

Statistical Analysis of Wheathampstead Parish Survey

Version 2

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2. Introduction

This document contains the initial analysis of the Wheathampstead Village Survey conducted during 2008. The purpose of the work is to provide independent statistical examination of those parts of the survey where numerical analysis is practicable.

The Survey was the first step in the production of a Village Plan. The intention is to provide the Parish Council with a list of priorities and opinions from villagers against which they can develop the plan.

Large sections of the survey allowed respondents free expression. These sections will require general debate and are beyond the scope of this document. I can provide some advice on how to distil key ideas from this less structured input. For some answers, however, it has been possible to place these free-roaming answers into categories for analysis.

Statistics is a “black art” at the best of times and is often non-intuitive. I have included a technical section at the end of the report for those who want some additional discussion on the techniques applied.

3. Summary of Main Findings

There were 290 surveys returned and recorded. There were some problems inputting the data in a suitable form for analysis but I do not believe these problems have any material effect on the results presented here.

It is not clear whether these 290 are a representative cross-section of villagers. I recommend that the committee plots the location of respondents on a village map and then following-up with further surveys if particular areas are not represented. It is possible that families with children are not well represented in the survey. I provide a listing of road names with the number of surveys returned in an appendix.

Not all respondents replied to each question. The analysis takes into account only for those questions actually answered. This means that the count of each answer varies by question. Relatively few respondents answered some questions, such as those directed at young people. The analyses make allowance for this variation.

Several of the respondents indicated that the survey was too long and may well explain the relatively small response.

A theme that occurs across several sections is that links with Harpenden are weak. There are requests for improved cycle paths and bus services.

It is worth remembering that the survey isn't just a voting form. That is, we haven't simply asked people to tick an option. Many of the questions ask them to make a judgement such as “... which is more important...” or “...score 1 to 6...”. This means that we can interpret the results in terms of relative priorities when there is clear evidence of statistical differences. For example, although both are rated as important, a bus service to Harpenden Station is a higher priority than a more frequent service to St Albans.

The Survey is divided into 9 sections and a brief summary of each follows.

3.1. Section 1, Introduction

Each of the main sections of the survey is represented in this first question (with the exception of Section 6, Village Day). The goal is to identify the main priority for villagers *before* they complete the lengthy survey and get embroiled in detail. This is probably the most important section as it establishes the overall main priorities that should drive the Village Plan and Council actions.

This is the only question that every single person answered. The results clearly show the main priority that villagers have is “Shops & Businesses” (147 votes, more than all the others put together). It received 2.6 times as many votes as the next nearest priority, “Traffic & Transport” (57 votes). “Traffic and Transport” received 2.5 times as many votes as “Crime & Policing” (23 votes).

Given these clear results, which are confirmed in the more detailed questions of Section 7, it would not be unreasonable to expect a major component of the Village Plan to focus on High Street rejuvenation.

3.2. Section 2, The Environment

“The Environment” came fifth in the order of priorities out of six. The clear winner in this section was “Traffic Speed & Quantity” which received an unusually high score of 7.9 compared with the lowest priority score of 2.6 for “York Stone Cleaning”.

This section had some of the clearest results in the survey. An unambiguous set of environmental priorities were established the first four being:

Item	Priority
Traffic Speed & Quantity	1
Quality of Roads	2
Litter/Fly Tipping	3
Refuse/Recycling/Street Cleaning	4

3.3. Section 3, Traffic & Transport

“Traffic and Transport” had the second highest priority assigned by villagers. They are very concerned about safety and the level of speed, in particular in Brewhouse Hill, Marford Road, The Hill, Lower Luton Road and the Village Centre. Removing residents who lived in these roads from the analysis did not change the result.

Respondents would like to see additional Zebra/Pelican crossings, an increase in the 20mph zone and flashing lights introduced.

There is a greater spread of opinion on the quality of road surfaces but 68% think they are on the poor side of adequate.

People feel very strongly about the volume of heavy goods vehicles and the need for an effective lorry ban. Over 50% gave these two the highest score.

Only 15% are regular users of busses but more might be persuaded if they were more frequent, provided a service to Harpenden Station and were more reliable. Users and non-users do not vary significantly in their opinions. However non-users of the services are more concerned about cost, reliability and the provision of shelters.

Parking is seen to be a problem in the High Street, Brewhouse Hill, The Hill and Marford Road. Parking is seen as a hazard, restricting visibility when turning into a main road. Parishioners would like to see more and improved parking made available. Having stated that parking was a problem,

50% of respondents had scored 1 or 2 (not at all difficult) when asked if they found it difficult to park in the village.

3.4. Section 4, Crime & Disorder

“Crime & Policing” had the third highest priority assigned by villagers. The survey identified vandalism and anti-social behaviour as the two main areas to focus police efforts. This was very closely followed by enforcement of the lorry ban and speeding traffic.

People are most concerned about anti-social behaviour outside the One Stop shop and they identified more youth activities and more police as being the main solutions to the problem.

On the whole, people felt very safe in Wheathampstead with 50% scoring 5 or 6 on a scale of 1 to 6.

3.5. Section 5, Public Footpaths, Cycle Paths & Bridleways

This section had the lowest priority assigned by villagers. Mainly people wanted footpaths and cycle paths improved, and publicity for local walks.

63% requested additional cycle paths. Of those that replied, 90% wanted a cycle path to Harpenden, 65% to St Albans and 30% to Luton.

3.6. Section 6, Village Day

85% of villagers attended Village Day at least sometimes. 89% were happy for it to continue on Sunday or had no preference with only 11% wanting it on Saturday. The biggest request was for family sports and a hog roast to be included followed by an art exhibition, “it’s a knockout” and beer tent.

3.7. Section 7, Shops & Businesses

Parishioners assigned “Shops & Businesses” the highest priority. 92% said that shopping facilities in Wheathampstead were inadequate for a village of its size.

60% of people said they shop or use services in the village 2 to 3 or more times per week. Analysis of the figures suggests that this should add up to more than 880 shoppers per day (unlikely?) and that they spend about £10 per visit. A similar analysis suggests that over 1,000 people shop outside the village daily and spend over £62 per visit. On average people did 10% of their shopping in the village.

The reasons stated for shopping outside of the village centred on choice and value for money.

In general people would miss the Post Office if it were to close. 68% gave this a score of 5 or 6 (“very severely”).

3.8. Section 8, Young People

“Facilities for the Young” was given the fourth highest priority by villagers but lagged a long way behind “Shops & Businesses” and “Traffic and Transport”. Nearly 40% of the 60 young people who completed the survey said they were unaware of activities for the younger members of the community and another third didn’t participate.

Analysis of a free-form answer suggests that there is a strong demand for a Youth Club or somewhere for young people to go for various activities.

3.9. Section 9, Household Questions

There was an average of 2.6 occupants per household replying to the survey with 62% having two occupants or less. An average of one person per two households works from home with 25% of households having one and over 10% having two or more working from home.

Over 50% of respondents have lived in the village for 15 or more years and 33% have lived here between 1 and 10 years. There are 1.8 cars per household and 66% of households have two or more cars. Over 60% use their cars for at least part of their journey to work.

4. The Analysis in Detail

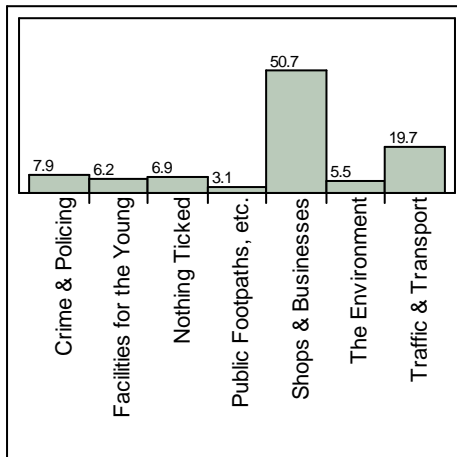
4.1. Introduction

Which of these is your MAIN PRIORITY to improve in Wheathampstead? Please tick only one.

- Traffic and Transport
- Facilities for the young
- Crime and Policing
- The Environment
- Shops and Businesses
- Public Footpaths, cycle paths, Bridleways

Main Priority

This question asked respondents to select their most important priority for improvement in the village. I show the results as a histogram. The numbers on the right indicate the total number of people who chose each option and this is converted to a percentage and shown above each bar on the plot. The software package determines the ordering of the bars and is alphabetical.



Level	Count	Prob
Crime & Policing	23	0.07931
Facilities for the Young	18	0.06207
Nothing Ticked	20	0.06897
Public Footpaths, etc.	9	0.03103
Shops & Businesses	147	0.50690
The Environment	16	0.05517
Traffic & Transport	57	0.19655
Total	290	1.00000

N Missing 0
7 Levels

The vast majority of respondents think “Shops & Businesses” are the main priority. Two and a half times as many people voted for this compared with the next priority, “Traffic and Transport”. The remaining responses are low level and indistinguishable from each other.

[If you could change one thing about Wheathampstead, what would it be?](#)

There were 232 responses to this question out of the 290 surveys analysed. This question needs careful analysis by the sub-committee.

4.2. The Environment

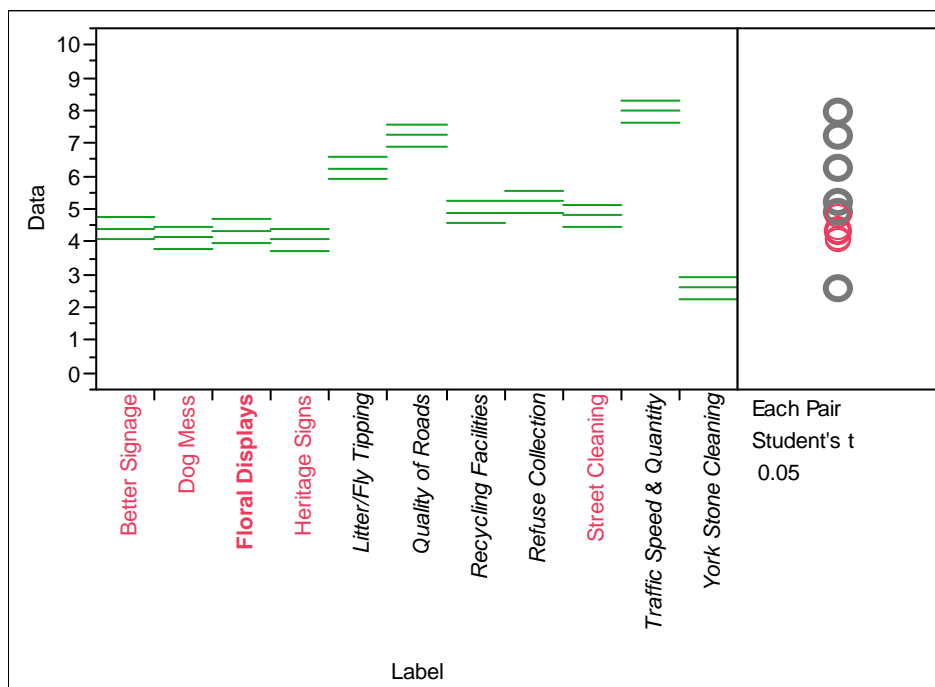
What are your most important **concerns** about the local village environment? (please score each on a scale of 1 to 10, with 10 being the highest – see note on front page)

- () Traffic speed and quantity
- () Litter/fly tipping
- () Quality of roads and pavements
- () Dog mess
- () Recycling facilities
- () Street cleaning
- () Refuse collection
- () Regular York stone cleaning in the High Street
- () Better signs/removal of unnecessary signs
- () Heritage/historic information signs
- () Floral displays
- () Other

Statistical Test: Oneway Analysis of Data By Label Testing Mean Scores

This test lets you compare the average score given to different choices so you can distinguish real and significant differences from just noise in the data. The diagram shows the mean value of each response (centre line) bounded by an upper and lower “confidence interval”. The confidence interval shows a range for where you would expect the mean value to be if you repeated the exercise tomorrow. It is the degree of uncertainty in the result. For example, although Better Signage received an average score of about 4.5, allowing for the variation in the data, the true value of the average actually lies somewhere between 4.1 and 4.8.

For any two answers, if the confidence intervals overlap then you cannot say there is a real difference between the answers recorded. In the diagram, the responses highlighted in red represent such a group. So, if you are looking at “Floral Displays”, you cannot say there is a statistical difference between it and “Better Signage”, “Dog Mess”, “Heritage Signs” and “Street Cleaning”. If the focus was on “Street Cleaning”, then you cannot say there is a statistical difference between it and “Refuse Collection” or “Recycling Facilities”.



Means Comparisons

The table below presents the results in a slightly different way using a test called the “Student’s t-Test”. This way of testing tries to identify groups of answers where the responses are indistinguishable (within statistical bounds). The lettering, A through G, thus gives you a priority list. “Traffic” stands out as being most important on its own. Then “Quality of Roads” and “Litter/Fly Tipping”. All Items in Group D are indistinguishable from each other as are items in groups E & F. Finally, “York Stone Cleaning” receives the lowest priority.

Notice that “Floral Displays” and “Better Signage” appear in both Group E and Group F. We interpret this as follows. “Floral Displays” (for example) is not different to any other response with the letter E and also F. However, “Dog Mess” (F) is different to “Street Cleaning” (E). In other words, means not sharing a letter are significantly different.

Level		Mean
Traffic Speed & Quantity	A	7.9825175
Quality of Roads	B	7.2412587
Litter/Fly Tipping	C	6.2377622
Refuse Collection	D	5.2342657
Recycling Facilities	D	4.8916084
Street Cleaning	D	4.7972028
Better Signage	E F	4.4020979
Floral Displays	E F	4.3251748
Dog Mess	F	4.1223776
Heritage Signs	F	4.0594406
York Stone Cleaning	G	2.6048951

Levels not connected by same letter are significantly different.

For “The Environment”, the survey clearly indicates that villagers regard “Traffic Speed & Quantity” (A) as their highest priority followed by “Quality of Roads” (B) and “Fly Tipping” (C). With the exception of “York Stone Cleaning” the remainder are clustered together and difficult to distinguish being separated by just over 1 point. “York Stone Cleaning”, however, is clearly the lowest priority.

There were 59 additional ideas under “Other”. These need further analysis.

[How/where could the village be made more attractive?](#)

There were 198 responses to this question out of the 290 surveys. The majority of responses highlighted the need for regeneration of the High Street but the overall responses need further analysis.

[How do you think village signs could be improved? \(Please comment on type, location, quantity and whether they reflect the character of the village\)](#)

There were 154 replies to this question out of 290.

[How do you think floral displays could be improved?](#)

There were 149 replies to this question out of 290. The general feel to the answers is that people are relatively happy with them at present.

[Do you have any further comments on the environment in Wheathampstead?](#)

There were 118 replies to this question out of 290. Requires more analysis.

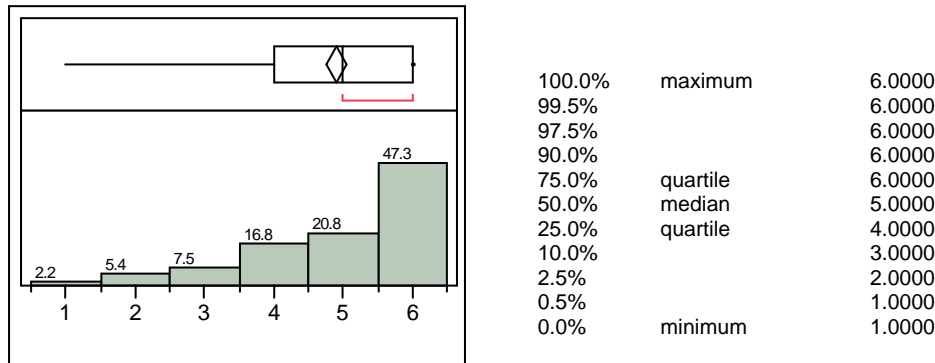
4.3. Traffic & Transport

How **concerned** are you about the safety of our roads and the level of speed of vehicles travelling through the village? (please circle 1 to 6)

Not at all
 1 2 3 4 5 6
 Very

Concern about Safety

The histogram shows the distribution of the responses received. The data are heavily skewed, so it is more appropriate to use the median score rather than the mean score. The median score is 5. This means that approximately 50% of all respondents gave a score of 5 or higher. Only 10% of respondents gave a score of 3 or less. The exact numbers are 68% gave a score of 5 or 6 and 7% gave 2 or 1.



Mean	4.90681
Std Dev	1.3297604
Std Err Mean	0.0796107
upper 95% Mean	5.0635264
lower 95% Mean	4.7500937
N	279

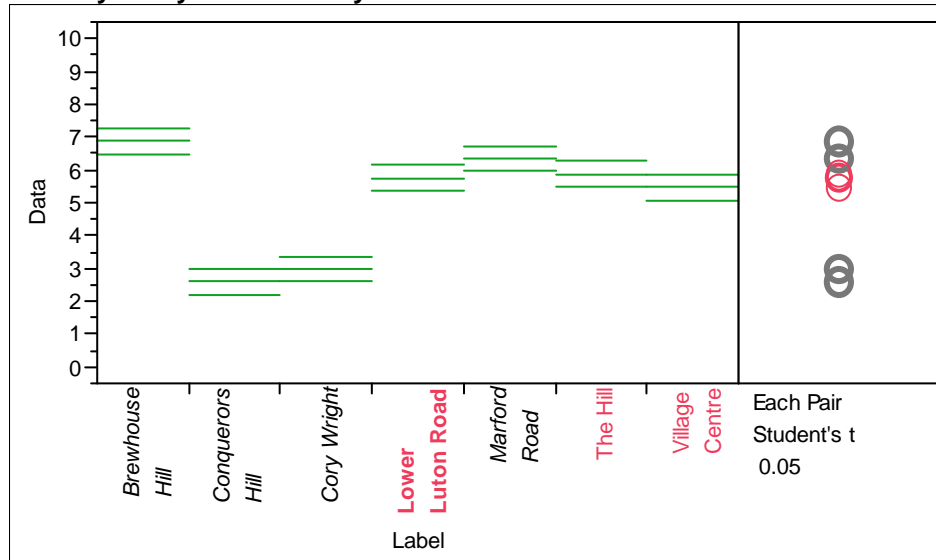
The result indicates that, on average, people are close to being very concerned about road safety and the speed of traffic through the village.

Which areas of the village should traffic speed/safety be improved? (please score each on a scale of 1 to 10, with 10 being the highest)

- () Marford Road
- () Brewhouse Hill
- () The Hill
- () Village Centre
- () Lower Luton Road
- () Conquerors Hill
- () Cory Wright Way ("the by-pass")
- () Other

As with Section 2, The Environment, the appropriate statistical test is to compare means and confidence intervals.

Oneway Analysis of Data By Label



Level		Mean
Brouhouse Hill	A	6.866667
Marford Road	A B	6.3407407
The Hill	B C	5.8814815
Lower Luton Road	C	5.7592593
Village Centre	C	5.4666667
Cory Wright	D	2.9814815
Conquerors Hill	D	2.5925926

Levels not connected by same letter are significantly different.

Brouhouse Hill receives the highest score but it is not significantly different to Marford Road. There is a middle group with Lower Luton Road, The Hill and The Village Centre that get similar and indistinguishable scores. Cory Wright and Conqueror's Hill receive the lowest priority. Notice that only 1.5 points separate the first 5.

To test whether or not respondents voting for their own road bias these scores, a second analysis was performed removing them in turn from each calculation. This was done when more than 5 respondents lived in any of the roads concerned. The mean values with and without these individuals added is shown in the next table:

Location	Number Who Were Residents	Included	Removed
Brouhouse Hill/Church Street	21	6.87	6.66
Marford Road	14	6.34	6.25
Lower Luton Road	20	5.76	5.56
The Hill	8	5.88	5.76

Taking out those that lived in the road being voted on had little effect on the scores. The fact that all of the average scores dropped by a small amount suggests that residents voted for their own road – this is only to be expected. Fortunately, there is sufficient data for that not to have a significant effect on the final conclusions.

There were 69 suggestions under "Other" including ideas on improvement. Requires further analysis.

Which of the following measures, and where, would you support in an attempt to reduce the speeding of traffic through the main roads in the village? (please score each on a scale of 1 to 10, with 10 being the highest)

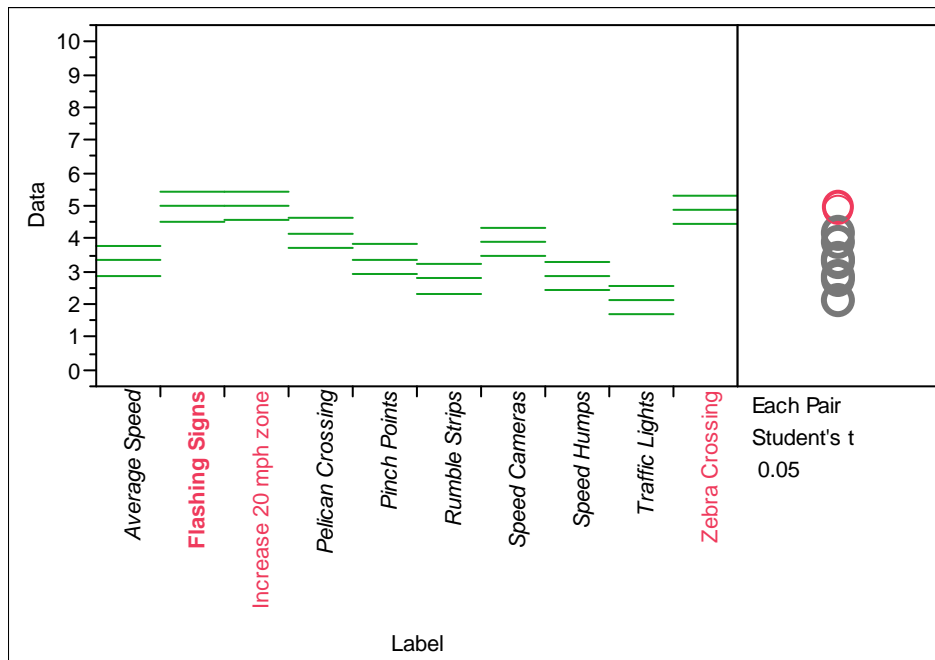
- () Speed humps
- () Pinch points/Chicanes
- () Flashing speed limit signs
- () Zebra crossing

- () Pelican crossing
- () Traffic Lights
- () Increasing the 20mph zone along the main roads in the village centre
- () Rumble Strips
- () Average Speed Checks
- () Speed cameras
- () Other

Oneway Analysis of Data By Label

As might be expected, there is less clarity as to Villagers' requirements for traffic measures. Each of the replies for this question solicited further information from the person completing the survey; in particular the location of any of the measures. A more careful study of those replies is required when the Council decides which to prioritise.

The analysis does tell us, however, that overall Villagers would like to see additional Zebra Crossings, an Increase in the 20 mph Zone and Flashing Signs. They give significantly less priority to Traffic Lights.



Level		Mean
Increase 20 mph zone	A	4.9926199
Flashing Signs	A	4.9815498
Zebra Crossing	A	4.8782288
Pelican Crossing	B	4.1623616
Speed Cameras	B C	3.8929889
Pinch Points	C D	3.3763838
Average Speed	C D	3.3284133
Speed Humps	D	2.8597786
Rumble Strips	D	2.7785978
Traffic Lights	E	2.1365314

Levels not connected by same letter are significantly different.

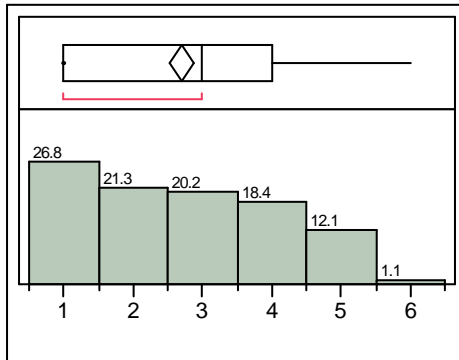
There were 48 responses under "Other".

Do you consider the road surfaces are **adequate** in terms of road safety and quality for both drivers and cyclists? (please circle 1 to 6)

Not at all Very
 1 2 3 4 5 6

Are road surfaces adequate?

As the range of answers for this question is 1 to 6 (5 units) the middle response is 3.5. The median score is 3 and the mean is 2.7. 68% of all responders rated road surfaces on the poor side of adequate. The average of 2.7 was also significantly lower than the mid point of 3.5. One quarter of all respondents rated the surfaces "Not at all" adequate.



100.0%	maximum	6.0000
99.5%		6.0000
97.5%		5.0000
90.0%		5.0000
75.0%	quartile	4.0000
50.0%	median	3.0000
25.0%	quartile	1.0000
10.0%		1.0000
2.5%		1.0000
0.5%		1.0000
0.0%	minimum	1.0000

Mean	2.7095588
Std Dev	1.4064364
Std Err Mean	0.0852777
upper 95% Mean	2.8774499
lower 95% Mean	2.5416678
N	272

If no, which areas do you consider would benefit from resurfacing or repairing?

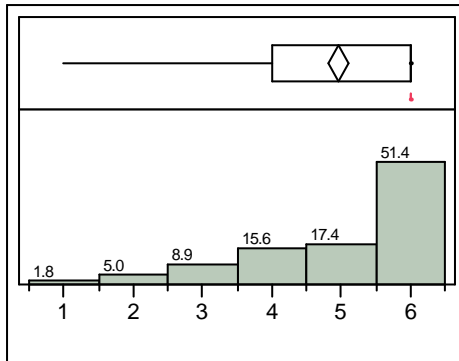
There were 161 suggestions as to where resurfacing is required. The majority of the responses refer to the main traffic areas – Marford Road, The Hill and Brewhouse Hill.

Are you **concerned** about the overall volume of heavy goods vehicles and other large vehicles travelling through the village (including Lower Luton Road)? (please circle 1 to 6)

Not at all 1 2 3 4 5 6 Very

Volume of heavy goods vehicles

The median score is 6 and the mean is approximately 5. Again, parishioners are very concerned about the volume of heavy goods vehicles passing through the village. The median and mean are somewhat different but the median is a better measure as the data are highly skewed. 68% of respondents scored this as 5 or higher and only 7% as 2 or lower.



100.0%	maximum	6.0000
99.5%		6.0000
97.5%		6.0000
90.0%		6.0000
75.0%	quartile	6.0000
50.0%	median	6.0000
25.0%	quartile	4.0000
10.0%		3.0000
2.5%		2.0000
0.5%		1.0000
0.0%	minimum	1.0000

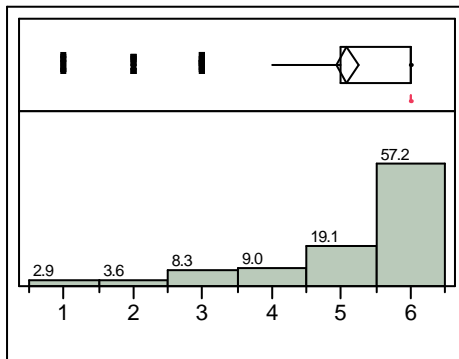
Mean	4.9609929
Std Dev	1.3266646
Std Err Mean	0.0790017
upper 95% Mean	5.1165032
lower 95% Mean	4.8054826
N	282

How **important** is it to have an enforceable lorry ban? (please circle 1 to 6)

Not at all 1 2 3 4 5 6 Very

Importance of lorry ban

Not surprisingly, these results are similar to the answer to the previous question with 76% rating the lorry ban as 5 or higher.



100.0%	maximum	6.0000
99.5%		6.0000
97.5%		6.0000
90.0%		6.0000
75.0%	quartile	6.0000
50.0%	median	6.0000
25.0%	quartile	5.0000
10.0%		3.0000
2.5%		1.0000
0.5%		1.0000
0.0%	minimum	1.0000

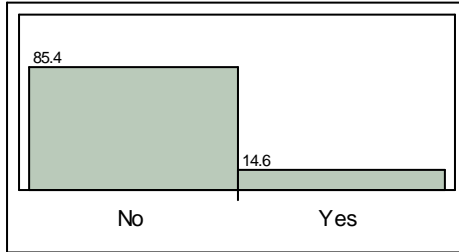
Mean	5.0935252
Std Dev	1.3321468
Std Err Mean	0.0798969
upper 95% Mean	5.2508073
lower 95% Mean	4.936243
N	278

Are you a regular user of the bus services which travel through the village?

Yes No

Regular user of busses

85% of respondents did not use the busses. 11 people failed to answer the question.



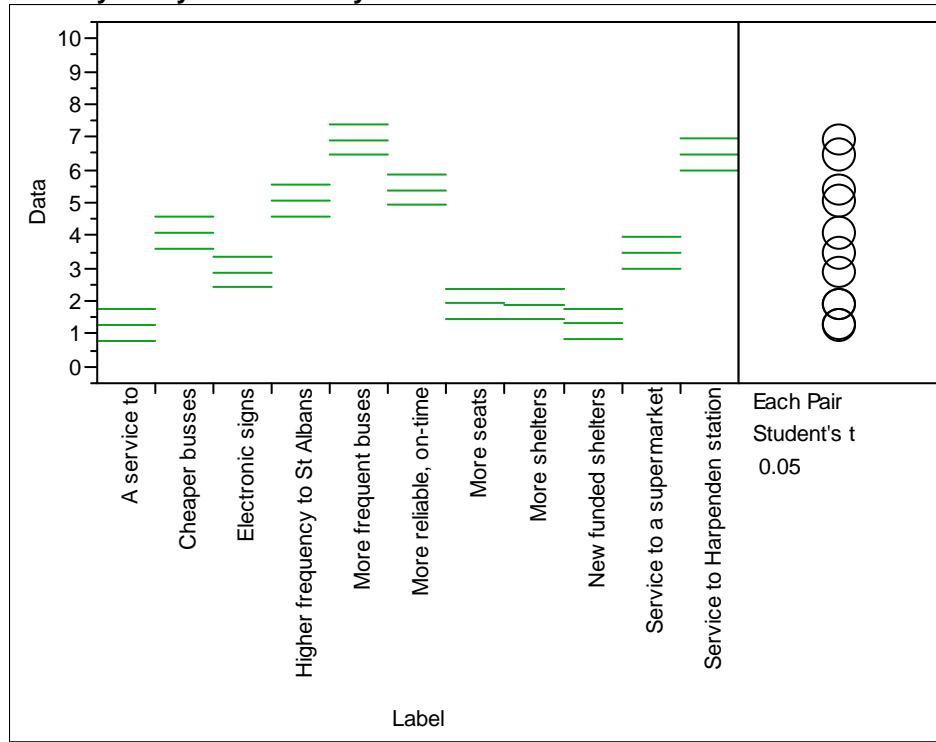
Level	Count	Prob
No	239	0.85357
Yes	41	0.14643
Total	280	1.00000

N Missing 10
2 Levels

If no, what might convince you to use the bus service? (please score each on a scale of 1 to 10, with 10 being the highest)

- () More frequent buses
- () Cheaper buses
- () More reliable, on time service
- () Electronic signs at key bus stops
- () More bus shelters
- () More seats at bus stops
- () A service going to
- () New shelters funded by advertising billboards?
- () A direct bus service to the Harpenden Train station
- () A direct bus service to a local supermarket
- () A more frequent service to St Albans Town Centre
- () Other

Oneway Analysis of Data By Label



Level		Mean
More frequent buses	A	6.9170732
Service to Harpenden station	A	6.4563107
More reliable, on-time	B	5.3853659
Higher frequency to St Albans	B	5.0585366
Cheaper busses	C	4.0731707
Service to a supermarket	C D	3.4757282
Electronic signs	D	2.8780488
More seats	E	1.9170732
More shelters	E	1.9024390
New funded shelters	E	1.3121951
A service to	E	1.2682927

Levels not connected by same letter are significantly different

The results shown above are for all respondents. The analysis suggests that More Frequent Busses and a Service to Harpenden Station would generate more usage, as would More Reliable service, and a Higher Frequency to St Albans.

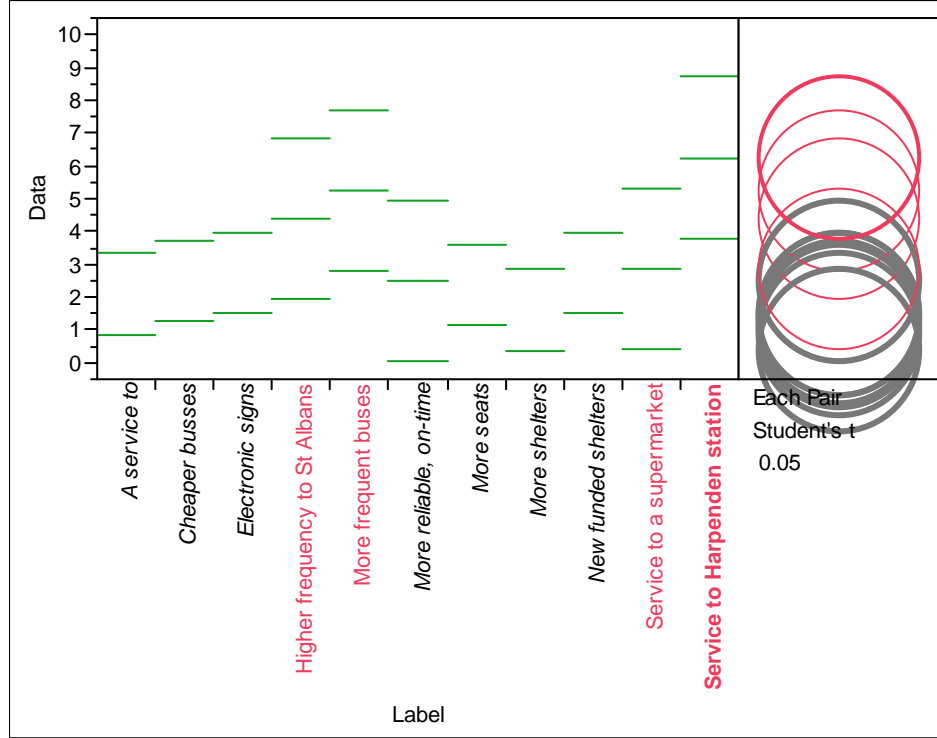
Other Bus Routes suggested are summarised below with their respective number of votes. The numbers are summarised – e.g. Harpenden, Harpenden Station and Southdown are recoded below as simply Harpenden.

Location	Votes
Welwyn Garden City/QEII	10
Harpenden/Southdown	9
Hatfield	5
St Albans & Station	5
Hemel Hempstead	3
Luton Airport	3
Watford	3
Stevenage/Lister Hospital	3
Gustard Wood	2
Central London	1
Hertford	1
Hitchin	1
Redbourn	1

I have done a further analysis to distinguish between regular bus users and those that do not use the services.

The analysis below represents the answers only from those regular users of the service. Because there were only 41 people in this category, the data are much noisier and there is much less confidence in the results. However, a bus service to Harpenden Station is the most popular request by existing users of the service followed by “more frequent services”. Notice that the supermarket service is part of Group A but it has a much lower score. This is also because of the small sample size.

Oneway Analysis of Data By Label

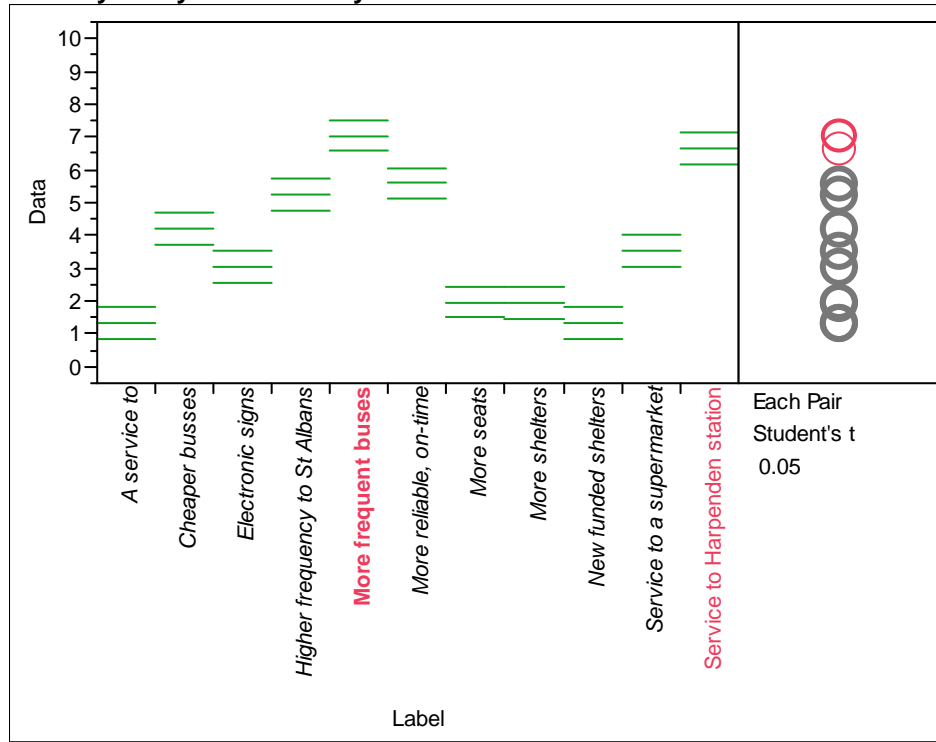


Level	Mean
Service to Harpenden station	A 6.250000
More frequent buses	A B 5.250000
Higher frequency to St Albans	A B C 4.375000
Service to a supermarket	A B C D 2.875000
More reliable, on-time	B C D 2.500000
Electronic signs	C D 1.500000
New funded shelters	C D 1.500000
Cheaper busses	C D 1.250000
More seats	C D 1.125000
A service to	D 0.875000
More shelters	D 0.375000

Levels not connected by same letter are significantly different.

The following are the results for non-bus users. The results appear clearer because there are more data.

Oneway Analysis of Data By Label



Level		Mean
More frequent buses	A	7.0471204
Service to Harpenden station	A	6.6302083
More reliable, on-time	B	5.5811518
Higher frequency to St Albans	B	5.2356021
Cheaper busses	C	4.2198953
Service to a supermarket	C D	3.5520833
Electronic signs	D	3.0209424
More seats	E	1.9738220
More shelters	E	1.9319372
New funded shelters	E	1.3403141
A service to	E	1.3193717

Levels not connected by same letter are significantly different.

It was possible to compare answers between users and non-users for each option. I obtained the following results by applying a t-Test between groups. Non-users are more likely to use the service if it were cheaper. Users were more likely to use it more if there was a service to Harpenden Station. Note that these results are sometimes derived from small sample sizes.

Option	Difference (User Score) – (Non-User Score)	Significant?
A Service to ...	-0.44	No
Cheaper Busses	-2.97	Yes
Electronic Signs	-1.52	No
Higher Frequency to St Albans	-0.86	No
More Frequent Busses	-1.8	No
More Reliable, On-time	-3.1	Yes (marginal)
More Seats	-0.85	No
More Shelters	-1.56	Yes
New Funded Shelters	0.16	No
Service to Supermarket	-0.68	No
Service to Harpenden Station	-0.38	No

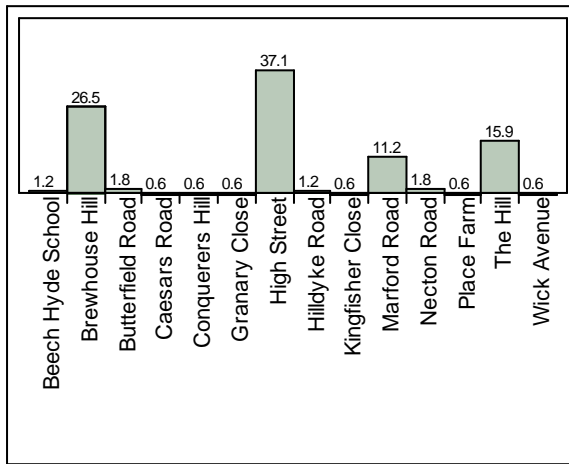
Users regard cost, reliability and the provision of shelters less of an issue than non-users. Both groups agree that they would like more busses and a service to Harpenden Station. s

There were 48 replies under "Other" most referring to improvements in the service destinations, e.g. Harpenden Station.

Are there any areas where you consider parking to be a problem? Please give details

Problem Areas

Parking problem area responses are summarized below. For simplicity, responses have been abbreviated so that, for example, Brewhouse Hill includes Church Street. The High Street includes Station Road, etc. Many respondents commented on the difficulty caused by parked cars in Marford Road for those vehicles trying to leave Necton Road. A number of respondents made the point that the free car park in East Lane is often full. More analysis will be required.



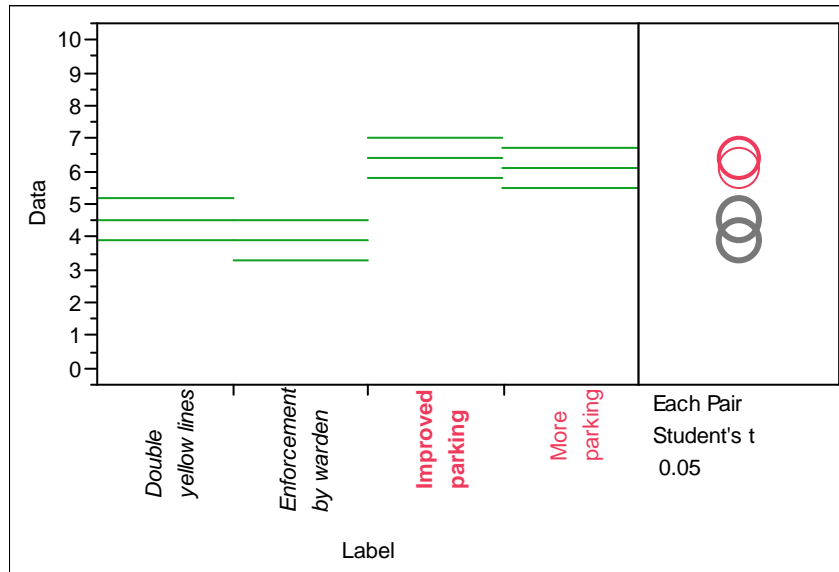
Level	Count	Prob
Beech Hyde School	2	0.01176
Brewhouse Hill	45	0.26471
Butterfield Road	3	0.01765
Caesars Road	1	0.00588
Conquerers Hill	1	0.00588
Granary Close	1	0.00588
High Street	63	0.37059
Hillyke Road	2	0.01176
Kingfisher Close	1	0.00588
Marford Road	19	0.11176
Necton Road	3	0.01765
Place Farm	1	0.00588
The Hill	27	0.15882
Wick Avenue	1	0.00588
Total	170	1.00000

If so, how would you like to see the parking problem resolved? (please score each on a scale of 1 to 10, with 10 being the highest)

- () Double yellow lines
- () Enforcement by traffic warden of current double yellow lines
- () Improved off-street parking
- () More car park space
- () Other

Oneway Analysis of Data By Label

These results indicate that parishioners want improved parking and more parking in preference to double yellow lines or enforcement by warden.



Level		Mean
Improved parking	A	6.4180791
More parking	A	6.0960452
Double yellow lines	B	4.5367232
Enforcement by warden	B	3.8813559

Levels not connected by same letter are significantly different.

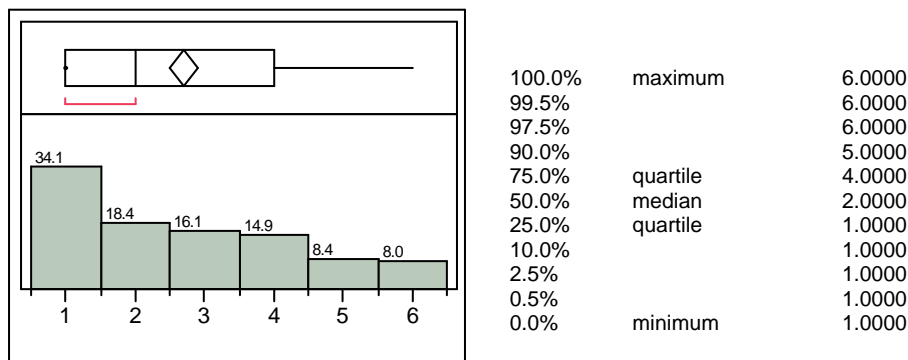
There were 30 replies under "Other". These mentioned a number of measures including more bollards on pavements, adjusting and increasing parking.

How **difficult** do you find it to park in the village centre to use the shops and other facilities there? (please circle 1 to 6)

Not at all 1 2 3 4 5 6 Very

How difficult is it to park

The analysis reveals that Villagers do not find it difficult to park. A median response of 2 is probably a better measure of the response than the mean (2.7). Either way, 52% of the 261 respondents scored this at 2 or less.



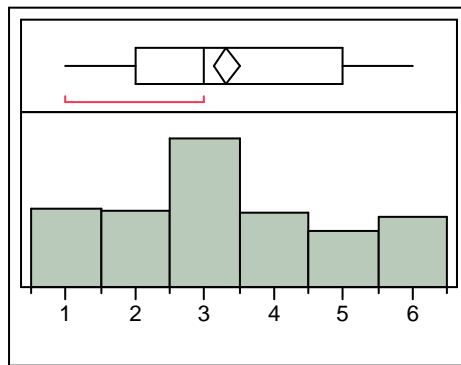
Mean	2.6934866
Std Dev	1.6355179
Std Err Mean	0.101236
upper 95% Mean	2.8928335
lower 95% Mean	2.4941397
N	261

Do you feel that the junction with King Edward Place and the High Street is **dangerous** for public access? (please circle 1 to 6)

Not at all
 1 2 3 4 5 6
 Very

Safety at King Edward Place

The median and the mean response are similar to each other for this question and indicate mixed feelings on the safety at King Edward Place.



100.0%	maximum	6.0000
99.5%		6.0000
97.5%		6.0000
90.0%		6.0000
75.0%	quartile	5.0000
50.0%	median	3.0000
25.0%	quartile	2.0000
10.0%		1.0000
2.5%		1.0000
0.5%		1.0000
0.0%	minimum	1.0000

Mean	3.3251029
Std Dev	1.5919696
Std Err Mean	0.1021249
upper 95% Mean	3.5262701
lower 95% Mean	3.1239357
N	243

Do you have any further comments on Traffic and Transport in Wheathampstead?

There were 119 comments in this section with suggestions for traffic improvement. This data requires further analysis.

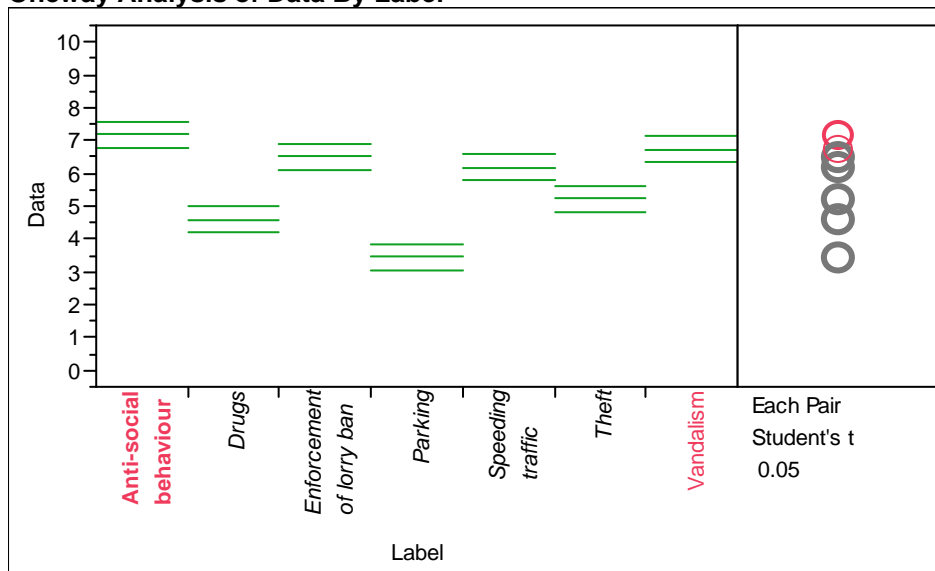
4.4. Crime & Disorder

What do you perceive are the main priorities for policing in Wheathampstead? (please score each on a scale of 1 to 10, with 10 being the highest)

- () Speeding traffic
- () Enforcement of lorry ban
- () Anti Social Behaviour
- () Theft
- () Drugs
- () Vandalism
- () Parking
- () Other

It is clear that parishioners believe that the main priority for policing in the Village centres around vandalism, anti-social behaviour, enforcement of lorry ban and speeding traffic. Note that only 1 point separates these four. Parking is not a high-priority issue for policing.

Oneway Analysis of Data By Label



Level	Mean
Anti-social behaviour	7.1814815
Vandalism	6.7370370
Enforcement of lorry ban	6.5000000
Speeding traffic	6.1814815
Theft	5.2148148
Drugs	4.6000000
Parking	3.4444444

Levels not connected by same letter are significantly different.

Are there any areas/times that you consider anti-social behaviour to be an issue? Please give details and any evidence you have personally experienced.

There were 144 responses to this question out of 290 surveys returned. Most common answer is outside of the One Stop shop in the High Street. More analysis required.

Are there any areas/times that you consider drug taking/dealing/ underage drinking to be a problem? Please give details.

There were 108 responses to this question out of 290 surveys returned. Most common answer is away from the Village Centre in open spaces. More analysis required.

Are there any areas where you consider vandalism to be a problem? Please give details

There were 116 responses to this question out of 290 surveys returned. A wide spread of answers with St Helen's being quoted often. Requires more careful analysis.

Are there any areas of Wheathampstead where you feel unsafe? Please give details

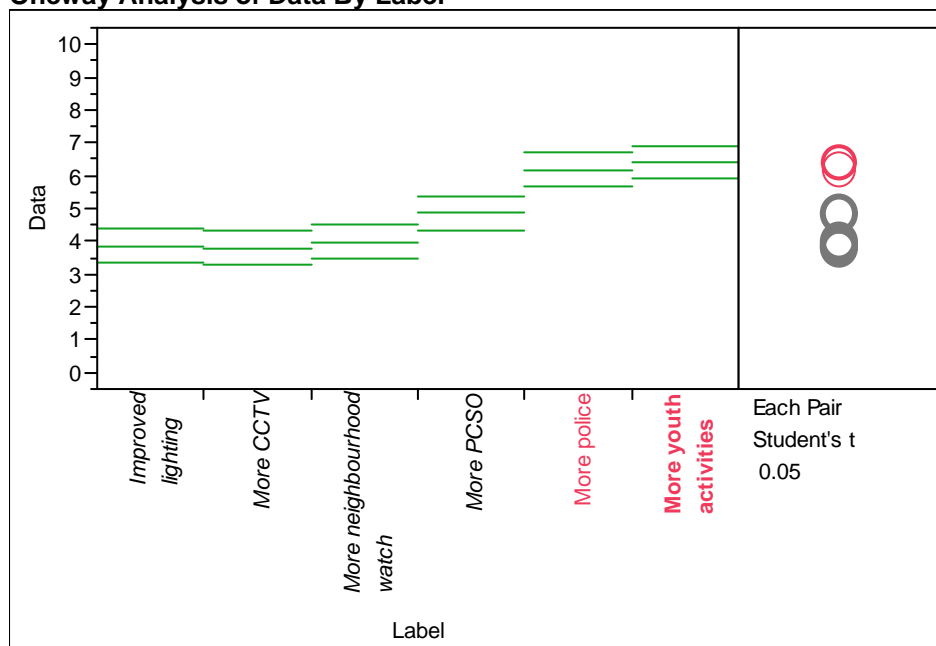
There were 118 responses to this question out of 290 surveys returned. Half of the answers said "no" or "none". Several others said they didn't go out at night. Most answers referred to the village centre and St Helen's. More careful analysis is required.

How would you like these problems to be solved? (please score each on a scale of 1 to 10, with 10 being the highest)

- () More police
- () More PCSO
- () More use of Neighbourhood Watch
- () More youth activities
- () More CCTV in village centre
- () Improved street lighting
- () Other

More youth activities and more police stand out as the main solution to the problems highlighted above. This is closely followed by more PCSOs

Oneway Analysis of Data By Label



Level		Mean
More youth activities	A	6.3990826
More police	A	6.1788991
More PCSO	B	4.8532110
More neighbourhood watch	C	3.9908257
Improved lighting	C	3.8577982
More CCTV	C	3.7981651

Levels not connected by same letter are significantly different.

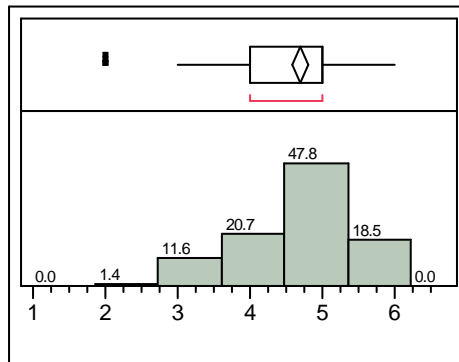
There were 12 suggestions under "Other" most involving parental responsibilities and CCTV.

Do you regard Wheathampstead as a village with a low crime rate and a **safe** place to live in ? (please circle 1 to 6)

Not at all Very
 1 2 3 4 5 6

Is Wheathampstead safe?

Villagers on average regard Wheathampstead as a safe place to live. 66% of answers scored 5 or 6 and only 13% scored it 3 or less.



100.0%	maximum	6.0000
99.5%		6.0000
97.5%		6.0000
90.0%		6.0000
75.0%	quartile	5.0000
50.0%	median	5.0000
25.0%	quartile	4.0000
10.0%		3.0000
2.5%		3.0000
0.5%		2.0000
0.0%	minimum	2.0000

Mean	4.7028986
Std Dev	0.9489471
Std Err Mean	0.0571199
upper 95% Mean	4.8153464
lower 95% Mean	4.5904507
N	276

Do you have any further comments on crime and policing in Wheathampstead?

74 people offered other comments. These are wide-ranging and frequently refer to the visibility of police and PCSOs. This question needs further analysis.

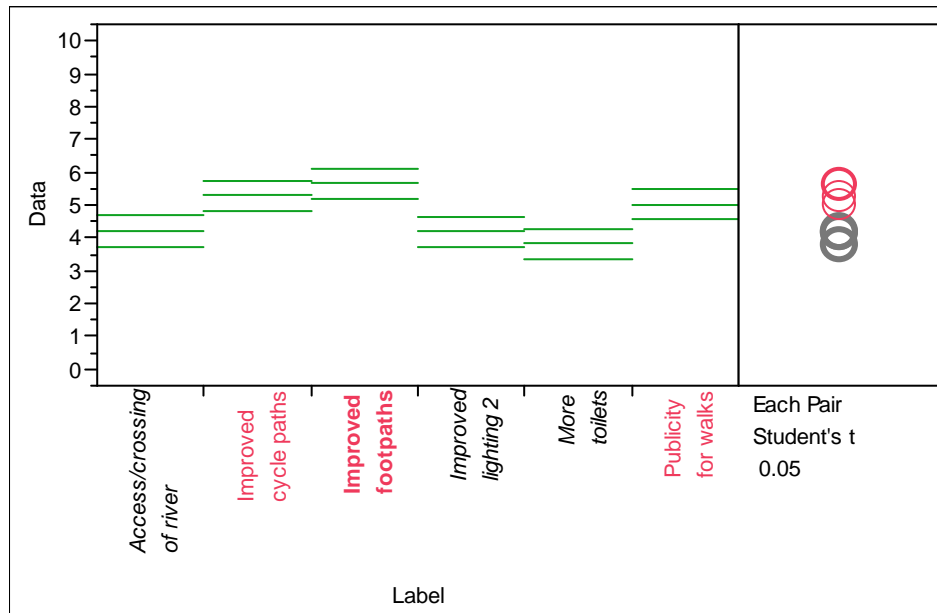
4.5. Public Footpaths, Cycle Paths & Bridalways

What do you think are the main priorities for public access? (please score each on a scale of 1 to 10, with 10 being the highest)

- Improved cycle paths
- Improved footpaths
- Improved street lighting
- More public toilets
- Improved publicity for countryside walks
- Improved access/crossings of the river

Oneway Analysis of Data By Label

The differences between the first three and second three options is not so great. Marginally, parishioners would like to see footpaths, cycle paths and publicity for walks improved over the other possibilities.



Level		Mean
Improved footpaths	A	5.6557377
Improved cycle paths	A	5.2950820
Publicity for walks	A	5.0163934
Access/crossing of river	B	4.2049180
Improved lighting 2	B	4.1762295
More toilets	B	3.8155738

Levels not connected by same letter are significantly different.

Where would you like to see improved cycle paths in the area?

- Wheathampstead – Harpenden
- Wheathampstead – Luton
- Wheathampstead – St Albans
- Other

The intention was for each respondent to tick one option. As many selected more than one, the total of all destinations specified has been calculated. 182 respondents selected one or more destinations. The percentages shown are calculated against this number.

The following is a summary of the result:

Destination	% of those that replied	Votes
Harpenden	89.6%	163
St Albans	65.4%	119
Luton	30.2%	55
Welwyn Garden City	6%	11
Gustard Wood	1.1%	2
Kimpton	1.1%	2
Lemsford	1.1%	2
Hatfield	0.5%	1

Please give details of any footpaths that need maintenance in Wheathampstead?

92 responses were received for footpath maintenance. These need further study.

Please give details of any areas in Wheathampstead where you think we need an extra path?

64 suggestions for extra paths. About 15 cited Harpenden, Batford, Cherry Trees, Lower Luton Road Harpenden Road.

Do footpaths in the village have sufficient lighting to make them safe and accessible?

Yes No Don't know

Sufficient lighting?

31% felt that lighting was sufficient, 27% felt it was insufficient and 42% didn't know.

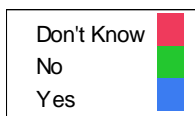
Frequency

Don't Know	No	Yes	Responses
87	55	63	205

Share of Responses

Don't Know	No	Yes	Responses
0.4244	0.2683	0.3073	205

Share Chart



If no, where could lighting be improved?

Although 55 answered “No” to the previous question 64 provided information on where lighting could be improved. Further analysis is required.

Where would you like to see new public toilets placed?

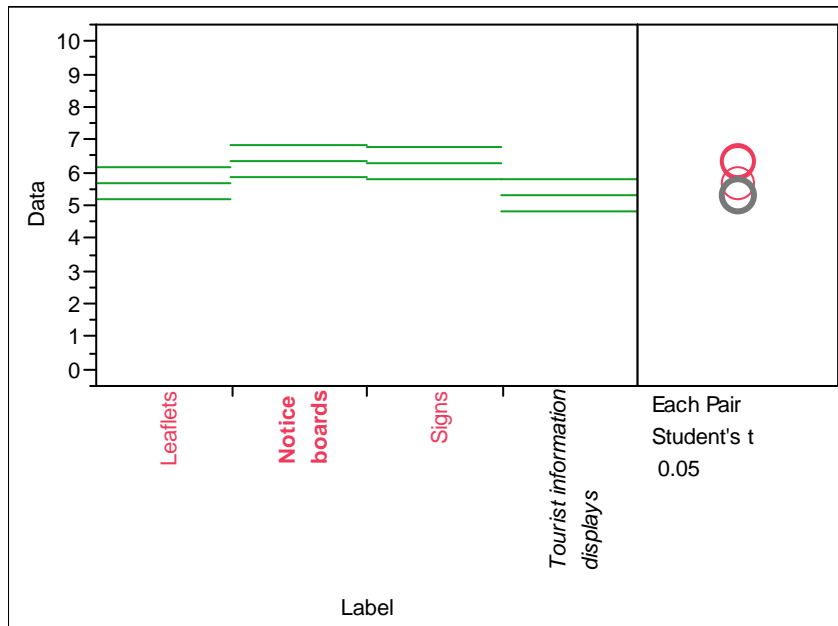
Of the 140 replies to this question, many (52) were for the Memorial Hall/Playing Fields. Many also suggested the current ones should be improved.

How would you like to see countryside walks publicised? (please score each on a scale of 1 to 10, with 10 being the highest)

- () Leaflets
- () Signs
- () Notice-board type displays
- () Via local tourist information displays
- () Other

Oneway Analysis of Data By Label

None of these answers stands out as most significant. The total range of average answers is from 5.3 to 6.3.



Level		Mean
Notice boards	A	6.3303965
Signs	A	6.2599119
Leaflets	A B	5.6475771
Tourist information displays	B	5.2863436

Levels not connected by same letter are significantly different.

There were 24 “Other” suggestions the most common being a web site, booklets and maps.

How would you like to see pedestrian river crossings improved/maintained?

There were 82 responses to this question of which 17 said they were currently sufficient. More analysis is required.

4.6. Village Day

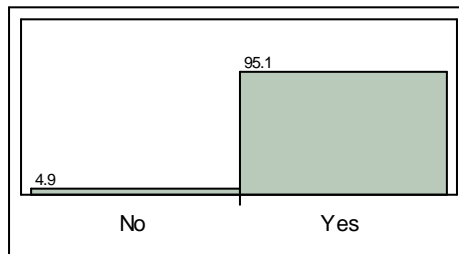
Wheathampstead Parish Council sponsors and organises an annual Village Day for the community of Wheathampstead, held every July.

Are you aware of the annual Village Day Parade and stalls/shows on the Marford Field?

Yes No

Aware of Village Day?

95% respondents were aware of Village Day. 7 didn't answer the question



Level	Count	Prob
No	14	0.04947
Yes	269	0.95053
Total	283	1.00000

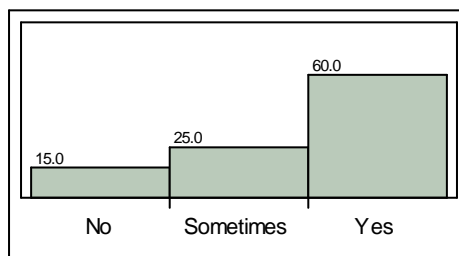
N Missing 7
2 Levels

Do you attend Village Day?

Yes No Sometimes

Attend Village Day?

60% of the respondents said they attended with 25% attending sometimes. 10 didn't answer.



Level	Count	Prob
No	42	0.15000
Sometimes	70	0.25000
Yes	168	0.60000
Total	280	1.00000

N Missing 10
3 Levels

If not, why not?

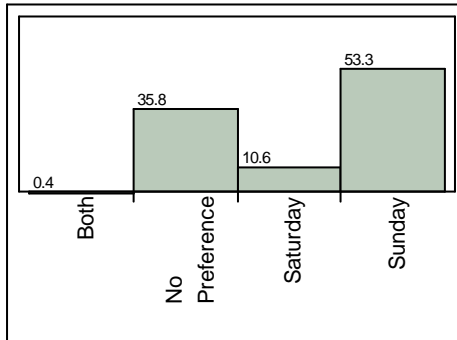
There were 58 replies. Many people (28 out of 58) had other commitments such as work or holidays. Several were new to the village and were unaware of the event and a surprising number answered "Not sure of purpose" or "thought it was only for families with children".

On which day should Village Day be held?

Saturday Sunday No preference

Which day should it be held?

Only 11% would want to see it on Saturday. 89% don't care or are happy with Sunday. One respondent wanted it to be held on two days – like the Kimpton Fair.



Level	Count	Prob
Both	1	0.00365
No Preference	98	0.35766
Saturday	29	0.10584
Sunday	146	0.53285
Total	274	1.00000

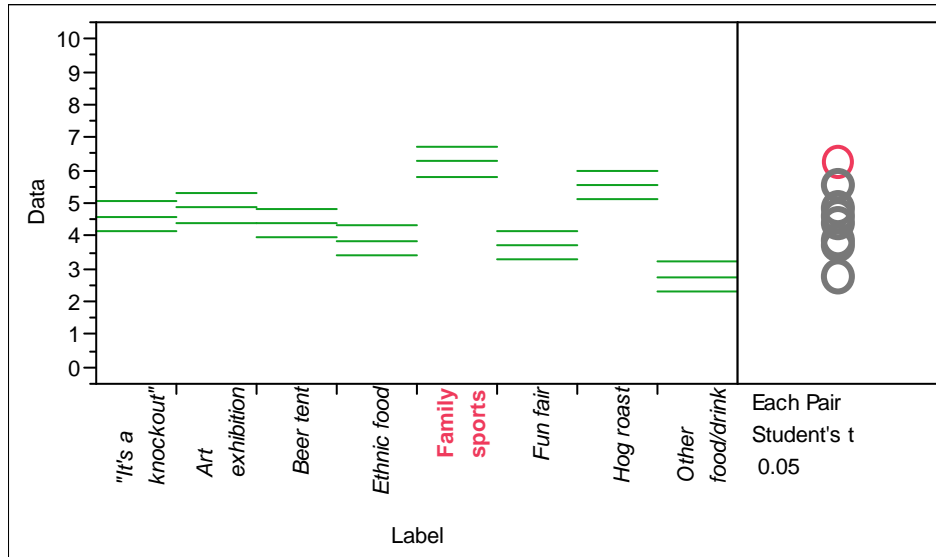
N Missing 16
4 Levels

Which of the following would you like us to consider for future Village Days? (please score each on a scale of 1 to 10, with 10 being the highest)

- () Beer Tent
- () Hog Roast
- () Ethnic foods, i.e. Indian snacks
- () Other food/drink (please state)
- () Fun Fair
- () Art Exhibition
- () "It's a Knockout"-style games
- () Traditional "sports-day" events for the whole family
- () Other attractions/events

Oneway Analysis of Data By Label

Family sports and a hog roast are the favourites for the Village Day. A fun fare is the least popular along with other food and drink.



Level	Mean
Family sports	6.2620087
Hog roast	5.5502183
Art exhibition	4.8689956
"It's a knockout"	4.5851528
Beer tent	4.3886463
Ethnic food	3.8646288
Fun fair	3.7205240
Other food/drink	2.7554585

Levels not connected by same letter are significantly different.

Other foods included:

Food	Votes
Polish	1
Wine/Cider	1
Coffee/Tea/Soft Drinks	8
English Snacks/Cream Teas	2
BBQ	3
For kids	1
Ice Cream	1
Local Produce	1
Vegetarian	1
Total	19

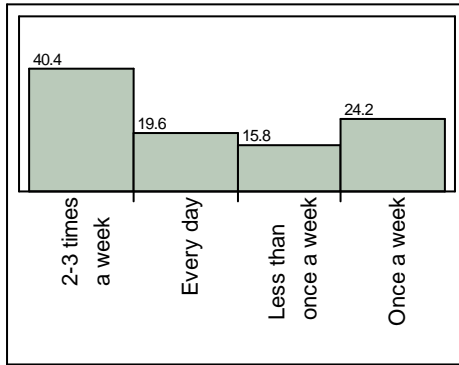
There were 73 replied under "Other Attractions" and these need further consideration.

4.7. Shops & Businesses

How often do you use the shops and services in the centre of Wheathampstead?

- Every Day
- 2-3 Times a week
- Once a week
- Less than once a week

How often do you use shops and services?



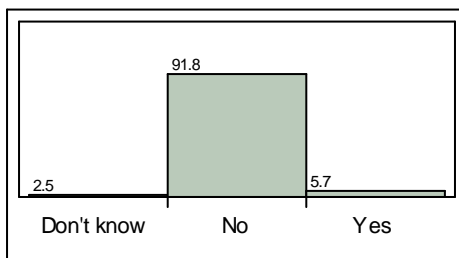
Level	Count	Prob
2-3 times a week	115	0.40351
Every day	56	0.19649
Less than once a week	45	0.15789
Once a week	69	0.24211
Total	285	1.00000

N Missing 5
4 Levels

Do you think that the shopping facilities in Wheathampstead are sufficient for a village with almost 3000 homes?

Yes No Don't know

Are shopping facilities adequate?



Level	Count	Prob
Don't know	7	0.02509
No	256	0.91756
Yes	16	0.05735
Total	279	1.00000

N Missing 11
3 Levels

When did you last shop in the village?

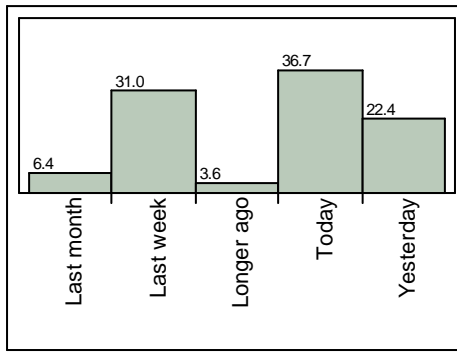
- Today
- Yesterday
- Last week
- Last month
- Longer ago

How much did you spend? £

When did you last shop in village?

The only part of this question that can be used in isolation is the average spend. 192 people replied and the average spend was between £7.48 and £12.56 (Average £10.02).

The part of the question that asks when the respondent last shopped in the village will be better used for comparison when the Council conducts the next survey.



Level	Count	Prob
Last month	18	0.06406
Last week	87	0.30961
Longer ago	10	0.03559
Today	103	0.36655
Yesterday	63	0.22420
Total	281	1.00000

N Missing 9
5 Levels

If you believe this result represents the village as a whole, then in any two days at least one person from 59% of households in the village used shops or services in the village. This suggests a footfall of over 880 people visiting local businesses each day.

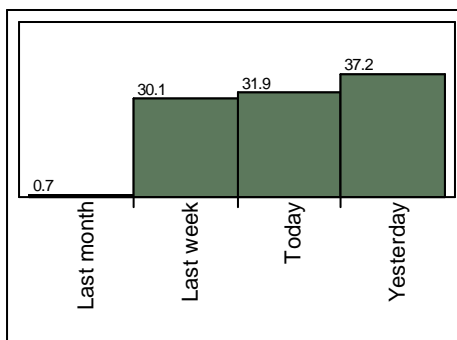
When did you last shop outside the village?

- Today
- Yesterday
- Last week
- Last month
- Longer ago

How much did you spend? £

When did you last shop outside village?

Average spend outside the village was between £53.86 and £70.10 (Average £61.98) based on 189 replies. The shopping pattern was as follows:



Level	Count	Prob
Last month	2	0.00709
Last week	85	0.30142
Today	90	0.31915
Yesterday	105	0.37234
Total	282	1.00000

N Missing 8
4 Levels

For comparison, this means that over 1,000 people shopped outside the village on any day compared with 880 who shopped in the village.

Why do you choose to shop outside the village?

There were 275 replied to this question and the vast majority stated variety and price.

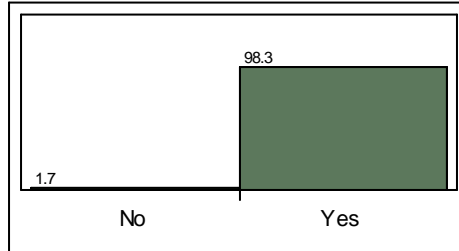
The Parish Council can have no direct influence, but it would provide invaluable guidance for District Council planners, who will use much of the data collected in this questionnaire, if you could indicate what shops and businesses you would like to see in the village centre?

This question requires further analysis. There were 238 replies most suggesting 3 or more options.

Are you aware of the shops in Mill Walk (butcher, jeweller, gourmet foods)?

Yes No

Are you aware of Mill Walk shops?



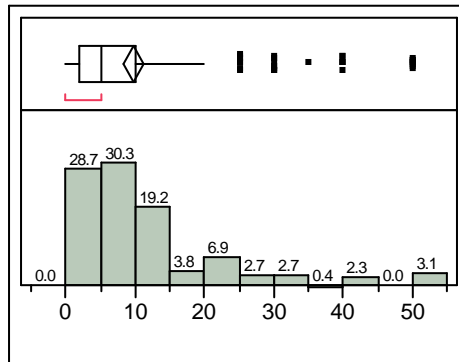
Level	Count	Prob
No	5	0.01748
Yes	281	0.98252
Total	286	1.00000

N Missing 4
2 Levels

What proportion of your shopping and use of services do you do in Wheathampstead?
_____%

Proportion of shopping/services

Because these data are skewed, the median of 5% is probably a more representative answer than the mean of 9.8%. If the total average spend in shops (earlier question) is £72.00 of which £10.02 is in the village, this suggests a mean value of $10.02/72.00 = 14\%$. The difference may be accounted for by the inclusion of services in this question.



100.0%	maximum	50.000
99.5%		50.000
97.5%		50.000
90.0%		25.000
75.0%	quartile	10.000
50.0%	median	5.000
25.0%	quartile	2.000
10.0%		1.000
2.5%		0.000
0.5%		0.000
0.0%	minimum	0.000

Mean	9.7854406
Std Dev	11.307585
Std Err Mean	0.6999219
upper 95% Mean	11.163678
lower 95% Mean	8.4072033
N	261

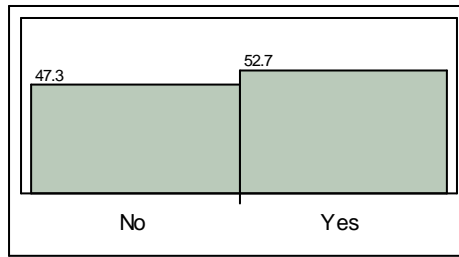
What would make you increase the percentage of your shopping you do in Wheathampstead?

There were 261 replies most referring to value and variety. These responses require further analysis.

Do you visit the library in Wheathampstead?

Yes No

Do you use library?



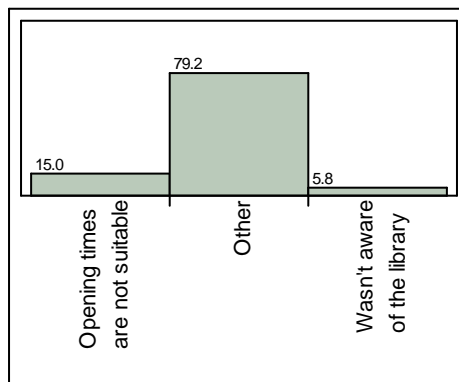
Level	Count	Prob
No	132	0.47312
Yes	147	0.52688
Total	279	1.00000

N Missing 11
2 Levels

If not, why not?

- Opening times are not suitable
- Wasn't aware of the library
- Other

If no, why not?



Level	Count	Prob
Opening times are not suitable	18	0.15000
Other	95	0.79167
Wasn't aware of the library	7	0.05833
Total	120	1.00000

N Missing 170
3 Levels

Nearly 80% of those who don't use the library selected the "Other" option. Combining a rough analysis of the "Other" comments gives the following summary:

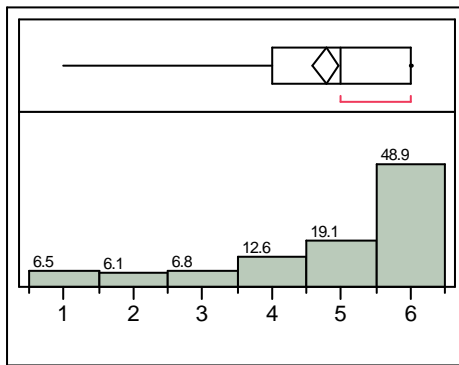
Reason	Count	Percentage
Opening times are not suitable	18	15%
Buy books	17	14%
Don't use libraries	15	12%
Use different library (e.g. Harpenden)	11	9%
Wasn't aware of the library	7	6%
Don't read	4	3%

How severely would the loss of a Post Office affect your household?

Not at all 1 2 3 4 5 6 Very

Severity of loss of post office

Once again the median is best used to evaluate this response. 68% of respondents scored it at 5 or 6 with 12% scoring it as 1 or 2.



100.0%	maximum	6.0000
99.5%		6.0000
97.5%		6.0000
90.0%		6.0000
75.0%	quartile	6.0000
50.0%	median	5.0000
25.0%	quartile	4.0000
10.0%		2.0000
2.5%		1.0000
0.5%		1.0000
0.0%	minimum	1.0000

Mean	4.7841727
Std Dev	1.5610909
Std Err Mean	0.093628
upper 95% Mean	4.9684855
lower 95% Mean	4.5998598
N	278

If not, why not?

There were 242 responses to this question. The answers to this question could be used to find out what facility the village would need should the Post Office have to close in the future. Requires further analysis.

4.8. Young People

This section is to be answered only by people aged 18 or under, or by their parent or guardian.

Concern has been expressed that Wheathampstead does not provide enough local facilities for young people and that it has never recovered from the loss of the Youth Club some years ago. The Parish Council are looking at possible youth facilities in the village and would appreciate your views on this.

Where in the village would you like to see a Hard Surface area for football, basketball and other ball games?

- () Marford Playing Fields
- () Butterfield Road Playing Fields
- () Other

There were 38 votes for Marford Playing Fields and 20 votes for Butterfield Playing Fields. There were 5 other suggestions. These were:

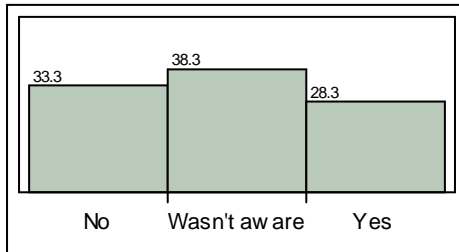
- Nomansland Common
- Replace old skate part with basketball area
- Behind Church Green/Bury Green
- Maltings Drive
- Hillydyke (2 votes)

Have you attended any of the Youth Activities in the village supported by the Parish Council?

Yes No Wasn't aware there were any

Attended youth activities?

38% of respondents were not aware of youth activities – a surprisingly high number.



Level	Count	Prob
No	20	0.33333
Wasn't aware	23	0.38333
Yes	17	0.28333
Total	60	1.00000

How do you think the play equipment in the village could be improved?

- More play areas
- Improved equipment for under 5s
- Improved equipment for teenagers
- Other.....

There were 16 votes for more play areas, 11 votes for improved equipment for under 5s and 32 votes for improved equipment for teenagers.

There were 30 respondents who have children under 5 but only 6 voted for improved equipment for under 5s.

There were 39 respondents with teenage children and 16 of these voted for improved equipment for teenagers.

Which youth activities would you like to see in Wheathampstead?

There were 43 replies for additional youth activities. These included the following:

Youth Club/Cinema	22
Sports Club	12
Skate Park	5
Cycle Cross/BMX	4
Internet Café	3
Video Games	2
Judo Club	1
Trampoline	1
Horse Riding	1
Fishing	1
Adventure Equipment	1
Climbing Wall	1
Dance Classes	1
Drama	1
Pool/Table Tennis	1

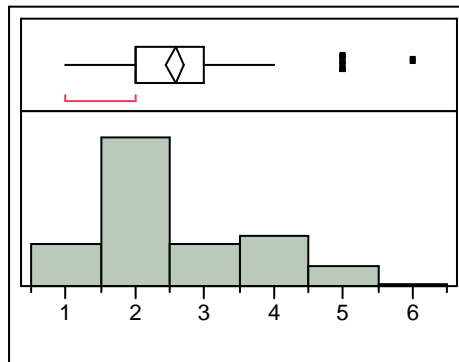
4.9. Household Questions

To ensure our Village Plan represents the whole Wheathampstead community, please answer the following questions. If there are any questions that you would prefer not to answer, please leave them blank.

What is the total number of people in your household? _____

Total number in household

For this set of surveys, there is an average of 2.6 people in each household. 62% of households have 2 or less occupants. It may be true that those households with children were less likely to return their surveys.



100.0%	maximum	6.0000
99.5%		6.0000
97.5%		5.0000
90.0%		4.0000
75.0%	quartile	3.0000
50.0%	median	2.0000
25.0%	quartile	2.0000
10.0%		1.0000
2.5%		1.0000
0.5%		1.0000
0.0%	minimum	1.0000

Mean	2.5729537
Std Dev	1.1783076
Std Err Mean	0.0702919
upper 95% Mean	2.7113215
lower 95% Mean	2.434586
N	281

How many people are there in each age group in your household?

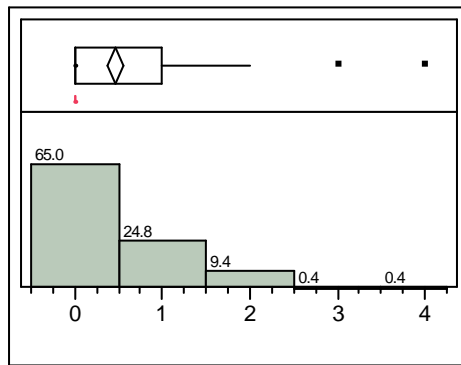
Under 5 _____ 5-11 _____ 12-18 _____
 19-30 _____ 31-45 _____ 45-60 _____
 61 and over _____

Number	Under 5	5-11	12-18	19-30	31-45	45-60	61 and over
1	18	23	25	25	31	39	42
2	10	15	12	8	53	56	88
3	2	2	2	2	0	0	0
4	0	0	0	0	0	0	1

How many people in your household work from home? _____

How many work from home?

A quarter of all households that replied had one occupant who worked from home. 10% had two or more who worked from home.



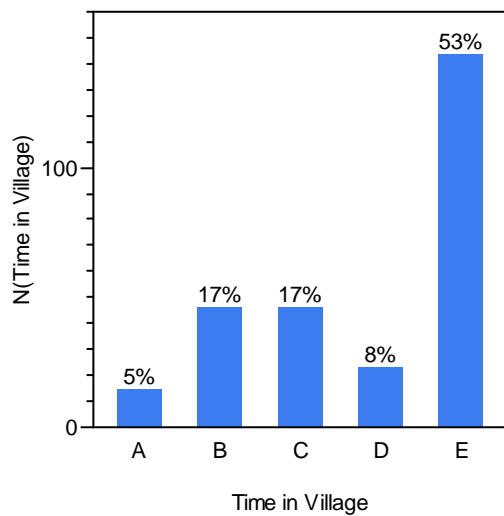
100.0%	maximum	4.0000
99.5%		3.8250
97.5%		2.0000
90.0%		2.0000
75.0%	quartile	1.0000
50.0%	median	0.0000
25.0%	quartile	0.0000
10.0%		0.0000
2.5%		0.0000
0.5%		0.0000
0.0%	minimum	0.0000

Mean	0.465812
Std Dev	0.7183269
Std Err Mean	0.0469585
upper 95% Mean	0.5583295
lower 95% Mean	0.3732944
N	234

How long have you lived in Wheathampstead?

- Less than 1 year 1-5yrs
 6-10yrs 11-15yrs
 15+ years

53% of respondents have lived in the village for 15 years or more.



Label	Category	Count	Prob
	Less than 1		
A	year	15	0.058182
B	1 to 5 years	46	0.167273
C	6 to 10 years	46	0.167273
D	11 to 15 years	23	0.083636
E	15+ years	144	0.523636
	Total	274	

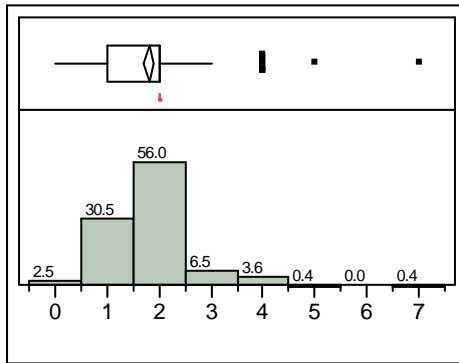
What is the main reason you came to live in Wheathampstead?

Most responses (265) came because they liked the village and the rural setting. They also liked the access to other towns and London. Only 8% were born here or had been brought-up here and also 8% came here because of work.

How many cars are there in your household?___

How many cars in household?

There was an average if 1.8 cars per household. 56% of all households surveyed had two cars. Only 2.5% had no car at all. One household had 5 cars and one had 7.



100.0%	maximum	7.0000
99.5%		6.2400
97.5%		4.0000
90.0%		3.0000
75.0%	quartile	2.0000
50.0%	median	2.0000
25.0%	quartile	1.0000
10.0%		1.0000
2.5%		0.0000
0.5%		0.0000
0.0%	minimum	0.0000

Mean	1.8109091
Std Dev	0.8418074
Std Err Mean	0.0507629
upper 95% Mean	1.910844
lower 95% Mean	1.7109742
N	275

Which road do you live in?_____

A summary of this data is shown in the appendix.

This question can be used to find where there are gaps in the survey by plotting locations on a village map. Areas showing few respondents should be canvassed again to balance the survey.

What is your regular means of travel to work/school?

- Bus Car Train
 Cycle Walk Other

Mode of Transport	Number
Bus	30
Car	177
Train	36
Cycle	10
Walk	41

Several replies used a number of forms of transport to get to work. This may require further analysis.

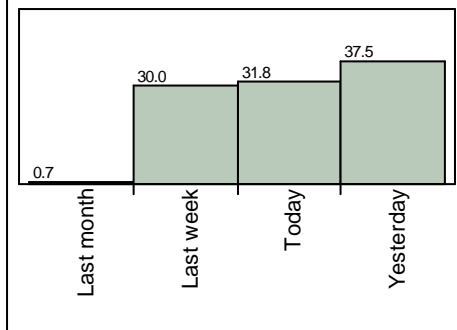
Others included several “retired” or “don’t work” and one motorcycle.

5. Technical Notes

There are three basic analyses performed using JMP software from SAS Institute.

5.1. Simple distributions using categorical variables.

When did you last shop outside village?



Level	Count	Prob
Last month	2	0.00707
Last week	85	0.30035
Today	90	0.31802
Yesterday	106	0.37456
Total	283	1.00000

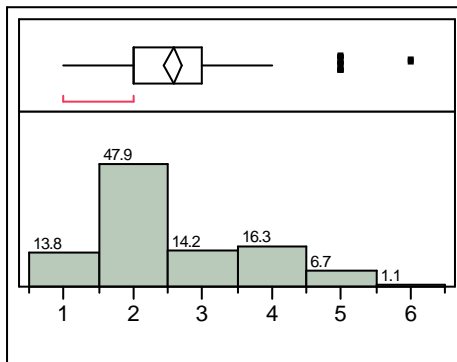
N Missing 8
4 Levels

Each bar in the graph represents a total count of each option. The number over each bar is the percentage of total answers for that option. The table on the right gives each total and the grand total of replies. In the example shown there were 283 replies out of the 290 surveys processed. The Prob column can be regarded as the proportion of the data in each category – multiply by 100 to get the percentage values shown in the graph.

The number of missing answers is also shown under the graph (N Missing 8)

5.2. Simple distributions using numerical data

Total number in household



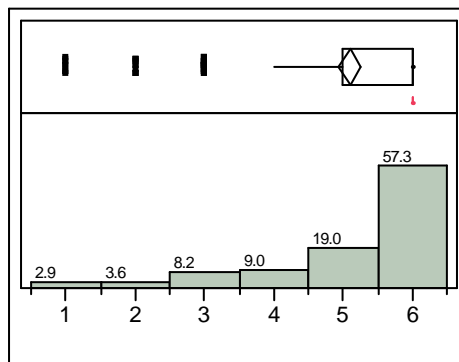
100.0%	maximum	6.0000
99.5%		6.0000
97.5%		5.0000
90.0%		4.0000
75.0%	quartile	3.0000
50.0%	median	2.0000
25.0%	quartile	2.0000
10.0%		1.0000
2.5%		1.0000
0.5%		1.0000
0.0%	minimum	1.0000

Mean 2.5744681
Std Dev 1.176484
Std Err Mean 0.0700586
upper 95% Mean 2.7123744
lower 95% Mean 2.4365618
N 282

This graph is similar to the one above in that each bar represents a count of each time that score was selected. In the example shown 47.9% of responses scored 2. When data are distributed non-normally, that is, the plots are not symmetrical, it is more appropriate to calculate the **median** rather than the **mean** value as being typical of the data. When data are symmetrical the two values should be similar.

These analyses also present the data in the form of a Box Plot – see above. You interpret this plot as follows. Beginning on the left side of the plot, 25% of all the data lies between the left most edge of the left whisker and the edge of the box, 50% lies within the box and 25% lies in the range of the right-hand whisker. The dots to the right are called outliers because they are an unusually large distance from the box. The red line shows where the shortest 50% of the data lie. The diamond represents where we think the “true” mean value lies (rather than the estimate of 2.57). The median is also shown as a vertical line in the box but it is obscured in the graphs shown because it lies along the edge of the box

Because we have boundaries in our answers, some of the data is highly skewed to one end and in that case we should look more closely at the median rather than the mean. In the example above the two are fairly similar. In the example below the median is 6 but the mean is only 5. 6 is probably a more realistic value to use in this instance.



100.0%	maximum	6.0000
99.5%		6.0000
97.5%		6.0000
90.0%		6.0000
75.0%	quartile	6.0000
50.0%	median	6.0000
25.0%	quartile	5.0000
10.0%		3.0000
2.5%		1.0000
0.5%		1.0000
0.0%	minimum	1.0000

Mean	5.0967742
Std Dev	1.3308556
Std Err Mean	0.0796762
upper 95% Mean	5.2536196
lower 95% Mean	4.9399288
N	279

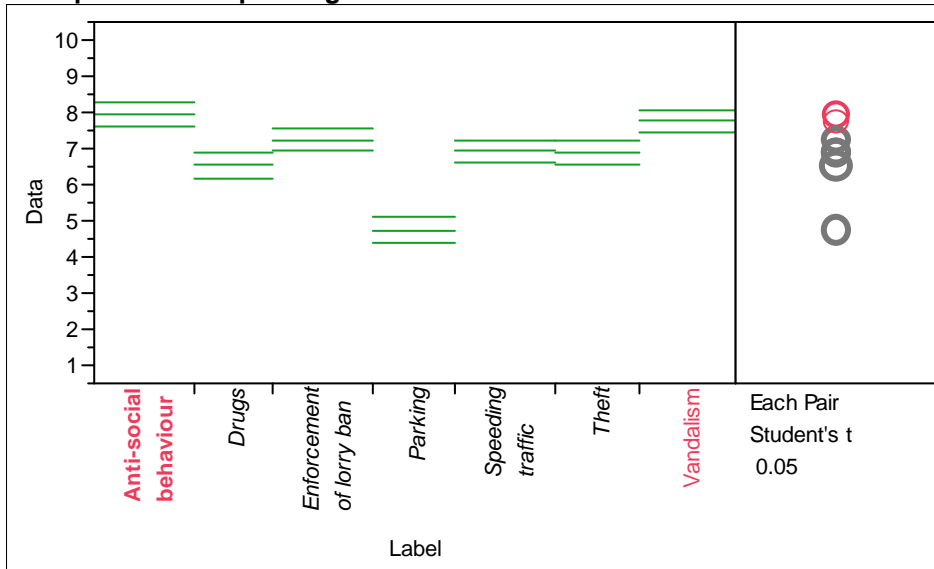
5.3. Comparing mean values for numerical scores

When estimating a mean value using statistical data, you can only make an estimate of the true mean – that is, the mean value we would calculate if we had surveyed every single person in the village rather than the 290 in our sample. When we calculate the mean (represented by the middle green line in the plot) we should also calculate a confidence interval – shown by the upper and lower green lines. The confidence interval tells us with 95% certainty where the true mean would lie if we repeated the exercise with the entire population of the village.

When one confidence interval overlaps with another, we cannot say that we can detect a difference between the two means. In the example, below, the confidence interval for “Enforcement of lorry ban” overlaps with that of “Speeding traffic”. So, despite the fact that the lorry ban has a mean value of 7.24 and speeding traffic has a mean value of 6.92, we cannot say they are really different – we cannot distinguish between them.

When entering the data I counted responses where none of the options was given a score as “missing”. If respondents gave one or more options a score but left others un-scored, I gave the the un-scored options a value of zero.

Main priorities for policing



Means Comparisons

Level	Mean
Anti-social behaviour	7.9306122
Vandalism	7.7531915
Enforcement of lorry ban	7.2427984
Speeding traffic	6.9173554
Theft	6.8975610
Drugs	6.5368421
Parking	4.7258883

Levels not connected by same letter are significantly different.

The Means Comparison table shown above is a neat way to group answers that are similar into blocks using a statistical technique called a t-Test. All of the levels sharing the same letter cannot be distinguished from each other. So, anti-social behaviour and vandalism cannot be separated but they are significantly different (higher) than the rest of the options. Parking is significantly lower than the others. You can use this table to give priority to certain options. For example, you may give lorry ban, speeding traffic and theft priority over drugs.

Although we get statistical differences being shown they are not always large enough difference to matter. For example, vandalism is significantly different to lorry ban but the means are 7.7 and 7.2 respectively – they are only 0.5 points apart!

Here's one for the statisticians reading the report. All of the numerical choices have boundaries and much of the data is not normally distributed as a result – e.g. scores are 1 to 6 or 1 to 10 and are often clustered at one end. For simplicity I have assumed normality for t-Test so the Means Comparisons table is produced to help with decision making.

6. Appendix: Distribution of Responses

By Number		Alphabetically	
Road	Number of Returns	Road	Number of Returns
Lower Luton Road	20	Allen Close.	2
Necton Road	15	Amwell Lane.	3
Marford Road	14	Ash Grove	7
Brew house Hill	13	Ayres End Lane	2
Butterfield Road	9	Barton Road	3
Church Street	8	Beech Crescent	1
The Broadway	8	Brew house Hill	13
The Hill	8	Broadway	1
Waddling Lane	8	Brocket View	2
Wick Avenue	8	Brownfield Way	1
Ash Grove	7	Bury Green	3
Kingfisher Close	7	Butterfield Road	9
Lattimore Road	6	Caesars Road	3
Manor Road	6	Castle Rise.	1
Tudor Road	6	Cherry Tree Lane	3
Dawes Lane	5	Church Street	8
Folly Fields	5	Codicote	1
High Ash Road	5	Conqueror's Hill	1
Lamer Lane	5	Dale Avenue	2
Garden Court	4	Dawes Lane	5
Granary Close	4	East Mount	3
Gustard Wood	4	Folly Fields	5
Marshalls Way	4	Garden Court	4
Old Rectory Gardens	4	Garrad Way	1
The Slype	4	Granary Close	4
Amwell Lane.	3	Gustard Wood	4
Barton Road	3	Harpenden Road	1
Bury Green	3	High Ash Road	5
Caesars Road	3	High Street	1
Cherry Tree Lane	3	Hillydike Road	2
East Mount	3	Hilltop View	2
Mount Road	3	King Edward Place	1
Rose Lane	3	Kingfisher Close	7
Saxon Road	3	Lamer Lane	5
St Thomas Place	3	Lattimore Road	6
Valley Rise.	3	Long Butlers	1
Allen Close.	2	Lower Luton Road	20
Ayres End Lane	2	Manor Road	6
Brocket View	2	Marford Road	14
Dale Avenue	2	Marshalls Heath Lane	1
Hillydike Road	2	Marshalls Way	4
Hilltop View	2	Mount Road	3
Beech Crescent	1	Necton Road	15
Broadway	1	Old Rectory Gardens	4
Brownfield Way	1	Palmerston Drive	1
Castle Rise.	1	Parkinson Close	1
Codicote	1	Pipers Lane	1
Conqueror's Hill	1	Poynings Close	1
Garrad Way	1	Rose Lane	3
Harpenden Road	1	Sauncey Wood Lane	1
High Street	1	Saxon Road	3
King Edward Place	1	Sheepcote Lane	1
Long Butlers	1	St Thomas Place	3
Marshalls Heath Lane	1	Station Road	1
Palmerston Drive	1	The Broadway	8
Parkinson Close	1	The Hill	8
Pipers Lane	1	The Slype	4
Poynings Close	1	Tudor Road	6
Sauncey Wood Lane	1	Valley Rise.	3
Sheepcote Lane	1	Waddling Lane	8
Station Road	1	Wheathampstead Road	1
Wheathampstead Road	1	Wick Avenue	8