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NEA Exemplar 2: An investigation into actual and perceived crime in Guildford Candidate write up

A Level Geography

Pearson Edexcel Level 3 Advanced GCE in Geography (9GE0)

ALWAYS LEARNING

PEARSON

Contents

Chapter 1: Aims of the Investigation-

Crime has a high profile in modern society. Crime statistics are regularly featured by the media, and political pledges made to fight crime, and indeed the causes of crime, are widespread in election manifestos. Crime, and perhaps more importantly the fear of crime, conditions peoples' behaviour with gratuitous newspaper reporting and television programmes such as Crimewatch making people worry about answering their own front door or walking the streets at night.

Indeed, overleaf are two articles from the Surrey Advertiser, (Friday February 16th, 2001). The first, discussing the frequent occurrence of knifepoint robberies, is highlighted in yellow and was on the front page, and the second, listing a series of petty crimes, was on page three. They provide a simple example from a local newspaper of the heavy emphasis put on crime by the media.

It is however often observed that fear of crime is out of all proportion to the actual dangers of becoming a victim. Peoples' perception of crime is out of touch with reality. Children, for example, are regularly driven a quarter of a mile to school rather than being allowed to walk because of fear of abduction, despite statistics showing that there is no more of a danger of abduction than fifty years ago.

Accuracy of perception depends on three critical factors. First, the quality of information received by the individual, (their information field), varies – if the individual receives exaggerated media crime stories, for example, perception may be distorted. Second, there is variation in individual sensory perception, and third, peoples' internal organisation of information varies with their level of education and personal experiences, (their perception filter). Those robbed at knifepoint, for example, may have a distorted perception of crime in a particular locality. It is no surprise, therefore, that the perception or fear of crime varies between individuals.

This investigation sets out to examine and to attempt explanations for the differences between actual crime and perceived crime by testing the following hypotheses:

1) **That there will be a significant difference in actual and perceived patterns of crime distribution across a town.**

2) **That the accuracy of an individual's perception of crime will decrease with distance from that individual's place of residence.**

GUILDFORD TOWN

Surrey Advertiser

Established 1864 No: 15502 Friday, February 16, 2001 50p

Articles from the Surrey Advertiser highlighting the high profile of crime in the media

Town hit by more knife raids

by Jon Weston

KNIFEPOINT robberies continue to plague shops in Guildford.

There were three violent robberies or attempted robberies at the weekend by assailants carrying knives.

Police have launched an initiative to reassure shopkeepers, and arrests for robbery have been made this week.

The first violent incident at the weekend was an attempted robbery at Hibberds chemist in Worplesdon Road, Guildford, at 5pm on Saturday.

A man walked into the shop, produced a knife and demanded money from the shopkeeper.

The shopkeeper refused and when another staff member appeared, the assailant left with nothing.

A man brandished a knife and stole cash from the Demon service station in Ladymead, Guildford, at 7.45pm on Sunday.

He waited for customers to leave before launching his raid.

Michael Hadfield, 28, from Guildford, has been arrested in relation to an armed robbery at 6.45pm on Sunday at Unwins wine merchants in Epsom Road, Guildford, on Sunday, and to a raid on Bisley Post Office on Thursday, January 18.

Matthew Poole, 25, from the Guildford area, has been arrested and charged in relation to three robberies in Staines, Woking and Guildford.

Det Insp John Boshier said: "We still ask for any members of the public, and particularly shopkeepers, when they see anything suspicious to get in contact with us," he said, adding that it was vital to call immediately.

"Guildford is still a safe place to live, work and visit," he added.

Anyone with information on any of the raids or who saw anything suspicious should ring Guildford CID on 01483 531111 or Crimestoppers on 0800 555111.

❑ A LONE woman was indecently assaulted close to the footbridge off Walnut Tree Close on Wednesday, February 7, between 11.30pm and 11.45pm.

The woman was walking along the footbridge when a man approached her from behind and then indecently assaulted her.

She then screamed and the man ran off. He is white, aged 30 to 40, 5ft 9in tall, with short fair hair and was wearing a grey waste length jacket.

❑ **Thieves stole nine Rosette guinea pigs from a hatch outside a house in Kings Road, Shalford, between 10am and noon on Thursday, February 8. Two were adults, five were six weeks old and two were just one week old.**

❑ Somebody ran a black marker pen down the side of a Toyota Avensis car parked in the Bedford Road car park on Wednesday, February 7, between 7am and 7.53pm.

❑ **A Daewoo Nubia had its front near-side window smashed and substantial damage caused to its Sony radio when a thief attempted to steal it from the fifth floor of the Farnham Road car park, on Wednesday, February 7, between 8.50am and 5.30pm.**

❑ Police are appealing for witnesses to an argument between a man and a woman that took place outside the Apollo video shop in Madrid Road, Guildford, on Wednesday, February 7 at 3.50pm.

❑ **A CD player was stolen from a silver Vauxhall Corsa parked on the third floor of the Farnham Road car park on Wednesday, February 7, between 8am and 6.50pm.**

❑ Both doors and the exhaust system were stolen from a tractor parked in Seale Lane, Seale, between February 3 and 6.

❑ **Riding tack was stolen from a stable off the Hog's Back road at Seale, overnight on Tuesday, February 6.**

A bridle, a saddle and other tack were stolen and substantial damage was caused to the stable door.

❑ An esoteric men's racing bicycle was stolen from Swan Lane, Guildford, at around 4pm on Monday, February 5. It had non-standard Manitov Exvert forks and it had GOZFX3 and Freeride on the frame.

❑ **Thieves stole an Austin Metro from Shere Lane, Shere, overnight on Monday, February 5, with the registration C240HGP.**

Here are the telephone numbers of local police stations. Please ask to be put through to the appropriate station:

☎ Guildford area: 01483 531111.

☎ Waverley area: 01252 716262

☎ Woking and Byfleet: 01483 761991.

☎ For deaf Minicom users: 01483 39999.

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Chapter 2: The Study Area-

It was decided to test the hypotheses concerning actual and perceived crime in Guildford, the largest town in Surrey, with a population of over sixty thousand. It is a major central place in Surrey, as well as serving as a dormitory town for London, with a direct route in on road via the A3, or via a 40-minute rail connection. Broadly speaking, it has an image of law-abiding citizens occupying leafy suburban avenues, but in reality there is a mix of socio-economic status with some extensive local authority housing estates, areas of light industry, a busy shopping centre as well as a lively nightlife.

Guildford was selected for several reasons. First, although not a major crime black spot, there is a significant amount of crime committed across the town, and it seemed likely that the hypotheses would work as well here as anywhere else. The town is also almost naturally divided into a number of discreet zones of homogeneous character, making it easier to identify neighbourhoods in the minds of the individuals questioned during the investigation.

Second, it was relatively easy to obtain actual crime data for the area (which could potentially have proved difficult), thanks to the efforts of Sascha Wathan, an information analyst at the Surrey Police Headquarters in Guildford.

Third, Guildford provided enough variation and is large enough to test the hypotheses, but not so large as to make the investigation unwieldy. Also, I live just outside the town, making the logistics of collecting the questionnaires more simple, as well as giving the investigation more personal appeal as I am able to relate to the areas being investigated. Finally, although unlikely to have any impact on the perceived pattern of crime in the area, it is interesting to note that Guildford has been the site of some major crimes in the recent past. Most notably, the bombing by the 'Guildford Four' in the early 1970's, and the murder of a woman outside 'Cinderella's' Nightclub a few years ago.

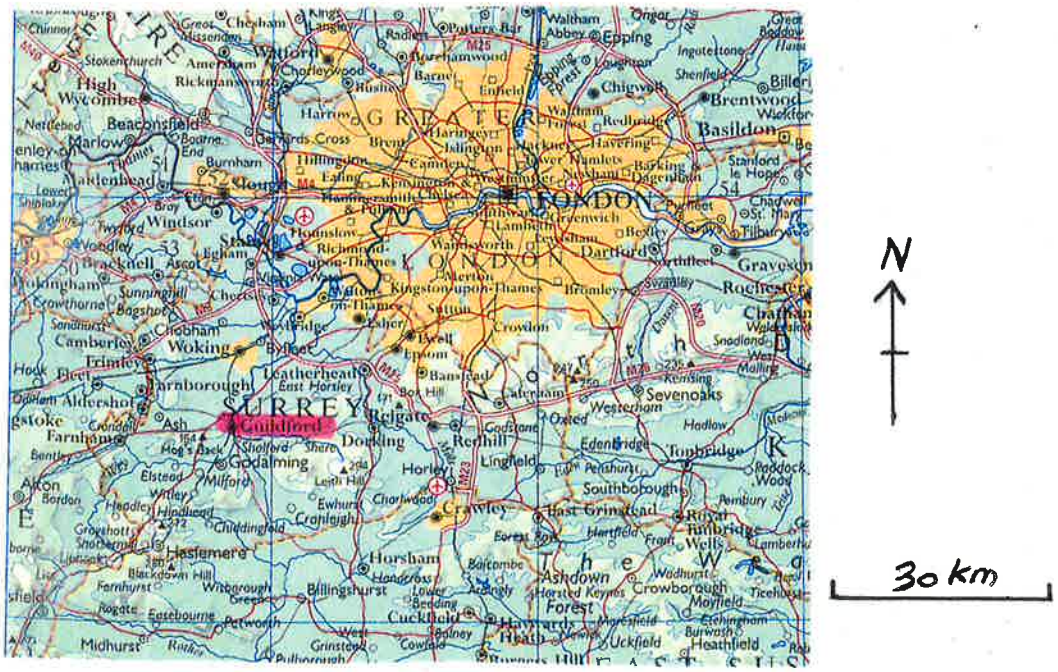


Photo showing the entrance to 'cinderella's' Nightclub -

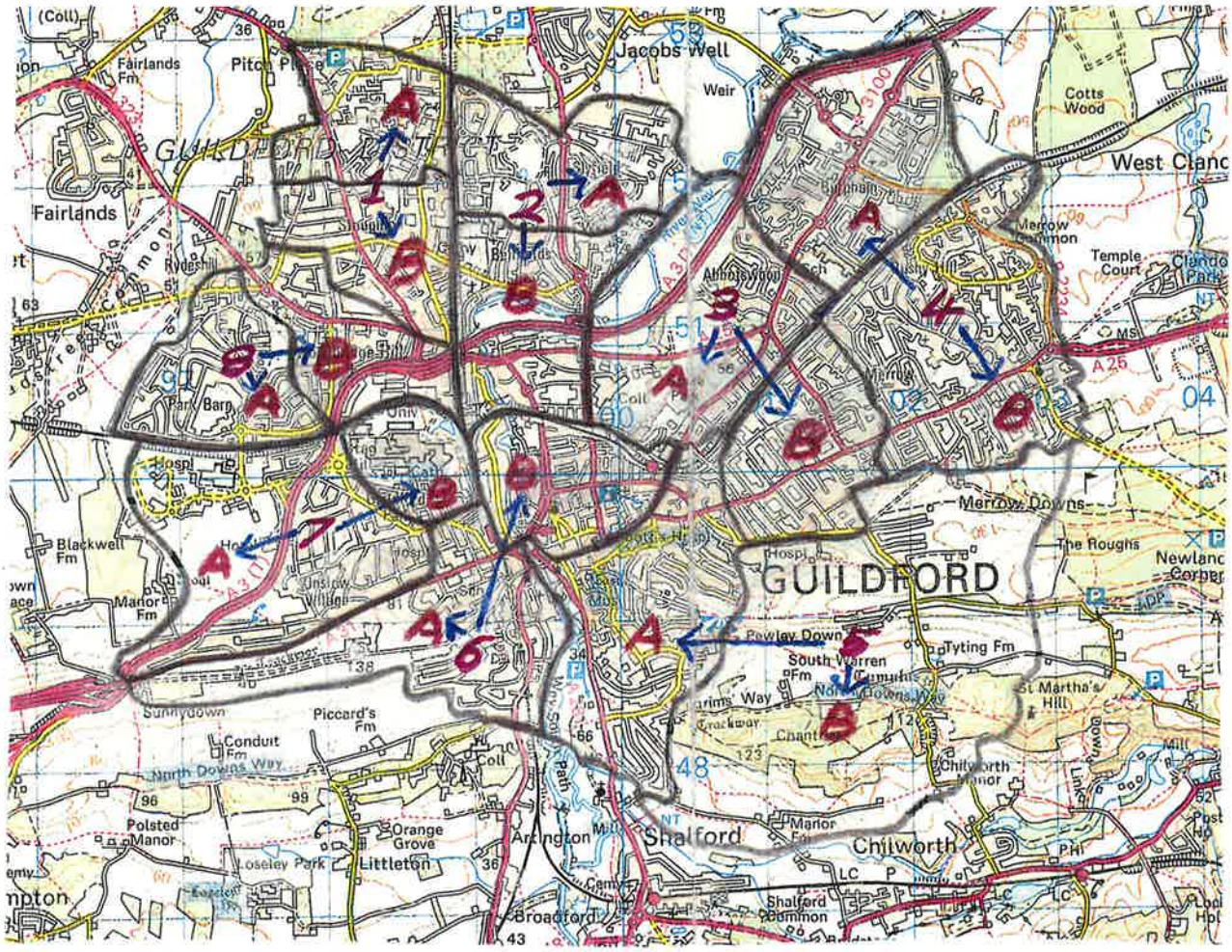
Photo showing the site of the 'Guildford Four' bombing in the early 1970s, now a Furniture Store, in North Street -

Chapter 3: Data Collection-

In order to test the hypotheses, it was necessary to measure both actual and perceived crime among a number of residents across a number of different zones in the town. The accuracy of perception, and distances of individuals from a range of different parts of the town also need to be measured.

a) Division of the Town into Zones:

The first step in measuring actual and perceived crime across the town was to divide it into discrete areas or zones for which crime figures could be calculated.



Map showing the area of Guildford under investigation. Broken down into the 16 Zones.

As can be seen on the map, the town was divided into sixteen zones which, as far as possible, were of homogeneous character, and were divided between, rather than along roads. This is because roads rarely divide communities but instead cement neighbourhoods together, and it therefore seemed unrealistic to use them as zone boundaries. Conversely, a railway line is a more logical boundary between neighbourhoods. Thus, as can be seen on the map, several zone boundaries have been drawn along the railway lines that run through the town; for example, between 8A and 7A in the west, 4A and 4B in the east, and 1A and 2A in the north.

The sixteen zones have been labelled 1A, 1B, 2A, 2B, following the pattern through to 8A and 8B. This is because the crime figures I obtained from Surrey Police were broken down into eight zones, (1A&1B), (2A&2B) through to (8A&8B). However, to be able to analyse the correlation between the pattern of actual and perceived crime more accurately, more zones are preferable. Hence, I have divided each of the eight zones into two, an A zone and a B zone, along appropriate boundaries.

Zone 1: Stoughton-

A) Zone of relatively modern housing on the periphery, with countryside to the north.

B) Contains predominantly low socio-economic higher density housing.

Zone 2: Stoke-

A) Low-status terraced and semi-detached housing as well as some light industry.

B) Similar pattern of medium-density housing. Also contains an edge of town retail park, a plethora of car showrooms (Jaguar, Porsche, Audi, Land-Rover and Ford), and some peripheral shops.

Zone 3: Christchurch-

A) Some modern housing in the north-east extreme, but characterised by the presence of Stoke Park, Guildford Lido, the Guildford Spectrum (a sports centre), the Guildford College of Science and Technology, and is intersected by the A3.

B) A residential zone comprised predominantly of older, low-status, terraced and semi-detached housing.

Zone 4: Merrow & Burpham-

A) Zone of more modern, but relatively low-status housing. Also contains a large Sainsburys supermarket.

B) Again, predominantly a residential zone of more modern housing.

Zone 5: Holy Trinity-

A) An area of high-status housing on the border of the town centre. Also contains Mount Alvernia Hospital (Private), Guildford Castle and Museum, and some shops.

B) A rural area outside the main built-up area of the town, with much lower population densities.

Zone 6: Friary & St. Nicholas-

A) Zone of gentrified terraced housing, beyond the main shopping area, extending into more rural land in the east.

B) Broadly speaking, this is the Central Business District. It contains a bus station and a train station, as well as the two principal shopping streets, North Street and the High Street. Just west of the River Wey is a ten-screen cinema and several pubs creating a lively nightlife.

Zone 7: Onslow-

A) Higher-status low density housing area in Onslow Village, and the area north of the A3 is characterised by the Royal Surrey Hospital, a large Tesco supermarket and a collection of playing fields.

B) This is a small zone on a raised hill that is dominated visually by Guildford Cathedral and also houses the University of Surrey Campus.

Zone 8: Westborough-

A) Similar to 1A, this is a peripheral residential zone of predominantly semi-detached middle-status housing.

B) This is also a zone of mainly semi-detached housing, with some shops. South of the A3 is Guildford Business Park.

b) Measurement of Actual Crime:

The crime figures provided to me by Mrs. Wathan were for all 21 wards in the Guildford region, of which I was only investigating eight, as explained above. The data were not given as raw figures, but in processed form. The data were standardised per 1000 crimes in the total Guildford region, so that for each ward, the figure given represented the number of crimes of the 1000 that took place in that ward. For example, Friary and St. Nicholas has the highest total crime index of 239, meaning that for every 1000 crimes that took place in the 21 wards comprising the Guildford region, an average of 239 occurred in that ward.

The total crime indexes for the eight wards are listed below:

Most Crime:	Friary and St. Nicholas	(Zone 6)	239
	Holy Trinity	(Zone5)	218
	Stoke	(Zone 2)	117
	Onslow	(Zone 7)	107
	Christchurch	(Zone 3)	70
	Westborough	(Zone 8)	67
	Stoughton	(Zone 1)	56
Least Crime:	Merrow and Burpham	(Zone 4)	31

The final task was to split the figures so as to give an actual crime value for the A and B zone within each of these eight zones. Clearly this is not an ideal arrangement, but was the only way of getting actual crime figures for sixteen rather than eight zones. The actual crime figures for the sixteen zones were as follows, listed from the zone of most crime to the zone of least crime:

1) Zone 5A	175	**7)** Zone 7B	47	**13)** Zone 8A	29
2) Zone 7B	139	**8)** Zone 5B	43	**14)** Zone 1A	21
3) Zone 6A	100	**9)** Zone 3B	40	**15)** Zone 4A	18
4) Zone 2A	67	**10)** Zone 8B	38	**16)** Zone 4B	13
5) Zone 7A	60	**11)** Zone 1B	35		
6) Zone 2B	50	**12)** Zone 3A	30		

c) Measurement of Perceived Crime:

Perceived crime was measured using a questionnaire survey of 50 respondents spread across the urban area of Guildford. Respondents were asked to rank the sixteen zones of Guildford on a map from 1 (most crime) to 16 (least crime). This was then converted into a perceived crime rate index for each zone by taking the ranks which each respondent had given that zone, and adding them together to get a total. Thus the maximum possible index for a zone was 800 (16x50), if all of the respondents were to choose the same zone for having the lowest crime. Similarly, the lowest possible index for a zone was 50 (1x50), if all of the respondents were to choose the same zone for having the highest crime.

The results of the 50 questionaires can be found at the front of appendix A. The perceived crime rate indexes for each zone are shown below, listed from the zone perceived as having the highest crime to the zone perceived as having the lowest crime:

1) Zone 6B 195	**7)** Zone 3B 338	**13)** Zone 7B 562
2) Zone 5A 234	**8)** Zone 8B 382	**14)** Zone 1A 631
3) Zone 7A 306	**9)** Zone 1B 417	**15)** Zone 4B 638
4) Zone 6A 310	**10)** Zone 3A 474	**16)** Zone 4A 642
5) Zone 2A 313	**11)** Zone 5B 495	
6) Zone 2B 329	**12)** Zone 8A 539	

(A blank copy of the questionnaire with its accompanying map is shown overleaf).

In addition, the opportunity was taken to establish the residential location of the respondent, as well as other variables such as period of residence in the town, occupation and familiarity with the town, which may have influenced the peoples' perception.

Advanced Level Geography Personal Investigation:

An Investigation into Actual and Perceived Patterns of Crime Distribution-

1) Using the attached map of Guildford, please list all the 16 zones (1A, 1B, 2A, 2B, ……7A, 7B, 8A, 8B) below, starting with the zone you believe has the most crime and running through to the zone you believe has the least crime:

1…….. 9……..
2…….. 10……..
3…….. 11……..
4…….. 12……..
5…….. 13……..
6…….. 14……..
7…….. 15……..
8…….. 16……..

2) In which street/road do you live?

……

3) In which zone is it?

……

4) For how many years have you lived in Guildford?

……

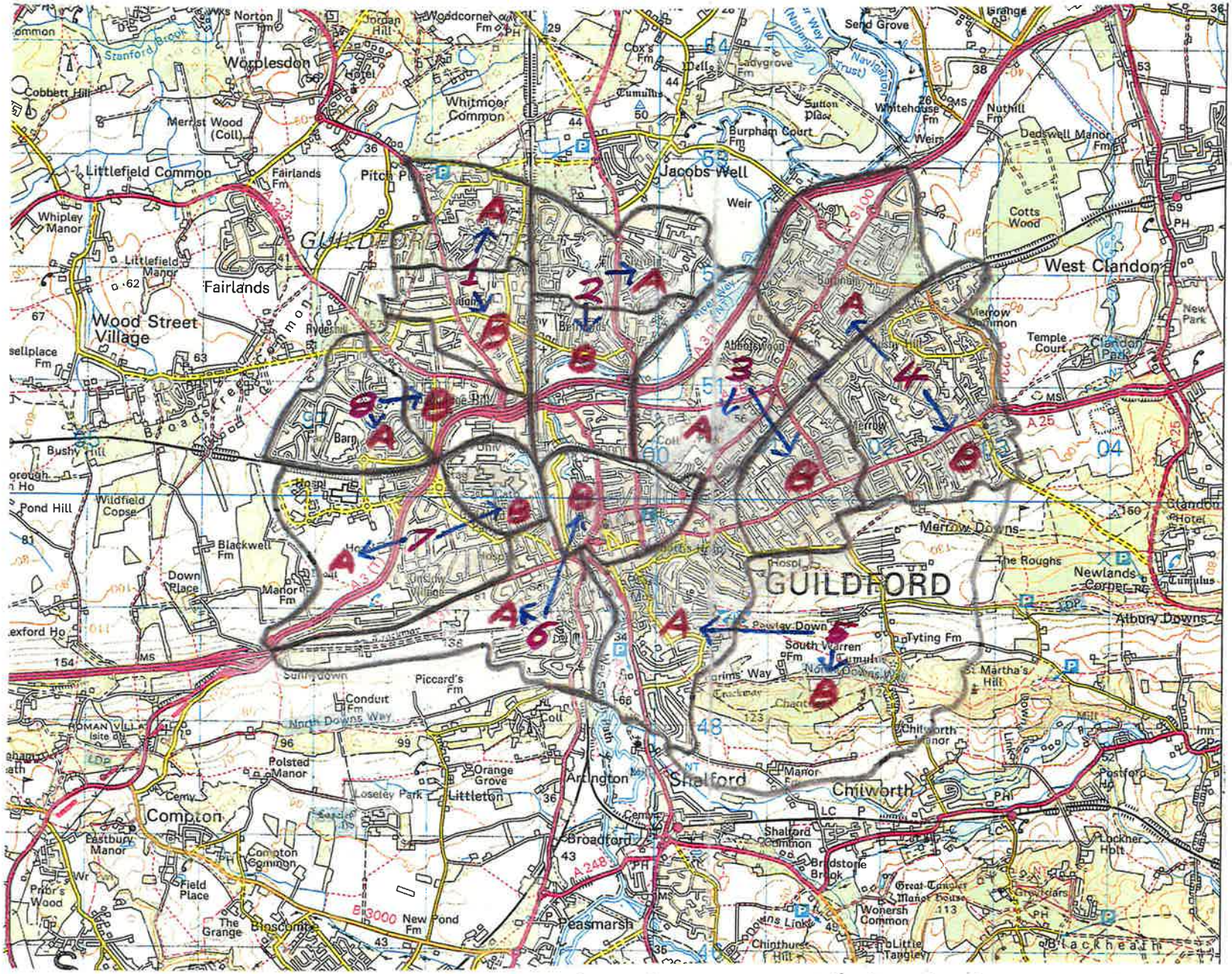
5) What is your occupation?

……

6) With which zones in Guildford are you particularly familiar?

……

Thank you for taking part in this questionnaire



Map of Guildford, as shown to each of the 50 Respondents, displaying the 16 zones.

d) Measurement of Individual Accuracy of Perception:

For each individual, the difference in rank between the actual (ranked) crime index and their perceived (ranked) crime rate index for each zone was calculated. With 50 questionnaire respondents and sixteen zones, this produced 800 separate values. Each figure measured the accuracy of an individual's perception of the crime level in a given zone. A high figure would indicate an inaccurate perception of the level of crime, with the reverse true for a low figure. Such calculations are included in appendix A, but an example serves to clarify the data:

Table of calculations for respondent Number One:

Zone	Actual Crime Index	Perceived Crime Rate Index	Difference Between Perceived and Actual Rank
1A	14	12	2
1B	11	10	1
2A	4	8	4
2B	6	4	2
3A	12	7	5
3B	9	2	7
4A	15	15	0
4B	16	16	0
5A	1	6	5
5B	8	13	5
6A	3	11	8
6B	2	1	1
7A	5	9	4
7B	7	5	2
8A	13	3	10
8B	10	14	4
			Total: 60

The table reveals that respondent number one's perception of crime in zones 4A and 4B matches the actual crime figures, but that they are wide of the mark for zone 8A, where the difference in rank amounts to 10.

Differences in rank were than added together to produce an overall accuracy score for each individual; the overall accuracy scores for all 50 respondents are shown below:

1 60	**11)** 40	**21)** 46	**31)** 30	**41)** 48
2) 86	**12)** 86	**22)** 40	**32)** 32	**42)** 48
3) 66	**13)** 42	**23)** 48	**33)** 31	**43)** 40
4) 70	**14)** 52	**24)** 36	**34)** 47	**44)** 44
5) 84	**15)** 44	**25)** 51	**35)** 90	**45)** 50
6) 52	**16)** 48	**26)** 36	**36)** 52	**46)** 20
7) 34	**17)** 86	**27)** 48	**37)** 34	**47)** 40
8) 40	**18)** 52	**28)** 46	**38)** 44	**48)** 58
9) 47	**19)** 56	**29)** 104	**39)** 48	**49)** 54
10) 90	**20)** 68	**30)** 58	**40)** 78	**50)** 34

e) Measurement of Distances of Respondents from each Zone:

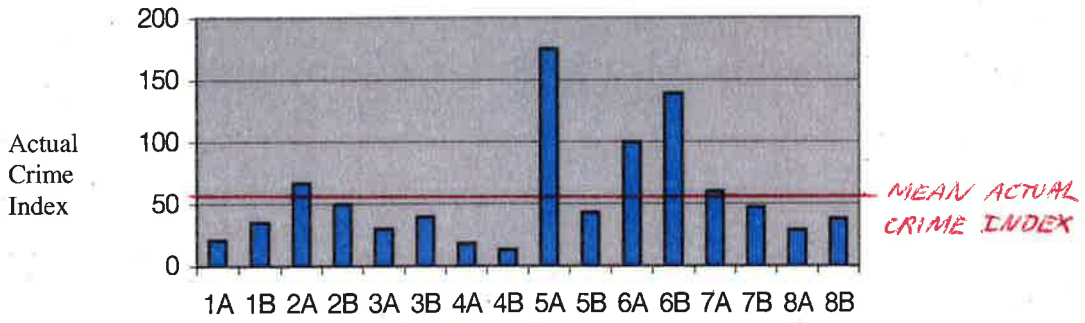
Using the street or road name given by a respondent on their questionnaire, their residence could be located on the map, (using a second road map of Guildford). This would then be used to calculate how far away that respondent lives from each zone, by measuring the distance between their residence and the 'centre spot' of each of the 16 zones, including the one in which they themselves live. This would give a total of 800 values, (16 zones x 50 respondents), which are represented as a frequency histogram in Chapter four, and are also shown individually on a dispersion graph in Chapter five

Chapter 4: Results-

The questionnaire data and various calculations are listed in table form in the appendices, and have also been highlighted in the previous chapter. The chief variables are now summarised below using bar graphs and histograms:

a) Actual Crime Index:

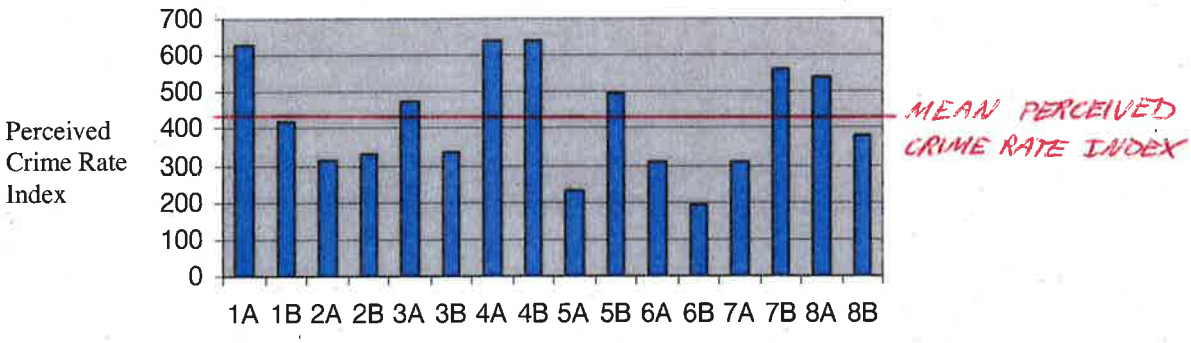
Bar Graph Showing the Actual Crime Index for each Zone in Guildford



The figures show a range of values around the mean crime index of 57. The maximum value is 175 in zone 5A, and zones 6B and 6A also have high values, at 139 and 100 respectively. Zones 2A and 7A, with values of 67 and 60, are the only other zones with values above the mean figure. The remaining 11 zones have crime index values ranging from 50 in zone 2B through to 13 in zone 4B.

b) Perceived Crime Rate Index:

Bar Graph Showing the Perceived Crime Rate Index for each Zone in Guildford



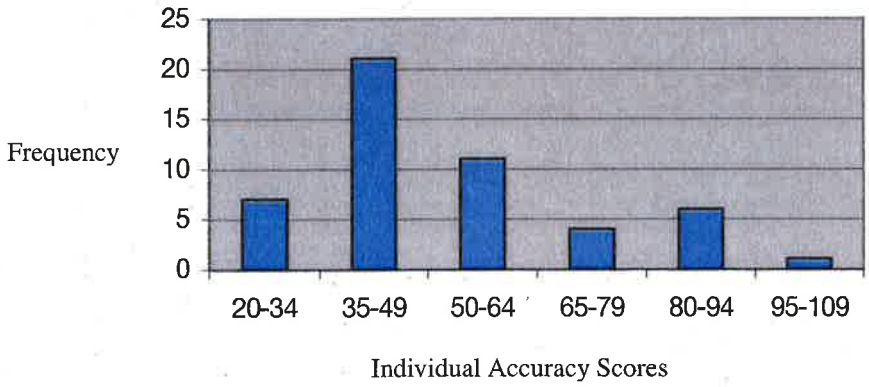
The graph shows a range of values around the mean of 425. The graph is perhaps slightly misleading in that the zones with the highest values are those perceived as the zones with the lowest levels of crime. This is because in the questionnaire, rank number 1 was assigned to the zone perceived as having the highest crime, and rank number 16 was assigned to the zone perceived as having the lowest crime.

The zone perceived as having the highest crime is zone 6B, with a value of 195, followed by zone 5A with a value of 234. Six zones have a value from 300 to

400, and five zones have a value from 400 to 600. The zone perceived as having the lowest crime is zone 4A, with a value of 642, followed by zones 4B and 1A, with values of 638 and 631 respectively.

c) Individual Accuracy of Perception:

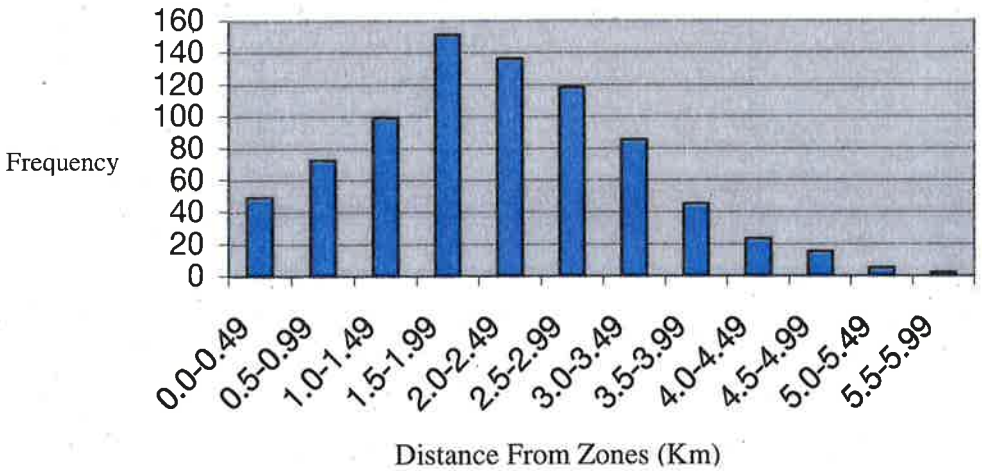
Frequency Histogram Showing Individual Scores for Accuracy of Perception



Noting that a high score indicates inaccurate perception, the histogram shows a range of values, with the distribution positively skew towards accurate perception. The modal frequency class is a score of 35-49, with 21 out of the fifty respondents. Also, 39 of the fifty respondents had an individual accuracy score of 64 or below. Only one respondent was in the 95-109 score bracket, with a score of 104, whilst the most accurate respondent achieved a score of 20.

d) Distance of Individual from the Zones:

Frequency Histogram Showing Distance of Each Questionnaire Respondent from each of the Zones



The modal frequency is 2.0 – 2.49 kilometres, indicating that there were 151 instances, (out of the total data set of 800), of respondents living between 2.0 and 2.49 kilometres from any given zone. The histogram shows that progressively fewer people live at greater distances from zones within the town, and only seven people live more than 5 kilometres from a zone.

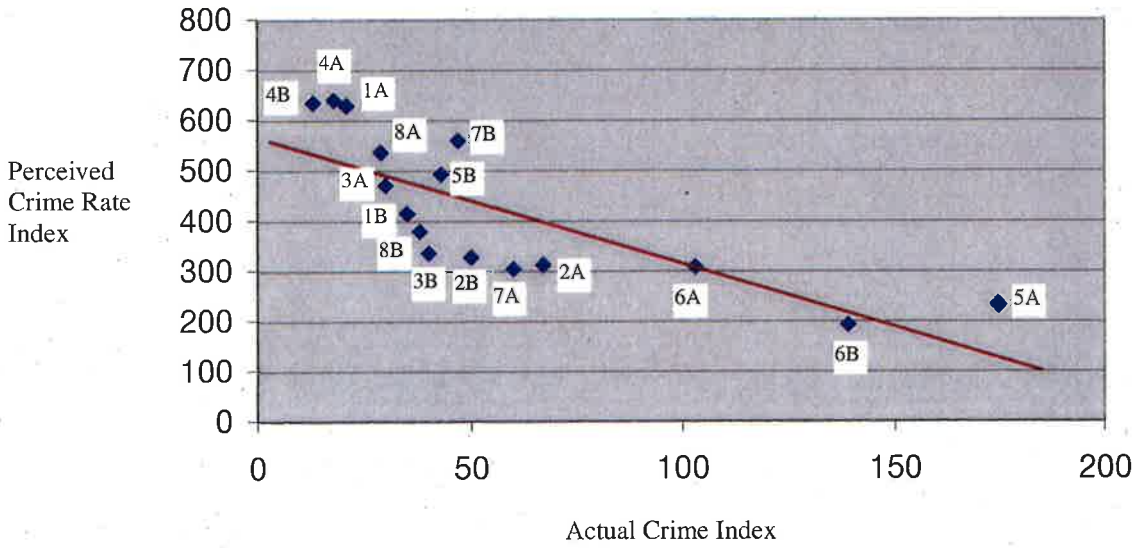
Chapter 5: Analysis of Results-

a) Interpretation of Results:

i) *Hypothesis One: That there will be a significant difference in the actual and perceived pattern of crime distribution across a town.*

In order to test the validity of the hypothesis, a scatter graph was plotted:

Scatter Graph Showing the Actual Crime Index and the Perceived Crime Rate Index for each of the 16 Zones in Guildford



The results do not seem to confirm this hypothesis, and it appears that there is a fairly strong correlation between the actual crime index and the perceived crime rate index. There appears to be a negative correlation between the two variables, but again one must note that a high perceived crime rate index indicates that a low level of crime is perceived, (due to the way the questionnaire was set up, as already explained). Thus, the graph shows a positive correlation between the perceived level of crime and the actual level of crime within the different zones. The linear regression line drawn represents a line of best fit, and reveals the trend of the relationship.

Zone 3A, for example has a low level of perceived crime, (the perceived crime rate index is 474) and a low level of actual crime, (the actual crime index is 30). Conversely, Zone 6B has a high level of perceived crime, (the perceived crime rate index is 195) and a high level of actual crime, (the actual crime index is 139).

There are however a number of anomalies in the spread of results which are some way from this linear regression line, the best example being provided by zones 3B and 7B. Zone 3B has an unexpectedly high perceived level of crime relative to its actual level of crime, whilst zone 7B has an unexpectedly low perceived level of crime relative to its actual level of crime. Zone 3B has an actual crime index of 40, but a relatively high level of perceived crime considering, shown by a low perceived crime rate index of 338. Conversely, zone 7B has an actual crime rate index of 47, (hardly any higher than that for zone 3B), but has a

much lower perceived level of crime, shown by a much higher perceived crime rate index of 562.

Zones 5A and 6B provide a similar example. They both have a fairly similar perceived crime rate index, 195 for zone 6B and 234 for zone 5A. However, even though zone 5A has the higher index, indicating a lower perceived level of crime, its actual crime index is much higher than zone 6B, at 175 instead of 139.

To see whether or not this relationship is statistically significant, a Spearman's Rank Correlation Coefficient hypothesis test was carried out for the paired sample data, (see Appendix C). The result of 0.8985 shows a strong positive correlation; a one-tailed test at the 2.5% level, given n=16, gives a critical value of 0.5029. This means that we can reject H_0 and accept H_1, to conclude that there is a positive rank-correlation association, and that the result is statistically significant. In non-mathematical terms, this means that it is likely that the relationship is a genuine one and cannot be attributed to chance or sample error, (2.5% chance of a type I error).

ii) Hypothesis Two: The accuracy of an individual's perception of crime will decrease with distance from that individual's place of residence.

In order to test the validity of this hypothesis, a dispersion graph was plotted for distance classes of individuals from each zone against the difference in rank between the ranked actual crime index and the respondent's ranked perceived crime rate index for each zone. This produced a dispersion graph with 800 points, (16 zones x 50 respondents), and provided us with a representation of both the range in accuracy of perception for different distances, and the median values of accuracy of perception for each distance class.

The dispersion graph is shown overleaf

The dispersion graph shows very clearly that the results do not confirm this hypothesis, and that distance appears to have no influence on the accuracy of perception for a zone of the town. The median values plotted on the dispersion graph are all either two or three, (excluding the final distance class of 5.5-5.99 km, with a median value of 4.5, which only contained two out of the 800 data points). This illustrates that the median difference in rank between the ranked actual crime index and the respondents' perceived crime rates seemed to remain constant, irrespective of distance from a zone. The scatter of points about these median values does not add anything to this pattern either- scores as high as 14, indicating a poor perception of crime, were obtained for zones up to 3.0 to 3.49 km from the respondents' places of residence, but the highest score of 15, (indicating the least accurate perception of crime) was for a zone only 1.0 to 1.49 km from the respondent's place of residence.

Therefore, it would appear that the perception of crime among the residents of Guildford has very little to do with the distance that those residents live from various parts of the town.

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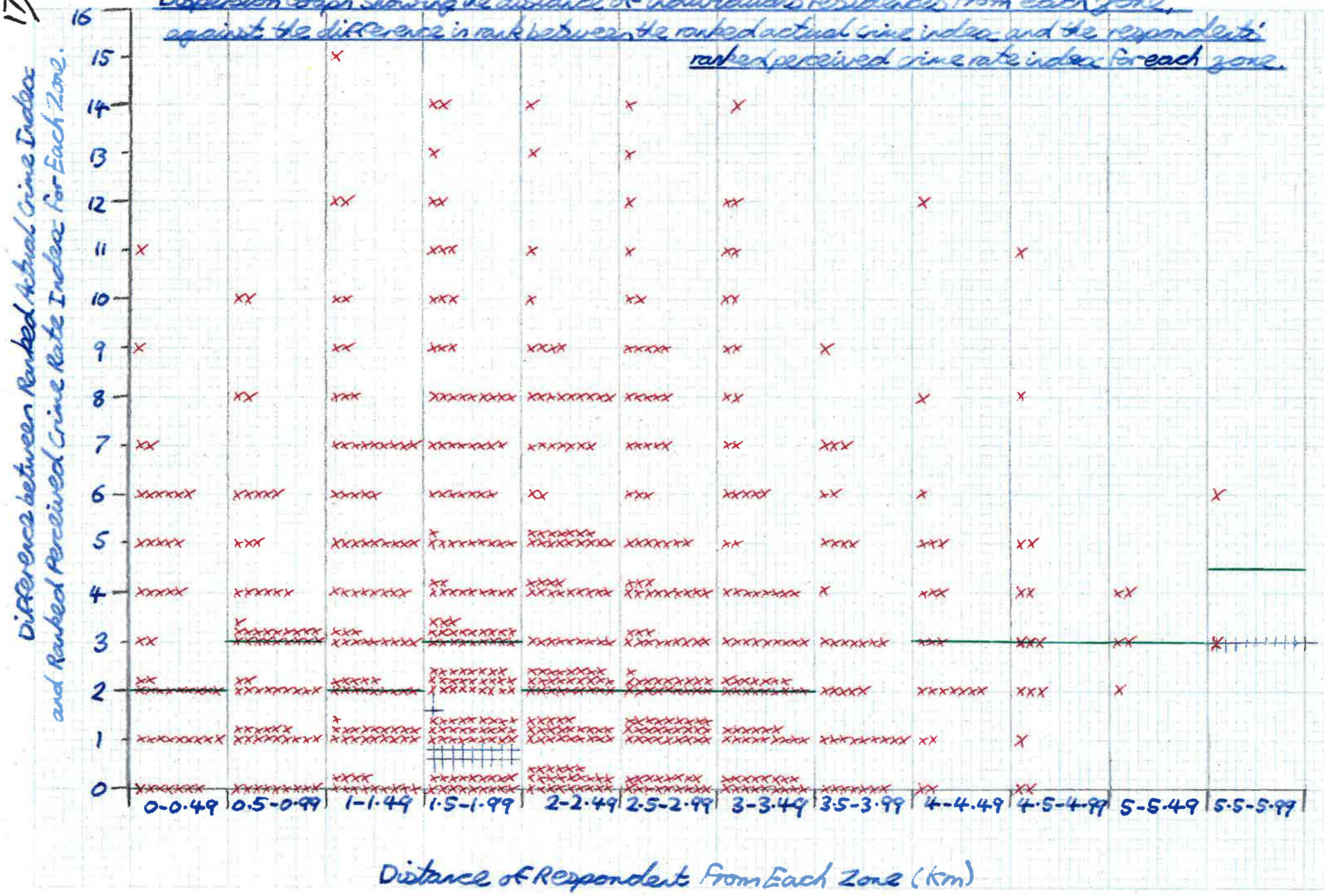
Dispersion Graph showing the distance of individuals' residences from each zone, against the difference in rank between the ranked actual crime index and the respondents' ranked perceived crime rate index for each zone.



b) Explanation of Results:

The results show that, contrary to expectations, there is little significant difference between the actual and perceived crime distributions across Guildford, and that distance of an individual from an area of town has little influence on the accuracy or otherwise of an individuals' perception. The results serve to contradict both the hypotheses outlined in Chapter one.

The accuracy of the respondents' perception was really very marked, with very few zones within the town being either wrongly perceived as hotbeds of criminal activity when they were actually very peaceful or, conversely, as peaceful, untroubled suburbs when they were actually crime black spots. One is forced to the conclusion either that the residents of Guildford have unusually free access to local crime figures and study them carefully, or more probably, that their perception of crime in their home town is sufficiently well developed. This means that the respondents are well informed to estimate the spatial distribution of crime with some accuracy.

Assuming that the latter, more convincing argument is true, a number of reasons can be put forward to explain this high level of accuracy. First, the town is not that significant in size, with the area under investigation only just over 7 kilometres from the south-west to north-east edge at it's longest, and covering some 27 square kilometres. Combine this with the fact that the inhabitants of Guildford enjoy a high level of personal mobility, and one can conclude that most people living in the town know it fairly well. Certainly, this familiarity was reflected during the process of data collection, when it would seem that few respondents had trouble picking out zones such as the central business district (6B), or the quiet area around Merrow (4B) and Burpham (4A) from the map, and visualising these areas to themselves.

Second, most of the zones have fairly well defined boundaries, and easily identifiable characteristics that also make them easy to visualise. The practice of dividing the zones along boundaries that did not coincide with main roads helped here- it being quite easy to visualise a road within a zone in the minds of the respondents, and thus assign a perceived level of crime to it. As already explained, railway lines are seen as a far more obvious divider of neighbourhoods, and therefore represent prudent choices for zone boundaries, (3A/4A&3B/4B, 7A/7B&8A/8B, and 1A/1B&2A/2B).

While these factors may explain the overall accuracy in the perception of crime in Guildford, there were also a number of zones which were not as accurately perceived as their neighbours, and the reasons for these inaccuracies in perception are important. No one zone stands out clearly as an anomaly on the dispersion graph at the start of chapter five, (as indeed is the intention of a linear regression, or least-squares regression line), but some zones are further from the line than others. Zones above the regression line have a low perceived level of crime relative to the actual crime index, (for example, crime was under-estimated in zones 5A, 4A and 4B). Similarly, zones below the regression line have a high perceived level of crime relative to the actual crime index, (for example, crime was over-estimated in zones 7A, 2A and 2B).

Zone 5A is perhaps the best example of a zone in which the level of crime was underestimated by the respondents. Three potential reasons can be put forward to explain this. First, the zone is more central than many respondents may have considered. Although zone 6B is clearly defined as the Central Business District, the north-eastern boundary of zone 5A is very much in the centre of the town. Indeed, the eastern section that juts out around the roundabout is very close to the area in zone 6B that houses the ten-screen cinema and several pubs. This area is possibly a catalyst for petty crimes on weekend evenings, and such crimes may well spill over into zone 5A.

Second, in the fact that zone 5A includes a large multi-storey car park on Sydenham Road. Although other zones also house such car parks, (for example on Bedford Road and Leapale Road in zone 6B), a high level of car crime is another potential explanation of the under-estimation of crime in this zone. It is well known among the police that criminals target car parks, (hence the recent run of television advertisements) – especially those where vehicles are left unattended for long periods, such as for offices.

It is possible that the respondents did not take either of these potential factors into account when ranking the crime level in this zone, although it is worth noting that both factors are simply speculative. Finally, a statistical problem with the calculation of the perceived crime rate index can be used to explain this slight anomaly. Given the high actual crime index of zone 5A, at 175, to have reached the best fit line its perceived crime index would have had to fall from 234 to around 120. This would have required the respondents to give the zone a perceived crime rank averaging 2.4, (120/50), on the scale from 1 to 16, a possible, although unlikely result.

Zones 4A and 4B are the other zones where the perceived level of crime most clearly underestimated the actual crime level. There are no obvious reasons why these two zones of relatively quiet, medium-density housing should be perceived to have less crime than they do, and perhaps the results simply fall into the natural variation within the sample. Perhaps, it is their position on the very edge of the town that led respondents to give them low crime rankings. However, one must remember that they are still part of the central build-up area, (the whole area under investigation is only 27 km^2), and are therefore likely to remain victim to the higher crime levels present in any urban area.

The final anomaly to discuss is zone 7A, where crime was over-estimated relative to its actual level. As with all the zones mentioned above, the over-estimation was only marginal, and fell within the natural variation of the sample. Again, there was no obvious reason why the respondents should have given the zone an inflated level of perceived crime relative to its actual crime level. However, during data collection, indications of a Neighbourhood Watch scheme throughout Onslow Village could be seen, and it seems possible that this might have had some impact on the results. Neighbourhood Watch schemes, although actively encouraged, by both government and police, can create two problems. First, they raise public awareness of crime without necessarily reducing it, and second, if they do reduce crime in an area, there is some evidence to show that they

Photo Showing Evidence of the Neighbourhood Watch Scheme implemented in Onslow Village in Zone 7A -

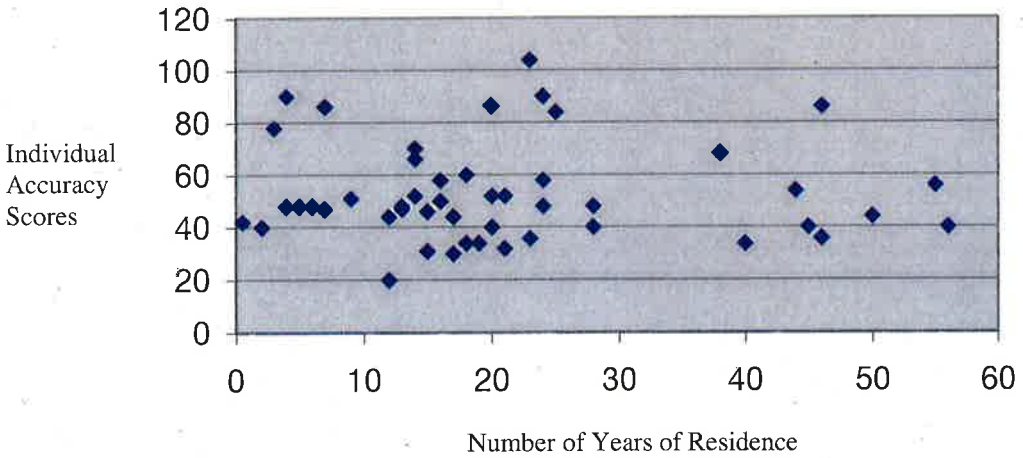
Photo showing a security camera overlooking a car Park in central Guildford. evidence of high levels of crime in town car parks.

do so simply by displacing it to other areas. Both these factors could be responsible for the over-estimation of crime in zone 7A. The Neighbourhood Watch scheme is likely to have raised peoples' awareness of crime in this area of the town, making them perceive it to have a high incidence of crime, while at the same time reducing the actual crime level in the area by displacing it to other areas. It is worth stressing again however, that this is no more than speculation, which might repay further investigation.

The dispersion graph in the first half of this chapter demonstrates that, although distance does not seem to have influenced accuracy of individual perception, there is nevertheless a wide range in the accuracy of individual perception of crime. This is shown by a wide fluctuation in individual accuracy scores among the fifty respondents, about the mean score of 53. Remembering that a high score indicates inaccurate perception, seven respondents scored more than 80, with the highest and therefore least accurate score being 104; (the maximum possible score possible would have been 240 (15x16), if a respondent had ranked all the zones as inaccurately as possible). Conversely, eight respondents scored less than 40, with the most accurate score equalling 20.

Such range in the accuracy in perception may be down to the quality of information that an individual has received about crime in the town, or to their internal organisation of that information. Hence, factors such as the number of years an individual has been living in Guildford, or that individual's occupation might well have influenced their accuracy of perception, and it was for this reason that they were included in the questionnaire.

Scattergraph showing how the Individual Accuracy Scores for each Respondent vary According to their Number of Years of Residence

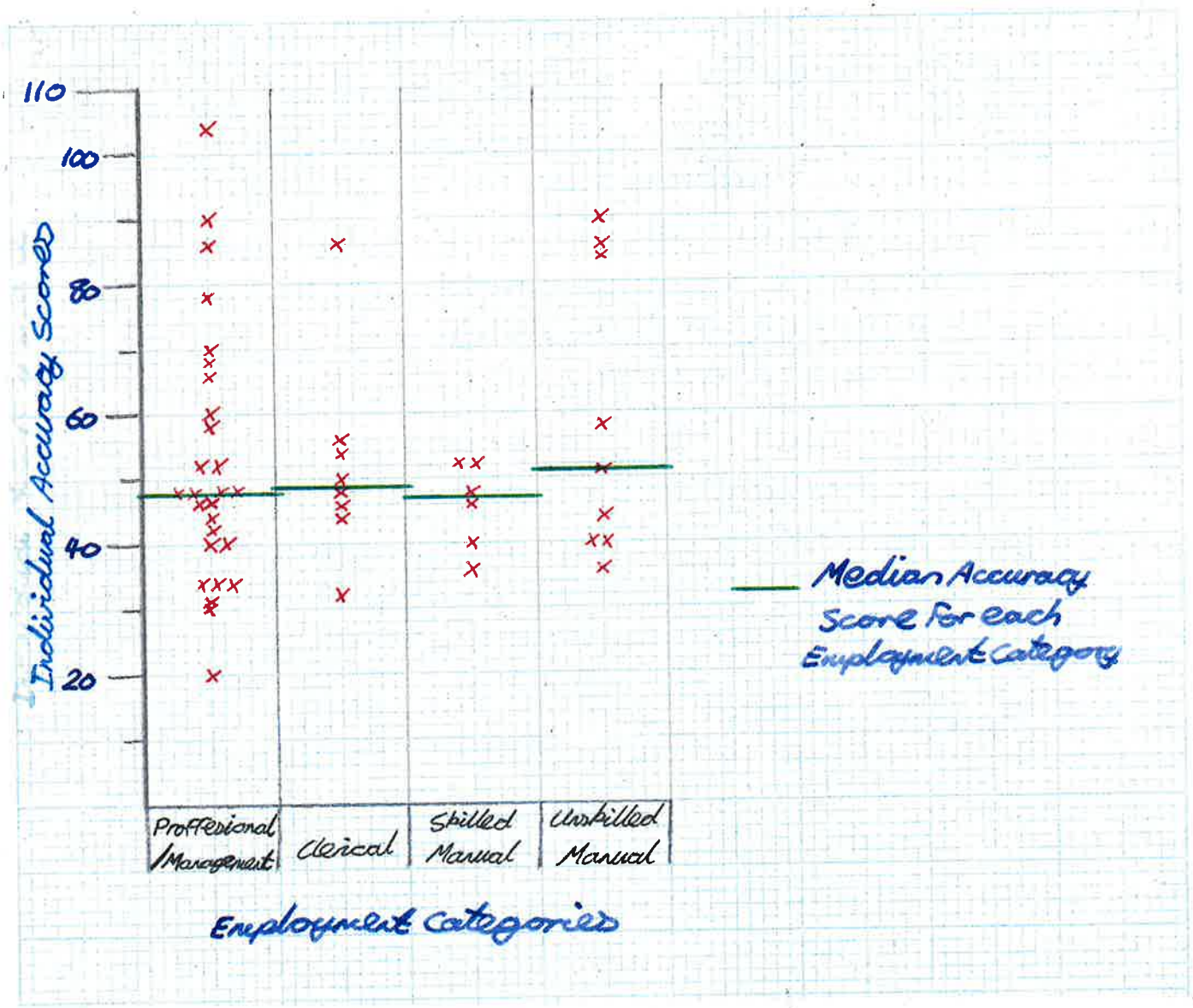


The graph shows that there seems to be no correlation between the number of years a respondent has been living in Guildford and the accuracy of their perception of crime. For example, the most accurate score of 20 was achieved by respondent No. 46, who has only been living in Guildford for 12 years. Conversely, a relatively poor score of 86 was achieved by respondent No. 17, who has resided in Guildford for the past 46 years. It appears instead, that the accuracy of the respondents' ranking must be due to other factors.

The reason that there is no pattern can perhaps be explained by the fact that there is normally a period of up to 5 years when a respondent is unfamiliar with some area of the town. Past this bracket however, most residents would have the same level of familiarity with their surroundings, and this is only likely to grow very slightly as their number of years of residence increases. This explanation is strengthened by the fact that the area under investigation is relatively small, (7km across at its maximum), as already mentioned.

In order to see if occupation and accuracy of perception were related, a dispersion graph of individual accuracy scores was plotted against different employment categories:

Dispersion graph showing the relationship between Respondents' Occupations and their Individual Accuracy Scores



As we can see from the dispersion graph, there is very little variation in the median scores from each employment class:

Professional/Management:	48
Clerical:	49
Skilled Manual:	47
Unskilled Manual:	51

It could be argued that there is a slight upward trend in the scores, denoting a more inaccurate perception, as one moves down the employment classes, as would be expected. However, as this variation is so minimal, no valid conclusion can be drawn from the data. The fact that professionals were over represented in the sample, (comprising 27 of the 50 respondents), should not increase their median score, but simply give a score that is more representative of that for the underlying population.

Chapter 6: Evaluation of the Investigation-

The investigation has revealed that the resident population of Guildford have a reasonably accurate perception of the distribution of crime across the town, being able to identify the parts of the town where crime is most common and those where it is least common. While there is a great deal of variation in the accuracy of individuals, and the accuracy with which different zones are perceived, this variation does not seem to be readily attributable to the factors of distance, length of residence and occupation, and in any case, falls within tolerated limits of probability, (as H_0 was rejected at the 2.5% level).

This unexpected outcome to the investigation must however be treated carefully, as there were a number of problems with the data. First, the actual crime index figures were based only on reported crimes and may well not be representative of the true picture of crime across Guildford. It is likely for example, that minor damage and pilfering go unreported more often in the busy parts of the town compared with some of the quieter but more securely minded suburbs. The other clear problem with the actual crime data is that it was only provided in eight sub-sections, for the eight wards of central Guildford. However, as sixteen zones were required to improve the reliability of the statistical analysis, these eight zones each had to be sub-divided into two. As explained in Chapter 3B, the actual crime figures also therefore each had to be sub-divided into two, and this was done solely on the basis of my own discretion. This therefore represents the most obvious possible source of inaccurate data within the investigation.

Second, the reliability of the perceived crime distribution figures might have been improved. The sample size of 50 was fairly large, but by no means necessarily reflected the whole parent population of Guildford and, as the final graph showed, tended to be selected from the professional-management end of the employment spectrum. Increasing the sample size to a figure around 100 might have produced a more representative sample of the parent population, (but would have increased the data processing to virtually unmanageable levels).

Finally, the results were only collected for one town over a single year, and cannot therefore be taken as representative of likely patterns of either actual or perceived crime for other towns, or for Guildford in other years. Actual crime figures change from year to year, and perceptions also change- but not necessarily in response to actual crime. It would, for example be interesting to repeat the questionnaire survey of Guildford immediately after a particularly unpleasant crime in the town, (such as the 'Cindarella's' Nightclub murder), had been given widespread publicity by the media. I would be very surprised if there was not a noticeable change in the perceived pattern of crime distribution across the town after such an event.

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Appendices

Surrey Police in Action in Guildford Town Centre

Appendix A:

Raw Data-

Perceived Rank For Each Zone by Fifty Respondents

Zone No.	1	2	3	4	5	6	7	8	9	10	11	12	13
2B	4	2	15	2	13	10	9	9	8	5	6	1	8
6A	11	14	6	5	14	11	3	3	4	14	4	2	5
1A	12	7	16	1	5	13	15	12	13	16	14	11	14
3A	7	6	14	8	11	9	12	10	7	9	12	13	12
1B	10	5	13	3	12	5	10	8	9	8	8	12	9
6B	1	1	1	6	2	12	2	1	1	11	2	16	2
2A	8	10	4	14	6	2	5	7	2	15	13	15	7
7B	5	12	9	9	10	8	11	15	10	13	11	3	15
5B	13	16	12	10	1	7	4	11	11	1	10	4	10
8B	14	15	11	11	3	6	7	5	12	3	9	10	4
3B	2	4	10	7	4	4	1	4	5	12	3	9	1
4B	16	13	2	15	16	14	16	16	15	6	16	5	11
7A	9	11	5	16	9	3	6	6	6	2	7	14	6
5A	6	3	8	4	15	1	8	2	3	4	1	8	3
4A	15	9	3	13	8	15	14	13	16	7	5	6	16
8A	3	8	7	12	7	16	13	14	14	10	15	7	13

Zone No.	14	15	16	17	18	19	20	21	22	23	24	25
2B	9	9	4	9	6	6	8	1	10	4	1	6
6A	8	2	5	11	7	4	15	4	5	8	4	5
1A	10	11	11	15	14	15	12	12	14	10	14	14
3A	7	10	10	4	10	3	7	14	9	7	13	11
1B	13	8	3	1	5	1	11	15	8	6	7	15
6B	1	1	1	13	8	11	1	3	1	2	6	7
2A	2	3	2	3	1	9	5	8	2	5	3	4
7B	16	13	14	16	12	12	13	11	13	16	8	12
5B	4	12	13	2	3	2	16	10	7	12	2	16
8B	5	6	8	8	4	8	2	9	4	11	12	2
3B	6	5	6	12	11	10	9	5	11	3	9	8
4B	15	14	16	14	15	16	4	7	15	14	16	9
7A	4	4	7	7	2	5	3	6	3	9	10	1
5A	3	7	9	10	9	7	6	2	6	1	5	3
4A	11	16	15	6	16	14	14	13	16	15	15	13
8A	12	15	12	5	13	13	10	16	12	13	11	10

Zone No.	26	27	28	29	30	31	32	33	34	35	36	37	38
2B	8	6	10	1	1	9	5	12	8	5	5	6	3
6A	3	4	3	11	5	5	6	6	5	11	3	4	9
1A	16	16	14	4	11	11	10	14	15	16	16	15	11
3A	11	15	13	3	6	14	13	7	11	9	11	3	8
1B	10	8	11	2	4	6	11	10	12	8	10	7	10
6B	12	1	2	12	2	3	1	1	3	4	4	1	4
2A	4	3	1	16	14	2	3	2	4	13	14	9	12
7B	9	14	12	9	10	10	14	8	13	14	13	12	7
5B	7	13	9	10	9	12	9	11	16	15	15	11	14
8B	5	7	4	13	8	8	7	5	7	10	9	8	6
3B	2	5	6	5	7	7	8	9	10	12	6	10	5
4B	13	11	7	14	15	16	15	15	2	6	13	16	16
7A	6	10	5	15	16	4	4	5	6	2	1	5	2
5A	1	2	8	6	3	1	2	3	1	13	2	2	1
4A	15	12	15	8	13	15	12	16	14	7	11	14	15
8A	14	9	16	7	12	13	16	13	9	1	7	13	13

Zone No.	39	40	41	42	43	44	45	46	47	48	49	50
2B	4	2	10	3	8	13	10	9	9	8	5	4
6A	2	14	2	6	5	5	11	3	3	1	1	8
1A	12	15	12	16	15	14	13	15	12	5	16	16
3A	7	6	11	14	9	11	9	12	10	10	9	7
1B	10	5	9	13	3	12	5	10	8	11	8	9
6B	1	1	1	1	6	2	7	2	1	2	6	2
2A	8	10	3	4	1	6	2	5	7	3	7	5
7B	5	12	14	9	10	10	8	11	15	13	13	10
5B	13	16	13	12	11	1	12	4	11	16	14	12
8B	14	7	7	11	12	9	6	7	5	4	3	11
3B	11	4	6	10	7	4	4	8	4	12	12	3
4B	16	13	15	2	16	16	14	16	16	14	11	14
7A	9	11	4	5	2	3	3	6	6	7	2	6
5A	6	3	8	8	4	8	1	1	2	9	4	1
4A	15	9	16	15	14	15	15	14	13	15	15	15
8A	3	8	5	7	13	7	16	13	14	6	10	13

Number of Years of Residencs and Occupation of each Respondent

	1	2	3	4	5	6	7	8	9	10	11	12
Years of Residence	18	20	14	14	25	21	19	56	7	4	28	7
Respondents Job	1	2	1	1	4	3	1	4	1	1	3	1

	13	14	15	16	17	18	19	20	21	22	23	24
Years of Residence	0.5	14	17	13	46	20	55	38	15	20	4	23
	1	1	2	1	4	1	2	1	3	1	1	4

	25	26	27	28	29	30	31	32	33	34	35	36
Years of Residence	9	46	28	15	23	16	17	21	15	13	24	20
Respondents Job	4	3	2	2	1	4	1	2	1	1	4	3

	37	38	39	40	41	42	43	44	45	46	47	48
Years of Residence	18	50	6	3	24	5	2	12	16	12	45	24
Respondents Job	1	4	1	1	3	1	1	1	2	1	4	1

	49	50
Years of Residence	44	40
Respondents Job	2	1

Occupation Key	
Proffesional	1
Clerical	2
Skilled Manual	3
Unskilled Manual	4

Appendix B:

Processes Results-

Difference Between Individual's Perceived Rank and the Actual Rank

Zone No.	1	2	3	4	5	6	7	8	9	10	11	12	13
2B	2	4	9	4	7	4	3	3	2	1	0	5	2
6A	8	11	3	2	11	8	0	0	1	11	1	1	2
1A	2	7	2	13	9	1	1	2	1	2	0	3	0
3A	5	6	2	4	1	3	0	2	5	3	0	1	0
1B	1	6	2	8	1	6	1	3	2	3	3	1	2
6B	1	1	1	4	0	10	0	1	1	9	0	14	0
2A	4	6	0	10	2	2	1	3	2	11	9	11	3
7B	2	5	2	2	3	1	4	8	3	6	4	4	8
5B	5	8	4	2	7	1	4	3	3	7	2	4	2
8B	4	5	1	1	7	4	3	5	2	7	1	0	6
3B	7	5	1	2	5	5	8	5	5	3	6	0	8
4B	0	3	14	1	0	2	0	0	6	10	0	11	5
7A	4	6	0	11	4	2	1	1	10	3	2	9	1
5A	5	2	7	3	14	0	7	1	2	3	0	7	2
4A	0	6	12	2	7	0	1	2	1	8	10	9	1
8A	10	5	6	1	6	3	0	1	1	3	2	6	0
	60	86	66	70	84	52	34	40	47	90	40	86	42

Zone No.	14	15	16	17	18	19	20	21	22	23	24	25
2B	3	3	2	3	0	0	2	5	4	2	5	0
6A	5	1	2	8	4	1	12	1	2	5	1	2
1A	4	3	3	1	0	1	2	2	0	4	0	0
3A	5	2	2	2	2	9	5	2	3	5	1	1
1B	2	3	8	10	6	10	0	4	3	5	4	4
6B	1	1	1	11	6	9	1	1	1	0	4	5
2A	2	1	2	1	3	5	1	4	2	1	1	0
7B	9	6	7	9	5	5	6	4	6	9	1	4
5B	4	4	5	6	5	6	8	2	1	4	6	8
8B	5	4	2	2	6	2	8	1	6	1	2	8
3B	3	4	3	3	2	1	0	4	2	6	0	1
4B	1	2	0	2	1	0	12	9	1	2	0	7
7A	1	1	2	2	3	0	2	1	2	4	5	4
5A	2	6	8	9	8	6	5	1	5	0	4	2
4A	4	1	0	9	1	1	1	2	1	0	0	2
8A	1	2	1	8	0	0	3	3	1	0	2	3
	52	44	48	86	52	56	68	46	40	48	36	51

Zone No.	26	27	28	29	30	31	32	33	34	35	36	37	38
2B	2	0	4	5	5	3	1	6	2	1	1	0	3
6A	0	1	0	8	2	2	3	3	2	8	0	1	6
1A	2	2	0	10	3	3	4	0	1	2	2	1	3
3A	1	3	1	9	6	2	1	5	1	3	1	9	4
1B	1	3	0	9	7	5	0	1	1	3	1	4	1
6B	10	1	0	10	0	1	1	1	1	2	2	1	2
2A	0	1	3	12	10	2	1	2	1	9	10	5	8
7B	2	7	5	2	3	3	7	1	6	7	6	5	0
5B	1	5	1	2	1	4	1	3	8	7	7	3	6
8B	5	3	10	3	2	2	3	5	3	0	1	2	4
3B	7	4	3	4	2	2	1	0	1	3	3	1	4
4B	3	5	9	2	1	0	1	1	14	10	3	0	0
7A	1	5	0	10	11	1	1	0	1	3	4	0	3
5A	0	1	7	5	2	0	1	2	0	12	1	1	0
4A	0	3	0	7	2	0	3	1	1	8	4	1	0
8A	1	4	3	6	1	0	3	0	4	12	6	0	0
	36	48	46	104	58	30	32	31	47	90	52	34	44

Zone No.	39	40	41	42	43	44	45	46	47	48	49	50
2B	2	4	4	3	2	7	4	3	3	2	1	2
6A	1	11	1	3	2	2	8	0	0	2	2	5
1A	2	1	2	2	1	0	1	1	2	9	2	2
3A	5	6	1	2	3	1	3	0	2	2	3	5
1B	1	6	2	2	8	1	6	1	3	0	3	2
6B	1	1	1	1	4	0	5	0	1	0	4	0
2A	4	6	1	0	3	2	2	1	3	1	3	1
7B	2	5	7	2	3	3	1	4	8	6	6	3
5B	5	8	5	4	3	7	4	4	3	8	6	4
8B	4	3	3	1	2	1	4	3	5	6	7	1
3B	2	5	3	1	2	5	5	1	5	3	3	6
4B	0	3	1	14	0	0	2	0	0	2	5	2
7A	4	6	1	0	3	2	2	1	1	2	3	1
5A	5	2	7	7	3	7	0	0	1	8	3	0
4A	0	6	1	0	1	0	0	1	2	0	0	0
8A	10	5	8	6	0	6	3	0	1	7	3	0
	48	78	48	48	40	44	50	20	40	58	54	34

Appendix C:

The Spearman Rank Correlation Coefficient

The Spearman Rank Correlation Coefficient is a statistic that can be calculated to measure the strength or otherwise of a relationship between two sets of ranked paired-sample data. If an increase in one variable coincides with an increase in the other variable, the sets of data are said to be positively rank correlated. Indeed, a rank correlation coefficient of +1 would represent a perfect positive rank correlation between the two variables. Conversely, if an increase in one variable coincides with a decrease in the other variable, the sets of data are said to be negatively rank correlated. A rank correlation coefficient of –1 would represent a perfect negative rank correlation between the two variables. Little rank correlation results in a coefficient tending to zero.

The formula for this test is:

$$r_s = \frac{6\Sigma d^2}{n(n^2-1)}$$

Where: $\mathbf{r_s}$ = rank correlation coefficient
d = difference between ranked data sets
n = number of pairs

Test for Correlation between Actual and Perceived Crime Distributions:

Zone	Actual Crime Index	Rank (x)	Perceived Crime Rate Index	Rank (y)	Difference in Rank (d=(x-y))	d^2
1A	21	14	631	14	0	0
1B	35	11	417	9	+2	4
2A	67	4	313	5	-1	1
2B	50	6	329	6	0	0
3A	30	12	474	10	+2	4
3B	40	9	382	8	+1	1
4A	18	15	642	16	-1	1
4B	13	16	638	15	+1	1
5A	175	1	234	2	-1	1
5B	43	8	495	11	-3	9
6A	100	3	310	4	-1	1
6B	139	2	195	1	+1	1
7A	60	5	306	3	+2	4
7B	47	7	562	13	-6	36
8A	29	13	539	12	+1	1
8B	38	10	382	8	+2	4

$\Sigma d^2 = 69$

The Spearman Rank Correlation Coefficient (cont.) -

Null Hypothesis, H_0 : $r_s = 0$; there is no rank-correlation association

Alternative Hypothesis, H_1 : $r_s > 0$; there is positive rank-correlation association

$\Sigma d^2 = 69$, $n = 16$ ∴

$$\therefore r_s = 1 - \frac{6 \times 69}{16(256-1)} = 0.8985$$

1-tailed test, 2.5% Level, ∴ r_s critical = 0.5029

Since $0.8985 > 0.5029$, Reject H_0 & Accept H_1.

Conclude that there is a positive rank-correlation association between the Actual Crime Index and the Perceived Crime Rate Index.

Critical Values For Spearman's Rank Correlation Coefficient -

	5%	2½%	1%	½%
1-Tail Test	10%	5%	2%	1%
2-Tail Test				
n				
1	–	–	–	–
2	–	–	–	–
3	–	–	–	–
4	1.0000	–	–	–
5	0.9000	1.0000	1.0000	–
6	0.8286	0.8857	0.9429	1.0000
7	0.7143	0.7857	0.8929	0.9286
8	0.6429	0.7381	0.8333	0.8810
9	0.6000	0.7000	0.7833	0.8333
10	0.5636	0.6485	0.7455	0.7939
11	0.5364	0.6182	0.7091	0.7545
12	0.5035	0.5874	0.6783	0.7273
13	0.4835	0.5604	0.6484	0.7033
14	0.4637	0.5385	0.6264	0.6791
15	0.4464	0.5214	0.6036	0.6536
16	0.4294	0.5029	0.5824	0.6353
17	0.4142	0.4877	0.5662	0.6176
18	0.4014	0.4716	0.5501	0.5996
19	0.3912	0.4596	0.5351	0.5842
20	0.3805	0.4466	0.5218	0.5699
21	0.3701	0.4364	0.5091	0.5558
22	0.3608	0.4252	0.4975	0.5438
23	0.3528	0.4160	0.4862	0.5316
24	0.3443	0.4070	0.4757	0.5209
25	0.3369	0.3977	0.4662	0.5108
26	0.3306	0.3901	0.4571	0.5009
27	0.3242	0.3828	0.4487	0.4915
28	0.3180	0.3755	0.4401	0.4828
29	0.3118	0.3685	0.4325	0.4749
30	0.3063	0.3624	0.4251	0.4670
31	0.3012	0.3560	0.4185	0.4593
32	0.2962	0.3504	0.4117	0.4523
33	0.2914	0.3449	0.4054	0.4455
34	0.2871	0.3396	0.3995	0.4390
35	0.2829	0.3347	0.3936	0.4328
36	0.2788	0.3300	0.3882	0.4268
37	0.2748	0.3253	0.3829	0.4211
38	0.2710	0.3209	0.3778	0.4155
39	0.2674	0.3168	0.3729	0.4103
40	0.2640	0.3128	0.3681	0.4051
41	0.2606	0.3087	0.3636	0.4002
42	0.2574	0.3051	0.3594	0.3955
43	0.2543	0.3014	0.3550	0.3908
44	0.2513	0.2978	0.3511	0.3865
45	0.2484	0.2945	0.3470	0.3822
46	0.2456	0.2913	0.3433	0.3781
47	0.2429	0.2880	0.3396	0.3741
48	0.2403	0.2850	0.3361	0.3702
49	0.2378	0.2820	0.3326	0.3664
50	0.2353	0.2791	0.3293	0.3628
51	0.2329	0.2764	0.3260	0.3592
52	0.2307	0.2736	0.3228	0.3558
53	0.2284	0.2710	0.3198	0.3524
54	0.2262	0.2685	0.3168	0.3492
55	0.2242	0.2659	0.3139	0.3460
56	0.2221	0.2636	0.3111	0.3429
57	0.2201	0.2612	0.3083	0.3400
58	0.2181	0.2589	0.3057	0.3370
59	0.2162	0.2567	0.3030	0.3342
60	0.2144	0.2545	0.3005	0.3314