportion of central parks and green spaces administration				
9. Other / miscellaneous					
Income	Any sources of income				
General information		**Name of park, managing agency, contracted or in-house maintenance, total size (ha)**			

Defining and measuring usage

8.2.7 Despite the substantial amount of data collected by the LPBRP, generating meaningful definitions of usage is not a straight forward task. Essentially there are three elements that are required to define usage.

Total usage

8.2.8 Measuring total usage of parks and green spaces by counting the number of entries and exits remains a key indicator. This enables park managers to report in a quantified manner the total number of people who used the green space over a specific period and to monitor this over time. However, the total number of users measured by entry/exit counts is a relatively crude measure and poses a number of problems for benchmarking. For example, large parks such as Richmond Park can attract visitors who spend considerable time in the green space, whereas the average time spent in a small green space such as Newington Green is generally much less. Total time spent in a green space provides a much fairer indication of the total amount of usage. This requires an estimate of the total number of visits and their mean duration.

Intensity of usage

8.2.9 In order to provide a fair measure of usage by local residents, it is necessary to understand the local density of population and understand the demographic profile. In other words, measures of usage can be expressed as the annual number of visits per person (or preferably total time spent per person) within 400m, 800m, etc. walking distance. Intensity of usage is likely to vary by the profile of the local population and therefore important secondary measures can also be calculated by estimating the equivalent measures of usage for specific population groups (e.g. children, older persons, economically active or inactive groups).

8.2.10 When comparing to green space usage to costs, usage can also be expressed as visits per hectare or preferably time spent per hectare. This provides a fair indicator of the spatial concentration of usage.

Purpose of visit

8.2.11 Understanding the range of motivations for visiting green spaces and the activities that take place there are clearly important factors for benchmarking usage. However, one difficulty with the current structure of the Greenstat questionnaire is that respondents are only asked a wide-ranging multiple response question about why they visit the park in question. Hence it is very difficult to derive a clear profile of the overall breakdown of park usage. One key recommendation for future data collection is therefore to include a question asking respondents specifically about the *main* reason for their *last* visit to the park.

8.2.12 The usage categories employed are generally sensible but there may be scope to structure the questionnaire slightly differently:

- The analysis in this study separated people using the park to complete part of journey (link users) and people for whom the park is their destination (place users). Although there is potentially a grey zone between the two categories, this split constitutes a useful element in a framework for explaining people's motivations for visiting green space.
- There are numerous and sometimes conflicting motivations for visiting green space and there is increasing evidence for user segmentation from qualitative research. It is recommended that usage categories are reviewed in light of these segments:
  - There are a variety of motivations for passive use of green spaces (fresh air, peace and quiet, thinking time, gentle exercise, dog walking etc).

- Active users may be participating in formal team sports, engaging informally in sports with friends/family or getting exercise on their own.
- There are a variety of social motivations for visiting green spaces, for example when taking children to play, simply meeting with friends or going to a formal event.

8.2.13 Bearing in mind these recommendations, there are several possible methods to collect the data required for the main usage indicators. Table 8.3 shows how these methods can be combined to collect the main indicators identified.

Table 8.3: Usage indicators and data collection methods

Usage indicator	Household surveys	Entry / exit counts	User surveys	Observational surveys
Number of visits	Partial (derived from frequency)	Yes	-	-
Frequency of visits	Yes	Indirectly (total visits expressed as % of population in a defined catchment)	-	-
Duration of visits	Yes	-	Potentially	Potentially
Main reason for visit	Yes	-	Yes	Yes
User demographics	Yes	-	Yes	Gender and approx. age

Household surveys

8.2.14 Surveys with a sample of households are the most powerful method to accurately assess the level of usage of green spaces made by local people. They are more useful than user surveys carried out on site since these will over-sample regular users and do not capture the views of non-users at all.

- The choice of a study **catchment area** of 1.6km for the household surveys appears to be broadly suitable for the local, district and metropolitan green spaces, although it is probably too large for the smallest green spaces such as Newington Green and too small to capture the full user profile of a regionally significant green space such as Richmond Park. Therefore the catchment thresholds as proposed in the GLA hierarchy could be employed in future research.
- The Greenstat questionnaire **definitions of frequency and duration** have been proven to work relatively well. Yet the categories are broad and therefore at the analysis stage they have been treated simply as an ordinal scale, since attributing values to the categories can imply a false level of accuracy.
- The household surveys were administered by postal self-return survey, which is a cost-effective method but incurs a high self-selection bias. In subsequent years, it is recommended that a **delivery method** is sought that minimises this bias. This could include geographically targeted telephone or door-to-door surveys, or a weighted sampling framework seeking to generate a representative response from self-return surveys.

User counts

8.2.15 Given the difficulty is estimating total numbers of visits from household surveys, it is probable that user entry/exit counts will remain a central element of future monitoring. It is precisely the possibility of quantifying the total number of visitors to the park that explains

why automatic people counting technologies are popular. In the absence of such counts at all sites, the LPBRP study demonstrated how a sampling framework for manual counts can be developed to estimate annual user numbers that takes into account seasonal trends.

Observational surveys

8.2.16 Simply measuring activities through observational surveys has several advantages. This method is firstly very cost-effective when compared to user surveys. GIS technology can be used to record and display on maps where activities take place, automatically generating a record of the popularity of different areas or facilities for specific activities. Finally, it is possible to record potentially undesirable activities that are unlikely to be stated by participants in surveys. For the above reasons, these methods are well suited to informing the landscape design process and for before/after monitoring studies. Yet they could also play a role in creating benchmarking indictors.

Quality measures and the Green Flag Award

8.2.17 The study found that when the GFA scores allocated by professional judges are compared to the quality scores attributed by local residents, the degree of overlap is limited. There is a good degree of correlation when assessing the quality and maintenance of a selection of very tangible facilities (e.g. signage, seats and bins, facilities for cyclists). Furthermore, there is agreement on the quality of the maintenance of horticultural features, as well as in the perceptions of the conservation of natural features versus more formal parks provision. Conversely, the professional and public perceptions appear to diverge on general cleanliness, personal security and lighting, and the quality and maintenance of children's play facilities or sports facilities.

8.2.18 The Green Flag Award® programme was launched in 1996 to recognise the best managed green spaces in the country and over the years it has established itself as a standard rewarding best practice in green space management. Hence it was conceived as recognition of excellence amongst practitioners and not necessarily as a measure of public perceived quality in parks. More recently, however, there is greater emphasis on ensuring that the opinions of local people are captured. Yet this does not devalue the contribution of professional judgement and there is clearly a role for recognising best practice in green space management, sustainability and community involvement.

8.2.19 Therefore it is recommended that the key indicators of quality from a users' perspective focus on the basics:

1. Comfort and enjoyment;
2. Ease of access;
3. Perceived security;
4. Cleanliness; and
5. Information.

8.2.20 This assessment can be accompanied by a standard measure of satisfaction with the quality of parks infrastructure, based on professional audits or public perceptions. A robust measure of usage (e.g. an estimate of total annual time spent in the park) also remains an excellent indicator of perceived quality.

8.3 Recommendations for future research

8.3.1 The perceptions of quality and stated motivations for visiting green spaces in this study are all from adult respondents, including the perceptions of activities for children and teenagers. The definitions of play facilities, for example, are therefore based on adult perceptions of traditional playgrounds. Yet these playgrounds are not always seen as the most exciting places by play be children themselves, and a variety of organisations are lobbying for the provision of more varied and creative play experiences. In an age of concerns about the lack of outdoor play opportunities for children, it is therefore imperative that the views of children and young people are heard within the wider research on the value of green spaces.

8.3.2 The majority of research has tended to focus on the motivations of existing park users. Subsequently, less is known about the motivations of non-users. One priority for further research is the segmentation of non-users to understand their barriers to visiting green space and the alternative activities / experiences that they prefer.

8.3.3 There is evidence that even relatively modest increases in the use of active travel modes (walking and cycling) could generate significant health benefits to persons who currently undertake too little physical activity (and in some cases could generate financial savings to Transport for London through a reduction in transport capacity requirements). The results of the Active People Survey suggest that rates of walking and cycling are higher in local authorities with a high proportion of green space. Yet there is still little evidence about what attracts pedestrians and cyclists to use green routes, and how the provision of such routes can encourage more people to walk and cycle for everyday trips.

8.3.4 Furthermore the health benefits associated with green space provision are not only linked to the physical activity people undertake there. Instead the experience of being in green space contributes to users' wellbeing in a large number of ways (e.g. stress reduction, interaction with local people, access to nature and fresh air). Research conducted by the National Institute for Clinical Excellence (NICE) on the impact of the environment on health recognised that the local environment is hard to define, encompassing physical, social and personal elements that contribute to lifestyle choices. It is recommended therefore that future research into the impact of green space on health consider the wide range of physical, mental and social factors that contribute collectively to overall health and wellbeing.

Appendix A - Park usage maps

Key
Maximum summer frequency of visit

- Not used
- Seldom or never used
- Once per month
- Once every 2 weeks
- Once or twice a week
- Most days
- Every day
- No data

Parks included in study

Other green space

Finsbury Park

Key

2.4km isochrone

1.6km isochrone

800m isochrone

400m isochrone

West Ham Park

Central Park

Newington Green

Tooting Bec

Richmond Park

Drawing Title: Household survey analysis: Use of green space and distance to local parks	Client: London Parks and Green Space Forum Job Title: London Parks Benchmarking Research Project	10 Eastbourne Terrace 4Paddington London W2 6LG T 020 7053 1300 F 020 7053 1301 www.cbuchanan.co.uk	COLIN BUCHANAN	Scale: 1:60,000 Designed by: TP Drawn by: TP Ckd/Appd: MW 1st Issued: September 2009 Job No: 16973-01-1	Reproduced by permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationary Office © Crown copyright 2007. All rights reserved. Licence Number: 100017967 Drg No. Appendix A-1

Key
Use of park - taking children to play
Parks included in study
Other green space

Finsbury Park

Key
400m isochrone
800m isochrone
1.6km isochrone
2.4km isochrone

West Ham Park

Central Park

Newington Green

Tooting Bec

Richmond Park

Drawing Title

Exit survey analysis: 'Taking children to play' park users

Client

London Parks and Green Space Forum

Job Title

London Parks Benchmarking Research Project

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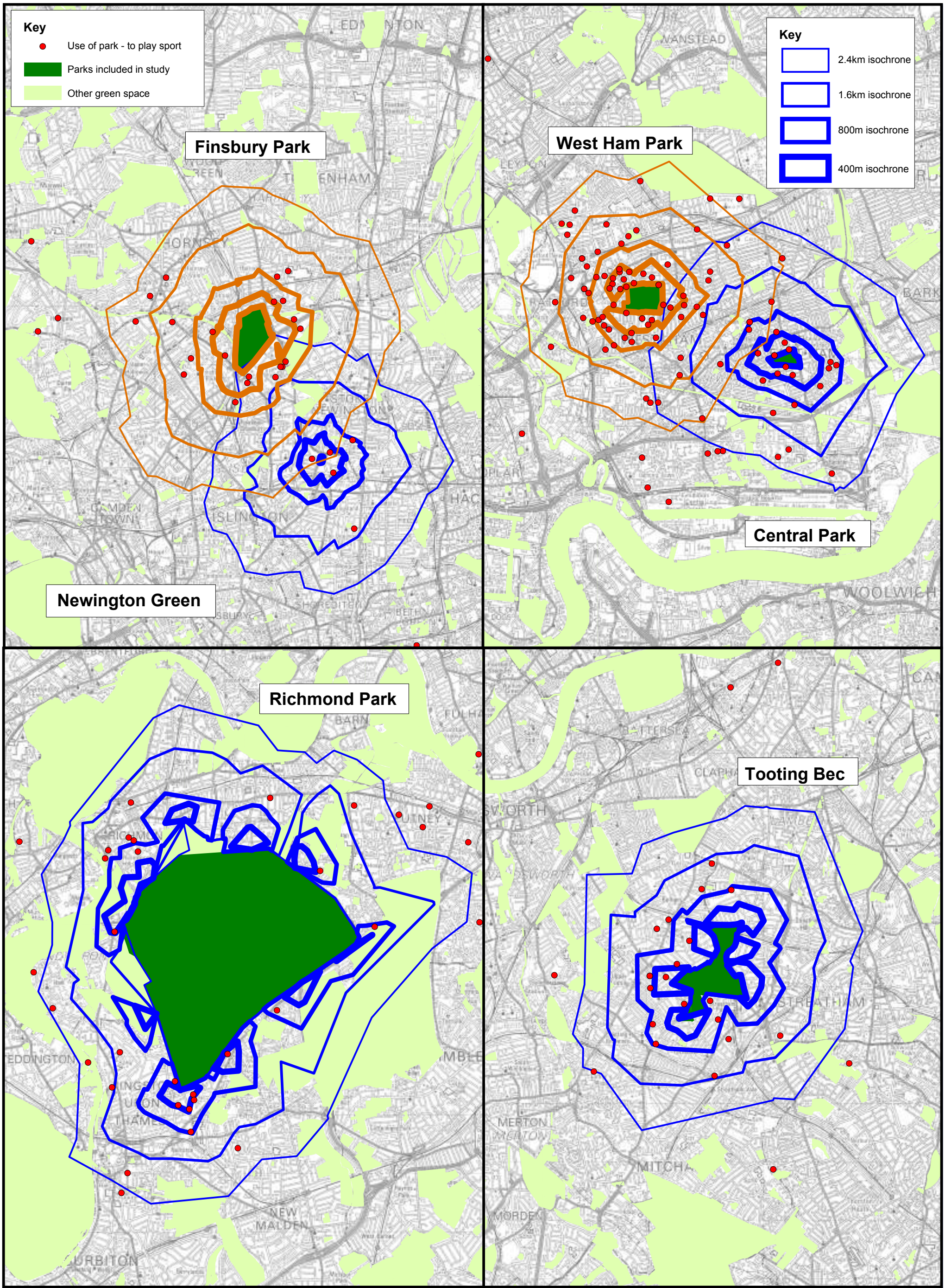
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Drg No.

Appendix A-2



Drawing Title

Exit survey analysis:
'Sport/exercise' park users

Client

London Parks and Green Space Forum

Job Title

London Parks Benchmarking Research Project

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Drg No.

Appendix A-3

Key
- Link users
- Place users
- Parks included in study
- Other green space

Finsbury Park

Newington Green

Key
- 2.4km isochrone
- 1.6km isochrone
- 800m isochrone
- 400m isochrone

West Ham Park

Central Park

Richmond Park

Tooting Bec

Drawing Title: Household survey analysis: 'Link' versus 'place' users	Client: London Parks and Green Space Forum Job Title: London Parks Benchmarking Research Project	10 Eastbourne Terrace 4Paddington London W2 6LG T 020 7053 1300 F 020 7053 1301 www.cbuchanan.co.uk	COLIN BUCHANAN	Scale: 1:60,000 Designed by: TP Drawn by: TP Ckd/Appd: MW 1st Issued: September 2009 Job No: 16973-01-1	Reproduced by permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationary Office © Crown copyright 2007. All rights reserved. Licence Number: 100017967 Drg No. Appendix A-4

Appendix B – Asset replacement cost estimates

Table A1 shows the elements of this value framework contained in the CABE report *Making the invisible visible: the real value of park assets.* A more detailed selection of asset sub-categories from the Forestry Commission working model for the estimation of capital works is also shown.

For some of the elements, SPONS rates for the supply of the asset types in the sub-categories are shown. However, these rates are only a partial cost estimate since they do not include the cost of installation or other project costs (design, management, procurement etc).

Table A1: Park asset replacement cost framework

CABE value framework		Proposed unit	Relevant Forestry Commission cost categories	SPONS categories (excl. installation)	SPONS 2008 price range
Entrances	Approaches	Number			
	Entrance gates	Number	Vehicle barriers		
			Vehicle gate (internal)(4.2m)	Timber field gates (1.27m high 3m - 4.71m wide)	£250-330 per unit
			-	Timber or metal field gates (1 – 1.77m wide)	£70-130 per unit
			Kissing/squeeze gate	Timber kissing gates (1.77m wide)	£268 per unit
			'Sustrans' access barrier		
			Stile	Stiles	£160-200 per unit
Perimeter and barriers	Fencing	Linear metre	Rabbit (mesh) fence	Rabbit netting	£35-95/m
			Stock fence	Stock fencing mesh	£53 for 50m roll (does not include installation)
			Deer (inc. install.)	Deer fencing	£105 for 50m roll (does not include installation)
			3no. wire fence (inc. posts and install.)	Timber/concrete/metal post & wire fencing	£8 -12/m
	Railings/handrails	Linear metre	Post-&-rail (inc. install.) (machine round)	Handrail	£150-204/m
			Post-&-cleft-rail (inc. install.)	Pedestrian guard rail	£37-175/m
Roads and surfaces[4]	Roads	m²	Black-top road	Dense bitumen macadam	£26-38/ m²
			Category-1A road (track) (3.5m)	Dense bitumen macadam	£26-38/m²
	Paths	m²/type	Bridleway/ all-ability path B2m)(inc	Dense bitumen macadam + resin bond gravel	£44-56/m²

[4] Costs are for replacement of material only and do not include removal and disposal of existing material. Includes tack coat

CABE value framework		Proposed unit	Relevant Forestry Commission cost categories	SPONS categories (excl. installation)	SPONS 2008 price range
			culverts)		
			Formal path (1.5m) (inc culverts etc)	Hot rolled asphalt	£18-21/ m²
			Footways/paved areas	Precast concrete slabs, paved area 63mm thick comprising of:	£18/m²
				600 x 600x 63mm units	
	Car parks	m²	Car parks	Bitumen macadam	£20-30/ m²
Drainage		Number / type	Culverts (100mm)	Precast concrete rectangular culverts	£425-1878 per unit
			Culverts (300mm)	size range: 1000X500mm X 2.0m long to 4000X2500mm X 1.0m long	
			Culverts (500mm)		
			Inspection chambers	Different components of inspection chamber available	£215 per unit
Miscellaneous	Lighting				
	Signage				
	Recycling facilities				
	Drinks fountains				
	Seating	Number/type	Bench - free standing	Benches - hardwood and precast concrete	£218-£297 per unit
			Bench - with backrest (inc. installation)	Southampton seat	£418 per unit
				Kara Park seat	£485 per unit
				Avenue cast iron seat	£573 per unit
				Avenue metal seat	£679 per unit
	Litter bins	Number/type	General waste (inc. install.)	Litter bins	£88-656
	Dog bins	number/type	Dog waste (inc. install.)	Litter bins	£88-656

CABE value framework		Proposed unit	Relevant Forestry Commission cost categories	SPONS categories (excl. installation)	SPONS 2008 price range
Planting	Top soil	m²	Site / ground preparation	Ground preparation - excavating trench for hedge up to 450 x 300mm, setting out of trench	£7/m
				Ground preparation and cultivation, supply and apply granular cultivation treatments by hand 150grammes/m2	£167/100m²
				Supply and apply additives into 150mm topsoil by machine 1m3/40m2	£113/100m²
	Mown grass area	m²	Planting / seeding	Grass seeding by conventional sowing at rate of 0.05kg/m2	£0.75/m²
				Wild flora mixture BSH ref WF1 combined with low maintenance conservation grass BSH ref A4 at rate of 80g/m2	£92/100m²
	Hedges	Linear metre	Planting / seeding	Plant hedging: single row planting at different centres	£4-£6/m
				Plant hedging: double row planting at different centres	£8-23/m
	Trees	Number	Planting - Trees / Shrubs	Break up subsoil to a depth of 200mm in tree pit	£2 per unit
				Supply and plant standard tree in prepared pit, backfill with excavated topsoil minimum 600mm deep	£39 per unit
				Organic mulching of medium bark mulch to a depth of 50mm	£2/m²

CABE value framework		Proposed unit	Relevant Forestry Commission cost categories	SPONS categories (excl. installation)	SPONS 2008 price range
				Organic mulching of timber mulch to a depth of 75mm	£4/m²

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