

Technical Report Q25



Public Attitude Survey 2011

Prepared for: Metropolitan Police
Service

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Prepared for: Metropolitan Police Service

Prepared by: BMG Research

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www.bmgresearch.co.uk

Project:

Registered in England No. 2841970

Registered office:

7 Holt Court North
Heneage Street West
Aston Science Park
Birmingham
B7 4AX
UK

Tel: +44 (0) 121 3336006

UK VAT Registration No. 580 6606 32

Birmingham Chamber of Commerce Member No. B4626

Market Research Society Company Partner

ESOMAR Member (The World Association of Research Professionals)

British Quality Foundation Member

Market Research Quality Standards Association (British Standards Institute) BS7911 for Market Research - Certificate No. FS76713

Investors in People Standard - Certificate No. WMQC 0614

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Table of Contents

1	Introduction	2
1.1	Context and Introduction	2
2	Sample design	3
2.1	Sample requirements	3
2.2	Address selection.....	3
2.3	Dwelling unit/household selection	4
2.4	Respondent selection	4
2.5	Minimising non-response and ensuring diversity	4
2.5.1	Languages.....	4
3	Fieldwork Administration	6
3.1	Method and Quality Control	6
3.1.1	Tele-checking	6
3.1.2	CAPI output reporting	6
3.1.3	Data frequency checks	6
4	Weights.....	8
5	Response rates.....	11
6	Using the survey results.....	13
7	Dwelling unit selection: Kish Grid	15

Table of Tables

Table 1: Weighting by borough	8
Table 2: Weighting by sample size.....	10
Table 3: Response rates by borough	11
Table 4: Margins of error.....	14

1 Introduction

1.1 Context and Introduction

The MPS has commissioned a Public Attitude Survey (PAS) annually since 1983 with the objective of eliciting Londoners' perceptions of policing needs, priorities and experiences across the Metropolitan Police District (MPD).

Conducted on a continuous basis, through a programme of face-to face interviews at the homes of respondents, the Public Attitude Survey obtains responses from a random probability sample of residents in each of the 32 boroughs or Basic Operational Command Units (BOCUs) across London policed by the Metropolitan Police Service (MPS).

BMG were commissioned to undertake the Public Attitude Survey from April 2011. At this stage, the number of interviews to be conducted per borough per month was reduced from 160 to 33-34. Therefore, from April 2011 approximately 1,067 interviews per month are carried out, equating to approximately 100 interviews per Borough per quarter, and 400 interviews per Borough annually.

This technical report provides a full account of the design and conduct of the survey, and of the steps taken to weight and prepare the survey data for analysis.

2 Sample design

2.1 Sample requirements

The MPD consists of 32 BOCUs covering the 32 London Boroughs. The sample is required to be representative of London residents and large enough to allow analysis at a Borough level (annually).

As such, BMG Research was commissioned to undertake 33-34 interviews in each borough per month using random probability sampling techniques. The sample was designed such that the data could be analysed:

- Quarterly on a Met-wide basis
- Quarterly on a rolling annual borough basis
- Annually on a Met-wide or individual borough basis

This is the first time that the sample has been designed to allow for monthly reporting, and as such the fieldwork is undertaken and monitored on a monthly basis.

2.2 Address selection

The sample frame used for the study is the Royal Mail's Postcode Address File (PAF), for which BMG receives monthly updates. The PAF for London is stratified by borough, and then using a random start point in the file a '1 in n' selection is made for the number of (additional) addresses required in any period.

Each month and for each borough, approximately three times the number of addresses to required interviews are in circulation. At the start of fieldwork in April 2011, approximately 4 – 5 times the number of addresses to the number of interviews required were issued. This was to enable the achievement of 33 – 34 interviews in each borough during that month. Those addresses which were still valid at the end of April were carried forward in to May's fieldwork, and this process is repeated in future months. New addresses are issued for each month, such that there are always 3 – 4 times the number of addresses to interviews required in circulation, in each Borough and in each month.

Selected addresses are taken off the contact lists once: an interview has been achieved; they have been knocked 3 times with no reply; they have refused; they are derelict, unoccupied, or an invalid address (e.g. a business address).

Interviews can only be achieved from the addresses issued; interviewers cannot replace any addresses e.g. by going next door, or across the road.

Interviewers revisit non-responding households at least three times on different days and times before these are recorded as a non-response.

Where the sample is not exhausted in that month, addresses are carried over to the following month.

These procedures ensure that all reasonable steps are taken to maximise response rates from valid addresses.

2.3 Dwelling unit/household selection

On their initial visits to the selected addresses, interviewers are required to establish cases where a single address describes more than one dwelling unit (addresses where there is more than one dwelling, or more than one household in each dwelling). In such cases, interviewers will typically use a Kish grid as a means to identify randomly the particular dwelling to be targeted for a visit.

The Kish grid may be found in section 7 of this report.

2.4 Respondent selection

On making contact with an occupant at each of the selected household addresses, interviewers establish if the household contains more than one person aged 15 years or over. In each such case, they select one person to be targeted for an interview. This is typically achieved by identifying the person whose next birthday is closest to the date of the interviewer's visit.

2.5 Minimising non-response and ensuring diversity

The sampling process itself should ensure that all people in London have a broadly equal chance of being asked to take part in the survey. Further steps are taken to ensure that no group is marginalised from participation by the way in which the survey is delivered.

BMG worked with the client to ensure that the introduction to the survey and accompanying documentation are compelling, giving the respondents good reasons for wanting to take part, and ensuring that they see it to their benefit to do so.

A pilot exercise was undertaken to check all processes, and to establish any difficulties at any point in the delivery of the survey.

Another factor which can minimise the problem of non-response is the approach of the interviewer, and we ensure a competent and professional team of interviewers are deployed (see Fieldwork Administration, below).

We inform the local police that we are working in the area, giving added reassurance to respondents. All interviewers are provided with BMG coats, alarms, I.D. badges and bags. As part of our on-going quality control checks we monitor the appropriate use of interviewer ID.

BMG has a long established help-line facility that residents can call and clarify any queries they have concerning the survey or the questionnaire.

2.5.1 Languages

On contacting a respondent who does not speak English, the interviewer first determines if there is someone else in the household who speaks English and is able to interpret. Interpretation may not always be appropriate, and the interviewers would tread carefully to ensure that no one feels uncomfortable at any point.

The next step is to find out in which language the respondent wishes to be interviewed. Our interviewing team are ethnically, culturally and linguistically diverse. Where the

interviewer language (or one of the pair of interviewers working in that COA) matches the respondent language, language support is provided there and then.

Questions were added into the survey on commissioning to capture and track language support provided. In month 1 of 2011/12, 26 of the 1066 interviews were conducted in another language or with some form of language support, 14 by the interviewer and 12 by other persons in the household (equating to just over 2% of the total sample). No translation costs were incurred. Significantly more respondents undertook the survey in English as a second language: in month 1 of 2011/12, 270, or 25%, of respondents named a language other than English as their first language.

3 Fieldwork Administration

3.1 Method and Quality Control

The survey is undertaken using computer assisted personal interviewing (CAPI), in line with the method used since 2008 and as standardly used by BMG in face to face interviewing. The CAPI script contains in-built quality/logic checks.

3.1.1 Tele-checking

After the completion of each week's fieldwork, an electronic tele-check file is produced from the CAPI downloads. These downloads contain the name and telephone number of the respondent and their answers to a number of selected questions to allow the verification of the respondent and to check the integrity of the interview. In addition to a series of standard questions, such as length of interview, use of identification and showcards, a number of household-specific questions relating to the project are checked. These could be related to number of occupants in the household or ages of children.

20% of all work completed by any one interviewer on each project is validated. Once validated, a summary file is sent to the Field Manager for review. Note: a directory enquiry search will typically be made for surveys where no telephone number has been given.

Every week two interviewers are randomly selected by the Field Manager and a 100% tele-check takes place on their work.

3.1.2 CAPI output reporting

Each week a series of reports are provided from all CAPI machines. These reports take the format of the following:

CAPI timed report: This shows the date and time of the start and finish of each interview completed during that week's work assignment. This is reviewed by the Field Manager to clarify that interviewing timing windows have been adhered to, and the required time spent on location is delivered.

CAPI interview length and section time report: This report shows the overall length of each interview as well as a summary of the section times from each batch of completed work. All CAPI surveys are set up with section times included, and specifically around long or complicated parts of the survey. These outputs are reviewed by the Field Manager for any notable exceptions. If exceptions are identified further tele-check work will be undertaken.

Section timings show average times for a series of questions in each discreet part of the survey. These must be checked for all interviewers and any anomalies identified.

3.1.3 Data frequency checks

Mid-way through each fieldwork period a set of frequencies are produced showing the responses recorded by each individual interviewer and overall. It is the role of the Field Manager to check these reports and look for any anomalies such as high 'don't know'

responses or low recording of key data, such as household income. If anomalies are encountered, corrective action is undertaken.

4 Weights

As the number of interviews undertaken across the thirty-two boroughs is approximately equal over a selected time period, London-wide data require the application of a weight to account for the known population differentials between boroughs. In practice, this will mean that those boroughs with larger populations would be underrepresented in the unweighted sample, so require a larger weighting factor to boost their representation in the final data.

Weights are applied separately to the following cuts of data, and each require unique weighting variables within the SPSS dataframe:

- a) The quarter as a single unit;
- b) The financial year to date as a single unit. For the first quarter in a financial year (April-June), this is the same weight as a) above;
- c) The most recent twelve-month's data.

To calculate a) and b) above, the [target] proportional distribution by borough of the age 15+ population across London (PP_w – population proportion) is divided by the proportional distribution of the unweighted sample by borough (PS_u - sample proportion). The distribution of the London population is derived from census.

$$\text{Weight} = \frac{PP_w}{PS_u}$$

Table 1: Weighting by borough

	Census population		Quarter 25 sample		Weight
	N	% (PP_w)	N	% (PS_u)	(PP_w/PS_u)
Barking and Dagenham	127,818	2.20%	100	3.13%	0.703560000
Barnet	254,522	4.39%	100	3.13%	1.403922000
Bexley	175,283	3.02%	99	3.10%	0.975551515
Brent	214,603	3.70%	102	3.19%	1.160058824
Bromley	240,082	4.14%	101	3.16%	1.310863366
Camden	166,756	2.88%	99	3.10%	0.930327273
Croydon	262,343	4.52%	99	3.10%	1.463327273
Ealing	244,943	4.22%	99	3.10%	1.363187879
Enfield	219,162	3.78%	100	3.13%	1.208844000
Greenwich	170,495	2.94%	99	3.10%	0.949709091
Hackney	157,822	2.72%	101	3.16%	0.861243564
Hammersmith and Fulham	139,386	2.40%	99	3.10%	0.775272727
Haringey	174,463	3.01%	99	3.10%	0.972321212

continued	Census population		Quarter 25 sample		Weight
	N	% (PP_w)	N	% (PS_u)	(PP_w/PS_u)
Harrow	168,025	2.90%	100	3.13%	0.927420000
Havering	182,610	3.15%	102	3.19%	0.987617647
Hillingdon	194,478	3.35%	99	3.10%	1.082151515
Hounslow	171,275	2.95%	100	3.13%	0.943410000
Islington	145,220	2.50%	99	3.10%	0.807575758
Kensington and Chelsea	135,234	2.33%	99	3.10%	0.752660606
Kingston upon Thames	121,015	2.09%	99	3.10%	0.675133333
Lambeth	217,847	3.76%	102	3.19%	1.178870588
Lewisham	199,328	3.44%	101	3.16%	1.089219802
Merton	153,330	2.64%	100	3.13%	0.844272000
Newham	184,092	3.17%	100	3.13%	1.013766000
Redbridge	190,698	3.29%	100	3.13%	1.052142000
Richmond upon Thames	141,537	2.44%	100	3.13%	0.780312000
Southwark	197,853	3.41%	100	3.13%	1.090518000
Sutton	144,285	2.49%	99	3.10%	0.804345455
Tower Hamlets	153,868	2.65%	100	3.13%	0.847470000
Waltham Forest	174,184	3.00%	101	3.16%	0.949900990
Wandsworth	219,698	3.79%	101	3.16%	1.200041584
Westminster	157,924	2.72%	99	3.10%	0.878642424

The calculation for rolling twelve-month data is complicated by the reduction in sample size from quarter 25 onwards from 5,120 interviews per quarter to 3,200. Were the calculation above to be used, then for rolling twelve-month periods from quarters 22-25, 23-26, and 24-27, interviews undertaken prior to quarter 25 would be over-represented. Therefore, an extra level of weighting is required to equalise the impact of each quarter's data within the overall twelve-month total.

Marginal iterative weighting is used to adjust for differentials in both quarterly sample sizes and borough population sizes across London. First a weight is applied to the unweighted sample to equalise sample sizes by quarter. Where PI_w equals the target weighted proportion of interviews, and PI_u the unweighted number of interviews:

$$\text{Weight} = \frac{PI_w}{PI_u}$$

Table 2: Weighting by sample size

	Weighted number of interviews		Unweighted number of interviews		Weight
	N	% (PI _w)	N	% (PI _u)	(PI _w /PI _u)
Quarter 22	4639.5	25.00%	5120	27.59%	0.906152346
Quarter 23	4639.5	25.00%	5120	27.59%	0.906152346
Quarter 24	4639.5	25.00%	5120	27.59%	0.906152346
Quarter 25	4639.5	25.00%	3198	17.23%	1.450750477

This produces an intermediate weighting variable W_a . Borough frequencies using this intermediate weight then supplant the unweighted data in table 1 above (under quarter 25). The formula

$$\text{Weight} = \frac{P_{Pw}}{P_{Su}}$$

is then applied to this intermediate weighted data to produce a further intermediate weight W_b . As a result of this, the proportional breakdown of sample sizes by quarter becomes skewed, so the adjustment to equalise sample sizes by quarter is now applied to data weighted by W_b , to produce intermediate weight W_c . These iterations continue, and with each iteration, the differences between intermediate weighted data and the final desired target narrows. The number of iterations required will vary between samples, often dependant on how different the breakdowns of unweighted sample data and the desired target breakdowns are. Note that from quarter 28, rolling twelve-month data (initially based on quarters 25-28) will be calculated from equal samples of c3,200, so marginal iterative weighting will no longer be necessary, and the data would simply need to be weighted to adjust for population differentials by borough.

5 Response rates

The following analysis is based on all addresses with a known and final outcome at the end of June 2011. These outcomes include:

- Interview complete
- Three calls to the address and no interview completed
- Respondent refused to take part, or was incapable of taking part due to other limiting factors (such as physical or mental illness)
- Address is invalid (business premises, empty or derelict property)

Addresses which have been called at fewer than 3 times, or at which a potential respondent has requested a further call, will be carried forward into the July fieldwork period.

Table 3: Response rates by borough

District_Name	Interview complete		No Interview after 3 calls		Refusal or other non-participation code		Invalid address	Total Valid
Barking and Dagenham	100	46.1%	92	42%	17	11.5%	0	217
Barnet	100	40.0%	96	38%	33	21.6%	14	250
Bexley	99	38.4%	121	47%	23	14.7%	7	258
Brent	102	39.2%	113	43%	27	17.3%	11	260
Bromley	101	34.4%	117	40%	46	25.9%	4	294
Camden	99	34.3%	124	43%	39	22.8%	11	289
Croydon	99	41.6%	105	44%	23	14.3%	3	238
Ealing	99	41.9%	96	41%	28	17.4%	8	236
Enfield	100	30.5%	131	40%	62	29.6%	2	328
Greenwich	99	35.6%	134	48%	25	16.2%	2	278
Hackney	101	37.7%	124	46%	26	16.0%	37	268
Hammersmith and Fulham	99	43.8%	89	39%	23	16.8%	7	226
Haringey	99	36.5%	129	48%	29	15.9%	16	271
Harrow	100	41.7%	97	40%	31	17.9%	5	240
Havering	102	32.5%	140	45%	42	22.9%	3	314
Hillingdon	99	44.2%	82	37%	23	19.2%	18	224
Hounslow	100	47.8%	78	37%	18	14.8%	1	209
Islington	99	34.4%	125	43%	37	22.2%	5	288
Kensington and Chelsea	99	24.1%	210	51%	62	24.8%	15	411
Kingston upon Thames	99	37.5%	115	44%	32	18.9%	5	264
Lambeth	102	33.0%	130	42%	49	24.9%	5	309
Lewisham	101	29.0%	139	40%	66	31.0%	4	348
Merton	100	30.1%	131	39%	60	30.4%	12	332
Newham	100	39.1%	106	41%	32	19.5%	7	256
Redbridge	100	36.9%	119	44%	32	19.2%	12	271
Richmond upon Thames	100	38.8%	97	38%	41	23.6%	4	258
Southwark	100	51.8%	68	35%	15	13.0%	13	193

Public Attitude Survey 2011

District_Name	Interview complete		No Interview after 3 calls		Refusal or other non-participation code		Invalid address	Total Valid
Sutton	99	33.2%	104	35%	61	31.9%	12	298
Tower Hamlets	100	44.2%	92	41%	21	15.0%	0	226
Waltham Forest	101	40.7%	101	41%	30	18.5%	17	248
Wandsworth	101	37.1%	131	48%	27	14.7%	6	272
Westminster	99	32.7%	163	54%	26	13.5%	8	303
Total	3198	36.9%	3699	43%	1106	20.5%		8677

6 Using the survey results

Although the survey was designed to provide a highly robust analysis of the characteristics, experiences and attitudes of residents, some caution should be exercised when using the results of any analysis. These concern both the statistical reliability of results based on small sub-samples and the validity of comparing results with the findings of other surveys

All of the survey percentages obtained from analysis of the survey data will be subject to sampling error. The degree of error in each case will depend on the actual percentage reported and on the size of the unweighted sample (denoted by "n") on which that percentage is based.

For example, a survey finding of 50% across the annual sample as a whole (n = 12,800) will be accurate within $\pm 0.9\%$ (the sampling error), with the true percentage, calculated at the 95% confidence level, falling somewhere between 49.1% and 50.9%.

The same finding for, for example, the Camden sample (n = 400) will be accurate within $\pm 4.9\%$. It follows that the range of sampling errors will be higher for findings that are based on even smaller sample sizes.

The key reason for drawing larger samples is when several distinctive segments exist within the population, and it is necessary to be confident that responses for each segment are representative. As a general rule, the more a population is stratified, the larger the overall sample will need to be in order to ensure that the data generated is representative of each segment as well as the population as a whole.

The level of standard error in any sample is not only dependent on the sample size achieved, but also upon the nature of the response to each question. The following table demonstrates the standard error associated with different sample sizes and different survey responses.

As an aid to determining the accuracy of particular findings, the table below provides further examples of sampling errors on a variety of survey percentages and sample sizes.

Table 4: Margins of error

MARGINS OF ERROR FOR DIFFERENT SAMPLE SIZES			
TOTAL NUMBER OF RESPONSES	MARGIN OF ERROR		
	10% OR 90% RESPONDENTS GIVING A PARTICULAR ANSWER	30% OR 70% OF RESPONDENTS GIVING A PARTICULAR ANSWER	50% OF RESPONDENTS GIVING A PARTICULAR ANSWER
	+/-	+/-	+/-
100 (per BOCU per quarter)	5.9	9.0	9.8
400 (annually, per BOCU)	2.9	4.5	4.9
1066 (monthly total)	1.9	2.7	3.0
3,200 (quarterly total)	1.1	1.6	1.7
12,800 (annual total)	0.5	0.8	0.9

7 Dwelling unit selection: Kish Grid

Kish Grid

		LAST DIGIT OF SURVEY REFERENCE NUMBER									
Please		0	1	2	3	4	5	6	7	8	9
<i>Ring</i>											
SECOND LAST DIGIT OF SURVEY REFERENCE NUMBER	0	4	3	6	0	7	5	1	1	2	9
	1	8	7	2	3	4	6	9	5	0	6
	2	1	3	3	9	0	4	2	1	6	2
	3	5	4	0	1	7	3	5	5	9	6
	4	3	0	2	8	4	1	9	7	6	3
	5	7	7	4	5	2	0	3	1	8	9
	6	2	6	6	1	5	7	8	0	9	4
	7	9	8	3	2	4	8	6	5	8	1
	8	7	9	1	0	5	6	7	1	4	4
	9	6	4	9	2	2	5	3	8	8	5

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With some 20 years' experience, BMG Research has established a strong reputation for delivering high quality research and consultancy.

Our business is about understanding people; because they matter. Finding out what they really need; from the type of information they use to the type of services they require. In short, finding out about the kind of world people want to live in tomorrow.

BMG serves both the social public sector and the commercial private sector, providing market and customer insight which is vital in the development of plans, the support of campaigns and the evaluation of performance.

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