A COMPARATIVE ANALYSIS OF BONFIRES WITHIN ST HELENS METROPOLITAN BOROUGH COUNCIL (MBC) AREA FOR THE PERIOD 20th OCTOBER TO 7th NOVEMBER 2005 AND 2006

KNOWLEDGE AND INFORMATION MANAGEMENT DEPARTMENT

Date work received: **November 2006**
Date work completed: **January 2007**
W:\Information Management\Projects\BONFIRE DATA & REPORTS 06\REPORTS\St Helens.doc

Document Control

Amendment History

Version / Issue No.	Date	Author	Remarks / Reason for Change
0.1	20/12/2006	J Fielding	
0.2	16/01/2007	J Fielding	

Sign-Off List

Name	Position
John L Curtis	Director of Knowledge & Information Management
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Distribution List

Name	Position	I / R
Arson Task Force		
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1. Agreement

For the purpose of this report the following agreement was made between the client and the Knowledge & Information Management Department.

This work was requested by CFOA – Chief Fire Officers Association and received November 2006.

The Manager[1] has approved this report/ piece of work can be undertaken by the Knowledge & Information Management Department.

If the scope of the work changes, authorisation must be again obtained and would be noted within the version control document sheet.

It was agreed that this report would be produced in draft format by January 2007, and would be sent electronically to the Knowledge Manager/ Director of Knowledge & Information Management and Client for comment.

The Manager / Client agreed that their comments would be received back by January 2007.

The final report, which will always be in PDF format, would be produced by January 2007, subject to receiving comments.

[1] John L Curtis
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2. Summary

This report presents a comparison of the bonfire period for 2005 and 2006 for the St Helens district. This report focuses on the number and distribution of incidents throughout St Helens by station ground, as well as identifying high risk dates, times and incident types. The key points of the report can be summarised as follows:

- This report only analyses with incidents that have occurred within the St Helens district.
- The quantity of incidents rose from 125 in 2005 to 178 in 2006, an increase of 42%.
- The station ground of "Whiston" witnessed a 33% reduction between 2005 and 2006. However the station ground of "St Helens" saw a very minor rise of 4% from 74 incidents in 2005 to 77 in 2006. "Eccleston" witnessed a 100% increase in incidents (from 25 incidents in 2005 to 50 in 2006) with "Newton-le-Willows" having an increase of 200% from 14 incidents in 2005 to 42 in 2006.
- Peak periods of bonfire activity occurred between 17.00hrs and 22.00hrs with the 4th until the 6th of November being the busiest dates for incidents.
- There was a large hotspot of activity within "St Helens" town centre with secondary hotspots located at "Newton-le-Willows" and "Haydock".
- There was a reduction in the amount of waste collected by the local authority compared to the same period for 2005.

3. Introduction

Traditionally the seasonal bonfire period has led to a rise in bonfires and antisocial behaviour related incidents. The role of this report is to analyse the bonfire period of 2006 and compare it to the same period from 2005. The period under scrutiny dates from the 20th October until the 7th November 2006.

4. Methodology

To assess bonfires and antisocial behaviour within the period, the following methodologies were used:

- The period under analysis is from 09:00hrs on 20th October 2006 until 09:00hrs on the 7th November 2006. For a comparative analysis, statistics were for the same period in 2005.
- The types of incident reviewed include: all deliberate bonfires and other types of fire associated with anti social behaviour.
- Blue8 was used to map and pinpoint where all incidents took place. This allowed for hotspots to be identified within the Local Authority District.
- It is important to note that the Whiston Station Ground is involved in this district as this station ground overlaps both the Knowsley and St Helens districts.
- Crystal reports was utilised to gather the raw data and Microsoft Excel was used to interpret these figures.

5. Results

In analysing the bonfire period of 2006 within the St Helens district of Merseyside the following aspects will be analysed:

- The total number of incidents for 2005 and 2006 within each station ground.
- Incidents broken down according to type.
- Quantity of incidents broken down per 10,000 head of population.
- Incidents during the bonfire period ordered by Ward.
- Incidents during the bonfire period ordered by date.
- Incidents analysed by time of day.
- Hotspot analysis.

5.1 Total Incidents by station ground for 2005 and 2006

Table 1: Total Incidents for the bonfire period for 2005 and 2006.

Year	Number of Incidents
2005	125
2006	178

From the table above it is clear that overall the quantity of incidents rose from 125 in 2005 to 177 incidents in 2006, an increase of 52 incidents, which is equivalent to an increase of 42%.

Chart 1: Comparison of station grounds for the St Helens district.

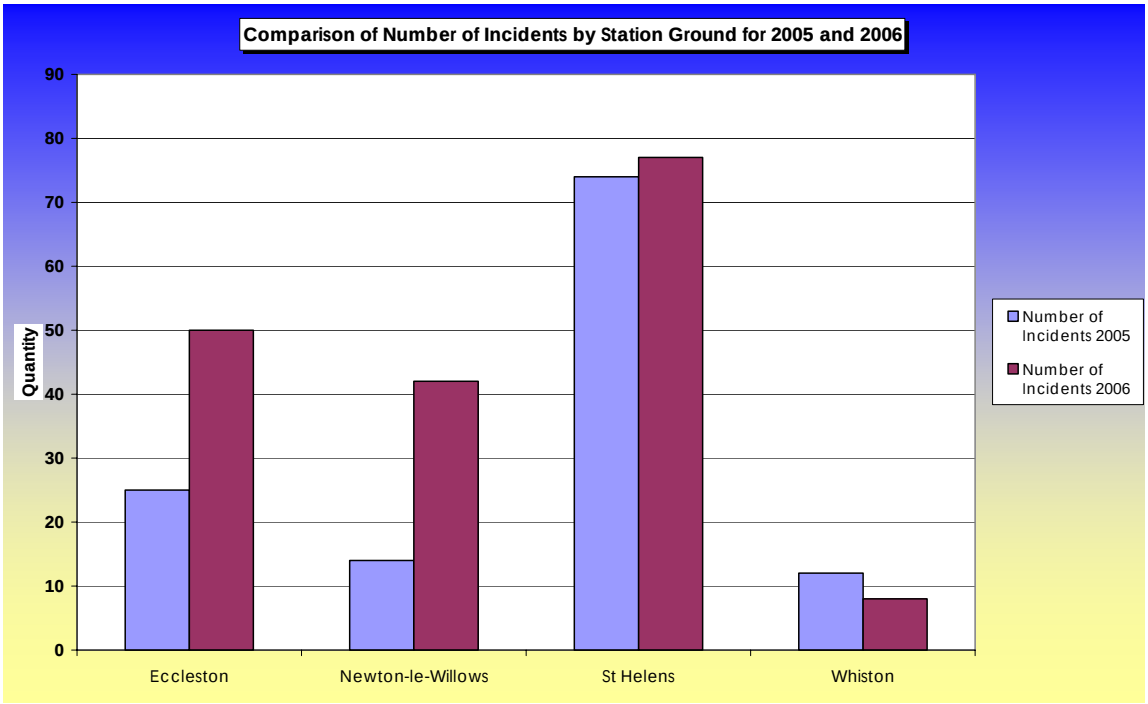


Table 2: Comparison of station grounds for the St Helens district.

Station Ground	Number of Incidents 2005	Number of Incidents 2006	% Change
Eccleston	25	50	100%
Newton-le-Willows	14	42	200%
St Helens	74	77	4%
Whiston	12	8	-33%
Total	**113**	**169**	

When individual station grounds were analysed: "Whiston" witnessed a reduction in incidents whilst other station grounds all witnessed increases. The "Newton-le-Willows" Station Ground saw the highest increase rising from 14 incidents in 2005 to 42 incidents in 2006, an increase of 200%.

5.2 Incidents by type

Table 3: Incident types during the bonfire period.

Incident Type	Number of Incidents 2005	% 2005	Number of Incidents 2006	% 2006
Derelict Building	1	1%	3	2%
Grassland	0	0%	9	5%
Intentional Burning / Bonfire	24	19%	40	22%
Outdoor Structure	3	2%	5	3%
Refuse, refuse container	96	77%	120	67%
Derelict Vehicle	1	1%	1	1%
Total	**125**	**100%**	**178**	**100%**

The above table illustrates a breakdown of the incidents attended by MF&RS personnel during the 2005 and 2006 bonfire periods. In both years the majority of incidents dealt with were associated with "Refuse/Refuse Containers" fires which accounted for 77% of incidents in 2005 and 67% of incidents in 2006. Following this the second most common type of incident involved "Intentional Burning/Bonfires" accounting for 19% in 2005 and 22% in 2006.
In 2006 for the district of St Helens there was an increase of incidents associated with "Grassland" rising from 0 occurrences in 2005 to 9 in 2006. In addition there were also increases in incidents associated with "Derelict

Buildings", "Outdoor Structures" and "Derelict Vehicles" which remained constant.

5.3 Number of incidents per 10,000 population.

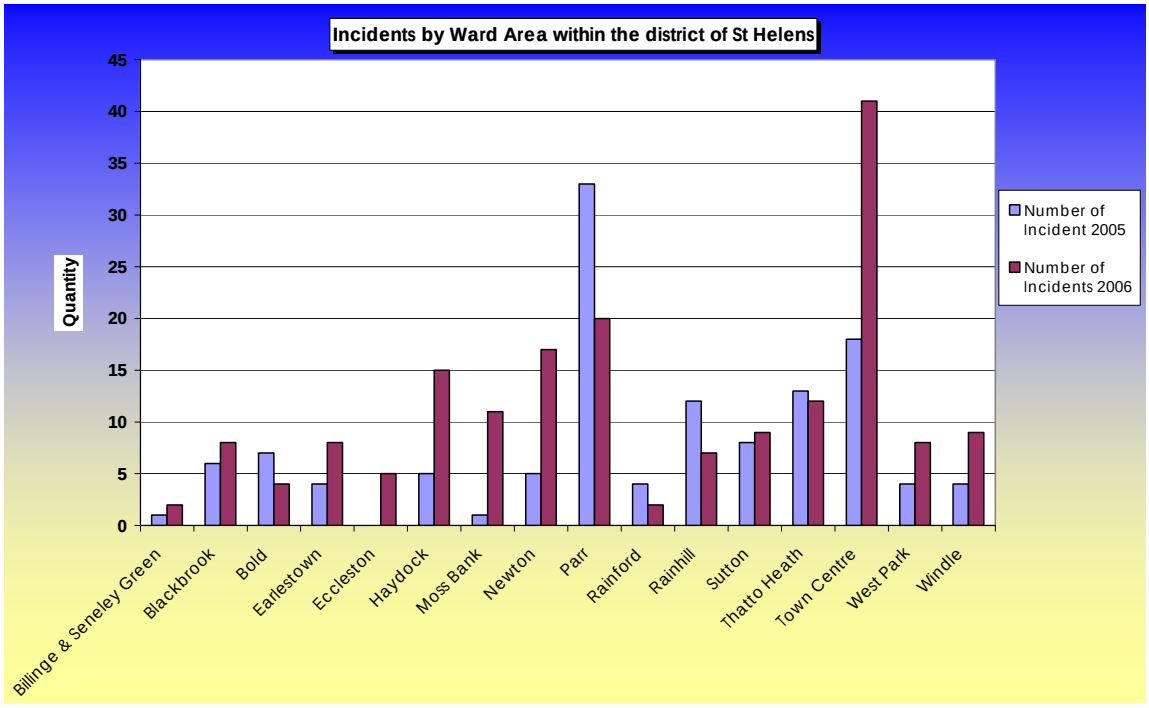
Table 4: population and incidents per 10,000 population for St Helens

Year	Population	Incidents	Population / 10000
2005	176637	125	7.08
2006	176637	178	10.08

The above table illustrates that in 2006 there was a considerable increase in the quantity of incidents during the bonfire period an increase of 3 incidents per 10,000 head of population.
For figures involving individual station grounds reference should be made to the Merseyside wide report.

5.4 Number of incidents by ward

Chart 2: Incidents in St Helens by Ward.

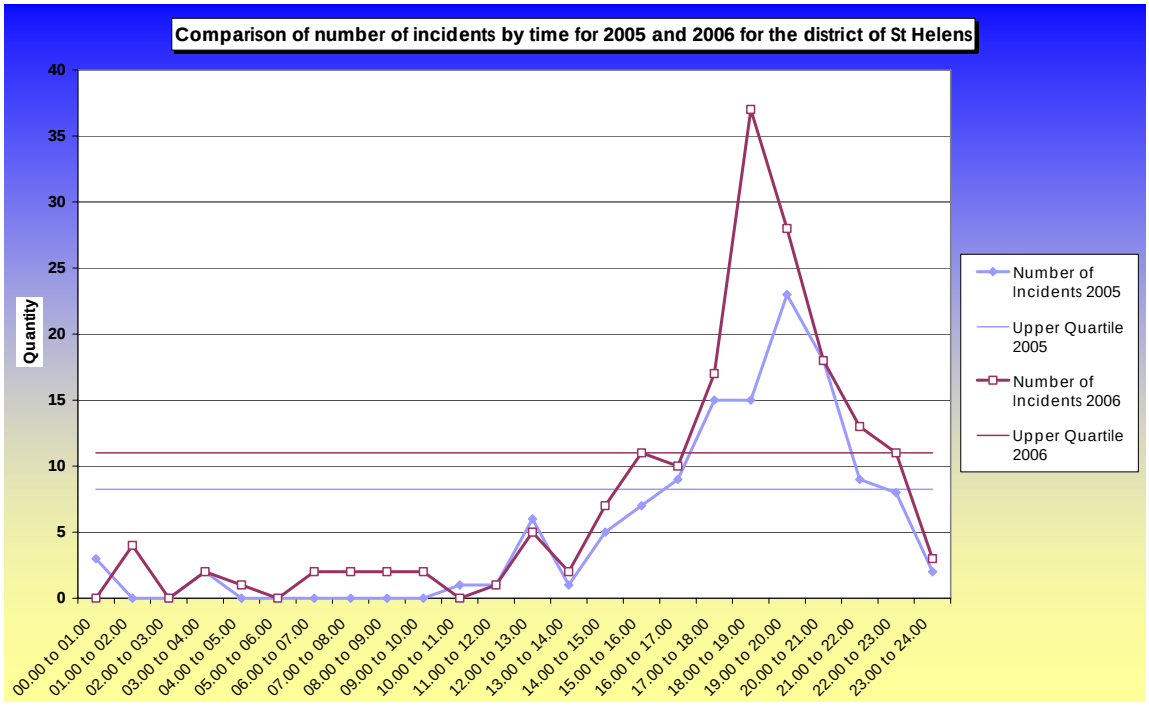


The above chart graphically displays the incidents by ward for St Helens. It is clear that there have been large increases in incident quantity for the "Town Centre" ward (increasing from 18 incidents in 2005 to 41 incidents in 2006, an increase of 128%) and the "Newton" ward experienced an increase from 5 incidents in 2005 to 17 incidents in 2006, an increase of 240%.

There was however a large reduction of incidents reported within the "Parr" Ward (decreasing from 33 incidents in 2005 to 20 in 2006, a 65% reduction).

5.5 Incidents by time

Chart 3: Chart comparing incidents in 2005 and 2006 by time of day



As previously mentioned the quantity of incidents that have occurred in the St Helens district have risen during the bonfire period of 2006.
In both 2005 and 2006, incidents increased after 12.00hrs rising sharply with a peak period lying between 17.00hrs until 22.00hrs. The actual peak hour occurred an hour earlier in 2006 at 18.00hrs, whilst in 2005 peak activity was measured at 19.00hrs. In 2006 there was an increase in the number of incidents to have happened at traditionally quiet times, particularly between 07.00hrs and 10.00hrs.

By identifying the top quartiles for both 2005 and 2006 it is clear that in 2006 the level of incidents during peak risk periods increased.

5.6 Incidents by date

Chart 4: Chart comparing incidents in 2005 and 2006 by date

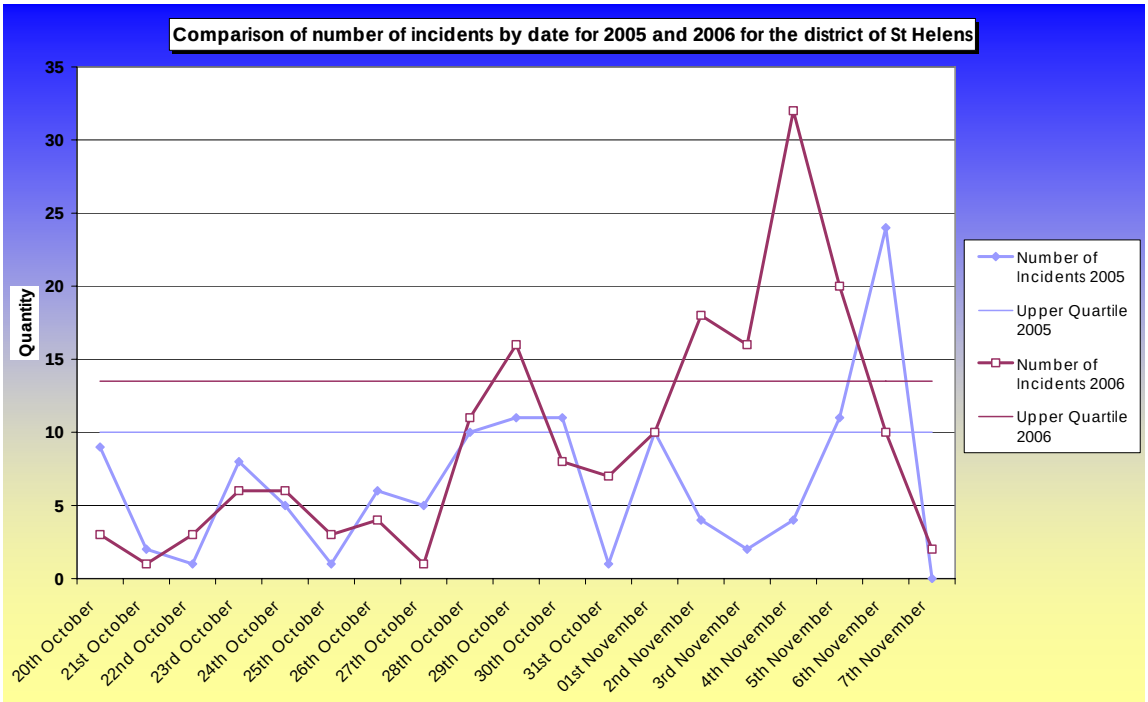


Chart 4 (above) highlights trends between reported incidents during the bonfire periods of 2005 and 2006.
For the St Helens district the distribution of incidents in both 2005 and 2006 are very different. There are initial peaks in both years concerning the Halloween period (from 29th October – 31st October) but from there onward the figures fluctuate with little correlation between the two years. For example in 2006 the peak period of activity could be deemed as to start from the 2nd November until the 5th November while in 2005 the peak occurred on the 6th November.

Chart 5: Chart comparing the cumulative effect of incidents during the bonfire period

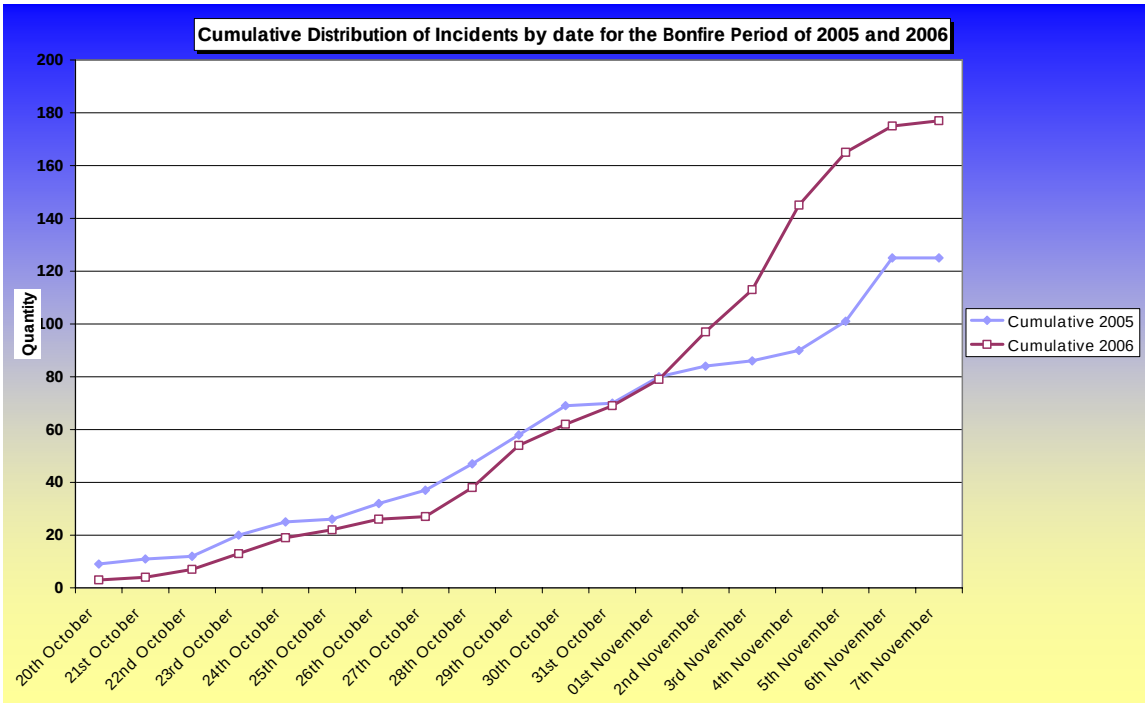


Chart 5 (above) displays the cumulative effect of incidents over the bonfire period under investigation. What is clear is that cumulatively incidents for 2006 were lower than 2005 until the 31st of October. There was a brief correlation of incident quantities between the 31st October and the 1st of November, following this date the rate of incidents climbs sharply.

Incidents for the 4th, 5th and 6th of November

Table 5: below displays the quantity of incidents and proportion of incidents to have occurred on the 4th, 5th and the 6th of November, the peak days of bonfire activity during the period.

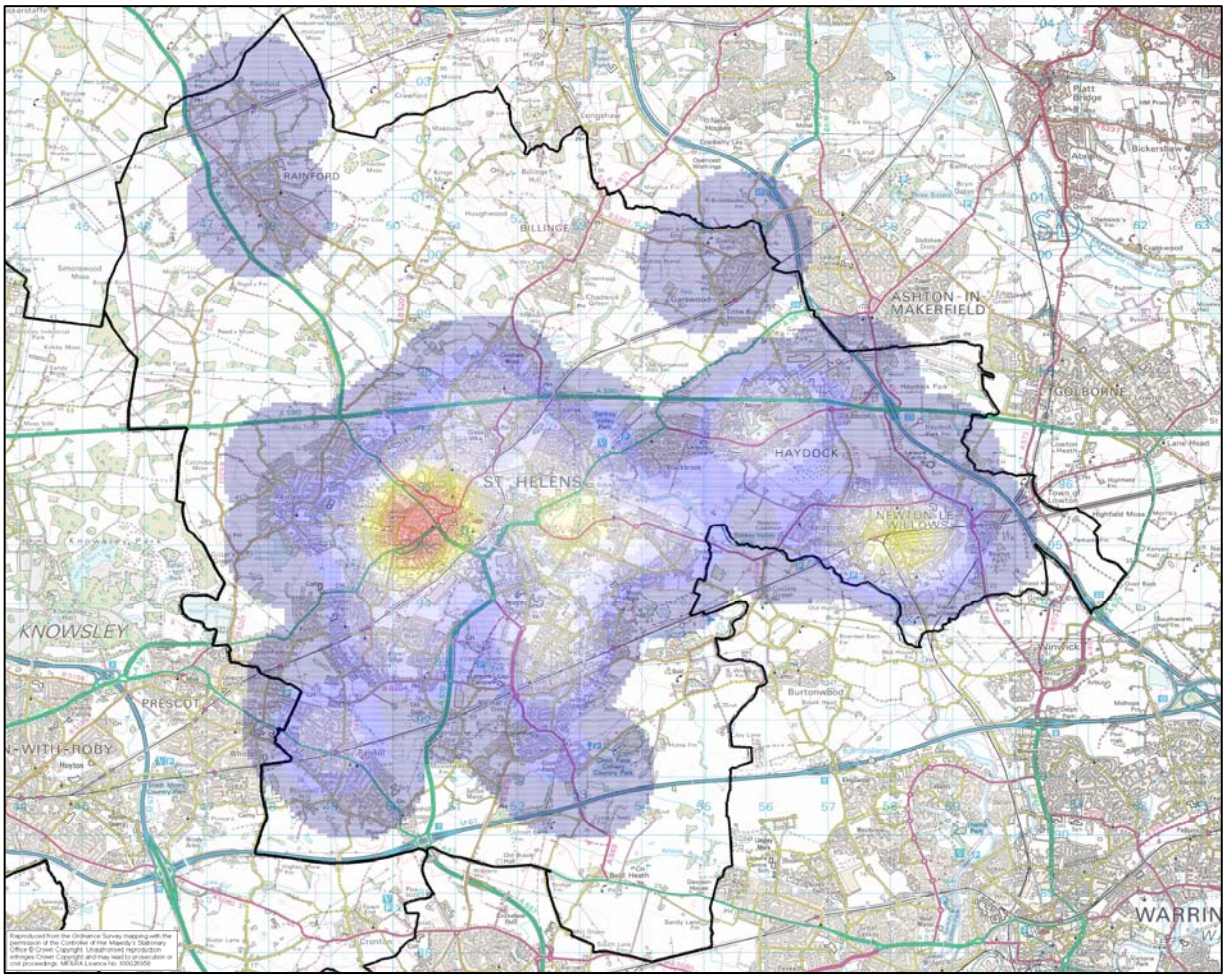
Date	Number of Incidents 2005	Number of Incidents 2006	% Change
4th November	4	32	700%
5th November	11	21	91%
6th November	24	10	-58%

The above table describes that there was a sharp increase of 700% concerning incidents on the 4th of November with a 91% increase in the

number of incidents on the 5th of November. On the 6th November there was a reduction of 58%.

5.7 Hotspot Analysis

Map 1: Map showing St Helens district and the hot spot areas within the district for the 2006 bonfire period.



From the above map it is clear that two primary hotspots of activity occurred within the St Helens district. The primary areas of concern are St Helens town centre and Newton-le-Willows town centre. There are also secondary hotspots in the Parr area of St Helens and at Haydock.

5.8 Threat Response

During the 2006 bonfire period the local authority of St Helens in conjunction with the Arson taskforce of Merseyside Fire and Rescue Service worked together to formulate the following action plans during and preceding the bonfire period:

- During the bonfire period, the local authority of St Helens operated a rubbish collection scheme whereby materials suitable for the burning in bonfires, as well as hazardous materials were collected. At this point in time there are currently no figures available as to the success of this scheme, however it is estimated that the quantities collected by the collection teams is down on that collected in 2005.
- Visits to schools and youth projects concerning safety and the prevention of antisocial fires during the bonfire period.
- Arson risk assessments were conducted at places where the risk of arson during the period was highly significant. This included schools and social clubs in high risk areas.

6. Conclusion

The total number of incidents saw an increase between 2005 and 2006. In 2005 there were 125 incidents, while in 2006 there were 178, an increase of 53 incidents or 42%.

Spatial Analysis
Taking into account incidents which occurred only in the St Helens district the: Eccleston, Newton-Le-Willows and St Helens station grounds all witnessed in increase in reported incidents. The Whiston station ground witnessed a reduction of 33% reported incidents.

The types of incidents witnessed in St Helens, "Intentional Burning / Bonfires" (with 19% of incidents in 2005 and 22% in 2006)and the burning of "Refuse/Refuse Container" (with 77% of incidents in 2005 dropping to 67% in 2006) were the most common incident type being dealt with by Merseyside Fire and Rescue Service.

Concerning wards within St Helens, there were large decreases in incidents for: "Parr", which in 2005 had the highest quantity of incidents. In 2006 there were large increases in the "Town Centre" ward possibly as a result of dispersal of offenders from the former wards to the latter. "Haydock and "Newton" also saw moderate increases.

Incidents per 10,000 population saw an increase from 7.08 incidents in 2005 to 10.08 in 2006, an increase of 3 incidents per 10,000 head of population.

Temporal Analysis
During peak periods from 17.00hrs to 22.00hrs it is apparent that the actual peak time of incidents had moved from between 19.00hrs – 20.00hrs in 2005 to an hour earlier (from 18.00hrs – 19.00hrs) in 2006.

The peak dates for recorded incidents was between the 4th and the 6th of November, which witnessed a large increase in proportion 700% on the 4th of November or in real terms an increase of 28 incidents from 4 to 32 incidents. On the 5th of November St Helens experienced a proportional increase of 91% or in real terms; an increase of 10 incidents from 11 to 21 incidents for the bonfire periods of 2005 and 2006. For the 6th November there was a reduction of 58%, in real terms a drop from 24 incidents in 2005 to 10 incidents in 2006.

The collection of waste suitable for the burning of bonfires is down on 2005. It is more than likely the case that, the reduction in removing suitable burning materials increased the quantity of fires which had to be dealt with by Merseyside Fire and Rescue service.

It should be noted that weather conditions within the St Helens district were dry in comparison to 2005. This fact is very likely to have affected the rate of incident throughout the district and thus reducing the impact of the various schemes which St Helens Metropolitan Borough Council and Merseyside Fire and Rescue Service put into action.