



# A COMPARATIVE ANALYSIS OF BONFIRES WITHIN SEFTON METROPOLITAN BOROUGH COUNCIL (MBC) 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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## Document Control

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### Sign-Off List

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### Distribution List

Name	Position	I / R
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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 CFOA – Chief Fire Officers Association and received on 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*

This report presents a comparison of the bonfire period for 2005 and 2006 for the Sefton district. This report focuses on the number and distribution of incidents throughout Sefton 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 incidents that have occurred within the Sefton district.
- The quantity of incidents rose from 143 in 2005 to 163 in 2006, an increase in proportion of 14%.
- The station grounds of: "Kirkby", "Bootle & Netherton" and "Crosby" all witnessed minor reductions. "Kirkdale" saw the largest increase in incidents, with "Aintree", "Formby" and "Southport" all having minor increases.
- Peak periods of bonfire activity occurred between 16.00hrs and 22.00hrs 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 major hotspot of activity within Bootle town centre with a secondary hotspot located in Netherton.
- 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 09:00hrs on 20<sup>th</sup> October 2006 until 09:00hrs on the 7<sup>th</sup> November 2006. For a comparative analysis, statistics were for the same period in 2005.
- The types of incidents 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 Sefton district respectively. In addition the figures generated for these station grounds only refer to incidents to have occurred in the Sefton district.
- 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 Sefton 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 grouped by Ward.
- Incidents during the bonfire period ordered by date.
- Incidents grouped 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	143
2006	163

From the table above it is clear that overall the quantity of incidents rose from 143 in 2005 to 163 incidents in 2006, an increase of 20 incidents or 14%.

Chart 1: Comparison of incidents by station ground for the Sefton district.

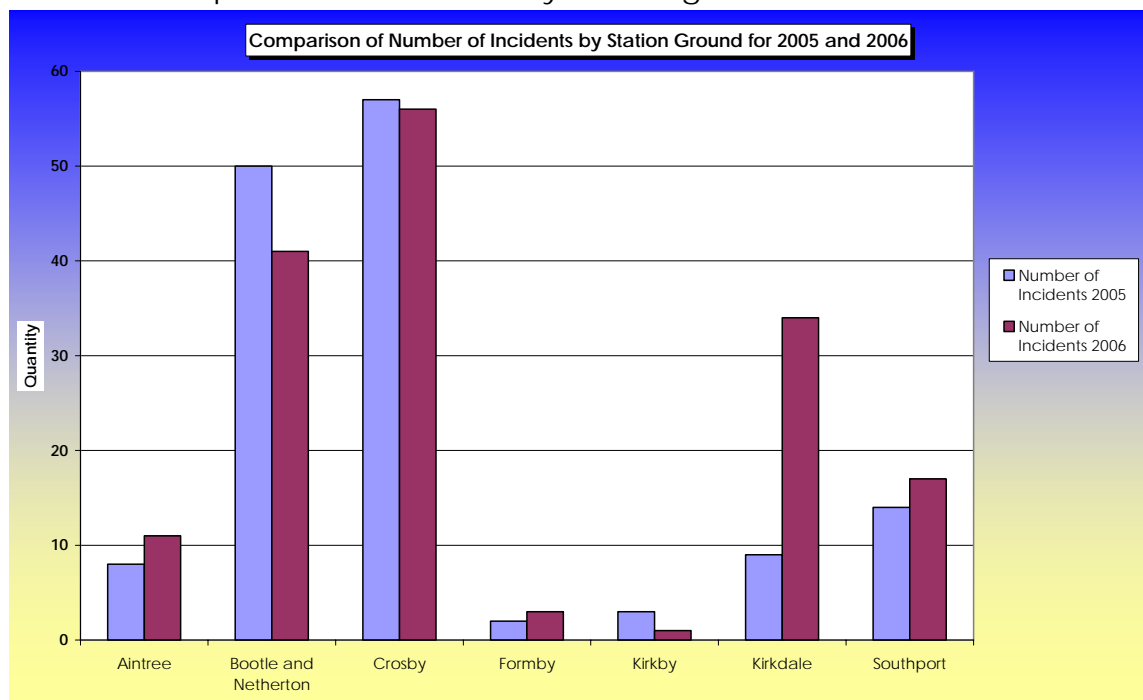


Table 2: Comparison of incidents by station ground for the Sefton District

Station Ground	Number of Incidents 2005	Number of Incidents 2006	% Change
Aintree	8	11	38%
Bootle and Netherton	50	41	-18%
Crosby	57	56	-2%
Formby	2	3	50%
Kirkby	3	1	-67%
Kirkdale	9	34	278%
Southport	14	17	21%
<b>Total</b>	<b>143</b>	<b>163</b>	

Individual station grounds including: "Kirkby", "Crosby" as well as "Bootle and Netherton" witnessed a reduction in incidents while the remaining station grounds all saw increases. The "Kirkdale" Station Ground saw the highest increase rising from 9 incidents in 2005 to 34 incidents in 2006, an increase of 278%.

## 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	2	1%	0	0%
Grassland	7	5%	6	4%
Intentional Burning / Bonfires	52	36%	64	39%
Outdoor Structure	3	2%	8	5%
Refuse, Refuse Container	77	54%	85	52%
Derelict Vehicle	2	1%	0	0%
<b>Total</b>	<b>143</b>	<b>100%</b>	<b>163</b>	<b>100%</b>

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" fires which accounted for 54% of incidents in 2005 and 52% of incidents in 2006. Following this the second most common type of incident involved "Intentional Burning/Bonfires" accounted for 36% in 2005

and 39% in 2006. Between 2005 and 2006 there were reductions in incidents involving: "Derelict Building", "Grassland" and "Derelict Vehicle".

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

Table 4: population and incidents per 10,000 population for Sefton.

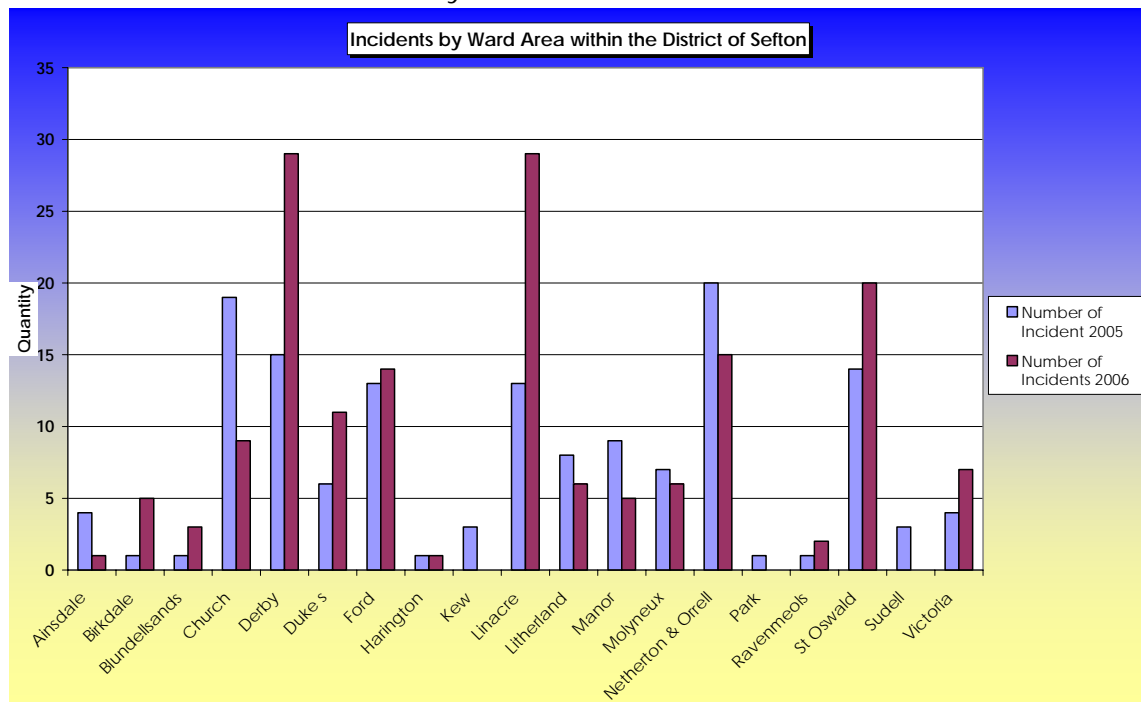
Year	Population	Incidents	Population / 10000
2005	282957	143	5.05
2006	282957	163	5.76

The above table clearly displays that in 2006 there was a minor increase in the quantity of incidents during the bonfire period an increase of 1 incident 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 Sefton by Ward



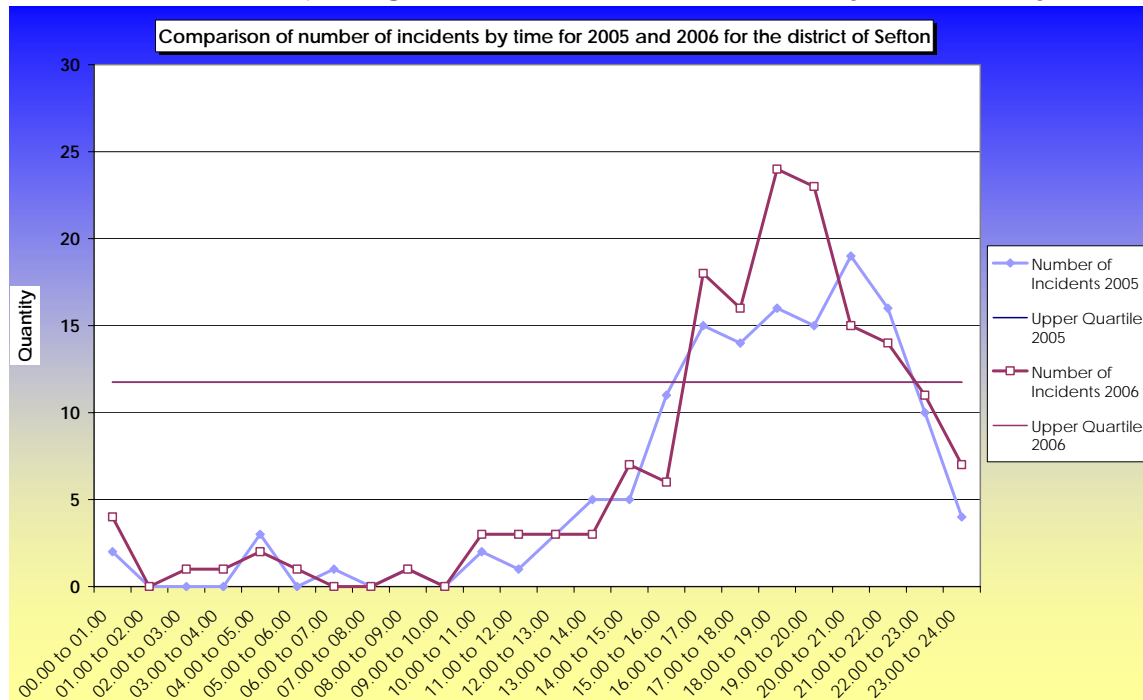
The above chart graphically displays the incidents by ward for Sefton. What is clear is that there have been large increases in incident quantities for the "Derby" ward, increasing from 15 incidents in 2005 to 29 incidents in 2006, or an increase of 93%. The "Linacre" ward also saw an increase from 13 incidents in 2005 to 29 incidents in 2006, or an increase of 123%.

There were also minor increases within the: Birkdale, Blundellsands, Dukes, Ford, Ravenmeols, St Oswald and Victoria Wards.

However there were large reductions within the "Church" Ward which experienced a reduction of 19 incidents in 2005 to 9 incidents in 2006, a reduction of 53% and the "Netherton & Orrell" Ward decreasing from 20 incidents in 2005 to 15 incidents in 2006, a reduction of 25%.

### 5.5 Incidents by time

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



During peak periods from 16.00hrs to 22.00hrs it is clear that the actual peak time of incidents had moved from between 21.00hrs – 22.00hrs in 2005 to three hours earlier (from 18.00hrs – 19.00hrs) in 2006. Outside of the peak incident period the rate of incidence fluctuates slightly at each time measurement.

By identifying the top quartiles for both 2005 and 2006 it is apparent that there were more incidents occurring during peak periods in 2006 than in the previous year.

## 5.6 Incidents by date

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

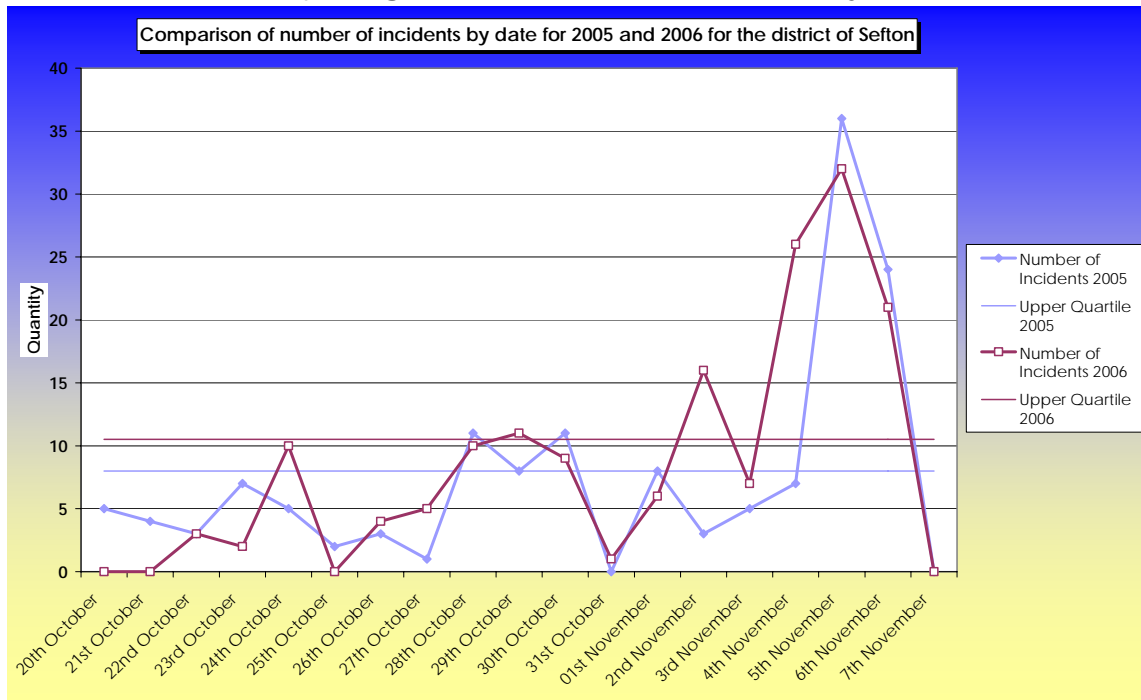


Chart 4 (above) highlights trends between reported incidents during the bonfire periods of 2005 and 2006.

Prior to the 2<sup>nd</sup> November the rate of incidents remained at a relatively low level though the figures did fluctuate slightly from day to day. On the 2<sup>nd</sup> November 2006 there was an initial peak of 16 incidents before a drop the following day. From the 4<sup>th</sup> November the rate of incidents increased rapidly forming a period which lasted until the 6<sup>th</sup> November. By comparison 2005 did not have this initial peak and the rate of incidents did not rapidly increase until the 5<sup>th</sup> of November, which actually formed a higher peak but for a shorter length of time.

By identifying the top quartiles for both 2005 and 2006 it is apparent that there were more incidents to occurring during peak periods in 2006 than in the previous year.

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

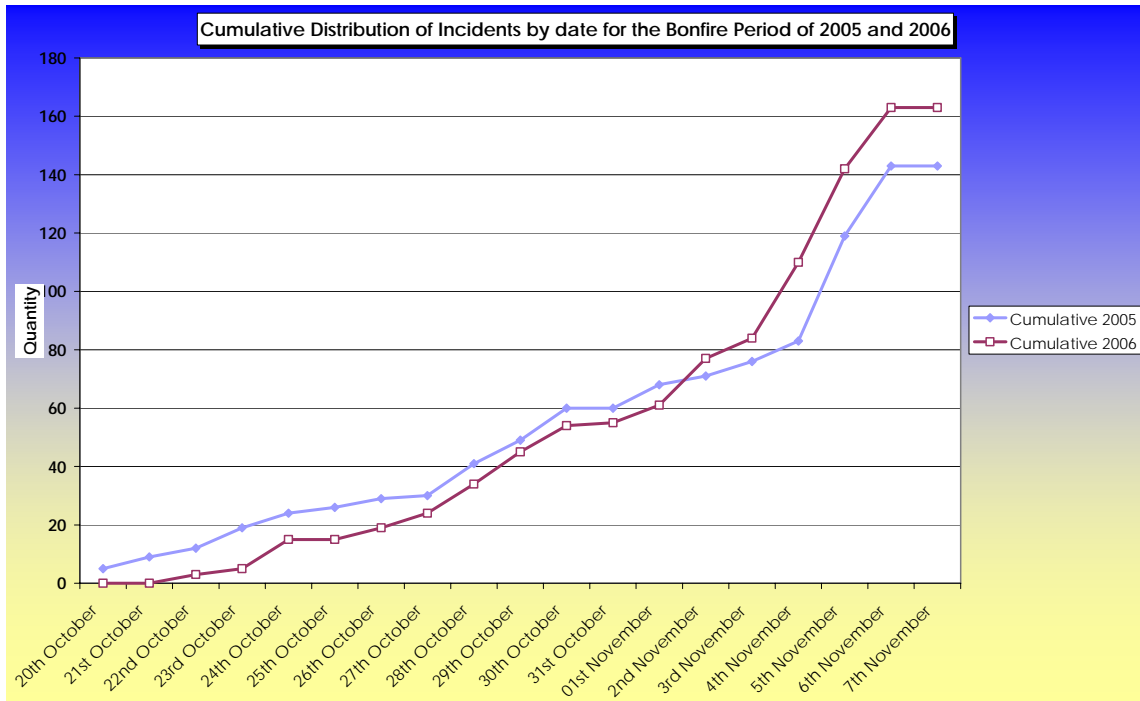


Chart 5 (above) displays the cumulative effect of incidents over the bonfire period under investigation. What is clear is that cumulatively the number of incidents for 2006 were lower than 2005 until the 2<sup>nd</sup> of November. Following this date the rate of incidents increased as the bonfire period progressed.

### Incidents for the 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> of 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 the 6<sup>th</sup> of November, the peak days of bonfire activity during the period.

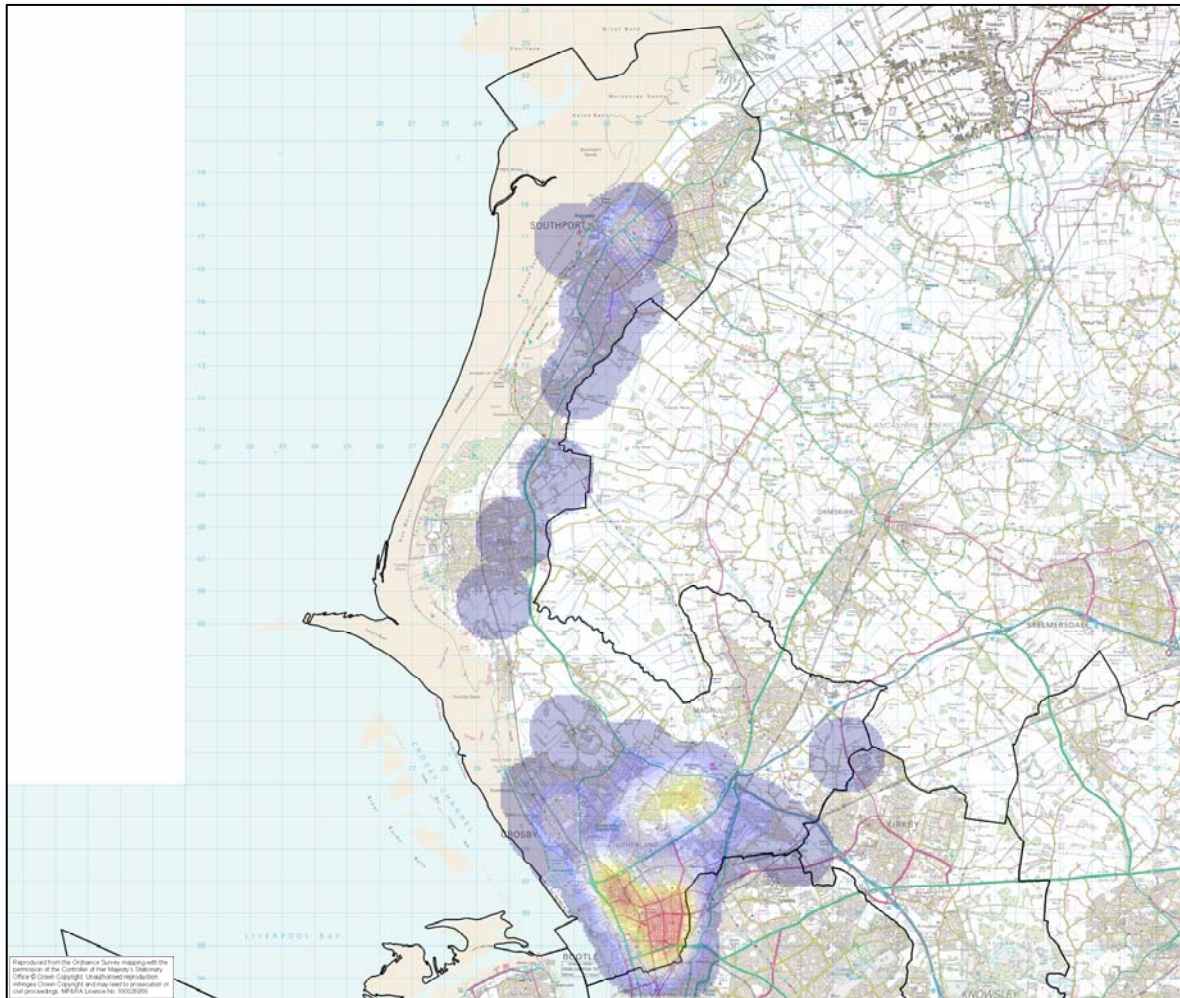
Date	Number of Incidents 2005	Number of Incidents 2006	% Change
4th November	7	26	271%
5th November	36	32	-11%
6th November	24	21	-13%

The above table describes that there was a significant increase of 271% concerning incidents on the 4<sup>th</sup> of November with an 11% reduction in

incidents on the 5<sup>th</sup> of November. On the 6<sup>th</sup> November there was a reduction of 13% between 2005 and 2006.

## 5.7 Hotspot Analysis

Map 1: Map showing the Sefton district 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 Sefton district. What is immediately obvious is that there are two primary hotspot areas being Bootle town centre, along with Buckley Hill in Netherton. In addition there was a minor hotspot in Southport town centre as well as several dispersed hotspots throughout the district.

## 5.8 Threat Response

During the 2006 bonfire period the local authority of Sefton 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:

- Visits to hotspot areas from previous years to identify "Risk materials" like cylinders and typical bonfire materials like wood and papers.
- School visits have been conducted through the area in wards where activity over previous years has been high.
- During the bonfire period, Sefton Metropolitan Borough Council operated a rubbish collection scheme whereby materials suitable for the burning in bonfires, as well as hazardous materials were removed. At this point in time there are currently no figures available as to the success of this scheme, however it is thought that the quantities collected by the collection teams is down on 2005.
- Intelligence sharing with Neighbourhood Police Officers and F.I.R.S.T on illegal sales on fireworks.

## ***6. Conclusion***

The total number of incidents saw an increase between 2005 and 2006. In 2005 there were 143 incidents, while in 2006 there were 163, an increase of 20 incidents or 14%.

### **Spatial Analysis**

Taking into account incidents which occurred only in the Sefton district the: Kirkdale, Aintree, Formby and Southport station grounds all witnessed increases in incident. However Kirkby, Bootle and Netherton station grounds as well as Crosby all saw reductions in incidents.

The types of incident witnessed in Sefton, "Intentional Burning / Bonfires" (with 36% of incidents in 2005 and 54% in 2006) and the burning of "Refuse/Refuse Container" (with 39% of incidents in 2005 and 52% in 2006) were the most common incident type being dealt with by Merseyside Fire and Rescue Service. Between 2005 and 2006 there was a slight decrease of 2% in "Refuse/Refuse Container" incidents however there is a 3% increase in proportion concerning "Intentional Burning/Bonfires."

There were large decreases in incidents for: "Church" and "Netherton and Orrell" wards, which in 2005 had the highest quantity of incidents. In 2006 there were large increases in the "Derby", "Linacre" and "St Oswald" wards possibly as a result of dispersal of offenders from the former wards to the latter.

Incidents per 10,000 population saw only a very slight increase from 5.05 incidents in 2005 to 5.76 in 2006, a very minor rise of 0.71 incidents per 10,000 head of population.

### **Temporal Analysis**

During peak periods from 16.00hrs to 22.00hrs it is apparent that the actual peak time of reported incidents had moved from between 21.00hrs – 22.00hrs in 2005 to three hours earlier (from 18.00hrs – 19.00hrs) in 2006.

The peak dates for recorded incidents was unsurprisingly the 4<sup>th</sup> until the 6<sup>th</sup> of November, with a large increase in proportion 271% on the 4<sup>th</sup> of November or in real terms an increase of 19 incidents from 7 to 26 incidents. There was however a reduction incidents to have taken place on the 5<sup>th</sup> of November with Sefton experiencing a reduction of 11% or in real terms a reduction of 4 incidents from 36 to 32 incidents for the bonfire periods of 2005 and 2006. On the 6<sup>th</sup> November there was a reduction in incidents from 24 to 21 or 13%.

The collection of waste suitable for the burning of bonfires is down on 2005. It is possible that this reduction in collected material that could be used for Bonfires 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 Sefton 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 Sefton Metropolitan Borough Council and Merseyside Fire and Rescue Service put into action.