



# A COMPARATIVE ANALYSIS OF BONFIRES WITHIN LIVERPOOL CITY COUNCIL AREA FOR THE PERIOD 20th OCTOBER TO 7th NOVEMBER 2005 AND 2006

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## KNOWLEDGE AND INFORMATION MANAGEMENT DEPARTMENT

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### Sign-Off List

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### Distribution List

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### Related Documents

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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 Chief Fire Officers Association (CFOA) and received November 2006.

The Manager<sup>1</sup> 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.

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<sup>1</sup> John L Curtis

## ***2. Summary***

Traditionally the seasonal bonfire period leads to an increase in bonfires and antisocial behaviour (ASB) related incidents. This report focuses on the analysis of anti-social behaviour fires between 9am on the 20<sup>th</sup> October until 9am on the 7<sup>th</sup> November 2006, within the district of Liverpool.

During the bonfire period there were 676 ASB incidents, this compares to 389 for the same period in 2005, which is an increase of 73.78%. All station areas had an increased number of incidents of which 'Aintree' and 'City Centre' saw the largest. On a more localised level the only wards which saw a reduction were 'Greenbank' and 'Kensington and Fairfield'. There are three specific hotspots- the primary one being an area bounded by Breck Road, Breckfield Road and Walton Breck Road, with secondary ones in Broadway and Kirkdale.

Similar to previous years the peak period of activity occurred between 16.00 and 22.00, with the 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> of November being the busiest dates for incidents.

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 for 2005. The period under scrutiny dates from the 20<sup>th</sup> October until the 7<sup>th</sup> November 2006.

## *4. Methodology*

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

- The period under analysis is from 20<sup>th</sup> October 2006 until 7<sup>th</sup> November 2006. For a comparative analysis there will be statistics generated 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: Aintree, Kirkby and Kirkdale station grounds are included in these figures as each station ground overlap into the Liverpool and Sefton districts respectively.
- 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 Liverpool 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	389
2006	676

Using the above table, it is clear that the quantity of incidents rose from 389 in 2005 to 676 incidents in 2006, an increase of 287 incidents or 74%.

Chart 1: Comparison of incidents by station ground for Liverpool.

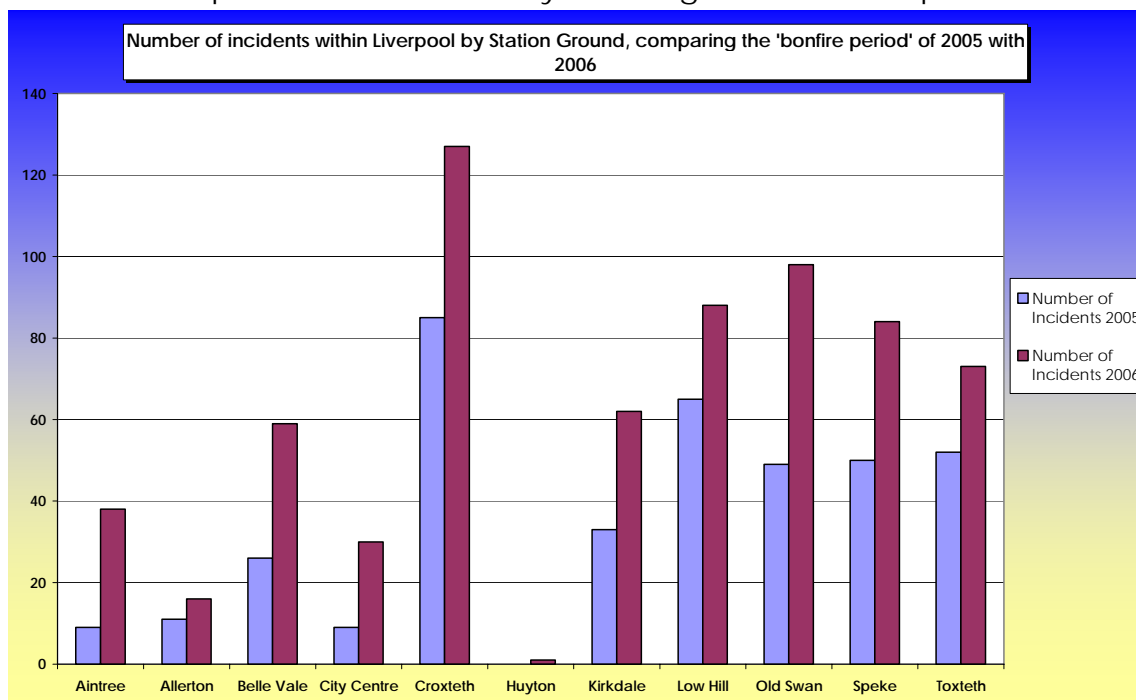


Table 2: Comparison of incidents by station ground for incidents occurring in Liverpool

Station Ground	Number of Incidents 2005	Number of Incidents 2006	% Change
Aintree	9	38	322%
Allerton	11	16	45%
Belle Vale	26	59	127%
City Centre	9	30	233%
Croxteth	85	127	49%
Huyton		1	
Kirkdale	33	62	88%
Low Hill	65	88	35%
Old Swan	49	98	100%
Speke	50	84	68%
Toxteth	52	73	40%

When individual station grounds were analysed, all the grounds witnessed increases in incidents between 2005 and 2006.

Of all the station grounds "Aintree" witnessed the highest proportional increase of 322%. "Low Hill" witnessed the lowest increase of 35%.

## 5.2 Incidents by type

Table 3: Incident types during the bonfire period.

Incident Type	Number of Incidents 2005	%	Number of Incidents 2006	%
Derelict Building	28	7%	27	4%
Grassland	16	4%	21	3%
Intentional Burning / Bonfires	110	28%	205	30%
Outdoor Structure	7	2%	20	3%
Refuse, Refuse Container	227	58%	399	59%
Derelict Vehicle	1	0%	4	1%
Total	389		676	

The above table displays 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" which accounted for 58% of incidents in 2005 and 59% of incidents in 2006. Following this the second most common type of incident involved "Intentional Burning/Bonfires" accounting for 28% in 2005

and 30% in 2006. Between 2005 and 2006 there was a reduction in the number of incidents involving derelict properties.

### 5.3 Number of incidents per 10,000 population

Table 4: population and incidents per 10,000 population for Liverpool

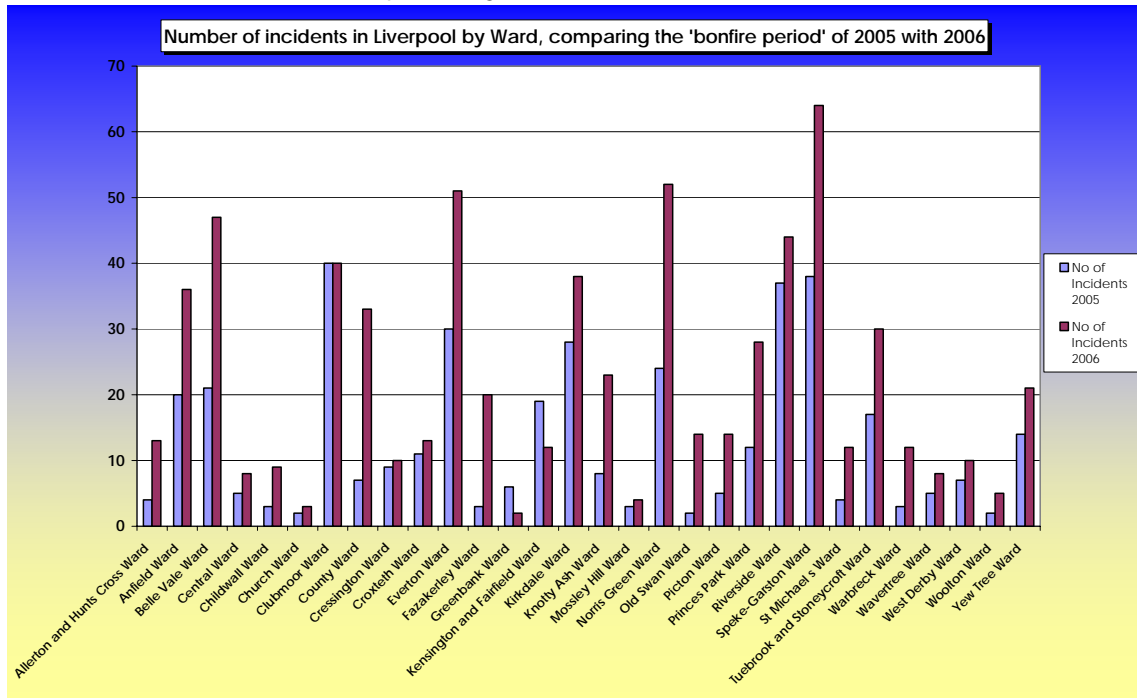
Year	Population	Incidents	Population / 10000
2005	439473	389	8.85
2006	439473	676	15.38

The above table illustrates that in 2006 there was a considerable increase in the quantity of incidents during the bonfire period and resultant increase of 6 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 Liverpool by Ward

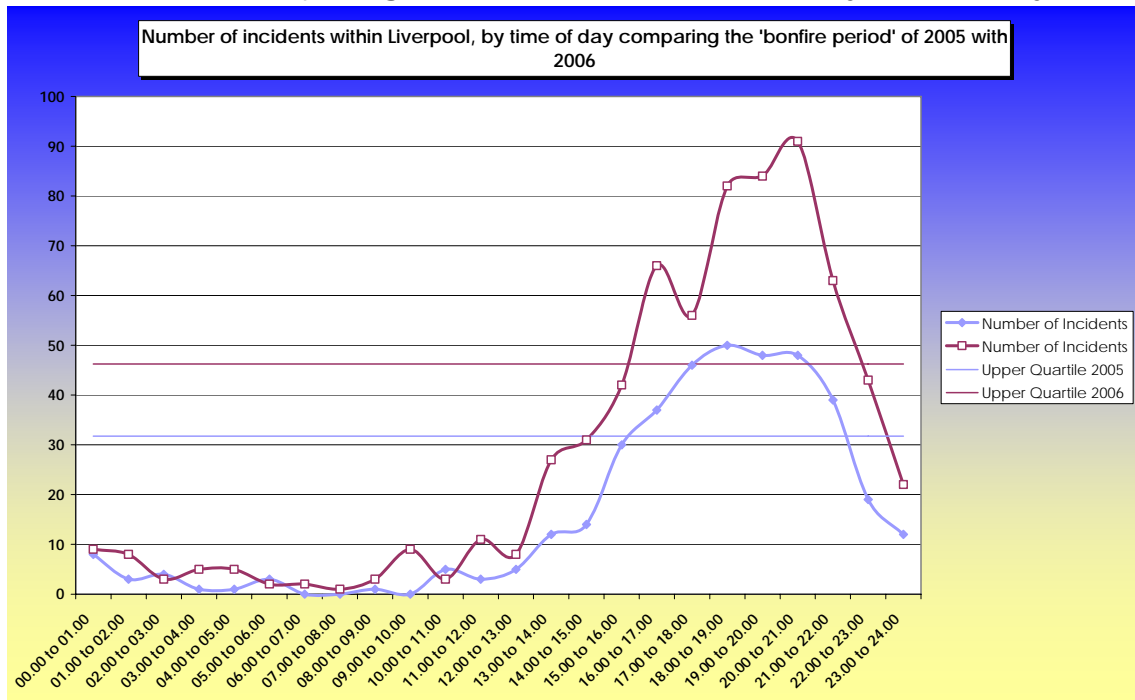


The above chart graphically displays the incidents by ward for the Liverpool district of Merseyside. What is immediately apparent is that there have been large increases in incidents in many wards especially the:

“Speke Garston”, “Norris Green”, “Everton” and “Belle Vale” Wards. With the exceptions of the “Greenbank” and the “Kensington and Fairfield” wards which saw reductions for the period between 2005 and 2006, the remaining wards all witnessed increases in incidents.

## 5.5 Incidents by time of day

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



As previously mentioned the quantity of incidents that occurred in the Liverpool district have increased for the bonfire period of 2006.

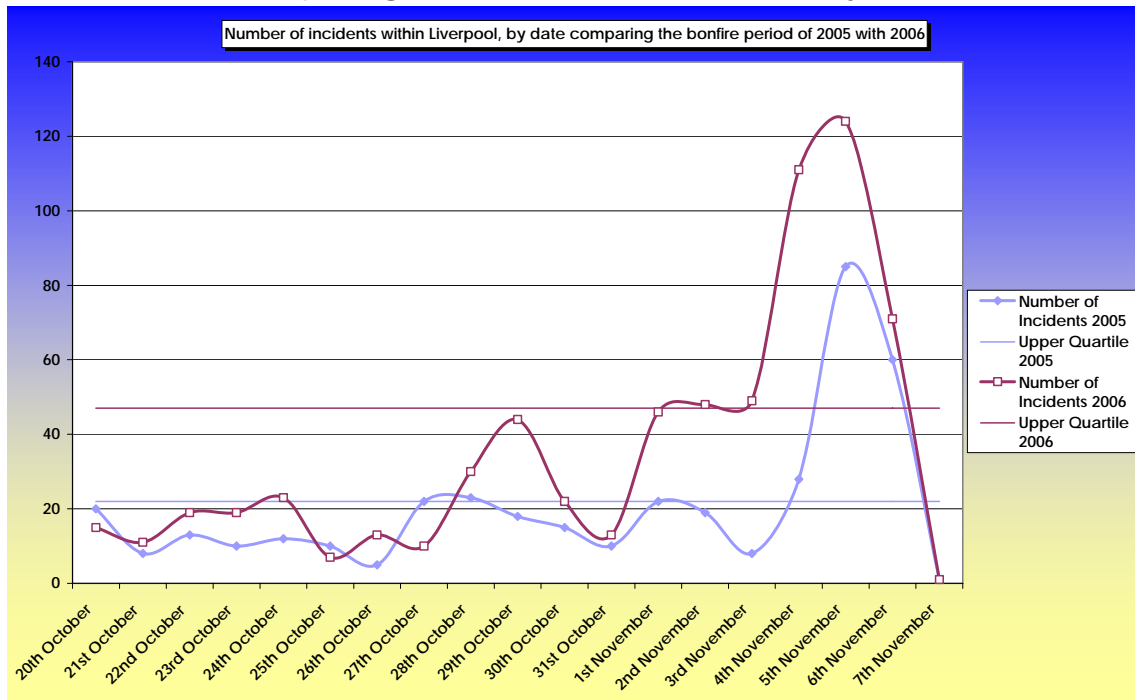
The peak period of incidents in 2005 occurred between 16.00hrs and 22.00hrs, whilst in 2006 the peak period of activity occurred an hour earlier from 15.00hrs and lasted until 23.00hrs. Prior to these peak periods the incidents fluctuate irregularly.

In 2006 there are two peak periods of activity, the first peak occurring between 16.00hrs and 17.00hrs with a second larger peak between 20.00hrs and 21.00hrs. By comparison in 2005 the peak period is less pronounced with a smooth peak lasting between 18.00hrs and 22.00hrs.

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



It is clear from chart 4 (above) that there are few similarities between the bonfire periods for 2005 and 2006.

Prior to the 4<sup>th</sup> November 2005 the daily number of incidents fluctuates at a relatively stable rate until the 4<sup>th</sup> November where the primary peak of incidents starts, lasting until the 6<sup>th</sup> November.

By contrast for 2006 there is an initial peak on the 29<sup>th</sup> October which drops sharply only to lead to a secondary peak on the 1<sup>st</sup> November. This secondary peak levels off for two days and leads to the primary peak beginning on the 3<sup>rd</sup> November and lasting to the 6<sup>th</sup> November. On the 5<sup>th</sup> of November there was a peak within the bonfire period of 124 incidents on that date.

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

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

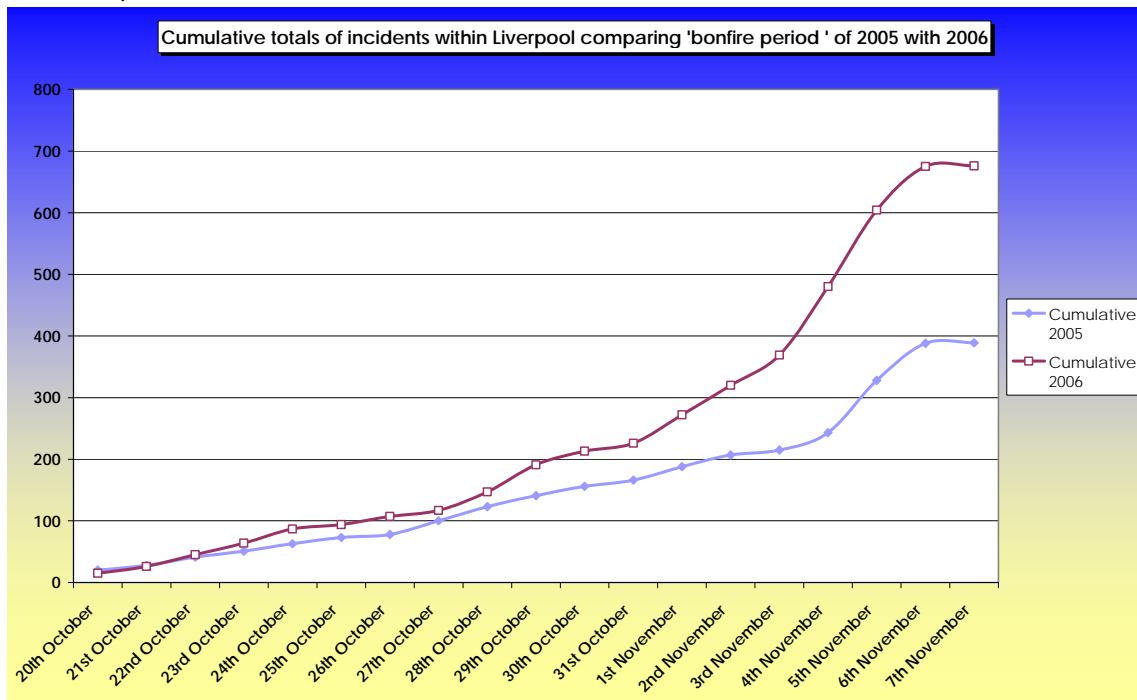


Chart 5 (above) displays the cumulative effect of incidents throughout Liverpool for 2005 and 2006. What is apparent is that the frequency of incidents throughout the entire bonfire period of 2006 was higher than in 2005.

### Incidents for the 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> November

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

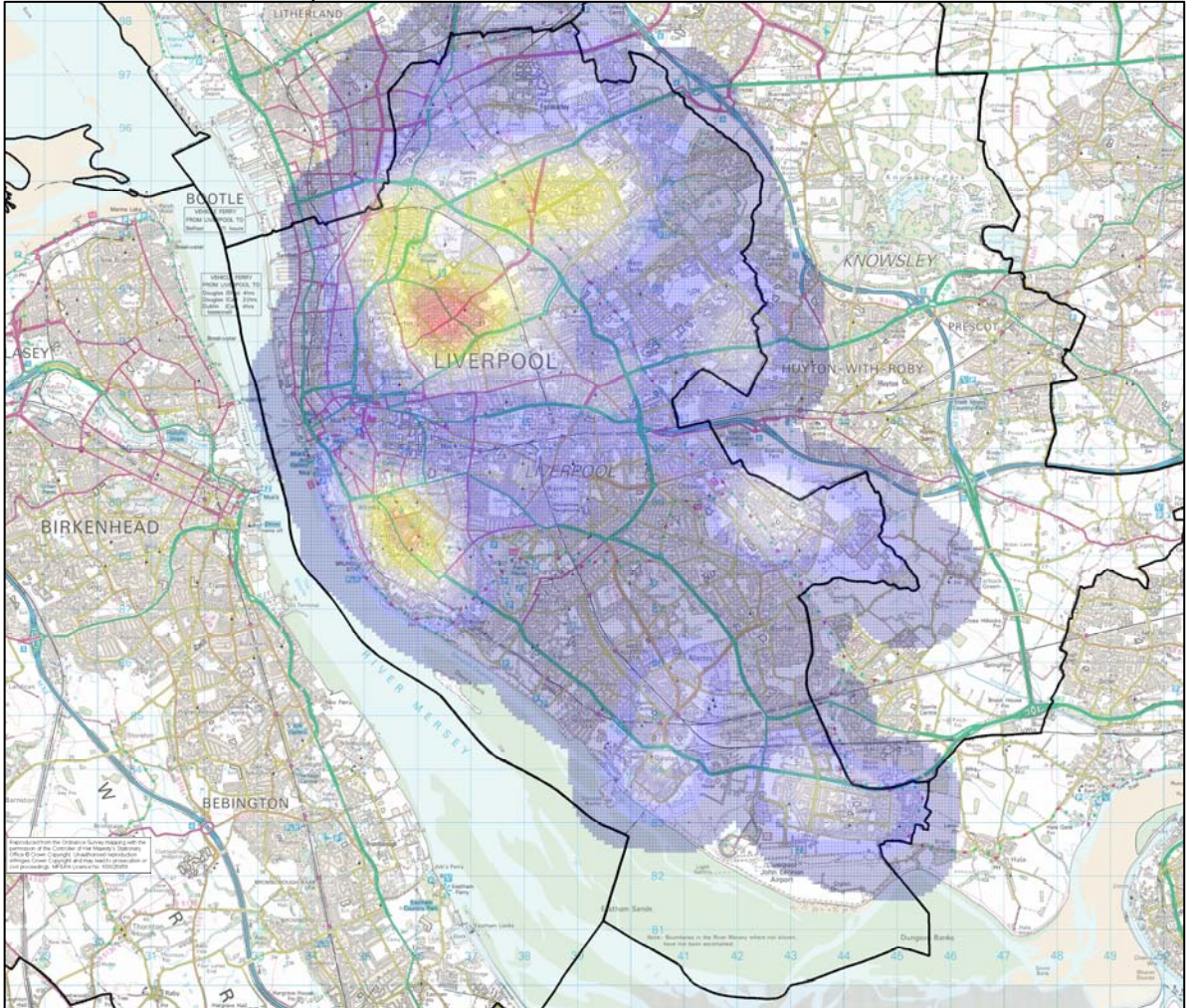
Date	Number of Incidents 2005	Number of Incidents 2006	% change
4th November	28	111	296%
5th November	85	124	46%
6th November	71	60	-18%

The above table describes that there was a significant increase of 296% concerning incidents on the 4<sup>th</sup> of November with a 46% increase in

incident number on the 5<sup>th</sup> of November. For the 6<sup>th</sup> November there was a reduction 18% in comparison to the same date of 2005.

## 5.7 Hot Spot Analysis

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



The above map displays the hotspots for incidents during the 2006 bonfire period for the Liverpool district. There are several hotspots with primary hotspots being located within the Anfield / Everton areas of the city (including the borders of Breck Road, Breckfield Road and Walton Breck Road) and the Toxteth area. In addition there are several secondary hotspots located especially in the Broadway and the Kirkdale areas of the district. In addition to these hot spot areas there are several minor hotspots dispersed throughout the district, minor hotspots of note include: Speke, Garston, Belle Vale and Dovecot areas.

## 5.8 Threat Response

During the 2006 bonfire period the local authority of Liverpool in conjunction with the Arson Task Force of Merseyside Fire and Rescue Service worked together to formulate the following action plans during and preceding the 2006 bonfire period.

- Merseyside fire and rescue services' Anti-Social Behaviour task force worked alongside Merseyside Police in tackling antisocial behaviour during the peak Halloween period of 30th and 31st of October. The key task of the partnership was to provide a visible presence on the streets of Liverpool and to provide reassurance to the public.
- School visits were conducted educating pupils about the dangers of the misuse of fireworks and warning of the effect that anti social fires (arson) has on the community.
- Arson advocates performed checks at several firework retailers checking on licenses and the safe storage of materials.
- Arson task force assisted in the co-ordination of the Partnership Refuse Initiative in conjunction with: Liverpool City Council – Neighbourhood Management Teams, Enterprise Liverpool and the Probation Service.
- Whilst on patrol members of the Arson Task Force often contacted the Bonfire Rubbish Removal Scheme which would remove combustible materials from the streets of Liverpool.

## ***6. Conclusion***

The total number of incidents saw an increase between 2005 and 2006. In 2005 there were 389 incidents, while in 2006 there were 676, an increase of 287 incidents or 74%.

### **Spatial Analysis**

Taking into account incidents which occurred only in the Liverpool district the: "Greenbank", "Kensington and Fairfield wards" were the only wards in Liverpool to have witnessed reductions in the number of incidents, with the "Clubmoor" ward remaining constant. The remaining wards of Liverpool all saw increases in incident numbers.

The types of incidents witnessed in Liverpool, "Refuse/Refuse Container" (with 58% of incidents in 2005 and 59% in 2006) and "Intentional Burning / Bonfires" (with 28% of incidents in 2005 increasing to 30% in 2006) were the most common incident type being dealt with by Merseyside Fire and Rescue Service.

Incidents per 10,000 population saw an increase from 8.85 incidents in 2005 to 15.38 in 2006, an increase of 6 incidents per 10,000 head of population.

### **Temporal Analysis**

During peak periods of activity it is apparent that the actual peak time of incidents had moved from between 16.00hrs – 22.00hrs in 2005 to an hour earlier (from 15.00hrs – 22.00hrs) in 2006. Concerning the peak hour of activity, in 2005 the peak hour was between 18.00hrs and 19.00hrs whereas in 2006 peak activity was measured between 20.00 hrs and 21.00hrs.

The peak dates for recorded incidents was between the 4<sup>th</sup> and the 6<sup>th</sup> of November. There was a large increase of 296% on the 4<sup>th</sup> of November or in real terms an increase of 83 incidents from 28 to 111 incidents. On the 5<sup>th</sup> of November Liverpool experienced an increase of 46% or in real terms; a rise of 39 incidents from 85 to 124 incidents for the bonfire periods of 2005 and 2006. For the 6<sup>th</sup> November there was a reduction of 18%, in real terms a drop from 71 incidents in 2005 to 60 incidents in 2006 a reduction of 11 incidents.

The collection of waste suitable for the burning of bonfires is down from 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 Liverpool district were dry in comparison to the period from 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 Liverpool City Council and Merseyside Fire and Rescue Service put into action.