West Midlands Fire and Rescue Authority
Community Safety Strategy 2013-2016

Executive Summary

This document sets out our analysis of foreseeable, fire and rescue- related risk in the West Midlands. It describes the work we are already engaged in to make West Midlands safer, and it identifies new initiatives, changing priorities and some changes of direction that we believe are necessary and appropriate to deliver the most effective services over the next three years. It serves the purpose of our Integrated Risk Management Plan.

Our past performance has been to a very high standard, but we want to continue to improve. We have achieved great successes in reducing the number and impact of fires across our area, in a sustained effort to drive down the suffering and loss caused by fire in local communities.

We intend to continue the drive to focus our work on public education and engaging with partner services, to target the delivery of advice and guidance in the areas of prevention and protection.
We have already experienced significant cuts to our budget and we know that there will be more serious funding reductions in the future.

Although our strategic direction and our priorities are driven by knowledge of our local communities and intelligence describing our performance in risk control and reduction, in reality, our plans for the future also have to acknowledge the spending restrictions that all public services are having to operate within.

Approximately one third of our budget comes from council tax and two thirds comes from centrally funded National Fire Service Formula Grant. The Comprehensive Spending Review (2011-2015) set out a 25% reduction in the National Fire Service Formula Grant. The cash reductions received nationally for the first two years of the settlement 2011/12 and 2012/13 equated to approximately 6.5%. But the reductions for WMFS for the first two years of the settlement were twice the national average and equated to 13% with a reduction in funding of £7.7m in 2011/12 and £2.5m in 2012/13.

The Comprehensive Spending Review indicated that the reductions for Fire and Rescue Authorities would be "back loaded" meaning that the largest proportion of the reduction would occur in Years 3 and 4.

We have had a freeze on firefighter recruitment since January 2010 and currently 7 operational staff leave each month. If we continue to freeze recruitment of fire-fighters we predict that the number of operational staff working on fire stations and available to attend incidents and prevention based activity will have reduced from 1,520 in April 2011 to 1,250 by April 2015.

We are not able to provide full details yet, of how we will change in the future, because we do not yet know what our budget settlement will be in future years

and whether or not there will be a flat-rate cut across all the Fire and Rescue Authorities or whether we will receive a larger cut as we have in the first two years of the settllement period.

In December 2012 the Fire Authority was notified that its grant reduction for 2013/14 would be £6.0m and it was also provisionally indicated that there would be a further grant reduction in 2014/15 of £4.6m. These figures broadly equate to a flat line National Fire Service reduction. It is anticipated that there will be further grant reductions in 2015/16 and beyond, although there are no indications at this stage of the scale of those reductions, resulting in some uncertainty with the level of budget that will be available through the period covered by this strategy.

The 2013-16 strategy looks forward, moving on from a successful year where the Service has been involved in supporting a number of National events whilst maintaining its focus on prevention, protection and response. We will continue to reduce numbers of fires, provide education and safety advice, and offer a good service to local industry and commerce and confirming trust and confidence in emergency response and contingency plans. 2013-16 will continue to offer the day-to-day challenges of fire and rescue across the vibrant and exciting West Midlands conurbation.

Service Delivery

Our emergency response service is second to none. We have some of the most professional, highly skilled firefighters who deliver a fast, safe and effective response across the range of emergencies that we are called on to resolve.

Part of our success has been achieved by influencing behaviours, to prevent fires in the home and the workplace and to filter out as many false alarm calls as we can. We want to continue this approach to call reduction, by ensuring that the calls we do attend are real emergencies. We do this by collecting as much information from the caller about the incident which enables us to assess the type of response we make to that incident.   This dynamic mobilising enables us to ensure that our firefighters are sent to the most serious calls as fast as possible.

We have trialled and tested a range of new vehicles and equipment to allow us to provide a more flexible and dynamic model of emergency response. There is scope to introduce more vehicles of this type, using smaller teams and lighter vehicles to deal with calls in the same professional way, but at the same time, making better use of limited resources.

Consultation Exercise 2012-13

We value your opinions and we are interested to hear your views on the standard of service you receive from us at the moment and how best to improve our services into the future.

With that in mind, we asked you, as members of the local community, partner agencies and other stakeholders, to consider the following questions and to complete the questionnaire that appears at the end of this document. This was also made available online through our website www.wmfs.net, from November 2012 to January 2013, during our consultation exercise.

Your views matter and the feedback we received has been taken into account by the Fire and Rescue Authority members, when they finalised this document, outlining our Community Safety Strategy for the next three years.

A summary of the feedback received during the consultation period can be found in an appendix at the end of this document.

Terminology

Whilst attempting to avoid the use of jargon and specialist language, it is inevitable that some terms and abbreviations will need explanation. Every effort has been made to explain such terms within the text of the document, but there is also a glossary at the end.

**West Midlands Fire and Rescue Authority
Community Safety Strategy 2013-2016**

Introduction

This strategy sets out how West Midlands Fire Service will keep the people of the West Midlands safe throughout the period 2013-2016.
Analysis has been carried out, based on a range of data sources, modelling and forecasting of future impacts and workloads, to ensure that we are able to continue providing the highest standards of service in the areas of prevention, protection and emergency response.

West Midlands Fire Service is the second largest fire and rescue service in the country, delivering emergency response, fire prevention, advice and legislative enforcement services to 2.7 million residents in the seven local authority districts that comprise the service area.
The West Midlands is a vibrant region that brings the challenge of serving one of Europe's most exciting and cosmopolitan areas. Our capabilities have to be broad enough to deal with the challenges of responding to large numbers of minor fires, through to the management of major fires, severe weather events and the threat of international terrorism. Our approach has to be compassionate and attentive to the needs of our very diverse communities. We want the area to be one of the safest places to live, work and travel.

We develop the Community Safety Strategy, based on the Strategic Risk Analysis (SRA) and through consultation carried out with the public, their representatives, partners and our workforce. The Strategic Risk Analysis is used to identify, through our intelligence systems, the key threats and challenges the service faces. We use this to plan our operational activity and help set priorities in the strategy. Our public consultation programme ensures the public's voice is reflected in the strategy. With the reduction in national performance indicators, we have been able to set priorities that reflect what actually affects the communities of the West Midlands.

West Midlands – Profile of local population and demography

To begin to understand the workload of the modern, metropolitan West Midlands Fire Service, it is essential to gain a full appreciation of not just the overall numbers of people served within the local communities, but their diverse character across a broad range of factors. This understanding acts as a vital element within the intelligence that we rely on, to inform our planning processes and to work most effectively with local people.

West Midlands Fire Service serves a diverse population of 2,738,100 people living in 1,086,700 households[1] made up of the following ethnic composition:

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[1] Census 2011 First Release

- White 76.8%
- Asian or Asian British 14.2%
- Black African/Caribbean or Black British 4.5%
- Mixed Origin 2.6%
- Chinese 0.9%
- Other 1.0%

The service covers some of the most deprived areas in the country, with Sandwell, Birmingham and Wolverhampton all containing areas of high deprivation. As well as being the largest local authority area outside of London, Birmingham falls within the top 20 local authorities containing the most deprived areas in the country[2]. In line with a national trend, the population of the region as a whole has increased and is also getting older, with a higher proportion of people in the 65 and over age group than previously seen.

Levels of diabetes and obesity in the region are higher than the national average, with low levels of adult participation in physical activity. Performance is better than average for measures around alcohol consumption, smoking and injuries from road traffic accidents[3].

The West Midlands is recognised as having a high number of people without qualifications, though attainment amongst young people has improved in recent years[4]. There are also a number of high-profile universities within the West Midlands producing graduate and post-graduate qualifications. The region is estimated to contribute over 7% of the UK economy's 'gross value added'. Whilst manufacturing jobs in the West Midlands have declined as a percentage of the workforce, this remains one of the highest regional percentages[5]. The current unemployment rate for the West Midlands is estimated at 8.8%[6].

Significant factors within the local communities impact on the workload generated for us as a service provider. It is useful to see how some of these factors are identified and described within local Joint Strategic Needs Assessments
Joint Strategic Needs Assessments (JSNAs) analyse the health needs of populations to inform and guide commissioning of health, well-being and social care services within local authority areas. The JSNA will underpin the health and well-being strategies, a proposed new statutory requirement, and any commissioning plans.

The main goal of a JSNA is to accurately assess the health needs of a local population in order to improve the physical and mental health and well-being

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[2] The English Indices of Deprivation 2010

[3] State of the West Midlands 2010, West Midlands Regional Observatory, p.14-15

[4] State of the West Midlands 2010,West Midlands Regional Observatory, p.32; 'Two Britains Qualifications Gap' http://www.bbc.co.uk/news/education-14233114 23/10/12

[5] Portrait of the West Midlands 2011, Office for National Statistics, p.1& p.6

[6] 'UK Unemployment Falls again in 3 months to July', www.bbc.co.uk 23/10/12

of individuals and communities. The NHS and upper-tier local authorities have had a statutory duty to produce an annual JSNA since 2007

A review of the local individual JSNAs reveals a range of relevant factors to take into account, when considering how we target our prevention actions, such as:

JSNA	Factors
Birmingham	Deprivation; growing population
Walsall	Life expectancy; aging population; RTC's & KSIs[7]
Sandwell	High rates of smoking; alcohol related admissions; poor housing
Wolverhampton	Predicted increases in adult social care; high rates of obesity and diabetes
Dudley	Increasing numbers of lone elderly people
Solihull	Localised disparities in levels of deprivation or overcrowding
Coventry	High rates of alcohol abuse; numbers of children growing up in poverty

Risk Analysis

We employ a sophisticated process to manage our performance in responding to emergency incidents, based upon the principle of proportionality, dependent on the risk involved.
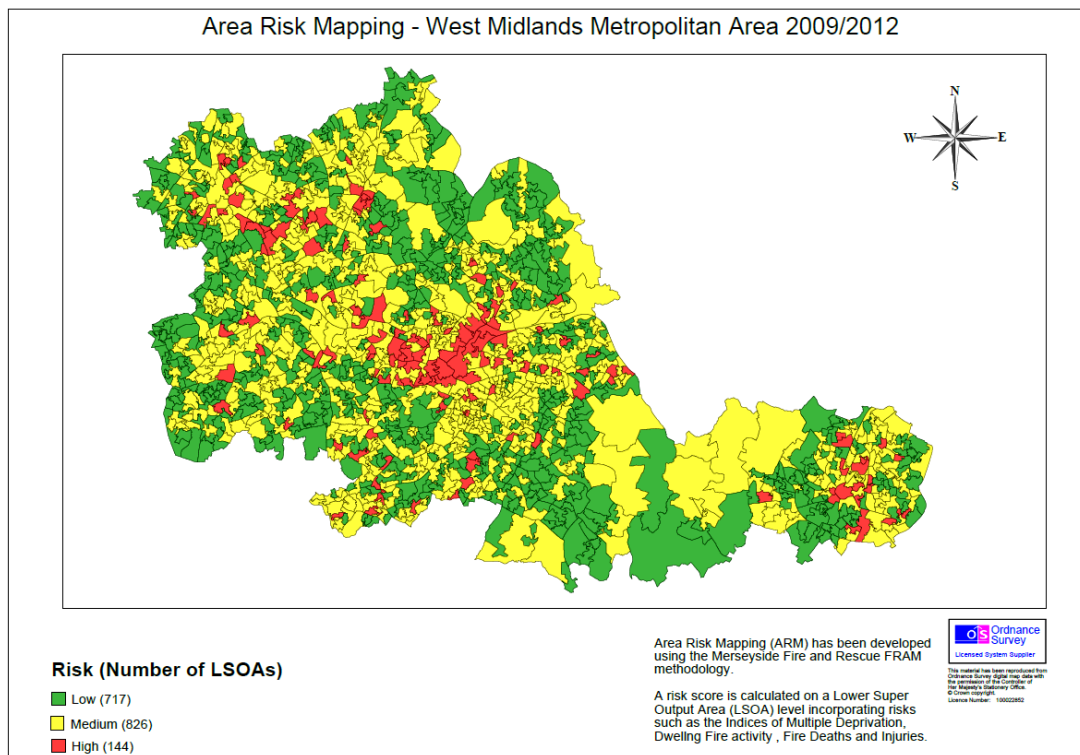
Firstly, we create a map known as the Area Risk Map (ARM), to show where the areas of high, medium and low risk reside in West Midlands.

This is done by dividing the area into 1687 units of population called 'Lower Super Output Areas' (LSOAs), which are small geographical areas with a minimum population of 1500 and 400 households, as used in organising the national census boundaries and the data that is derived from the census.

Within these LSOAs, we are then able to calculate a risk score, based on factors such as deprivation and the history of dwelling fire incidents within that location. In this way, we can paint a picture of the future likelihood of high risk incidents occurring in particular areas, because we know that past history, combined with our knowledge of a range of social factors, gives a reliable basis for assessing foreseeable future risk. Weightings are applied to some of these factors to enhance the value of the map in identifying risk areas, based on a combination of relevant factors such as deprivation and the previous occurrence of high risk incidents.

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[7] people who are killed or seriously injured in road accidents

Area Risk Mapping - West Midlands Metropolitan Area 2009/2012

Area Risk Mapping (ARM) has been developed using the Merseyside Fire and Rescue FRAM methodology.

A risk score is calculated on a Lower Super Output Area (LSOA) level incorporating risks such as the Indices of Multiple Deprivation, Dwelling Fire activity , Fire Deaths and Injuries.

Risk (Number of LSOAs)

- Low (717)
- Medium (826)
- High (144)

The map is then used as part of the basis for planning our emergency response strategy, along with the categorisation of incidents into groups, according to the potential life risk attached to each type.

For example, a house fire or a road traffic collision (RTC) are categorised as high risk incident types, because there is often the possibility of lives being placed in danger and a fast attendance time is therefore needed, either to save lives, or to prevent a fire escalating. Linked with this, we may need to send a greater level of response vehicles and firefighters, based upon the information initially received at the time of call and the number of urgent tasks that firefighters might need to carry out simultaneously, to bring about a safe and successful resolution.

Bringing together the map and the classification of incidents by risk, we can establish performance standards to ensure that overall, we are able to provide a service that reflects the likelihood and potential severity of incidents in our area, with fast attendance times for the most hazardous emergencies, especially in areas identified as having a high risk profile.

This is a valuable set of tools which gives us confidence that even if we need to reduce or re-organise the distribution of our emergency response fleet in the future, we can do this in a way that aligns resources with the pattern of known risk, in a way that is proportionate and appropriate.

Emergency incidents are categorised in the following way:

WMFS Risk Based Attendance Standard

Incident Risk Category	Description	First Appliance Attendance Standard
Category 1 (High Risk)	Incidents that present the most significant risk to life, namely dwelling fires, other building fires, RTCs and 'Life Risk' Special Service Calls, such as water rescue.	5 minutes
Category 2 (Medium Risk)	Incidents where there is a potential risk (either through incident severity or the type of property affected), but there is a reduced likelihood of this risk being realised. For example- a flooding or a person locked in.	7 minutes
Category 3 (Low Risk)	Incidents where there is a significantly reduced risk to life.	10 minutes
Category 4 (secondary fires that attract a 20 minute attendance standard)	Incidents that are secondary fires and where there is a very low risk to life; e.g. fires in the open, in waste materials or grass fires	20 minutes
Category 5	False Alarm calls- called in good faith, but turned out to be no incident.	

Many fire and rescue services aim to respond to all incidents within a given time frame, or single out dwelling fires or RTCs for specific attendance time targets. We have decided that it is better to group all high risk incidents together and ensure that we always respond in the fastest way to a call that could result in people's lives being in danger.

This means that we can afford to set longer attendance time standards for minor calls where lives and property are known to be in no danger. By doing this, we can spread our fire engines and other resources most effectively across the area, not just day by day, but dynamically from one minute to the next, using Fire Control staff to maintain the most effective distribution of fire appliances and personnel at all times. Protocols are in place, so that however many personnel are committed to fires and emergencies at a given time, we are able to make cover moves based on a combination of the level of risk

identified in each area of the West Midlands and the anticipated travel times as our resources become stretched, during periods of high demand.

We have established arrangements with our neighbouring fire and rescue services in Staffordshire, Warwickshire, Hereford and Worcester and Shropshire, so that we are able to offer support at times of peak demand affecting our colleagues in the West Midlands region. Conversely, we can expect assistance from them, if we are experiencing exceptionally heavy demand.
In addition, we are able to rely on mutual aid nationally, during a major emergency and we reciprocate by contributing our support to other services from time to time, on a national basis.

The reciprocal regional arrangements described here are formalised in documented agreements between the regional services, so that we are able to rely on this understanding within our planning assumptions.
The agreements extend not just to fire engines and their crews but also to co-operation in the use of senior officers for incident command and control, or for designated specialist roles during an emergency incident, should that be necessary.

Service Delivery- Prevention; Protection; Response

The contact we have with local people and those who work in and travel through the West Midlands, is through the 3 channels summarised here:

➤ Prevention occupies the majority of our work time and involves our day to day interaction with people in local communities, to inform and educate about the risks from fire, road accidents and other undesirable events.
➤ Protection is the work we do to monitor and uphold the standard of fire safety management in workplaces and licensed premises, together with our involvement in ensuring that new construction and alterations to the built environment, are carried out in line with approved standards.
➤ Response is the familiar face of the fire and rescue service, providing assistance to people during emergencies and traumatic events.

Prevention

On the basis of our knowledge of local demographics outlined above, we are able to build a picture of risk to inform our prevention activities, to ensure that we can achieve the best value from our staff time
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For example, an obvious cause of deaths and injuries is that of fires in the home, so much of our research and analysis looks at dwelling fires and in particular, those which are started accidentally. We know that these events give us some opportunity to influence the number and severity of the fires that

occur, so we have to focus our prevention work on the groups and individuals who are seen as high risk in terms of vulnerability to fire.
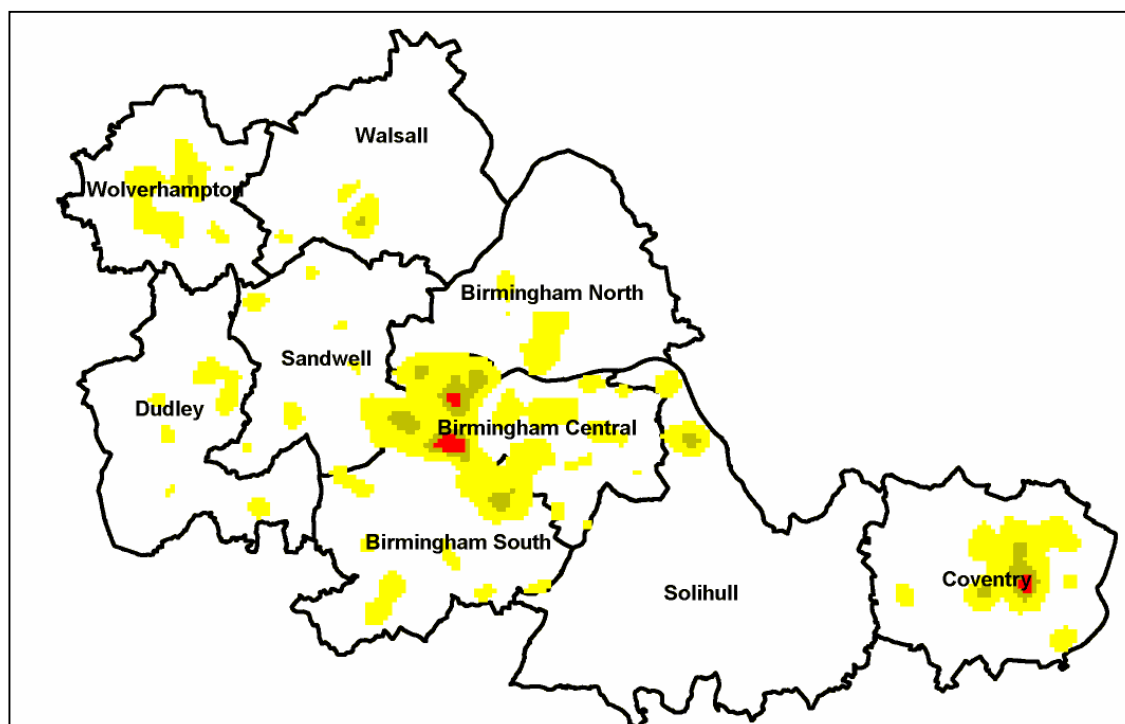
Hotspot Map for Accidental Dwelling Fires in the West Midlands: 01/04/2009 – 01/07/2012

The map above shows the main hotspot areas for accidental dwelling fires over the last 3 years and evidence shows how this distribution tends to remain fairly constant from one year to the next. Whilst monitoring for change, we use information such as this to target our prevention work, but we are also able to refer to more detailed evidence describing individual households and groups of people who are most vulnerable to fire. In this way, we bring together evidence from past fires with risk analysis to predict the likelihood of future vulnerability.

Armed with this knowledge, we work both independently, and in partnerships with other local bodies, to bring about positive change in people's behaviours and to help them to live safer lives.

One of the main methods of delivery of this intervention is the home safety check, and we have carried out many of these. Our firefighters have been visiting large numbers of local households since 2004, to give advice and guidance to people, to help reduce the risk of fire in the home. On many occasions, we have also fitted smoke alarms, so that even when a fire does start, it will raise the alarm early and give occupants time to escape.

Over time, these visits have become more focussed on the households at greatest risk and we have been keen to ensure high standards of quality in this work, rather than just high numbers of safety checks. Even so, the numbers of checks completed has been consistently high and is summarised for the most recent years, in the table below:

Year	Number of Home Safety Checks carried out
2009-10	41104
2010-11	40924
2011-12	33765

The number of HSCs completed, has reduced, as more effort has been invested into the targeting of these visits into the most appropriate households.

Since November 2011, we have concentrated on working closely with partner agencies who have established links with some of our key target groups, to ensure that working together, we reach the right people in the most effective way.

We are currently updating our evaluation of the prevention work carried out to date, to assess how well we have been able to target our work at those people who will benefit the most through reduced suffering, to control the need for emergency response.

The following map illustrates how effective we have been, for example in identifying where to prioritise our Home Safety Checks, as there is a close similarity with the map of actual fires, above:
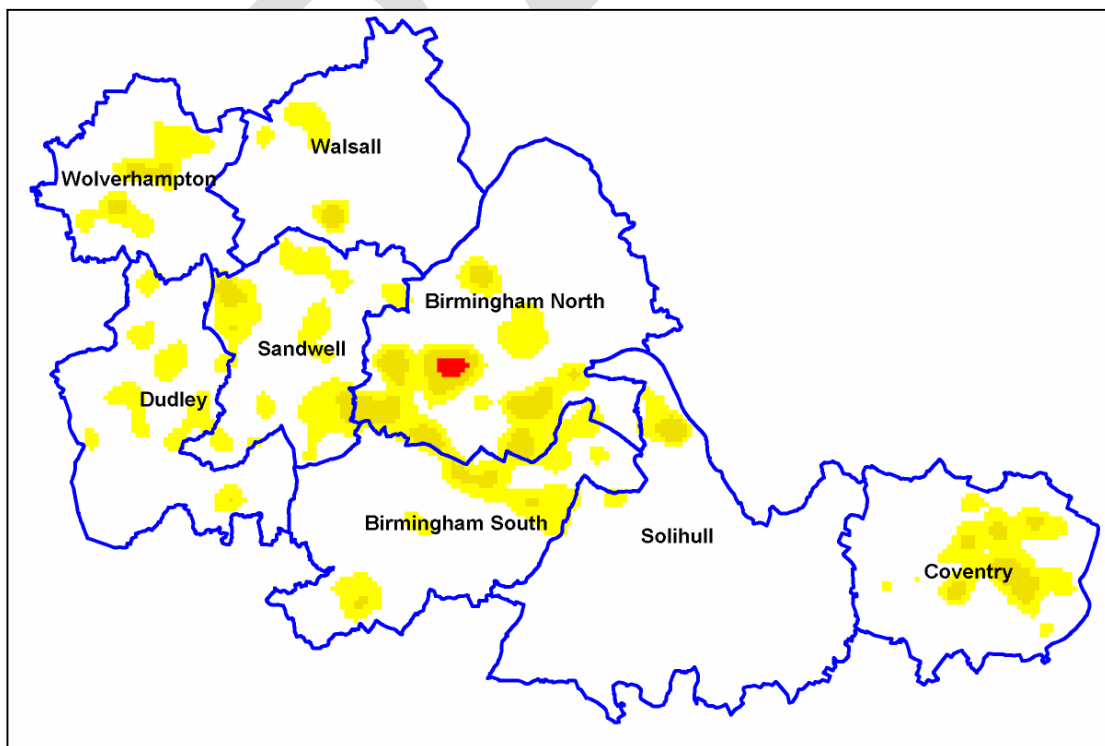
Hotspot Map for Home Fire Safety Checks: 01/04/2009 – 01/07/2012

Detailed analysis of the victims of dwelling fires, helps us to gain a full understanding not only of who is likely to be at greatest risk, but also, by creating an awareness of likely lifestyle choices and patterns of behaviour, how best to contact and communicate with the right people.

Part of the outcome of this intelligence, is that we can identify which partnerships will achieve the greatest mutual benefit for the people we need to work with, and our own goal of making the West Midlands safer.

In tandem with our visits to homes and schools, we are also able to invite groups of children and others, to visit our bespoke safety education centre- 'Safeside'. Last year, almost 10,000 schoolchildren, youth groups and others visited Safeside, to benefit from safety education and life skills sessions.

Our firefighters also build links with local schools and deliver safety messages across a range of age groups in the most appropriate way, to build knowledge of fire safety, but also to help reduce road casualties.

Protection

Fire protection work is carried out largely by specialist officers based at sites across the West Midlands. These officers are trained to give advice and guidance on safety standards in the workplace, such as factories, offices and shops, together with licensed sites such as pubs and clubs.
Firefighters also take part in this work and carry out routine visits and inspections.
Premise owners or operators are responsible for managing safety in the workplace, so our role is largely to monitor how well this is being done and to take enforcement action when necessary.
Our officers also work with building control and approved inspectors to check the plans for new buildings, to ensure things such as:

➤ Clear access routes for fire engines in areas of new build
➤ Adequate water supplies and firefighting facilities
➤ Suitable escape routes and fire resisting construction
➤ Safety systems such as fire alarms, escape lighting

Our database covers all known premises where safety audits may need to be carried out and we use a risk based system of ranking these sites in order of priority, to ensure that our staff visit the places where they will achieve the greatest impact on safety.

We have established a scheme locally to help inform local businesses of the impacts of fire- whether it occurs accidentally, or as a result of arson, with guidance on how to plan for business continuity following the potentially devastating effects of a fire. This guidance is freely available from our website, under the name of 'Keep Your Business in Business'[8]

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[8] http://www.wmarsontaskforce.gov.uk/kybib.jsp

By way of illustration, the table below gives an idea of some of the fire protection activities we engaged in during the last year, 2011-12.

Fire Safety actions taken	Total 2011-12
Fire Safety audits completed	1314
Informal Notices issued	530
Formal Notices issued	109
Prosecutions	6

Emergency Response

This will always be a key priority for our service, because despite all efforts to prevent incidents and reduce their impact, fires and emergencies will always continue to happen and we strive to deliver the highest response standards possible.

Our core fleet of emergency response vehicles, equipment and personnel, is drawn from a blend of resources- some of which are available 24 hours per day, with a smaller number brought in to operation just for the busiest period of activity, between 10-00 AM and 10-00 PM every day. All of our emergency response teams and equipment are distributed across the West Midlands based on a dynamic network, aligned to local risk so that we can achieve the fastest response to high risk incidents, but we are also able to shift resources around the area pro-actively, to meet changing risk levels from day to day or minute by minute.

The Technical Rescue Unit has a team of staff with dedicated skills and equipment to respond to emergencies other than fire- such as rope rescue, water incidents or those involving collapsed structures and confined spaces.

We maintain a number of vehicles dedicated to providing resilience[9] locally and nationally, for major incidents involving flooding or chemical contamination, as well as responding to emergencies arising from terrorist incidents.

Over the last decade, FRSs have been given the autonomy to decide how to plan and allocate their resources, in line with local need, based on the process of risk analysis.
What this means, is that in West Midlands, we have been able to lead the way in developing more flexible shift systems, vehicle designs and equipment profiles, for example, to address predictable local demand and to provide assurance that we are able to deal with major incidents when they happen.

We know that our firefighters do not spend most of their time dealing with fires and emergencies, but in addition to a rigorous programme of training and development, they also need to check and maintain a wide range of rescue equipment, to ensure that it will function reliably when called upon.
Much of the remaining time on duty is spent interacting with local communities to educate vulnerable people about how to prevent fire and to mitigate its consequences.

A good deal of effort is put into the process of ensuring that this type of work addresses specific needs within communities and we attempt to evaluate the outcomes of our work in this area, to ensure best use is made of time and resources.

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[9] Resilience refers to our capacity to respond to, or assist with major emergencies such as floodings or terrorist- related incidents.

How do we save lives?

A common assumption is that we save most lives by rescuing people who are trapped in burning buildings.
Whilst this still forms an essential part of our role, we actually spend much more of our firefighters' time engaged in saving lives, preventing injuries and damage to property, through the prevention activities described throughout this document.

In line with many of our activities, we go to some lengths to evaluate the impact of the different strands of work that our people are engaged in, to ensure that we work as efficiently as possible by basing our efforts on the outcomes of intelligence and analysis.

One indication of the value of this approach, is that by examining the factors that impact on people experiencing a serious house fire, we are able to assess the relative value of some key elements of our service, in saving lives. These would include:

- Educating people on the need to fit a working smoke alarm in the home.
- Encouraging people to adopt a bedtime routine and especially, to close doors to the kitchen and living rooms at night-time.
- Advising people to prepare and communicate an escape plan for everyone in the household.
- Using the skills of our Fire Control staff to engage with emergency callers, so that life-saving advice is given during a fire, allowing people to survive whilst firefighters are en route.
- Providing a fast attendance time from our emergency response vehicles
- Maintaining highly skilled firefighters, to deploy effective search and rescue and firefighting techniques, including active ventilation of escape routes.

By developing the skills of our fire engineers, we have been able to assess the relative value of these factors, supporting the case for a continuing emphasis on prevention and education, to drive down the incidence of fires and emergencies, rather than relying too heavily on emergency intervention.[10]

Only by exploiting all of these approaches in combination, can we be confident that we are doing our best to keep local communities safe.

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[10] Walker, R.G., *A Study to Determine the Criticality of Fire Service Attendance Times on the Occupant Survivability of a Fire in a Dwelling House.* Study undertaken in partial fulfilment of the requirements for the degree of BEng (Hons) in Fire Engineering at UCLAN. Preston: 2012.

As a result of our persistent drive to reduce local risk in the ways described in this document, we have seen a significant drop in the number and severity of fires in our area, as shown below.

Total Incidents 2002/3 - 2011/12 Including Projections Based on 3 Year Average Performance Rates
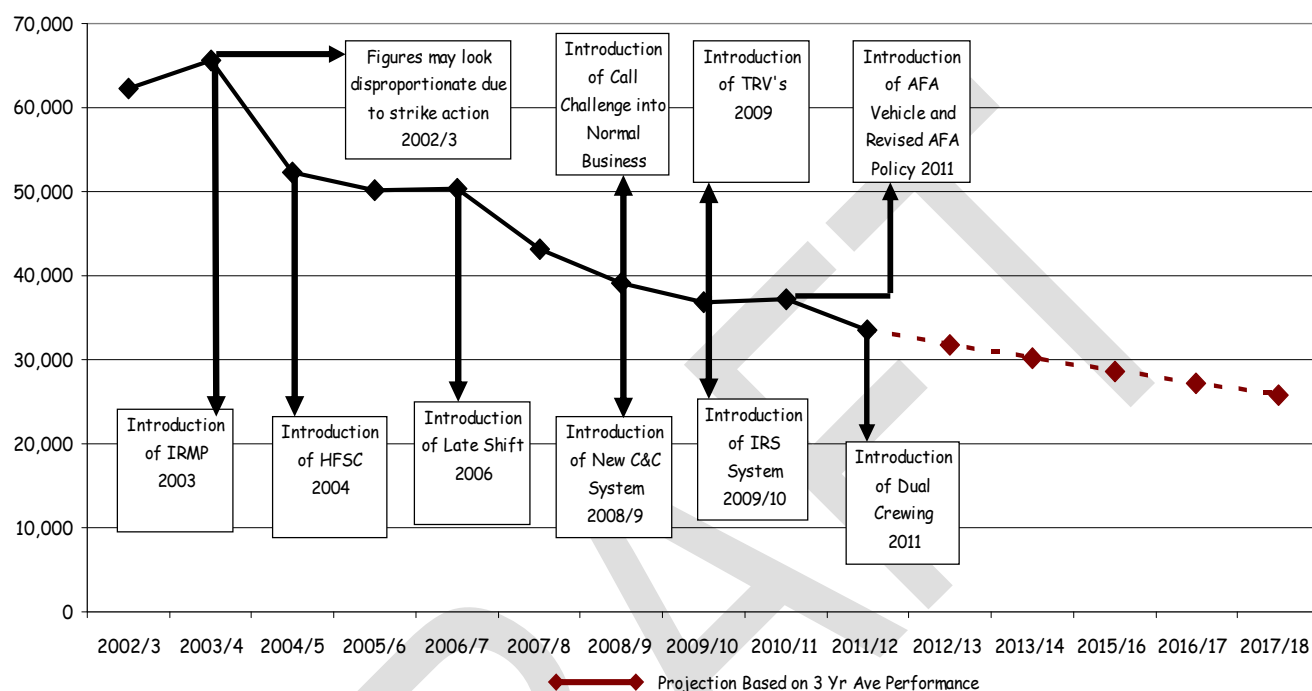
Incident demand

The chart above shows how the number of emergency incidents has been reduced – by almost 50% since a peak of more than 62 000 in 2002/3 to current levels of around 33 000 per year.

This represents a great success on the part of our continued efforts to actively work with local people and partners, to reduce the number of fires, false alarms and other calls, so that we can not only ensure better availability of our fleet for essential emergency response, but also to allow our firefighters the time to invest in more prevention activities and specialist training.

Even within the most recent 3 year period, we have experienced a continuing reduction in emergency responses, partly due to prevention activity carried out by our staff, but also due to an initiative to control more strictly, the number of false alarms that we respond to. We describe this as 'call challenge'.

To appreciate the positive impact of this risk-based policy, it is worth looking at the decline in responses made over the last financial year with complete records, 2011/12.

Total Incidents 2009/10 - 2011/12 (Including Over the Border Incidents)
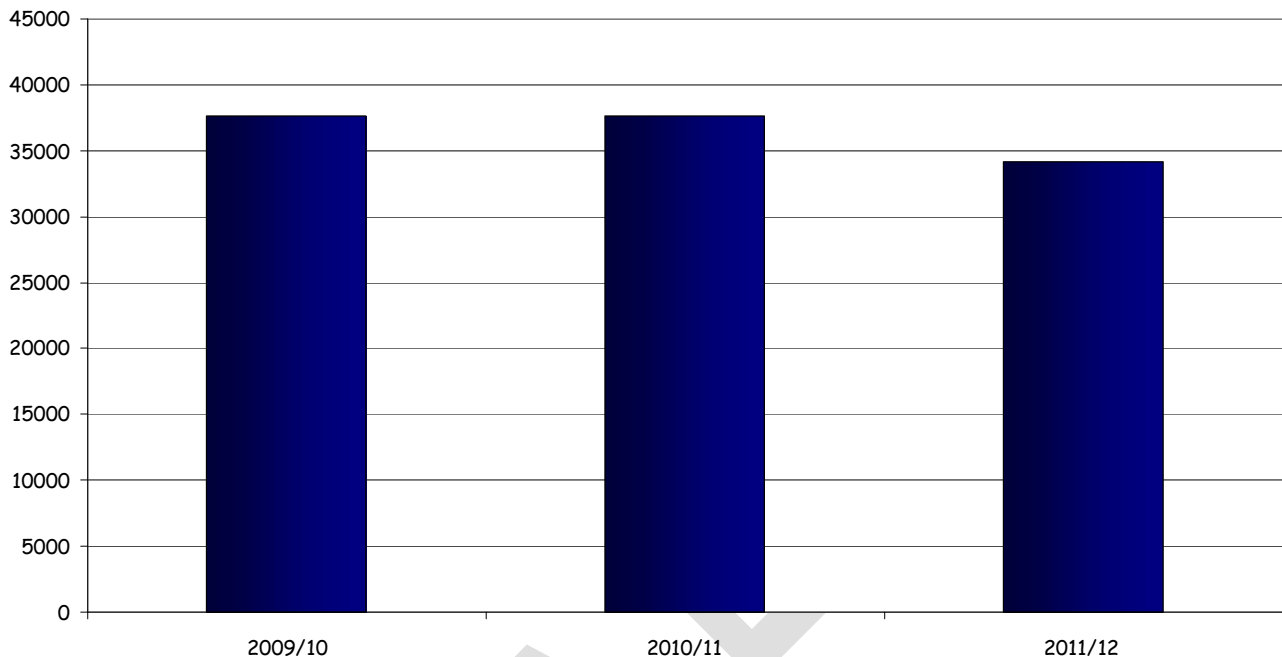
The total number of calls responded to remained fairly static from 2009/10 to 2010/11, but underwent a drop of almost 10% the following year. This is largely accounted for by a policy change that we have been able to introduce, involving how we respond to calls arising from automatic fire alarm systems (AFAs).

Traditionally, fire and rescue services have responded to calls triggered by AFAs in the fear that there is always a chance of a genuine fire being in progress. Naturally, alarm systems have been designed and installed specifically to sound the alarm when a fire breaks out, so that was a reasonable expectation. However, experience has shown us that the systems installed in increasing numbers in recent years, whilst performing a vital and valuable service in the main, have also given rise to ever increasing numbers of false alarm calls, placing unprecedented levels of demand on our response service.

With upwards of 10,000 calls from AFAs per year, the pressure on our resources was impacting on our ability to always provide the fastest response to genuine emergencies, with up to 15 fire engines (or 'pumps') being occupied at false alarm incidents at any one time. Some of our fire engines were responding to over 900 false alarms per year, with most of these originating from AFA systems.

We were able to show that in the vast majority of cases (approximately 98%) calls from AFAs resulted in a false alarm. The main causes of the problem are either alarm system faults, or inappropriate human behaviours (such as burning toast in close proximity to a smoke detector head). Even within the 2% of AFA calls that resulted in a genuine fire, the great majority required either no firefighting, or minimal firefighting action involving WMFS firefighters.

Another factor in this problem derived from the fact that around 50% of AFA calls were being received not directly from the premises involved, but from a commercial call handling centre. Even if we were to challenge the calls received in Fire Control from AFAs, we would still be unable to challenge the 5 000 or so calls being passed to us from the alarm receiving centres, who have taken the call details and closed the line.

Our analysis showed us that the great majority of alarm calls from AFA systems are in the central areas of our towns and cities, with Birmingham city centre as the most obvious hotspot.
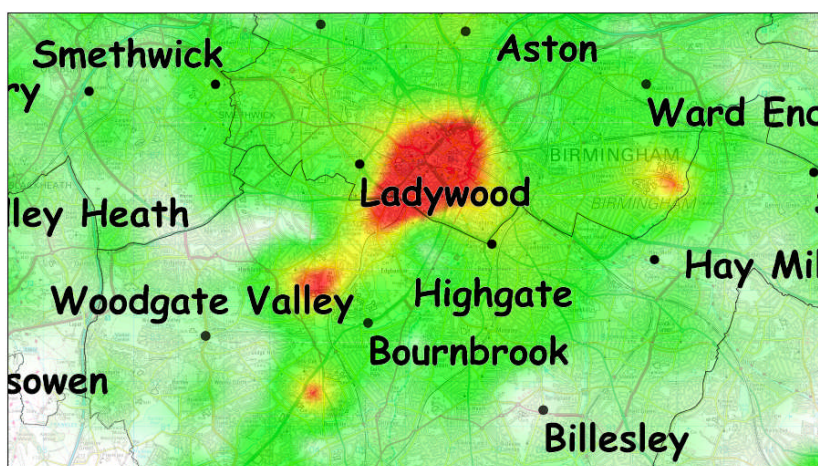
Birmingham city centre is the main focus of calls arising from automatic fire alarm systems.
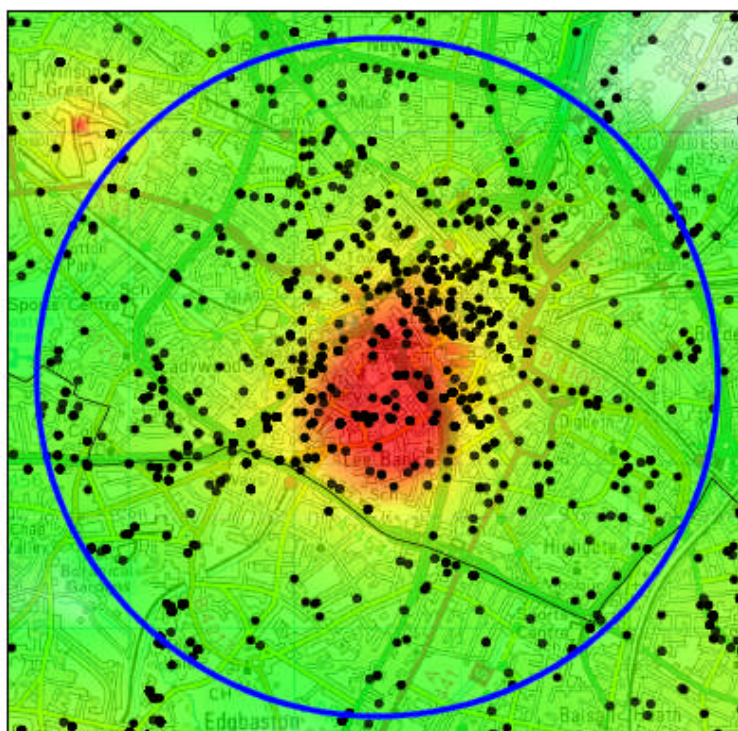
By highlighting the concentration of AFA calls in the city, we were able to map a 10 minute travel time based on Ladywood fire station, identifying it as the ideal location for hosting a dedicated trial vehicle responding purely to AFA calls at peak times of activity.
More than 50% of the calls fall within this area.

Thus, we were able to set up a dedicated AFA response vehicle to respond specifically to these calls during the peak period of demand, staffed by just 2 people. As the vehicle was led by an experienced officer with fire safety knowledge and enforcement skills, we achieved a great success in the following ways:

- Significant reduction immediately in the number of mobilisations of front line fire engines, to an AFA call in the Birmingham area.
- Consistent advice or enforcement of fire safety management standards, where appropriate, to reduce the number of repeat calls from individual sites.
- Evidence gathering, for an intelligence-led shift in policy, so that the majority of AFA calls could be challenged at source, working in collaboration with the alarm receiving centres.

As a result of these initiatives, we now receive and respond to several thousand fewer calls per year. We do not currently challenge calls from hospitals or care homes, due to the potential consequences of a fire call from such places, where people often have impaired mobility or where unacceptable distress could be caused, but we are continuing to work with hospitals and other key premise managers, to improve the rate of reduction in unwanted fire signals.

The need to persevere with our prevention activities

It is important to realise that although incident numbers have been reduced in recent years, we believe this is largely due to the heavy investment we have undertaken, to deploy our staff in fire prevention activity, to pro-actively manage down demand for our emergency response role.

It is vital that we continue to do this and have access to sufficient resources to maintain this effort, especially as the economic circumstances force more people into financial difficulties, with associated issues such as fuel poverty (where people are forced to spend an increasing proportion of their income on winter heating and general energy bills). During times of economic recession, a range of factors will tend to increase the level of risk in local communities, such as:

- With more people out of work, there is a greater likelihood of dwelling fires as people spend more time at home
- Restricted income encourages people to squeeze more life out of household appliances that would otherwise have been replaced
- Householders tend to cut back on servicing and maintenance of gas boilers and other safety critical items
- Vehicles may be run for longer without being serviced and tyres are changed only when essential for the MoT test
- Household size increases as family members are forced to share accommodation due to rising housing costs
- High levels of economic migration bring in additional numbers of people who often work in the fringe economy and live in overcrowded or temporary households[11]

Other factors too, are having an impact on our service demand and will continue to generate change into the future. Population demographics show how the age profile is changing and there is an increasing proportion of elderly people in the community, as people now tend to live longer. Elderly people, and especially those who live alone, are among our high risk groups for vulnerability and are more likely to be involved in a fire. When combined with impaired mobility, or a tendency to take longer to react to an emergency, it can be seen that an increasing number of people are likely to be at risk of serious harm, despite all efforts to prevent fire.

What the chart on page 17 is also able to show, is that we have introduced a number of significant and far reaching changes to the way that we work, to increase efficiencies and to modernise our service from a baseline established in 2002/03.

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[11] During 2011-12 we organised and delivered dozens of safety education sessions specifically for migrants, reaching approximately 1200 migrants from 79 nationalities
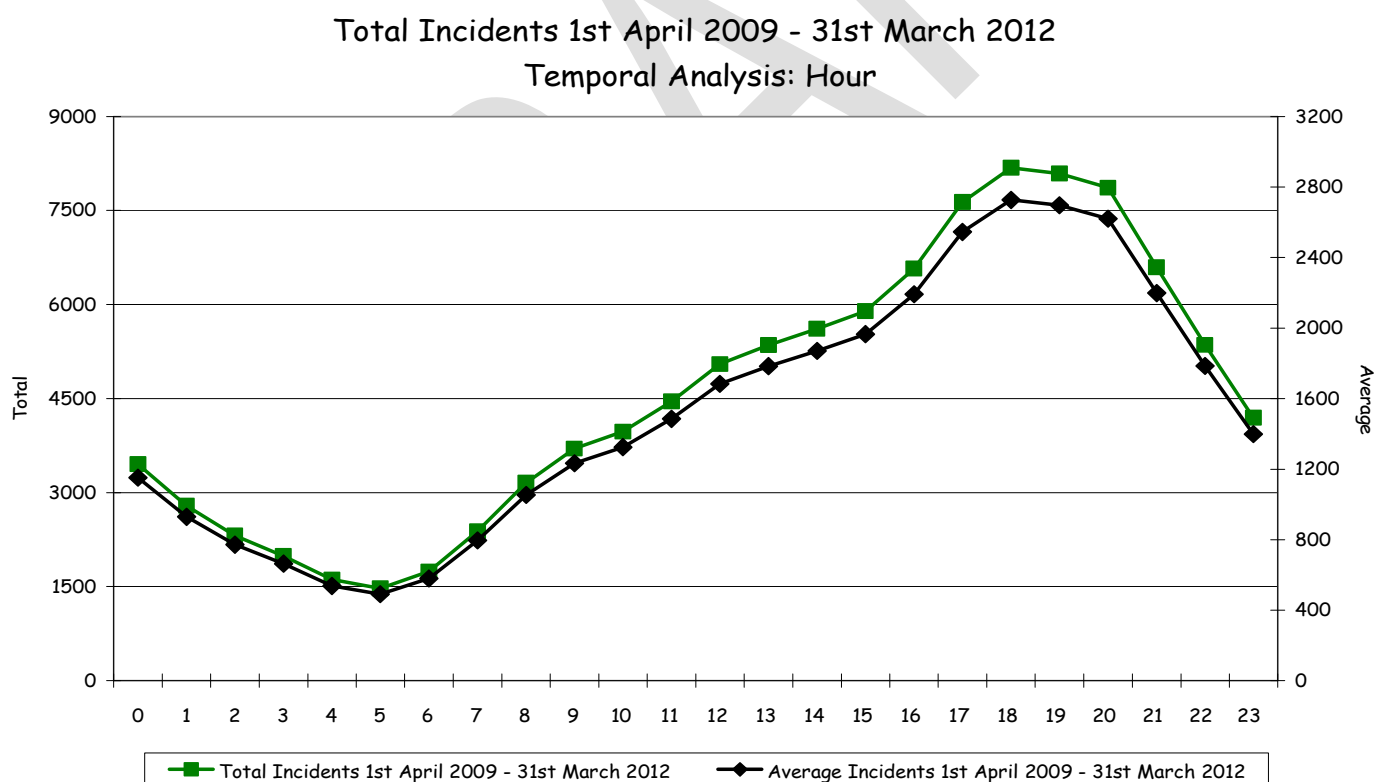
Daily workload

In particular, it is worth examining the temporal spread of incident activity, as shown in the chart below.

This illustrates the distribution of our incident demand throughout the 24 hour period, with total and average figures, hour by hour.

The essential point to note is that the shape of the curve on this chart remains fairly constant from year to year, showing that we can predict with some confidence, when our periods of high activity are likely to be, through the day. With this in mind, we have been able to introduce revised working patterns so that we now have more firefighters on duty during our busiest times and less, when activity is likely to be lower.

This system of shifts has been in place since 2006 and has proven over time to be very effective in meeting demand whilst reducing our costs in maintaining unnecessarily high staffing levels through the night, and the early morning. We continue to review the performance of this staffing model, but it currently serves well to meet the varying levels of demand.

Total Incidents 1st April 2009 - 31st March 2012
Temporal Analysis: Hour

Legend: Total Incidents 1st April 2009 - 31st March 2012 — Average Incidents 1st April 2009 - 31st March 2012

To emphasise the potential impact of this hourly fluctuation in demand, it is worth considering how this translates into the number of fire engines that we have available for response during a typical day.

We have been able in recent years to always maintain an additional capacity during the day, when we have a number of firefighters working a 12 hour shift from 10-00 a.m. to 10-00 p.m. and this allows us to match our resources more closely to the level of demand, both from routine calls and to ensure that we have capacity to deal with large scale emergencies, or ones that have a prolonged impact on our firefighters and the response fleet.
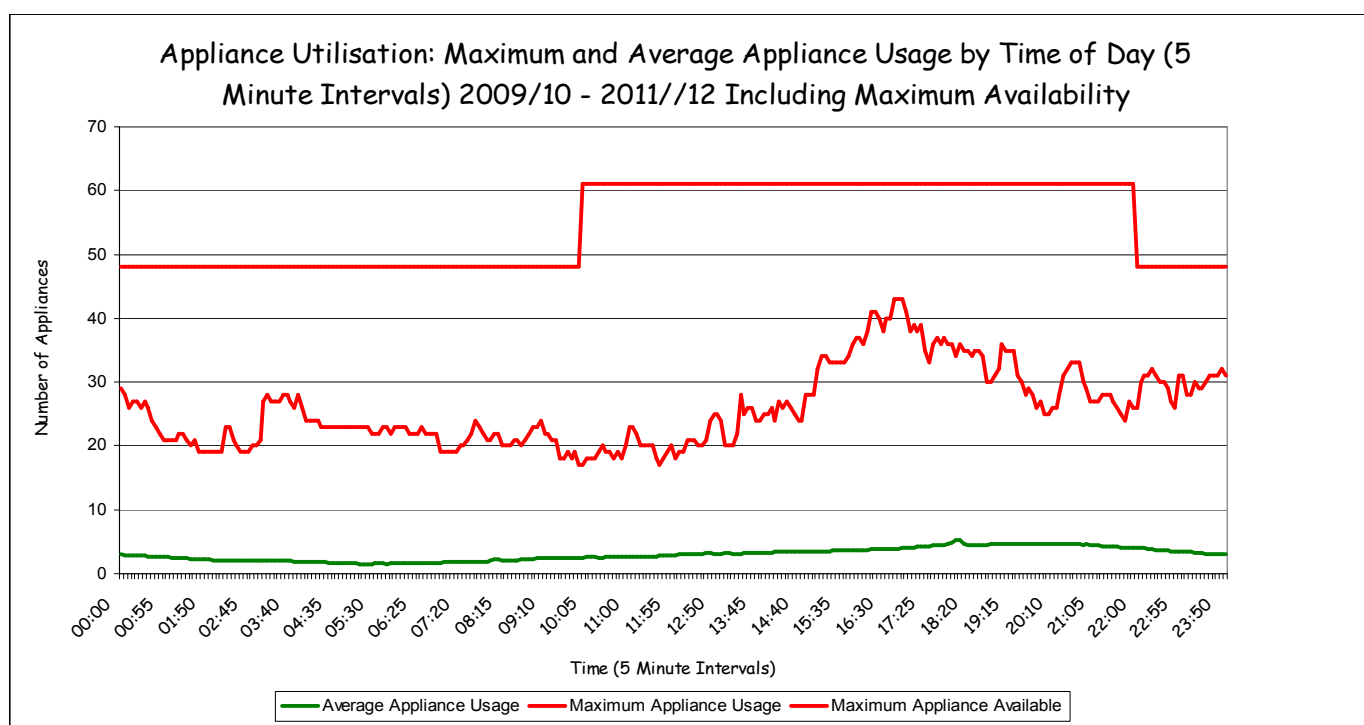
A further development of this approach has been examined, whereby some of our firefighters might be on active duty during the busier 12 hour period, and then remain on standby during the night, with rest facilities made available adjacent to the workplace. This system would potentially be able to support emergency response cover with a smaller number of firefighters, so would be cost effective to run. However, it is vitally important to ensure that our firefighters are given adequate rest periods, to ensure they are safe and healthy. A system like this could only be brought in on some of our stations where demand is low overnight, especially the demand created by high risk incidents such as house fires or road traffic collisions.

This working pattern has been called Low Risk Flexible Crewing and is currently undergoing further consideration as a potential option for the future.

Capacity and resilience

The capacity of our response fleet is clearly illustrated in the figure below.

The solid red line shows how many fire engines are available for emergency response, hour by hour, while the red curve shows the maximum numbers committed to incidents at any time, leaving a number in reserve in case of additional demand.

Appliance Utilisation: Maximum and Average Appliance Usage by Time of Day (5 Minute Intervals) 2009/10 - 2011//12 Including Maximum Availability

We have examined the impact of major incidents, and that of responding to numbers of calls at the same time, to make sure that we have sufficient capacity to manage when this happens.

Our experience of major fires and emergencies in the past has been a useful source of reference, as we can learn from previous events and use simulations and exercises to test how we would deal with a range of scenarios.

In addition, we refer to the risk assessments carried out by the West Midlands Local Resilience Forum, to assess the likelihood of a range of events and plan for our response in tandem with other blue light responders, local authorities etc.

Analysis of Emergency Response Activity

Analysis of incidents according to local authority area 2009/10 – 2011/12 indicates that the majority have occurred in Birmingham (40%), followed by Sandwell (12%), Coventry and Dudley (both 11%), Walsall (10%), Wolverhampton (9%) and finally Solihull (5%). The number of over the border calls (where WMFS has attended an incident outside its brigade area in order to assist a neighbouring brigade) has remained relatively constant averaging approximately 2% over the period analysed. When total incidents are examined in terms of rate per 1,000 population however, a slightly different picture emerges, with Walsall local authority experiencing the highest rate (13.8 incidents per 1,000 population in 2011/12).

A full breakdown of thematic incidents per local authority area expressed as a rate per 1,000 population can be seen below.

Number of Incidents (by Risk Category) by Local Authority Area per 1,000 Population 2009/10 and 2011/12

2009/10

Local Authority Area	Total High Risk Incidents	Rate Per 1,000 Population	Total Medium Risk Incidents	Rate Per 1,000 Population	Total Low Risk Incidents	Rate Per 1,000 Population	Total Secondary Fires Attracting a 20 Minute Attendance Time	Rate Per 1,000 Population	Incidents Resulting in a False Alarm	Rate Per 1,000 Population	Total Incidents	Rate Per 1,000 Population
Birmingham	2607	2.5	2777	2.7	4676	4.5	2260	2.2	2272	2.2	14592	14.2
Sandwell	732	2.5	666	2.3	1158	4.0	1270	4.4	897	3.1	4723	16.2
Coventry	679	2.2	665	2.1	1291	4.1	939	3.0	659	2.1	4233	13.5
Wolverhampton	515	2.2	662	2.8	1090	4.6	610	2.6	717	3.0	3594	15.1
Walsall	496	1.9	541	2.1	1016	4.0	1099	4.3	572	2.2	3724	14.6
Dudley	591	1.9	577	1.9	849	2.8	1004	3.3	918	3.0	3939	12.8
Solihull	386	1.9	397	1.9	687	3.3	331	1.6	300	1.5	2101	10.2

Breakdown of Incidents Reported to and Recorded by WMFS (Not Including Over The Border Calls) 2008/9 by Local Authority Area per 1,000 Population (Mid 2008 Population Estimate, Office of National Statistics, www.nomisweb.co.uk)

2011/12

Local Authority Area	Total High Risk Incidents	Rate Per 1,000 Population	Total Medium Risk Incidents	Rate Per 1,000 Population	Total Low Risk Incidents	Rate Per 1,000 Population	Total Secondary Fires Attracting a 20 Minute Attendance Time	Rate Per 1,000 Population	Incidents Resulting in a False Alarm	Rate Per 1,000 Population	Total Incidents	Rate Per 1,000 Population
Birmingham	2646	2.6	2142	2.1	3033	2.9	3394	3.3	2198	2.1	13413	12.9
Sandwell	686	2.3	565	1.9	787	2.7	1204	4.1	668	2.3	3910	13.4
Coventry	690	2.2	568	1.8	834	2.6	1246	3.9	614	1.9	3952	12.5
Wolverhampton	515	2.2	552	2.3	611	2.6	743	3.1	603	2.5	3024	12.6
Walsall	512	2.0	403	1.6	719	2.8	1263	4.9	640	2.5	3537	13.8
Dudley	589	1.9	452	1.5	638	2.1	1393	4.5	782	2.5	3854	12.5
Solihull	338	1.6	283	1.4	396	1.9	519	2.5	300	1.5	1836	8.9

Breakdown of Incidents Reported to and Recorded by WMFS (Not including Over the Border Calls) 2010/11 by Local Authority Area per 1,000 Population (Mid 2009 Population Estimate, Office of National Statistics, www.nomisweb.co.uk)

Strategic Hotspot Areas 2009/10 – 2011/12: Total Incidents
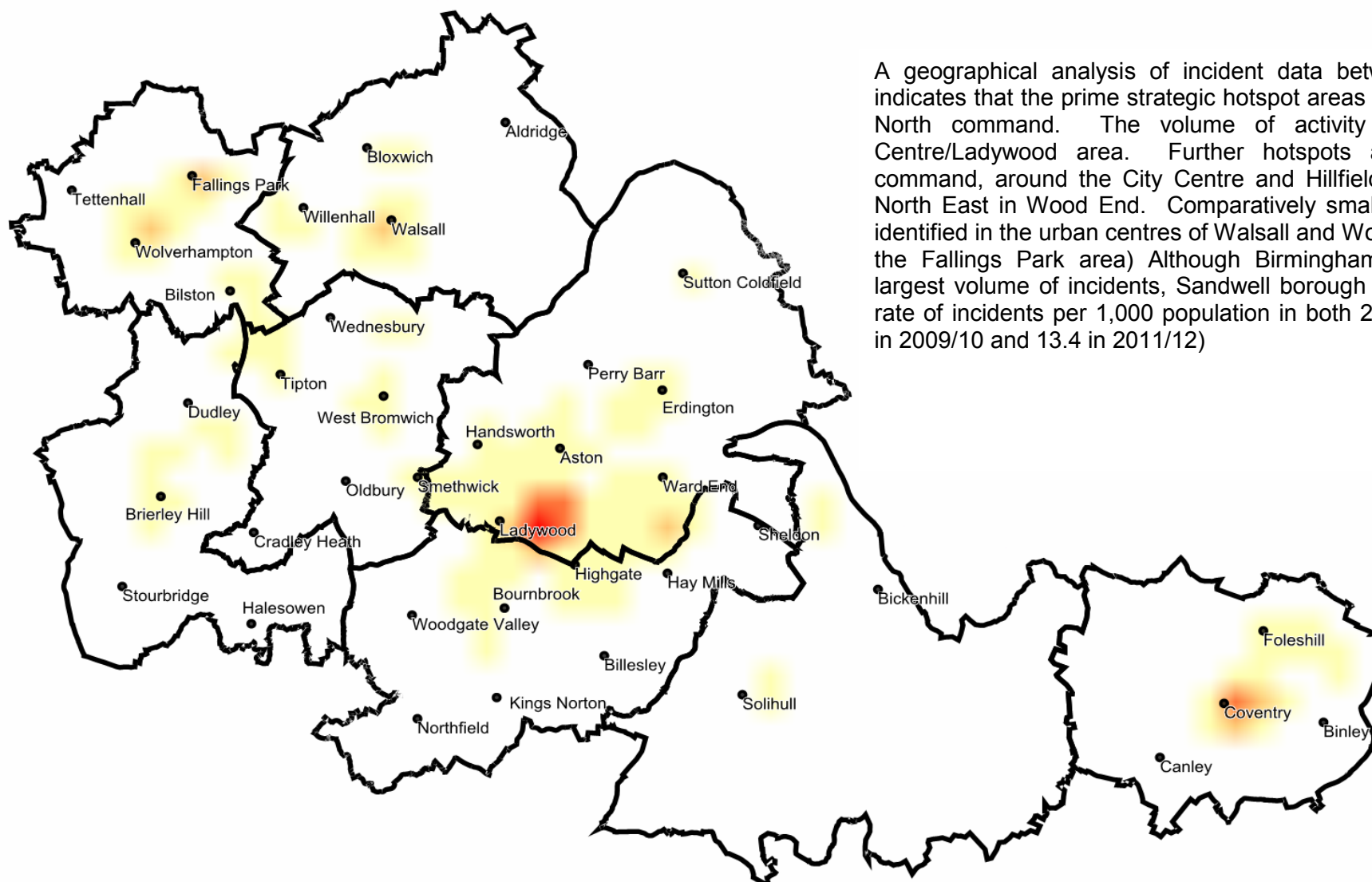
A geographical analysis of incident data between 2009/10 – 2011/12 indicates that the prime strategic hotspot areas are located in Birmingham North command. The volume of activity is located in the City Centre/Ladywood area. Further hotspots are located in Coventry command, around the City Centre and Hillfields area as well as to the North East in Wood End. Comparatively smaller concentrations can be identified in the urban centres of Walsall and Wolverhampton (as well as in the Fallings Park area) Although Birmingham experiences by far the largest volume of incidents, Sandwell borough actually reported a higher rate of incidents per 1,000 population in both 2009/10 and 2011/12 (16.2 in 2009/10 and 13.4 in 2011/12)

Both the tables above and the hotspot map showing incident activity, illustrate how the demand for emergency response is not distributed evenly across the West Midlands, but tends to be concentrated in certain areas, especially the main centres of population and day to day activity.

However, the information looked at so far relates to all incident categories so it does not distinguish between serious emergencies and the more routine calls.

Before moving on to examine the character of emergency response in more detail, it is worth showing how there is a similar disparity in the activity levels of our fire engines based across the area.

When considering the whole range of incidents responded to, it can be seen that some crews receive a far higher level of demand than others, with a range of activity varying from almost 1500 responses for some of our busiest pumps, to around 250 for our lowest activity fire engine (which operates only 12 hours per day).

Tettenhall station in Wolverhampton Command, is unique because it is staffed by a full crew for only the busier period of the day, from 10-00 am to 10-00 pm, with cover being provided from neighbouring units at other times. Its activity levels therefore reflect this staffing model, and the lower risk levels present in that area which enabled its implementation.

Station Activity Total Duration and Related incidents 2011/12
### (excluding Exercise, Test and Standby Moves)
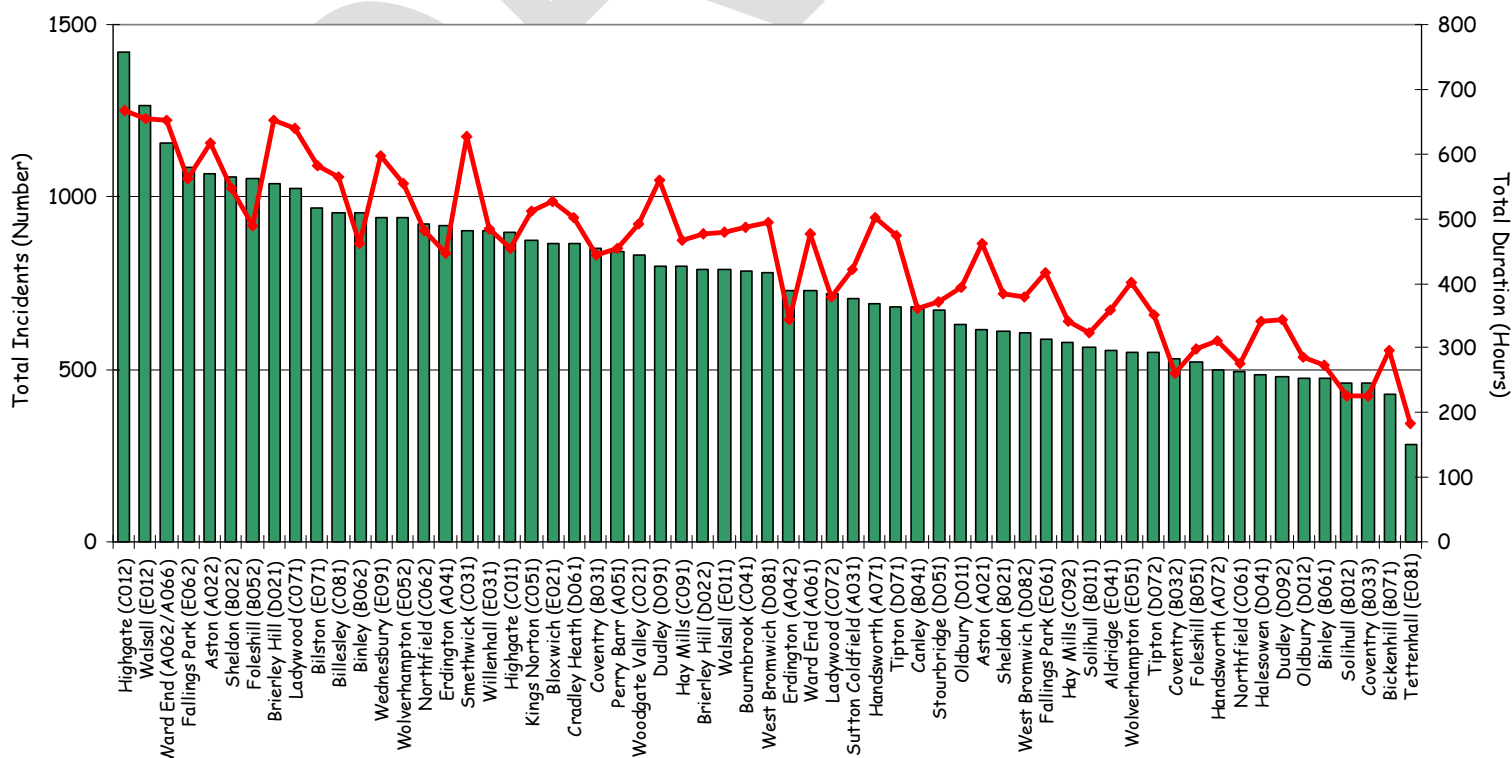
With regard to response activity overall, there is an additional point to note, with regard to emergency attendance times:

➢ Average first appliance attendance times to all incidents (excluding secondary fires) have shown a slight improvement in 2011/12 compared with the previous year (3 seconds or -0.9%) from 5 minutes, 22 seconds in 2010/11 to 5 minutes, 19 seconds in 2011/12. Average first appliance attendance times have consistently reduced since 2009/10. Similarly, average second appliance attendance times have also improved, equating to 6 minutes and 47 seconds in 2011/12 compared with an average of 6 minutes and 53 seconds in 2010/11.

➢ This represents a 1.2% improvement in performance. Whilst travel times to incidents have remained relatively stable, (averaging approximately 4 minutes and 9 seconds 2009/10 – 2011/12), reaction[12] times have decreased slightly over 2011/12 (1 minute 20 seconds in 2011/12 compared with 1 minute and 21 seconds in 2010/11). This may be attributable to both improved topographical knowledge on behalf of crews and the adoption of sat-nav (reducing time spent at the map board before boarding the appliance) as well as more intensive brigade wide performance management of station attendance times.

High Risk Incidents

It is useful to focus on the high risk incident category in particular, to see what trends are emerging during the period 2009/10 to 2011/12.

Total High Risk Incidents 2009/10 - 2011/12

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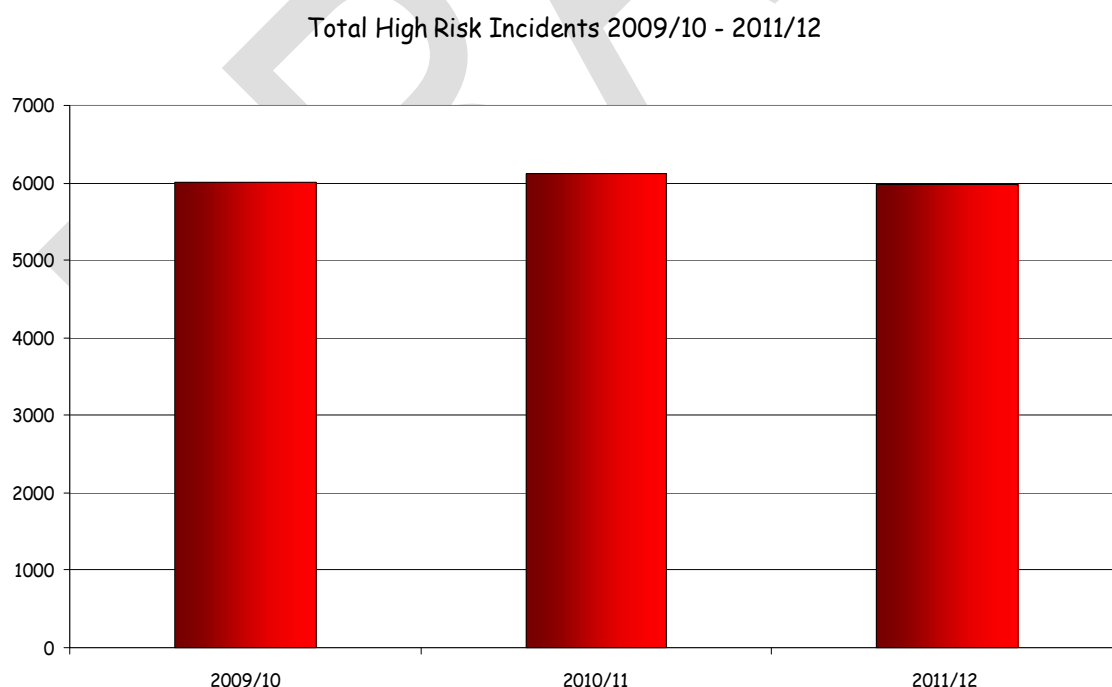
[12] Reaction time is the time from the firefighters receiving the turnout call, to when they actually mobilise. Travel time, is the time from when mobilisation begins, up to arrival on scene.

Evidence from our experience of high risk incidents, shows that the number has remained fairly constant over the previous 3 year period. There was a very slight fall, of -0.5% during 2011/12, but this was the first time in recent years that the total number has reduced.

When we consider the nature of incident types within the high risk category, it is useful to take account of the chart below:

Breakdown of High Risk Category by Incident Type 2011/12
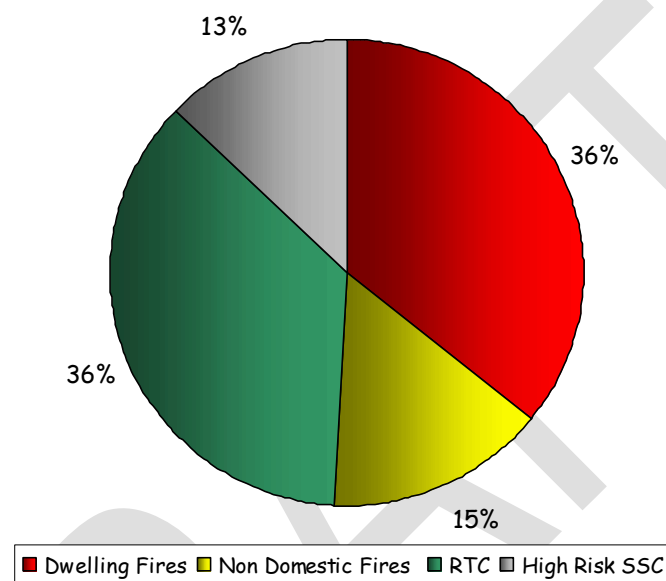
This demonstrates how the bulk of these calls derives from dwelling fires (houses and flats) and road traffic collisions (RTCs).

RTCs in particular, are worthy of further attention because they represent the only sub-group within this category, to have seen an increase in numbers responded to over the 3 year period.

Strategic Hotspot Areas 2009/10 – 2011/12: Extrications at RTCs
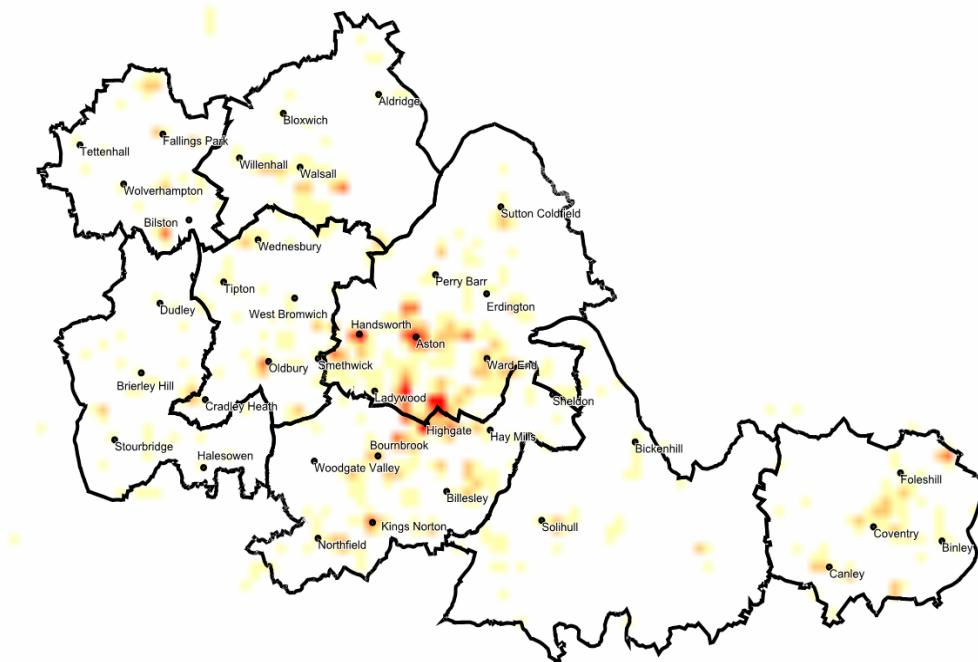
- ➤ RTCs are the only sub category of high risk incidents to have experienced consistent increments in mobilisations, since 2009/10. The analysis of RTCs contained in this document relates to those incidents reported to Fire Control and thus recorded by WMFS. Although this paints a picture of demand on WMFS resources, it should be viewed with caution as it does not account for those RTC incidents where WMFS have not been notified or requested to attend. RTC hotspots are better identified through the use of West Midlands Police data as they record every RTC in the West Midlands metropolitan area where there is an injury.

- ➤ The majority of RTCs that WMFS have been called to respond to in 2011/12 have necessitated a 'services only' response. These are incidents where WMFS have attended the scene of an RTC, but have not been required to carry out an emergency rescue function and have instead performed tasks such as rendering the RTC site safe, clearing up any fuel spillages or washing down roads. We have no statutory duty to perform these tasks. The proportion of total RTCs 'services only' requests account for has remained relatively stable over the three year period analysed, averaging approximately 75%.

- ➤ 19% of RTCs attended by WMFS in 2011/12 involved the extrication of individuals trapped in vehicles and have therefore represented a potential risk to life. Although this is broadly consistent with the three year proportional average (18%), numbers of recorded extrications using specialist equipment are gradually increasing (from 348 in 2009/10 to 430 in 2011/12). This is an increase of 82 RTCs reported to WMFS that have necessitated extrications, a rise of 24%)

➢ A geographical analysis of extrications indicates that the most significant concentration is focussed around the main arterial routes into central Birmingham, although a further hotspot can also be identified on the M6 in Coventry command. All command areas with the exception of Solihull reported higher levels of RTCs necessitating extrications in 2011/12 compared with 2009/10. The greatest increment was experienced in Dudley command (a 65% rise), followed by Birmingham South (51%), Walsall (45%), Coventry (36%), Birmingham North (22%), Sandwell (15%), Wolverhampton (12%) and Solihull (-30%) Anecdotal evidence suggests however that this rise might not necessarily be due to an actual significant rise in the severity of RTCs. It may instead be attributable to a growing practice of removing the roof of a vehicle whenever an individual involved in an RTC complains of a head or neck injury in order to enable the Ambulance Service to position a spine board into the vehicle. This is done in order to remove an individual as a precautionary measure to prevent further C spine[13] injuries and does not necessarily mean that an individual was trapped in or by the vehicle. This is supported by the fact that the number of people killed in RTC's in the West Midlands is historically reducing. The number of fatalities had reduced by -16% in 2011 when compared with 2009 whilst serious injuries had risen by 3% over the same time period. (West Midlands Road Accident Review – Mott MacDonald June 2012). Further analysis would be required however in order to prove or disprove this hypothesis as well as assess the impact of WMFS preventative interventions.

➢ The remainder of the RTC incident category can be classified as a 'no services required' response. This is where WMFS resources turn out to an incident, but our services are not required after a full assessment of the collision site. Numbers of these occasions rose from 111 in 2009/10 to 121 in 2011/12 but the proportion of all RTC incidents remain the same (5.6%)

To summarise the trends experienced in the other main sub-groups of high risk incidents:

➢ Accidental dwelling fires have displayed a decrease (approximately -5.5%) when 2011/12 is compared with 2009/10. Accidental dwelling fires decreased by 6.1% in the last year. The causes of accidental dwelling fires in 2011/12 have changed little. The prime cause remains cooking fires (50%), followed by electrical supply and wiring, 11% and smoking materials, 10%. The number of fatalities directly attributable to accidental dwelling fires has increased in 2011/12 compared with the previous year (from 11 to 18) while the number of injuries sustained in accidental house fires has decreased (by -18% from 95 to 78). Again, as with RTCs, WMFS/partnership prevention based activity as well as lifestyle changes will more than likely have contributed to these changes. A lack of associated qualitative intelligence however, means that it is very difficult to quantify the impact of these interventions effectively.

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[13] Cervical spine is the group of 7 vertebrae at the base of the skull, performing the critical function of containing and protecting the spinal chord.

➤ Arson fires in dwellings have, by comparison, reduced by -9.5% over the three years analysed in this report. Levels in 2011/12 reduced partly due to a decrease of -52% in November 2011 compared with November 2010. Around 16% of these incidents were in unused /unoccupied properties which is a slight decrease from the previous two years (around 20%).

➤ Accidental fires in non domestic premises have also shown a decrease when 2011/12 is compared to 2009/10 (approximately -9.3%) Non domestic fires caused by arson have also reduced by -2.5% over the three year period analysed in this report, however there has been an increase of 22.4% from 2010/11 to 2011/12.

➤ A point to note with reducing numbers of fires in non domestic premises is that there has been an increasing trend in the past couple of years with fires involving the waste management and recycling industry[14]. It is not possible to obtain a wholly accurate view of the total number of incidents occurring at such sites (due to inconsistencies in incident descriptions/terminology as well as the range of property types affected[15]); it is estimated however, that incidents have reduced in 2011/12 to approximately 10 incidents (a decrease of -68% from 32 incidents in 2010/11). A steering group composed of key stakeholders across the brigade, was created in order to identify solutions to some of the problems described and deliver appropriate interventions; this has clearly had a positive effect.

➤ The largest proportion of high risk special service calls in 2011/12 were composed of attendances at gas leaks (31%, this is consistent with the previous year), followed by incidents involving the rescue/release of persons, (24% compared with 21% in 2010/2011) and the administering of first aid 15% in 2011/12, consistent with the previous year.

RTCs have evolved in recent years, to become the greatest single cause of deaths and injuries, and during 2011-12, we responded to more RTCs than dwelling fires.

We have created a chart to show the relative impacts of a range of incident types, compared with the frequency with which they occur:

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[14] This was originally identified as a cause for concern in 2009. It should be noted that incidents at these types of premises have the potential to impact on both the high and medium risk incident categories.
[15] There is no marker included within the current incident recording system that allows such incidents to be accurately extracted; incidents of this nature can only be identified on a record by record basis, necessitating the reading of individual incident logs.

Mapping Prevention Priorities (All)
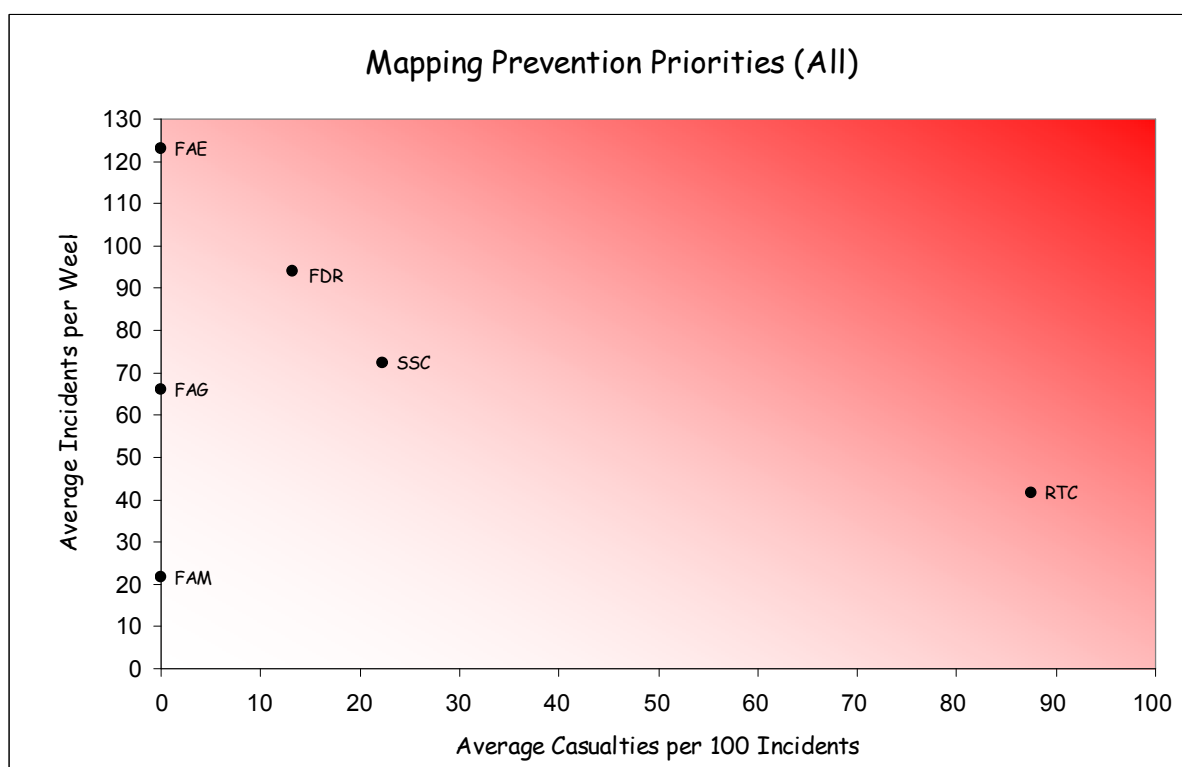
This shows how there is a clear disparity between incident numbers and the likelihood of people being killed or injured, depending on the incident type.

The abbreviations used are as follows:

Abbreviation	Incident Type	Meaning
FAE	False Alarm Equipment	False alarm caused by a fire alarm, or firefighting equipment
FAG	False Alarm, Good Intent	Person believed there to be a fire
FAM	False Alarm, Malicious	Malicious call made with the intention of getting the fire service to attend
FDR	Fire Damage Report	A fire involving property damage or injury, requiring a report to be completed
RTC	Road Traffic Collision	Road accident involving vehicle(s) and possibly pedestrian, cyclist etc
SSC	Special Service Call	Any emergency call other than a fire

By definition, false alarms do not cause injuries to people, but it is interesting to note that whilst our firefighters respond to around 95 property fires every week, the rate of injuries is around 12 or 13 per 100 incidents. This compares very markedly with RTCs, where the number of responses from our service is lower, at typically 40 per week, but the occurrence of casualties being involved is far higher, at 85 to 90 per 100 incidents.

In 2011 in the West Midlands, there were 5,365 road accidents involving 7,493 people who suffered injuries. Of these, 61 people were killed and 957 suffered serious injuries.

WMFS were called to around half of those road accidents.[16]

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[16] West Midlands Road Accident Review. Mott MacDonald (2012).

# Strategic Hotspot Areas 2009/10 – 2011/12: High Risk Incidents

A geographical analysis of high risk incident data between 2009/10 – 2011/12 indicates that the prime strategic high risk areas are located in Birmingham North command. The volume of activity is located in the City Centre/Ladywood area, there are still concentrations of activity however around the Winson Green area to the West, in the Small Heath area (on the border with North and South Birmingham commands) to the South East and to an even lesser extent to the North into the Newtown, Lozells and Handsworth areas. Further significant hotspots are located in Coventry command, again around the City Centre and Hillfields area as well as to the North East in the Edgewick and Wood End areas and to the South East in the vicinity of Willenhall. Smaller strategic high risk hotspots can be identified in the urban centres of Walsall, Wolverhampton, as well as the West Bromwich and Smethwick areas of Sandwell. Birmingham experiences by far the largest volume of high risk incidents, and also has the highest rate of high risk incidents per 1,000 population (2.6 incidents) in 2011/12, closely followed by Sandwell (a rate of 2.3 high risk incidents per 1,000 population) and then Coventry and Wolverhampton (both with a rate of 2.2 high risk incidents per 1,000 population).
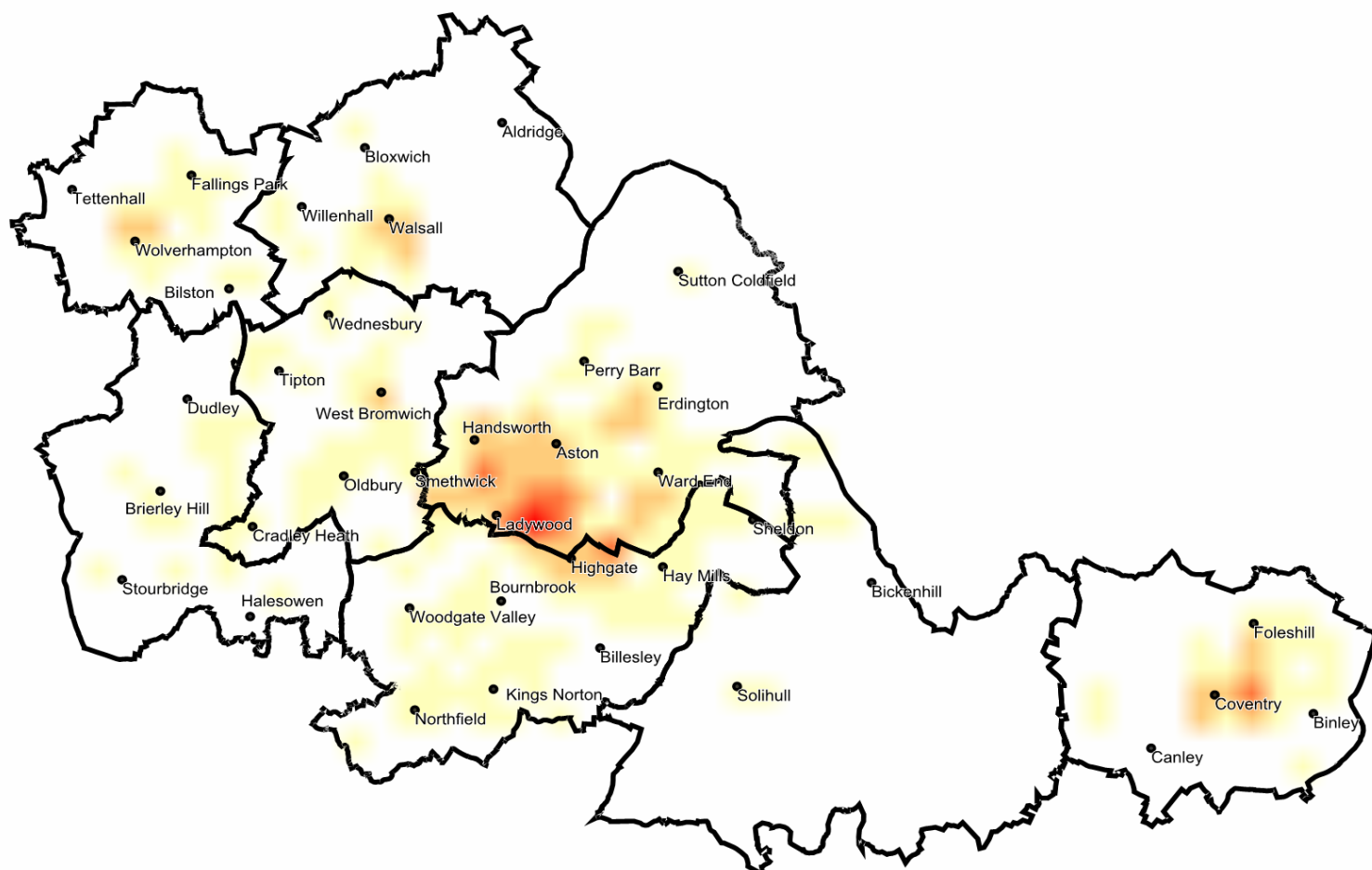
Appliance Activity High Risk Incidents: Total Duration and Related Incidents 2011/12

(Excluding Exercise, Test & Standby Moves)
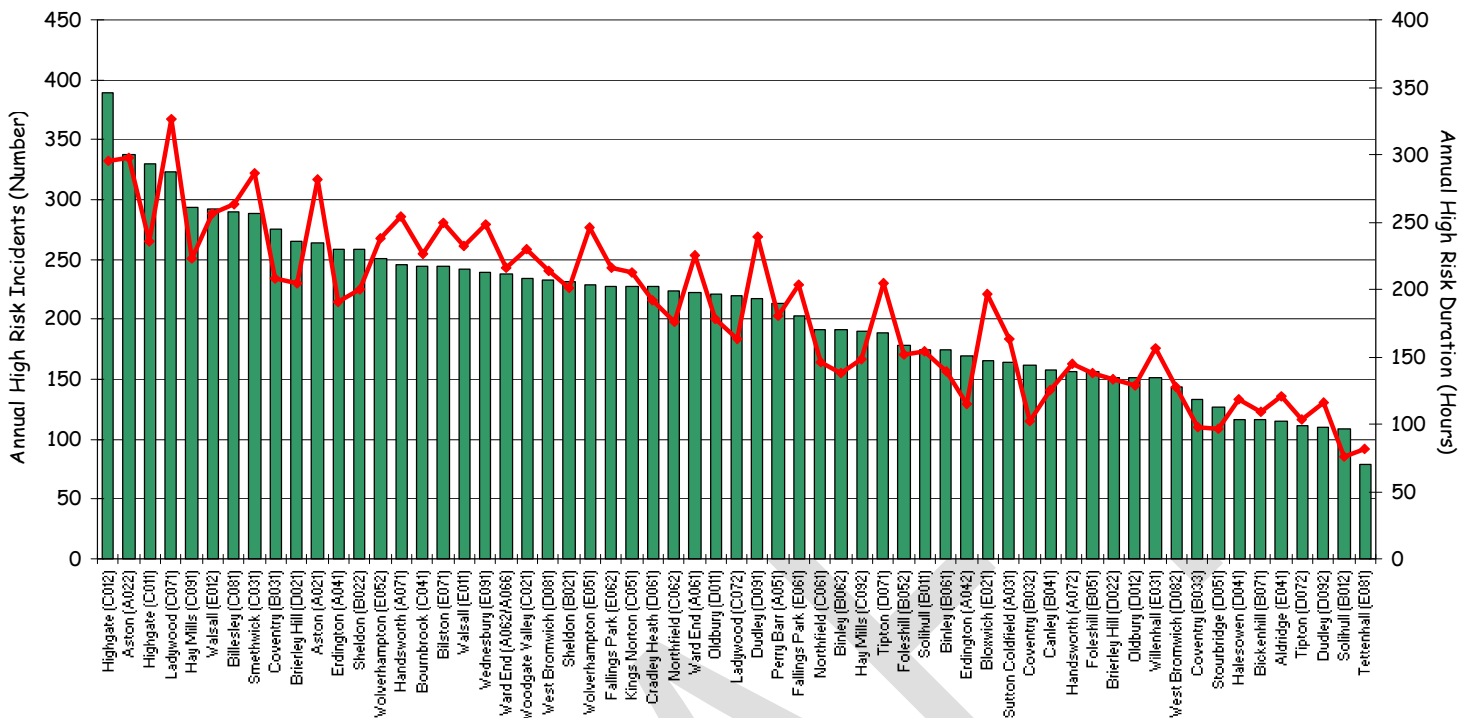
Appliance activity with regard to high risk incidents shows a similar distribution to that for total incident response, but by examining the spread of demand for high risk calls in particular, we are able to maintain an appropriate spread of resources to ensure fast attendance times where it matters most, to save lives.

When we plan the response needed to deal with emergencies, we focus on two main elements of performance:-

1. Reaction Time
2. Travel time

The reaction time refers to the time taken for the crew to receive and confirm the call and get dressed in protective clothing before commencing the blue light journey.
Travel time is the length of time taken for the actual journey to the scene of the incident.
Fire engines will obviously be kept near to all areas where we know we can expect numbers of calls to originate, but we also need to provide cover across the more sparsely populated areas, where numbers of calls may be lower, but travel times of our fire engines will be longer if they need to cover a wider area.
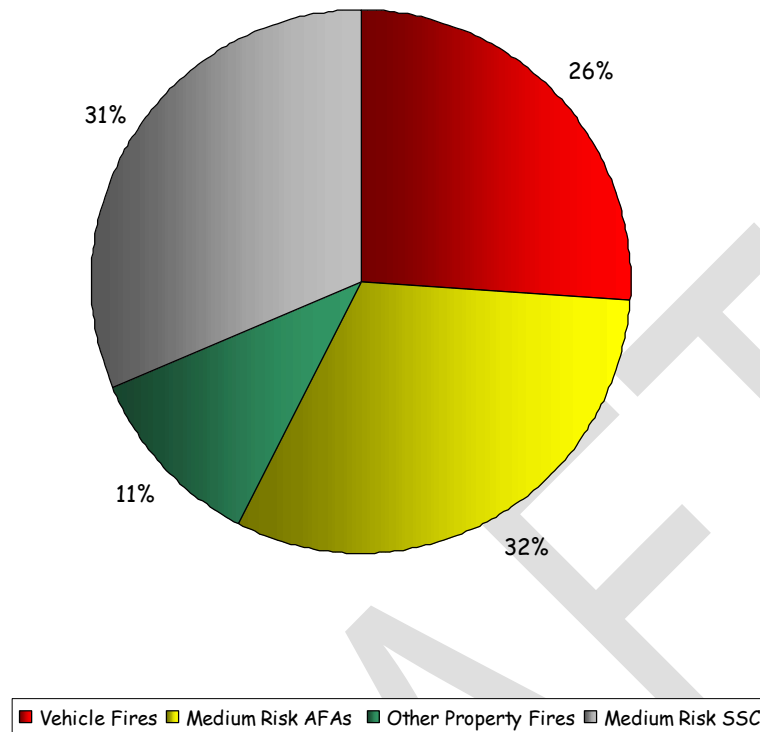
Medium Risk Incidents

Calls that fall into this category typically involve fires in vehicles, when there are no people trapped or injured; Fires involving other kinds of property beside buildings (such as sheds, garages) calls to assist people stranded in lifts and similar non-fire calls, and response to automatic alarms from life risk premises such as hospitals or care homes.

As described above, the work we have done to reduce unwanted fire signals from alarm systems has resulted in a significant reduction of calls within the medium risk category.

Total Medium Risk Incidents 2009/10 - 2011/12
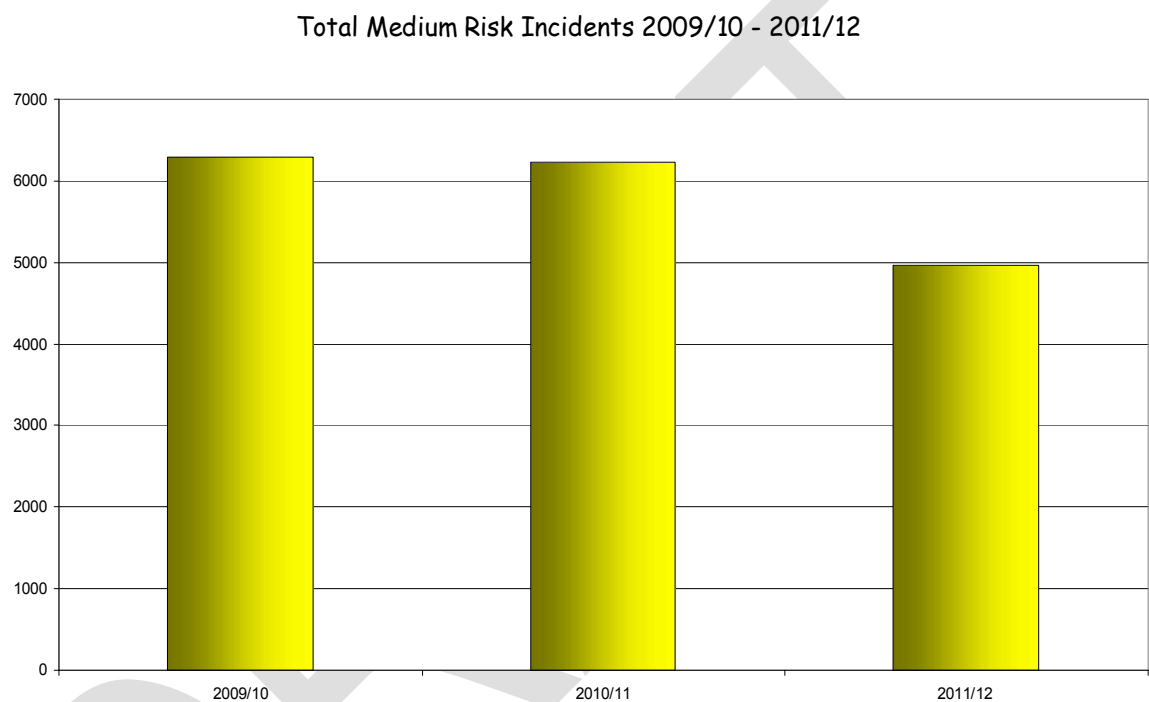
- ➢ Medium risk incidents have accounted for approximately 14.5% of total incidents, a reduction of 2% over the period analysed. Incidents of this nature had by the end of 2011/12 experienced a -21% reduction when compared to financial year 2009/10. This is a trend that has been sustained since 2009/10 although the rate of reduction is increasing, from -1% in 2010/11 to approximately -20% in 2011/12.
- ➢ The significant reduction here is due predominantly to the revised AFA call challenge policy, and is likely to be a 'one off' event.

Breakdown of Medium Risk Incidents by Category 2011-12

Legend: ■ Vehicle Fires ■ Medium Risk AFAs ■ Other Property Fires ■ Medium Risk SSC

➢ All of the thematic incident types within the medium risk category have displayed a decrease when 2011/12 is compared to 2009/10, (except for 'Other Property' Fires, which has shown an increase of 18%), the most significant being medium risk AFAs (-32% reduction over 3 years) followed by vehicle fires (-21% reduction over 3 years), and medium risk special service calls (-18% reduction in 2011/12 when compared with 2009/10 although 2010/11 levels are 15% higher than that reported in 2009/10) The only medium risk incident sub category to have increased over the three years covered in this report is that of Other Property Fires. By the end of 2011/12 such incidents had experienced an 18% increase and accounted for 11% of all medium risk incidents as opposed to 8% when compared with 2009/10.

Strategic Hotspot Areas 2009/10 – 2011/12: Medium Risk Incidents

Due to the inclusion of AFAs at hospitals, care home and prisons in this risk category, the hotspots shown on the map are in the main, generated by AFAs at hospitals across the brigade, namely New Cross Hospital in Wolverhampton, Heartlands and City Hospital in Birmingham North command, Queen Elizabeth Hospital in Birmingham South command, Manor Hospital in Walsall, Russell's Hall Hospital in Dudley and finally Solihull Hospital, Solihull. Although Birmingham experiences the largest volume, Wolverhampton actually experienced the greatest rate of medium risk incidents per 1,000 population in 2011/12 (2.3 incidents per 1,000 population), superseding Birmingham command (2.1 incidents per 1000 population)
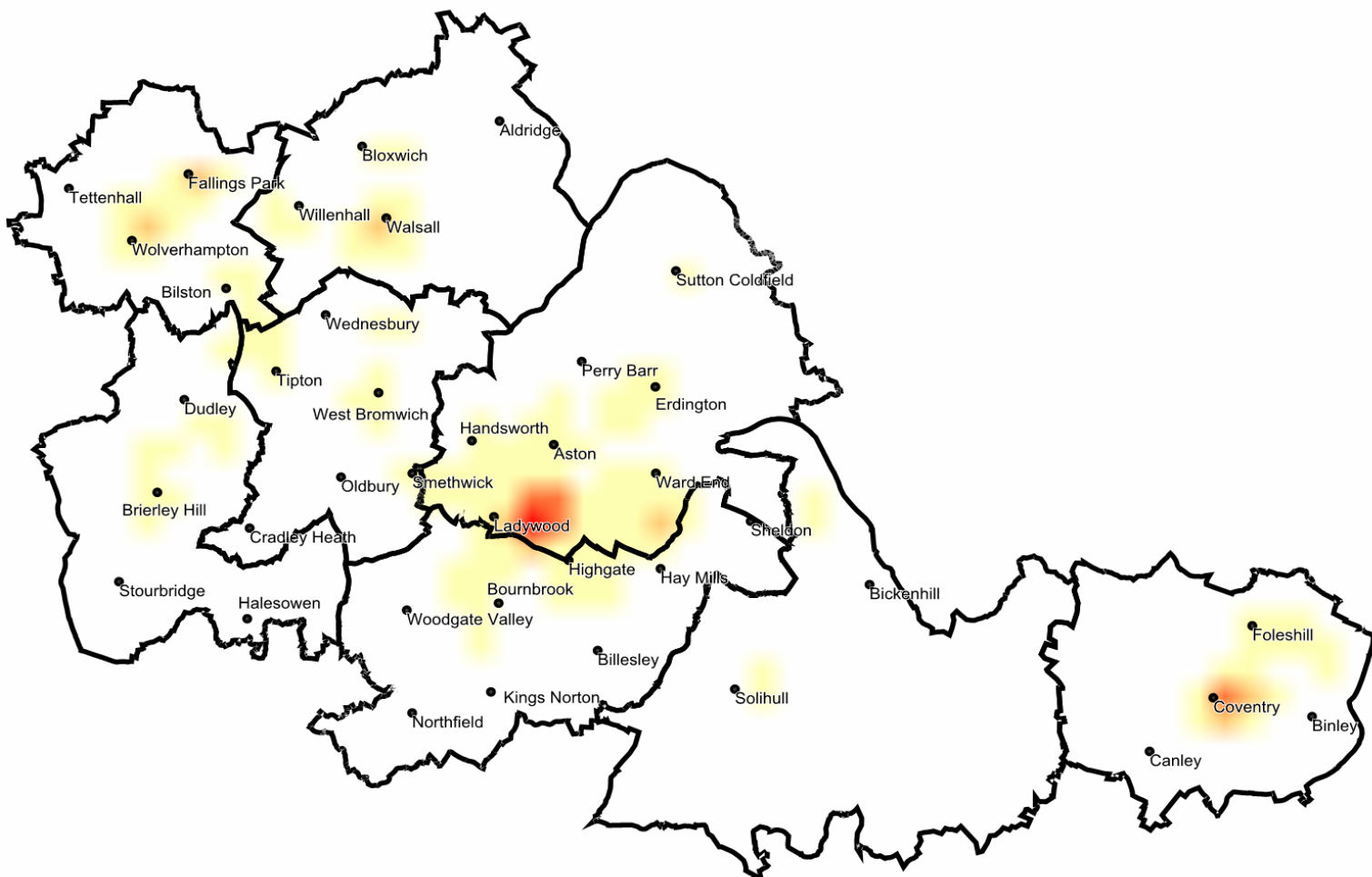
> 'Other property fires[17]' is the only medium risk incident sub category to have increased over the three years covered in this report (18%). Private detached garages and sheds account for just over 50% of the total in 2011/12, and have risen from 159 in 2009/10 to 284 in 2011/12, although the proportion of arson/accidental incidents has remained static over the period

> The WMFS AFA Project, introduced in January 2011 to change policy and procedures surrounding how WMFS deal with AFA's, has had a significant impact on numbers of overall recorded AFAs (those within both the medium and low risk categories). Further work may however be required to identify repeat medium risk AFA care home locations so that bespoke appropriate fire safety interventions may be delivered.

> Medium risk special service calls have reduced by -18% over the three years analysed in this report, although between 2010/11 and 2011/12, the reduction has been -28%. The main reason for this is a reduction in the number of requests and responses made by WMFS to attend incidents that involve 'flooding in the environment', an incident grouping that is largely composed of flooding incidents involving pumping out (These have dropped by 65%, or 63 incidents). The majority of medium risk special service calls in 2011/12 were composed of requests for assistance at lock in/lock outs (49% compared with 39% in 2010/11) as well as attendance at leaks and blockages (predominantly domestic, 14% in 2011/12 compared with 26% the previous year).

Appliance Activity Medium Risk Incidents: Total Duration and Related Incidents 2011/12
### (Excluding Exercise, Test and Standby Moves)

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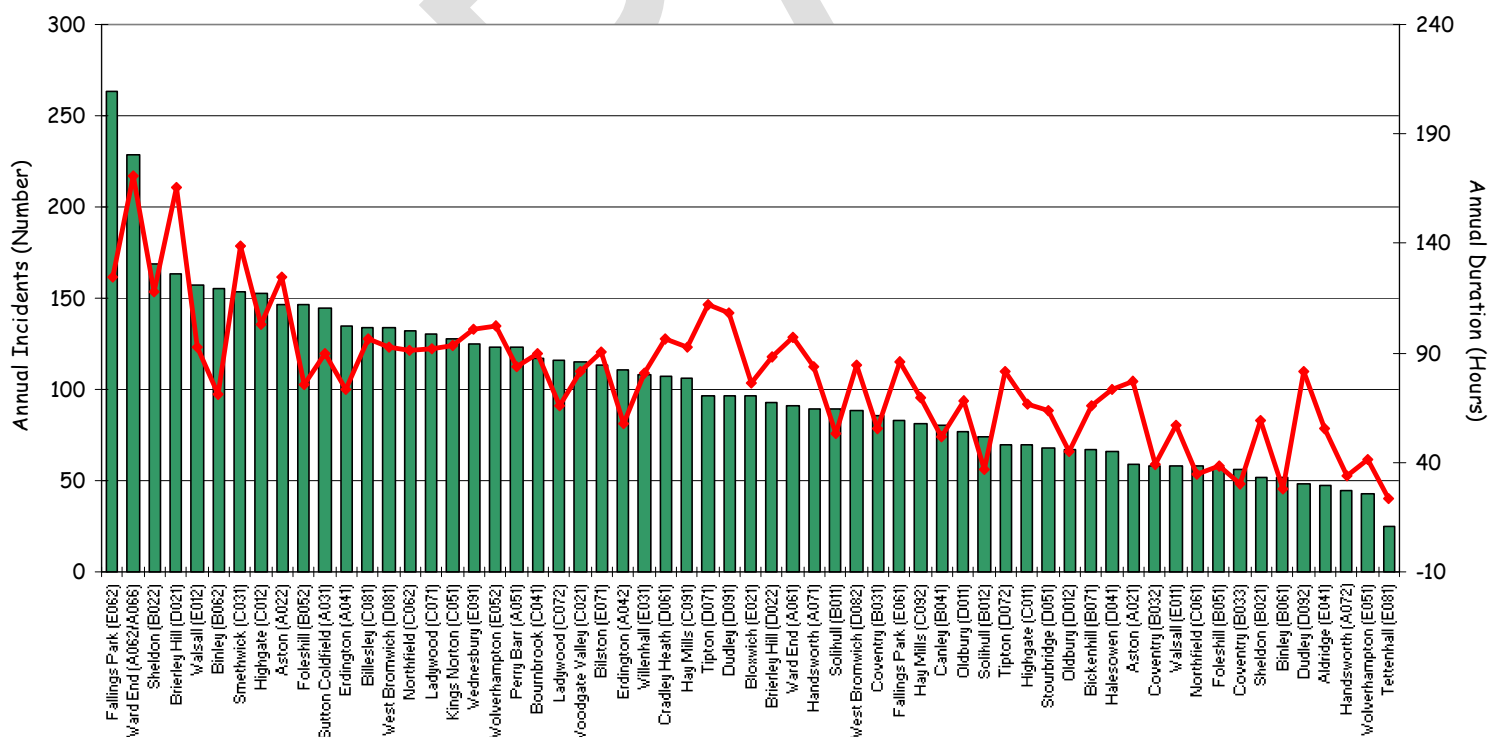
[17] These are fires in property, other than dwellings and other buildings, or vehicles. It includes sheds, lock-up garages etc.

Low Risk Incidents

The trend in low risk incidents has been one of significant reduction during the most recent 12 month period, due largely to our policy to challenge calls arising from automatic fire alarm systems. The number of these AFA calls has been reduced by half, resulting in the impact shown below, where low risk calls in total now account for 20% of our total emergency responses.

Total Low Risk Incidents 2009/10 - 2011/12
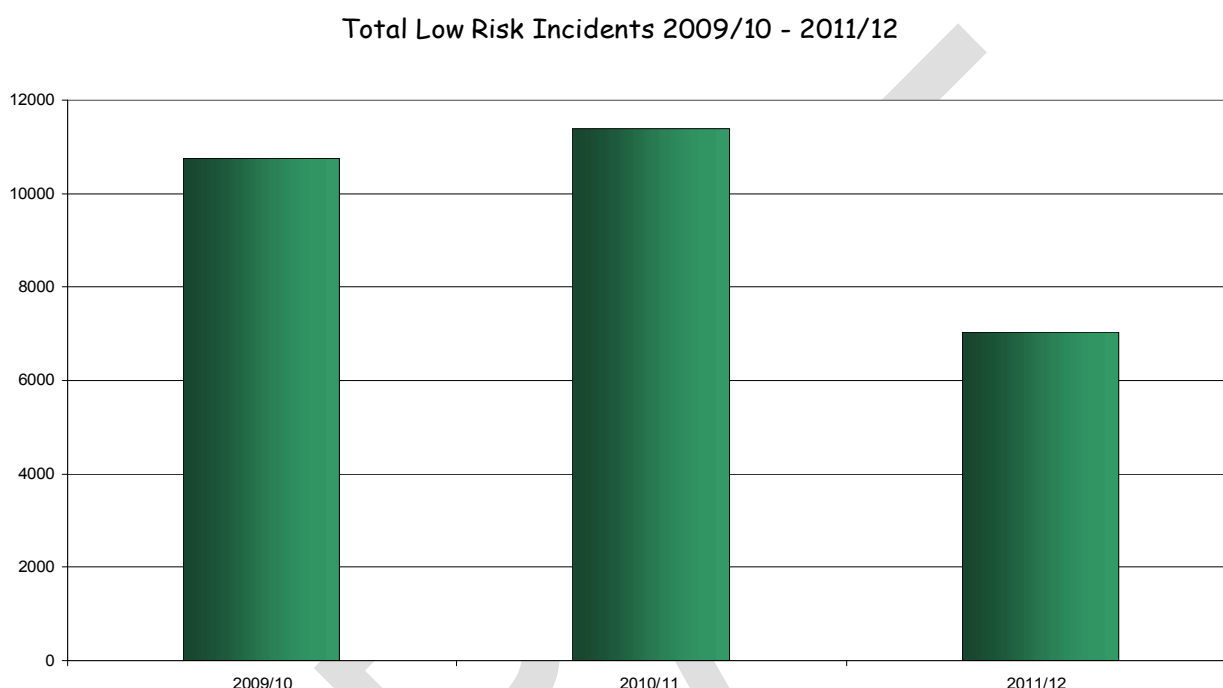
AFAs that originate in premises that are not deemed to present a threat to life fall into this category. Examples of such places would include factories, shops and office buildings, where although there may be numbers of people present during the day, a system of effective management from the persons responsible for the site, will ensure that fires are prevented where possible, but should a fire occur, it is managed through a series of factors such as:

➢ Early detection of smoke, heat or flames
➢ Rapid warning of fire from an automatic system
➢ Fixed fire protection systems, such as sprinklers
➢ Effective evacuation of all building occupants, overseen by fire marshals
➢ Safe escape facilitated by adequate direction signs, escape lighting systems, fire-protected escape routes and exit doors.

The main types of incident that make up the category of low risk calls are shown in the following chart:

Breakdown of Low Risk Incidents by Category 2011-12
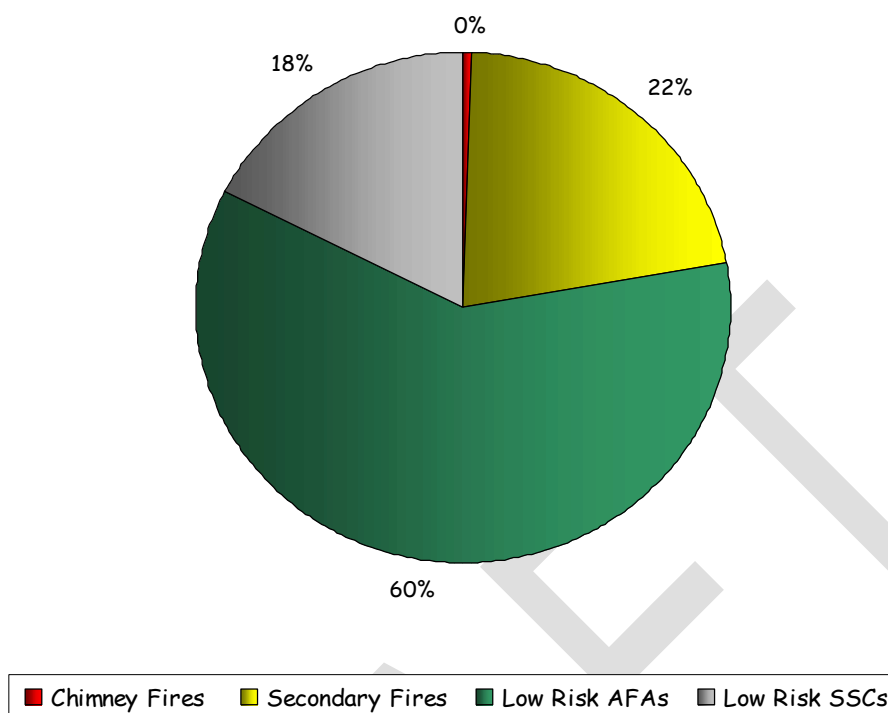
The main observations to note, with regard to these incidents are summarised here:

➢ Low risk incidents have accounted for approximately 20% of total incidents and this has reduced significantly over the last financial year. By the end of 2011/12, total low risk incidents had undergone a -35% reduction when compared with financial year 2009/10, mainly due to the reduction in Low Risk AFA calls (-49%)

➢ Three of the four composite incidents types that make up the low risk category underwent a decrease in 2011/12 when compared with 2009/10, namely low risk AFAs (-49% reduction or -3489 incidents), low risk SSCs (-19% reduction or -350 incidents) and chimney fires (-6% reduction or -3 incidents). The low risk AFA trend is one that has been sustained since 2009/10 although the rate of reduction has increased significantly from approximately -4% in 2010/11 to -47% in 2011/12. Low risk AFAs accounted for 52% of all recorded low risk incidents in 2011/12 compared with 66% in 2008/9. The remaining low risk incident sub category has experienced an increase over the same time period. Levels of low risk secondary fires, although reducing from the 2010/11 high of 2616 incidents (-27% reduction), are higher than 2009/10 having undergone a 5% increment (93 incidents) in 2011/12 compared with 2009/10.

Strategic Hotspot Areas 2009/10 – 2011/12: Low Risk Incidents

A geographical analysis of low risk incident data between 2009/10 – 2011/12 indicates that the prime strategic hotspot area is located in Birmingham North command, the volume of activity being located in the City Centre/Ladywood area. Further hotspots are located in the City Centre/ Hillfields area of Coventry as well as Wolverhampton and Walsall City Centres. Birmingham command experienced the greatest rate of low risk incidents per 1,000 population in 2011/12 (reporting a rate of 2.9 incidents per 1,000 population). In 2009/10, Wolverhampton command had the highest rate per 1000 population (4.6)
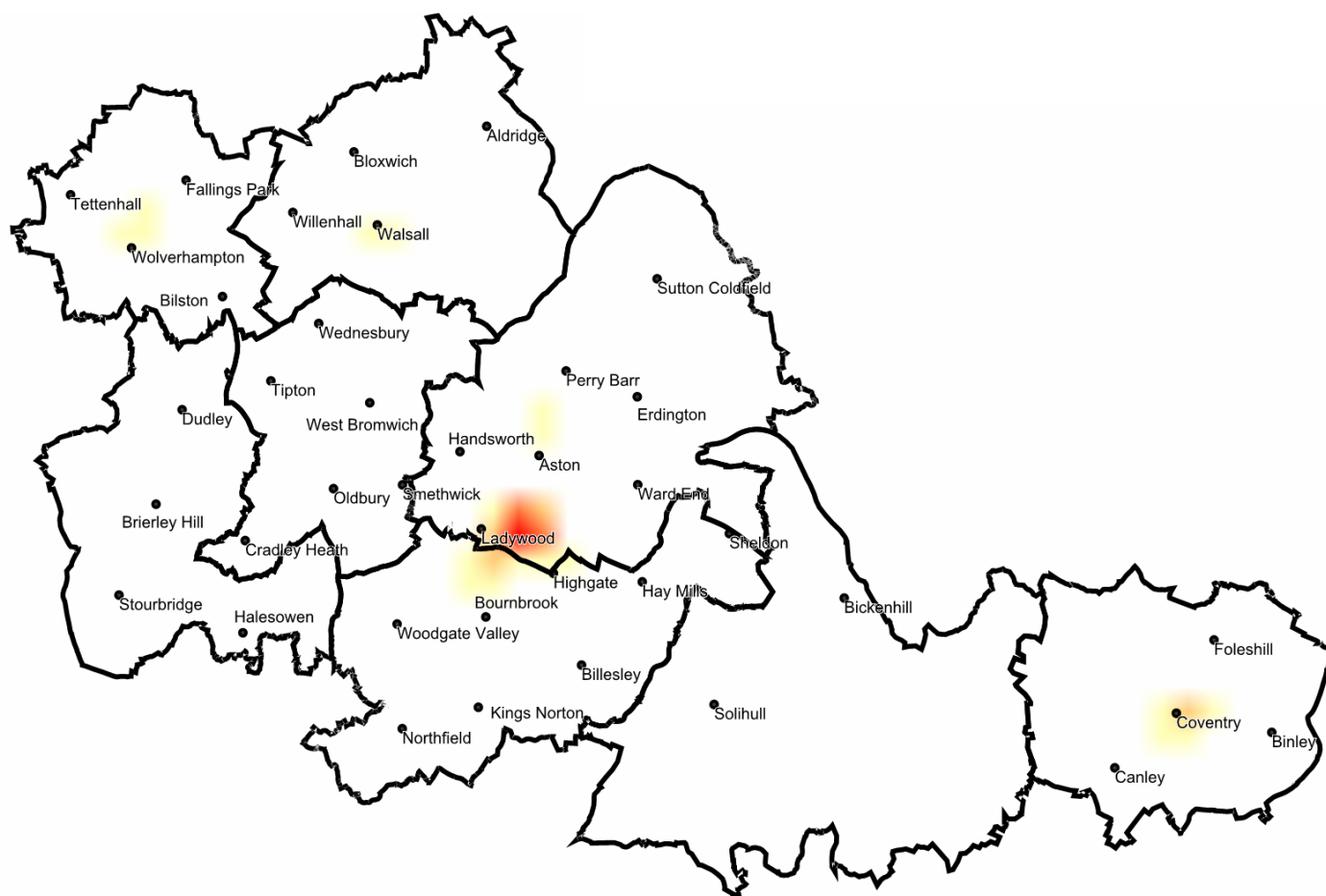
The predominant geographical spread of these calls is obviously focussed on the city and town centres, because despite a significant reduction in the number of AFA calls that we respond to, there are still many AFA calls where we still turn out a response.

The majority of alarm systems are present in places of work, such as offices, factories and shops, as well as hotels and places of entertainment. Although we will no longer normally respond to AFA calls from these places when they are occupied by staff during the day, we still turn out overnight, or when there is no-one on site to

confirm whether or not an immediate search can be made, to check on the validity of the call.

➢ Secondary fires in the low risk category, although 5% higher in 2011/12 than in 2009/10 have reduced by -27% when compared with 2010/11. This is attributable to lower levels being recorded across all command areas (with the exception of Coventry where levels increased by 3.5%), the largest drop being experienced in Dudley (-52% or 248 incidents), followed by Sandwell (-29% or 132 incidents), Wolverhampton (-29% or 73 incidents), Solihull (-29%, or 34 incidents), Birmingham North (-27% or 126 incidents), Walsall (-20% or 58 incidents) and finally Birmingham South (-16% or 54 incidents). The prime incident types to have seen a decrease are parkland (155 incidents, -85%), rubbish bins/small refuse containers outside (96 incidents, -37%) and wasteland (91 incidents, -63%).

➢ Secondary incidents of this nature have the potential to indirectly impact on WMFS response to high risk incidents. If WMFS resources are tied up dealing with incidents that pose a much lower risk to the immediate community, they may not be able to respond as effectively to those of a higher risk due to reduced capacity. This may, in some areas, lead to lengthened attendance times to high risk incidents as appliances from further afield are mobilised to respond. The potential impact of this could be greater in the future as WMFS strive to 'do more with less' resource in order to meet the financial restraints contained within the Comprehensive Spending Review. It is acknowledged that the occurrence of these incidents is heavily weather dependant with long periods of hot dry weather resulting in higher reported levels of incidents of this type

➢ Levels of low risk special service calls are at their lowest for three years having undergone a 19% reduction (350 incidents) in 2011/12 compared with 2009/10. The 19% reduction in recorded low risk special service calls in 2011/12 (compared with the 2009/10) can be largely attributed to a decrease in calls for incidents involving leaks and blockages (these have dropped by -37% from 310 incidents in 2009/10 to 195 in 2011/12). The majority of low risk special service calls in 2011/12 were composed of lift releases (28.9% consistent with 2009/10), removal of objects from people, not involving injury, such as rings for example (22.6% in 2011/12, compared with 19.7% 2009/10) requests for advice only at incidents involving leaks and blockages (13.4% in 2011/12 compared to 17.2% in 2009/10), and incidents where WMFS services are found not to be required after an assessment of the incident (12.3% in 2011/12 compared to 10.8% in 2009/10).

➢ In support of the WMFS Building upon Success Programme[18] (BuS) it was identified through the service delivery workstream that there was a need and an opportunity to introduce changes to the way that WMFS currently handles and responds to calls arising from automatic fire alarm systems (AFAs). Even though it is identified in this report that levels of low risk AFAs are reducing, it must be remembered that they still account for 52% of all incidents in the low risk

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[18] The BuS programme is a WMFS programme of work, to respond effectively to the significant budget cuts we are being subjected to; It will ensure effective service delivery is maintained with minimised impacts.

category. By changing policy and procedures for how WMFS deal with predominantly low risk AFA's, a significant burden has been released from the workload of the frontline fleet, allowing them to respond more effectively to incidents of a higher risk.

➢ The 'AFA project' consisted of two phases. The first was the implementation of a more robust call challenge (for calls received from Alarm Receiving Centres) and the introduction of a pilot scheme within Birmingham City Centre (the centre of demand arising from AFA calls) to make use of a dedicated AFA response vehicle (C079). This vehicle was staffed by 2 personnel who are not only able to respond to AFA calls (thus freeing up the capacity of the frontline appliances), but also dispense on the spot fire safety advice. This went live on the 31st January 2011. The second phase involved no longer responding to calls received through Alarm Receiving Centres (with the exception of a small number of life risk premises)[19] where no confirmation of the presence of a fire had been communicated. This went live on the 4th April 2011. Although the vehicle project ended on 25th November 2011, it can be seen that it has had a positive effect on the number of AFA calls attended in the period to 31st March 2012.

➢ During the period 31st January – 25th November 2011, the dedicated AFA vehicle (C079) attended a total of 456 incidents, the majority of which were within the Birmingham Commands. Towards the end of the pilot, the vehicle spent a little time in both the Wolverhampton and Coventry commands This equates to 5.4% of all calls received that originated as an AFA and 8.5% of all the calls attended that originated as an AFA over the same time period. The majority of incidents attended by C079 fell within the low risk category (66%, predominantly false alarm equipment activations), 28% in the medium risk category (AFAs resulting in false alarms at hospitals, care homes and prisons) and 6% in the high risk category (24 incidents). Twenty one of the latter are incidents that get reported as AFAs but actually result in a FDR, one was an RTC with no action required and two were SSCs. In 19 of these 24 instances, C079 was not the only resource in attendance (i.e. the fire crews were in attendance and C079 was there in a support or fire safety advisory capacity). In the remaining five instances where C079 was the only resource in attendance, the fire was out on arrival and the crew of C079 were involved in conducting fire safety inspections only or there was no action required

➢ C079's average attendance time to incidents over the period analysed was 7 minutes and 22 seconds whilst the average duration spent in attendance at incidents was 22 minutes and 04 seconds. The average number of incidents that C079 attended per day was approximately 3.

➢ The number of medium and low risk AFA calls attended by West Midlands Fire Service has reduced by an average of -42% when comparing 2010/11 with 2011/12. Approximately 30.6% of all AFA calls received 31st January – 25th

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[19] Namely AFAs at Hospitals, Care Homes and Prisons. These fall under the Medium Risk Category.

November 2011 have been recorded as AFG incidents. These are the calls that either Fire Control challenge when handling the call, or where the premises rings WMFS after the alarm actuates and states that the fire service is not required to attend.

➢ Clearly, the AFA project and its associated communication strategy (whereby local businesses and alarm receiving centres were informed of the policy change prior to its implementation) has significantly contributed to a reduction in overall recorded AFAs. Further monitoring over a longer time period[20] would be required however in order to robustly evaluate the full impact of the AFA project.

Despite the low risk nature of many of these calls, we still need to respond and deal effectively with the situation. A theme that can be seen to emerge here, is that large numbers of minor calls collectively represent a major impact on the activity of our firefighters and the time that they are available for immediate response to more serious calls for assistance.

This can be seen from the following chart, which shows the number of low risk incidents dealt with be each of our fire engines:

Appliance Activity Low Risk Incidents: Total Duration and Related Incidents 2011/12
(Excluding Exercise, Test and Standby Moves)

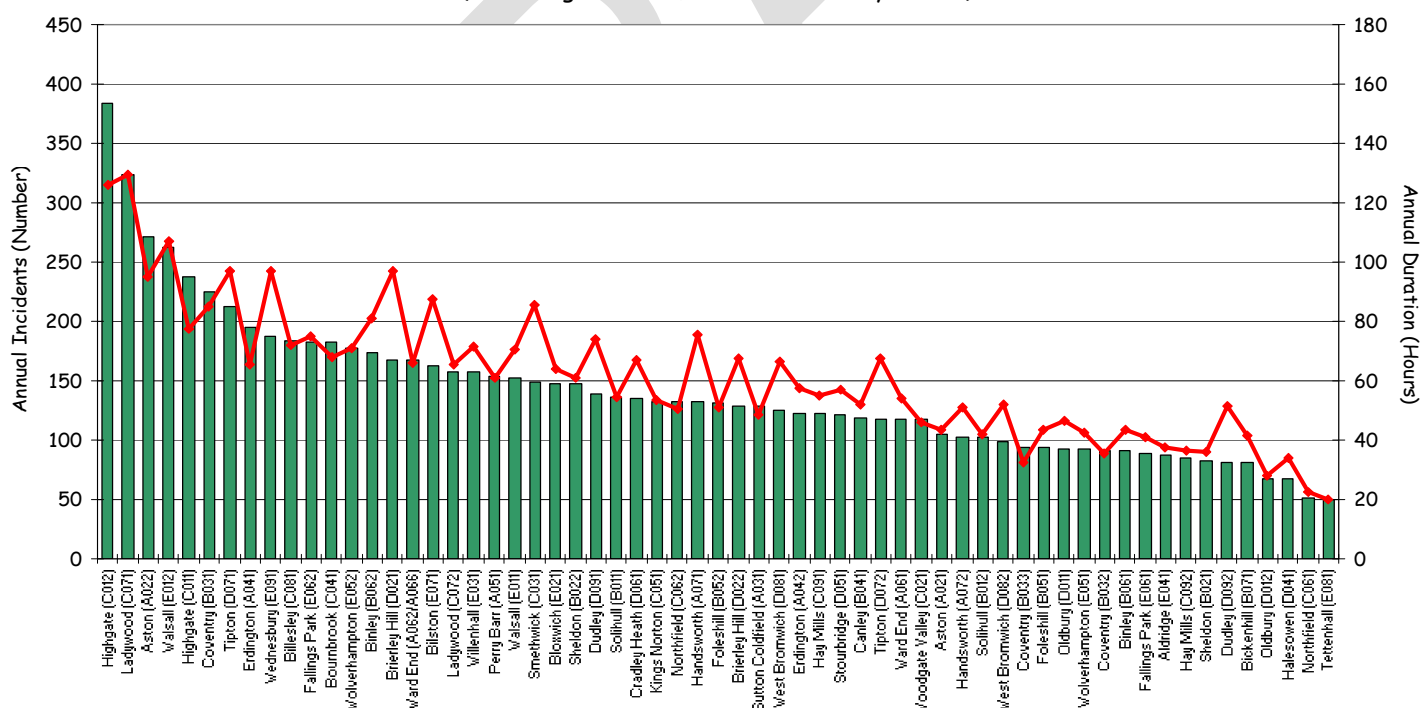*Figure 29: Individual Appliance Activity at Low Risk Incidents and Related Cumulative Duration by Station and Callsign 2011/12*
(Please Note that A062 and A066 are combined on the graph as these are effectively both the same resource, namely an appliance and PRWT bas...
Ward End.

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[20] In order to reduce the impact of anomalies or short term trends that may serve to skew analytical results.

Data analysis involving this kind of material is very effective in predicting routine levels of demand, but we also need to ensure that we have sufficient capacity to mount an effective response to major fires and other unpredictable events when the community relies upon us to intervene.

To assess how we will be able to deal with large scale events, we need to consider a number of inter-related factors, including:

- Frequent testing of our capacity and skills at regular major exercises and simulations across the West Midlands, often including participation with other responding agencies
- Examination of evidence reviewed following previous major incidents and the demand they placed on our response capacity
- Analysis of the essential functions we are required to fulfil during a complex, large scale and prolonged event and the skills, equipment and vehicles needed to address these functions
- Assessment of the impacts of dealing with more than a single major incident at the same time
- Planning assumptions and guidelines circulated from national Government and other advisory bodies, concerning threat levels, response protocols and expectations placed on responders
- Outcomes from risk assessments conducted by the Local Resilience Forum for the West Midlands, providing guidance on potential large scale or prolonged events to be planned for
- Contingency plans created and tested locally involving WMFS and other responding agencies
- WMFS business continuity plans

There is also a need to consider the potential for a regional or national response to major catastrophic events such as a terrorist incident or widespread flooding or storm damage.
We have some experience of his type of response, having assisted other regions during major floodings in Yorkshire and Gloucestershire and having sent personnel and pumping equipment to the Buncefield major refinery fire in Hertfordshire in recent years.

From our analysis of major fires in the past, we were able to see that the real problems encountered often involved the need to relieve firefighters who had been at a serious fire for a period of time, creating the need to mobilise additional fire engines to the same incident. Firefighters often work under extreme conditions, getting wet and dirty during the early stages of aggressive firefighting and intervention, as well as expending a great deal of physical energy in the heavy tasks involved.
They need to be given the opportunity to rest after heavy exercise and to take on refreshments and other welfare considerations. Traditionally, this would involve sending other firefighters to the job after a while, to take over, but we have seen how

this creates difficulties at some major fires, when large numbers of our people are involved.

An example of this can be seen from a case study of a major fire in a Victorian mill in Walsall in recent years, where more than 25 fire engines and a range of additional vehicles were needed at the same time, to bring the fire under control and limit the spread of fire into adjacent premises.

Number of Appliances
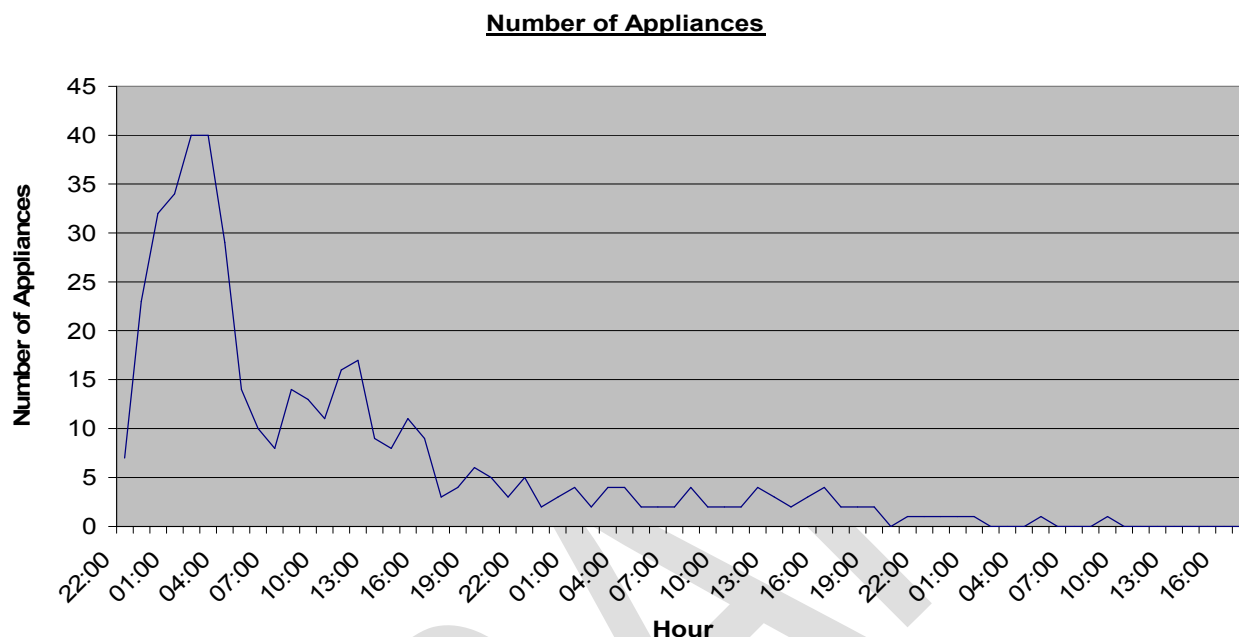
The chart above shows how up to 40 fire engines were committed to this fire at one point, as the firefighters involved in the early stages handed over to fresh crews. This created an unacceptable demand on our resources and based on a review of this experience, we have been able to improve the way in which we manage crew welfare, whilst levelling out the demand on staff numbers.

We set up a dedicated welfare vehicle for use at large scale or prolonged incidents, which allows firefighters to stay at the fire for longer periods without the need to return to station and the arrangements we now have in place, have improved efficiency and reduced the peaks in demand. Other ways of improving our management of incidents are also being looked at, combined with the use of new technology and advances in firefighting equipment and vehicles.

Dual staffing

Another way in which we have been able to introduce change, is in the crewing of some of our specialist vehicles. We have a number of hydraulic platforms and a range of prime movers which are used to transport demountable units or 'pods' of equipment to fires, road traffic collisions and chemical incidents.

With any dedicated vehicles and equipment, it is vital to have a full understanding of exactly how these are being deployed from day to day and whether they are used in emergency rescues, where life is at stake, or whether they are used under less urgent circumstances.

Our research has shown that hydraulic platforms are primarily used for directing high volume firefighting jets into large fires such as those involving factories and warehouses. They are able to do this from a height, without the need to expose firefighters to the risks involved in working from ladders. It is extremely rare for a hydraulic platform to be deployed for an urgent rescue from height and this is due in part, to the improvements made in building construction and building control over the years.

By designing and constructing new or altered buildings in line with modern building regulations, or to meet high standards of safety through the application of fire engineering principles, there should normally be access to safe escape routes from tall buildings. In the workplace, this will be done by way of internal staircases and evacuation routes that are free of fire and smoke for a period of time sufficient for people to escape from a fire, and the process is enhanced through the existence of automatic fire alarms, which give occupants early warning of fire or smoke. In tall residential buildings, the design concept revolves around the widespread use of fire-resisting construction (such as concrete, plaster etc) to contain an outbreak of fire to a single room or flat, so that other occupants can stay put, while our firefighters deal with the fire and ventilate the building to make it safe.

Taking account of these factors has allowed us to re-assess the risk presented by tall buildings involved in fire, and on the basis of that and other factors, we have been able to revise the staffing of some of our front line vehicles.

Hydraulic platforms are no longer permanently crewed by a dedicated team of firefighters. They are now crewed only when we need to mobilise them to a call, with firefighters taken from a fire engine to enable this, but the fire engine remaining in use as a BRV. The result is that we now make use of fewer people to provide the service.

The same principle was applied to our study of the prime mover vehicles, which had previously been continuously staffed, 24/7.

In this case, we were able to show that advances in the range and functionality of the equipment carried on all of our fire engines, has reduced the value that we obtain from the fleet of dedicated demountable pods. There are a number of examples of how this works, including:

- Incident lighting. Previously, incident commanders would regularly need to send for lighting equipment that was carried on a pod and delivered to fires occurring at night or in areas lacking sufficient natural light. This happens less frequently now, because all of our fire engines are fitted with a higher standard of scene lighting equipment.
- Major Rescue. In the past, we always mobilised heavy lifting and cutting gear to serious road traffic crashes and those involving large vehicles. The range and quality of cutting, lifting and stabilising gear now carried on all our pumps, means that the major rescue units are deployed much less frequently, but can still be requested in the event that they are genuinely needed.
- Water, ice and unstable ground. All fire engines carry flotation devices, life jackets, floating rope, inflatable hose and other rescue equipment to enable safe working at incidents of this type, where a quick strike may be needed. As a result, our dedicated water rescue units are mobilised and deployed at water incidents less frequently.
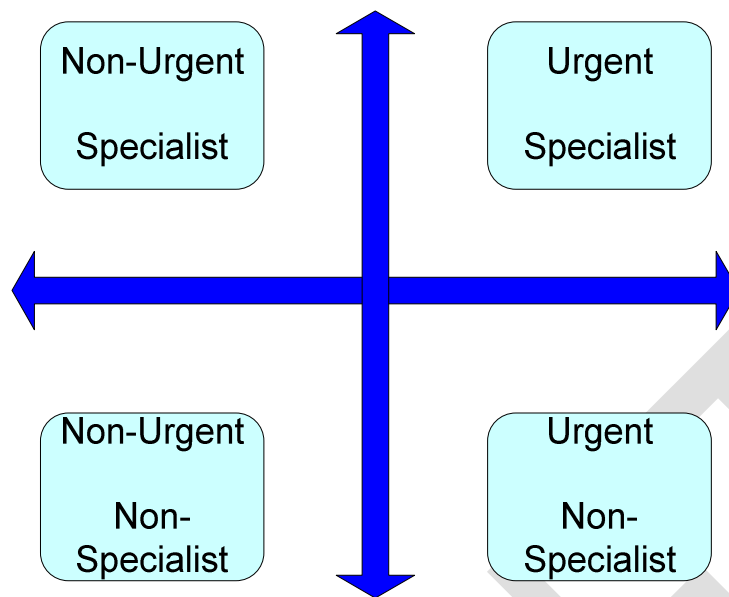
By taking this approach, we have seen that it is now feasible for our specialist equipment pods to be mobilised by firefighters who dual staff the fire engines, reducing the number of people involved.

The next phase of this work involves a root and branch review of all of the specialist equipment that we use.
Alternatives to the fleet of demountable pods are currently being investigated, so that we can find the most appropriate means to deliver specialist equipment to the incident ground, including the logistics involved in:

- foam supplies
- hazardous materials response
- environmental protection
- heavy rescue and extrication
- water rescue
- bulk supplies of hose

In these areas and others, we need to assess the viability of transporting the widest range of equipment on all fire engines, to allow us to deal with the great majority of urgent rescues as fast as possible. At the same time, we have to recognise that on some occasions, we need to resort to specialist support from enhanced expertise and equipment, held at a smaller number of bases. This requires a recognition of exactly which things are needed to save lives or prevent escalation of an emergency and how much of this can be safely carried by most vehicles, all of the time, to satisfy the balance illustrated below.

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          Non-Urgent              ↑              Urgent
          Specialist                           Specialist


  ←─────────────────────────────────────────────────→


          Non-Urgent                             Urgent
            Non-                                  Non-
          Specialist              ↓            Specialist
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The questions above lead us to consider another area of emergency response, where we are introducing innovation in the way we organise our fleet of firefighters and vehicles.

Flexible Response Options

In recent years, we have carried out extensive trials of smaller fire engines, normally carrying a crew of just 3 firefighters, rather than the current norm of 4 or 5. Initially, we called these vehicles Targeted Response Vehicles or TRVs, and they only responded to a limited range of calls, where there would be no threat to life or property and we knew that we could impose a less stringent attendance time target of up to 20 minutes, thus achieving a wider response footprint and removing some non-urgent calls from the main fleet of fire engines.

We established 2 of these vehicles based at Dudley and Hay Mills, to cover the areas of the West Midlands where we knew they would experience the greatest workload.

The trial has proven to be very useful, because although the TRVs were only designed to respond to minor outdoor fires, they were able to show a significant impact on reducing the demand on our front line fire engines, that would otherwise have needed to respond with a full crew to these smaller, low impact fires. In this way, we have been able to gather data and to consider ways in which to further develop the concept of a more flexible and dynamic response fleet.

Secondary Fires that Attract a 20 Minute Response Time 2009/10 - 2011/12
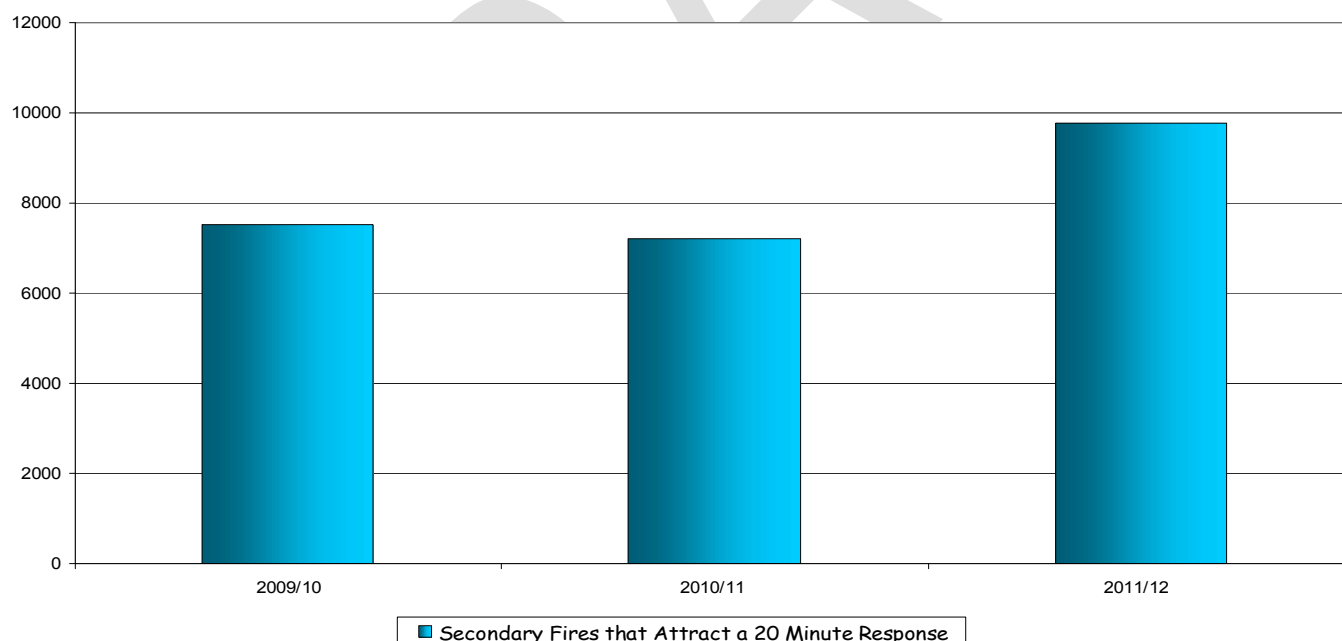
The chart above shows that in some years (such as, in this case 2011/12) a period of relatively dry weather can lead to a significant rise in the number of minor fires that we attend, as many of these are weather-dependent.

Under these circumstances, it becomes more challenging to create the most efficient resourcing plans, as demand can fluctuate very strongly from day to day and week to week. By using a smaller vehicle with less firefighters on board, we have been able to reduce the cost of dealing with the less serious fires, whilst engaging in fire prevention visits and other routine work, when response demand slows down.

The principle being developed here is a sound one and we have been able to show that there is sufficient demand for smaller units such as these to operate in our area in this way.

Map showing minor fires attended in 2011/12, by the TRVs based at:

Dudley ●

Hay Mills ●
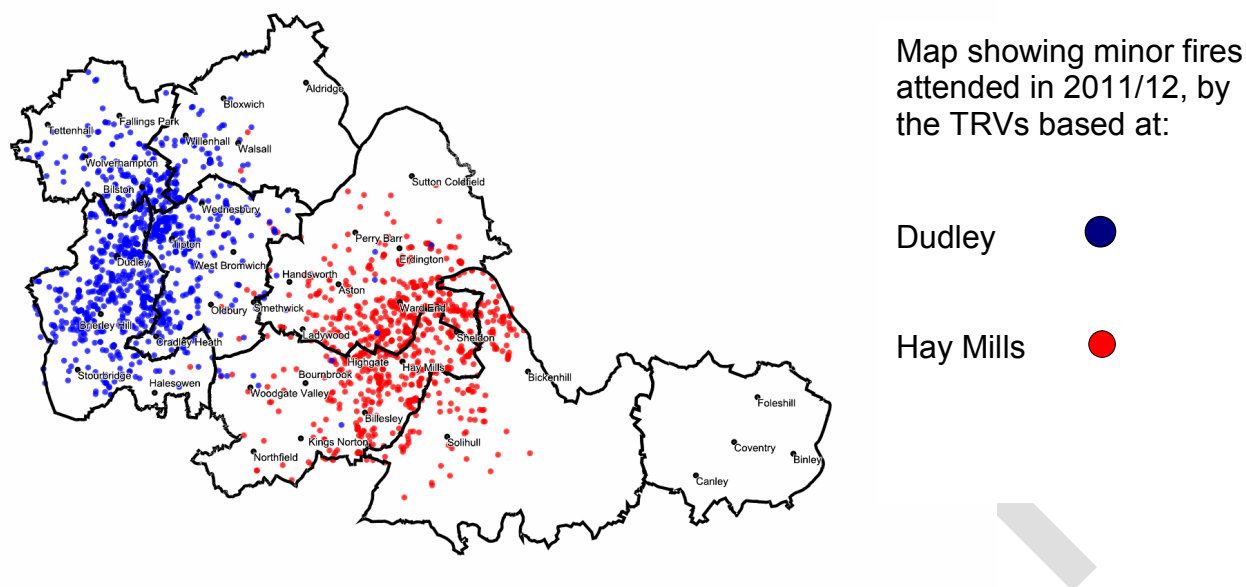
Based on the successful trials, we have now begun to introduce a new type of smaller vehicle known as Brigade Response Vehicles or BRVs, which are smaller than our standard fire engines but carry a similar range of equipment. They are able to negotiate traffic through the congested road network of the West Midlands, to respond to many of the same incident types as a standard fire engine. This gives us greater flexibility in planning our response strategies, as we can deploy a combination of full size fire engines and BRVs to many calls, enhancing the efficiency of our service as we match the number of firefighters and the equipment they carry, to the precise nature of the incident they are responding to.

To enable this, work has been done to examine the exact nature of the tasks involved across the typical range of emergency calls that we respond to, in an effort to identify in some detail, the tasks that need to be carried out urgently and simultaneously to bring a situation under control. In many cases, incidents can be safely dealt with using fewer firefighters than the 4 or 5 who comprise a standard pump crew. BRVs are normally crewed by 3 firefighters, creating efficiencies and giving more flexibility in the range of response options.

So for instance, if a call is likely to need the rapid intervention of 6 or 7 firefighters to carry out a range of tasks at a given incident type, we would previously have needed to mobilise 2 full size fire engines, carrying up to 10 firefighters.
By deploying a combination of vehicle types, we will be able to still send the nearest and fastest response appropriate, but we will have the added flexibility of sending different vehicle types, to ensure a better match of crew numbers to the tasks involved. For instance, we could send a major pump with 5 firefighters and a BRV with 3, or any other combination.

A number of bespoke vehicles have been trialled and the latest version is being launched at 3 locations across the West Midlands, where we have identified that

they will experience a range of calls and will operate during the busiest period of the day.

The implications of this new flexibility of response options needs to be stressed, because it has significant advantages attached to it. If we are able to be more dynamic and to vary the weight of attack sent to the range of calls we deal with, we will be able to maintain fast attendance times from a wide range of station bases into the future, even in the face of significant financial cuts.

The alternative, should we keep a fleet made up entirely of standard fire engines, would lead to greater reductions in numbers of vehicles and stations as our budget reduces.

By mobilising our firefighters in the most dynamic way, based upon intelligence and analysis of our performance, we will be able to maintain the highest possible standards of service to local people.

By combining this approach to the risk-based attendance time framework and the area risk map discussed earlier, we can ensure that all urgent calls receive an appropriately fast response, with the right weight of attack and we can move forward with confidence into the future and the challenges ahead.

Expanding the role of BRVs

There is the potential for BRVs, to be called in to take over dealing with a fire after the initial emergency phase has been completed, so that a smaller number of people can then be deployed to bring the situation back to normality and hand over to the premise manager or owner. BRVs are also able to respond to the bulk of minor fires, often outdoor rubbish or burning grass etc, that would otherwise be tying up a full pump crew for some time, when that resource might be needed more urgently to deal with a life threatening emergency, or one that needs the full weight of attack that only a traditional fire engine can bring.

We have carried out a great deal of detailed analysis and modelling to help us to identify the potential for introducing larger numbers of BRVs across the West Midlands, following the successful trials that have been held with the pilot vehicles.

There are a number of clear advantages to our intention of increasing BRV numbers, especially in anticipation of a reducing revenue budget as the Comprehensive Spending Review continues to take effect:

- By reducing the size and crew number of some vehicles, we will be able to maintain the largest fleet possible across the West Midlands, so our emergency attendance times will still be fast
- Increasing numbers of BRVs will allow us to manage a more flexible fleet overall, with vehicles and crews of different types responding independently, or in combination, to suit the circumstances of the call
- Maintenance, replacement and running costs will be reduced
- Smaller environmental impact, as smaller vehicles are more fuel efficient

- Access may be enhanced, as lighter vehicles can pass through areas of dense traffic or parked vehicles that cause greater problems for full size fire engines
- There will be opportunities to investigate the value of 4 wheel drive in new vehicles, increasing the safety and flexibility of the fleet as a whole. This could become more critical as we experience the impacts of climate change, with severe winter weather becoming apparently more frequent.

Dynamic Mobilising

Fire services have traditionally made plans for emergency response based on the notion of mobilising fire engines with a crew of 4 or 5 firefighters. A 'standard' response unit was established as 2 fire engines, for all serious or significant incident types, so normally between 8 and 10 people would have made up the crew.

The only real flexibility built into this process, would be the freedom for fire control operators to exercise judgement to vary the weight of attack being mobilised, in line with the information received at time of call, and a set of prescriptive protocols, designed to allow for slight variations, such as:

- An additional pump sent to all fires in dwellings, or other buildings, if the evidence suggested that someone was trapped by fire, or that rescues may be needed
- Extra pumps could be despatched to a particular location if there was a pre-planned response level, based on site inspection, or the risk presented by known hazards at a premise
- If a number of calls were made to fire control about the same incident, on the basis that it appears to be a serious fire
- Temporary special risks, where there is a known potential hazard (e.g. building demolition in progress)
- Where a fire is described as being restricted to materials such as refuse or grass, and is not in proximity to buildings, then the response would be downgraded to a single pump.
- Other calls where a single crew would normally manage expected tasks, were assigned one pump (e.g. lift rescue; person locked in; car fire)

In any case, the range of options for deployment has been fairly limited and has been restricted to mobilising multiples of pumps, always with a crew of 4 or 5 firefighters on board.

By fundamentally reviewing this approach, we are able to see that combined with improvements in communications technology and taking account of modern firefighting equipment and techniques, there is now an opportunity to introduce a greater degree of flexibility and to reduce the number of occasions where the weight of attack is disproportionate to the likely needs of the incident.

Whilst still recognising the need for safety in all of our working systems, we have identified a means of operating with a higher level of intelligence at the initial stages of call receipt, call handling and mobilisation, to bring about a closer match between the incident description and the weight and nature of the response we send.

In some ways, this is simply an extension of the approach that we adopted to reduce our responses to unwanted signals from automatic fire alarm systems, but we are now in a position where we can take this a stage further and in many cases, anticipate the number of firefighters likely to be actually needed to deal safely and effectively with a whole range of call types.

For example, the long running trials that we have conducted in the West Midlands, involving our response to minor outdoor fires, has shown that in the vast majority of cases, these fires can be dealt with by a crew of 3, as long as we have ensured that the vehicles and equipment at their disposal, are appropriate to the tasks in hand and of the highest standards of design and quality.

This is also the case for most of the occasions when we respond to automatically generated fire calls, though we still send a higher level of response if the premise has a known life risk (such as a hospital, care home or prison).
Built on the experience of our recent trials, a task analysis has been carried out, to identify how many firefighters are likely to be needed in the early stages of the whole range of emergency calls that we are likely to receive. The larger or more complex incident types will still receive a greater weight of attack, but now we are able to refine the response options available, as a number of firefighters matched against the probable range of tasks involved. This avoids the over resourcing of responses brought about by our previous reliance on fire engines as the standard unit of personnel and equipment, meaning that we can more realistically and accurately identify how many firefighters to send to each individual incident.

Potential for further development

Based on the introduction of BRVs across the West Midlands, and as our experience of dynamic mobilising procedures evolves, we anticipate that this approach can develop further in the future. There may be potential benefits to be gained from a range of different vehicle types, based on local risk or with the ability to respond to key incident types, such as road traffic collisions or hazardous material incidents.

One of the areas we have been investigating for change, is the way we organise and mobilise the range of specialist equipment that we need to deploy at a range of incident types.
Some of the options have been described above (such as upgrading some of our fire engines to carry more specialist equipment) but there is a range of additional ways in which we believe we can work more smartly to increase efficiencies and provide a more effective service.

Technical Rescue

We currently operate a Technical Rescue Unit which is a station solely devoted to the response to serious incidents other than fires. A small team of staff provide emergency cover with a range of specialist skills and equipment, based at a single site to deal with things such as:

- major floods
- building collapse
- heavy lifting and cutting
- rope rescue and working at height
- search and recovery using dogs

The team that operates the Technical Rescue Unit is based at a dedicated facility in Bickenhill, where they have been able to acquire and develop the skills needed to provide the expertise required to deliver this service across the whole of the West Midlands on a 24 hour basis, as well as being on call for any major disaster across the region, or nationally.
There is also a standard fire engine and crew at Bickenhill, responding in the normal way, to fires and other routine calls.

We are now investigating the feasibility of operating a single team out of Bickenhill, with the ability to respond not just to technical rescue incidents, but also to serious fires. A number of possible advantages arise from this suggestion:

- reduction in the number of staff at the site, if firefighting and technical rescue are combined within a single team
- potential duplication of this principle at another site in the west of the brigade area, improving response times across the West Midlands as a whole
- increased resilience, if a broader range of skillsets is maintained and shared between more than a single site

This would provide a more balanced spread of technical resources across the area and lead to faster response times being achievable in some areas.
To facilitate this, we would need our technical rescue staff to re-adopt firefighting as part of their role and perform the dual functions of fire and rescue.
This would achieve cost savings overall and improve our service to the community, and we are investigating the best way to formulate the changes described here.

Managing Change in the Local Environment

Our local area is constantly changing in a number of ways, both physical, in the sense of new buildings and roads altering the physical environment, and other, less tangible changes:

- the downturn in the economy has resulted in numbers of void buildings which can often become targets for fire-setting
- empty houses and pubs can attract homeless people, increasing life risk unexpectedly
- with the continued expansion of the European Union, we are seeing increasing numbers of migrants seeking work, adding to the diversity of the people we need to interact and communicate with
- traffic volumes are constantly increasing, along with parked vehicles on the roadway, leading to more congestion and difficulties with access
- the 24 hour society means that incident activity is gradually increasing during times that were previously very quiet
- increasing levels of obesity means that we are frequently called on to rescue bariatric patients and other chronically obese people, with associated risks to our firefighters

These and other, more fundamental changes brought about by new directions in government economic and social policies, mean that our role in society is constantly evolving.
We take the opportunities presented by changing circumstances, for example by working more closely with West Midlands Police and Ambulance Services, as well as dealing more effectively with health, social care, housing and education providers, to maximise the benefits we can bring to the community, whilst becoming leaner and more efficient at the same time.

During the preparations and the delivery of the London Olympics, for example, we were able to develop joint operational plans with many other agencies locally, regionally and nationally, to ensure that the range of sporting, media and cultural events taking place in our region passed off safely.
We play a key role in the Government's counter terrorism programme, known as 'Contest', as we help to try to reduce radicalism, but also ensure effective plans and procedures are in place, to deal with events that occur[21].

With reference to the built environment in particular, changes taking place require us to be constantly vigilant and adaptable, to address those issues that will impact on our service delivery plans and on local people, such as:

- modern building techniques, such as timber framed construction, need different firefighting techniques and equipment, and present special risks during the construction phase.

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[21] http://www.homeoffice.gov.uk/counter-terrorism/uk-counter-terrorism-strat/

- technology is allowing the more widespread adoption of fire engineering solutions within building design. Our staff need to have specialist knowledge of fluid dynamics and fire growth modelling, to be able to monitor and challenge building plans, when necessary. Our firefighters need to understand how to exploit fixed fire protection systems that are becoming increasingly complex.
- Widespread adoption of fixtures such as solar voltaic panels brings about new hazards for firefighters, as roof loads are increased and energy sources become more difficult to isolate.

In more general ways, the local landscape is constantly evolving from year to year, as new developments are built in our towns and cities. Some of these may occur incrementally, with new houses and shops appearing little by little. But other schemes are on a grander scale, and warrant our involvement to ensure not just our own awareness of how changes will affect our planning process, but also to actively engage with developers and builders to manage safety standards.

Some examples of the schemes in progress, or under redevelopment, would include:

- Re-development of New Street Railway Station and the Gateway Project[22]
- Birmingham Big City Plan and the Eastside redevelopment scheme[23]
- Large scale redevelopment of Coventry city centre[24]
- Regeneration in Sandwell and Wolverhampton[25]
- Expansion and modernisation of major hospitals such as Walsall Manor
- Expansion of Birmingham International Airport runway in Solihull
- Potential accommodation of the HS2 high speed rail link to London[26]
- Rapid growth of many colleges and universities, including Aston, Warwick, Wolverhampton and Birmingham City.

Part of our planning process involves an awareness of how each of the 7 local authorities in the West Midlands intends to develop housing, industry, education and health within its area. We need to be able to make sure that the distribution of our network of stations is still the most appropriate to meet local needs and to take account of changes in the pattern of risk, when we build new facilities through our asset management plan.

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[22] http://www.newstreetnewstart.co.uk/about-the-development.aspx
[23] http://www.birmingham.gov.uk/eastside
[24] http://www.coventry.gov.uk/citycentresouth
[25] http://www.sandwell.gov.uk/info/823/regeneration_projects/1122/west_bromwich_regeneration
http://www.wolverhampton.gov.uk/business/regeneration/
[26] http://www.hs2.org.uk/

Local Development Frameworks

Our research into the local development frameworks of our 7 constituent authorities shows that across the West Midlands, there are plans earmarked for the development of around 170 projects.

28 of these projects involve housing development, whilst 25 outline the development of commercial and retails projects, with a further 25 for industrial developments and 21 covering the leisure sector.

A total area of around 460 hectares has been designated for further development and we have to take account of this increase in occupancy numbers, or commercial and industrial activity, which has the potential to increase risk in a given area, or to generate further demand on our services.

By the same token, as new areas of housing or leisure activities are built, they often replace some of the more run down buildings that are likely to have been of a higher risk level. Modern construction standards will mean that new-build should be designed and constructed to a good standard of safety.

Horizon Scanning

In addition to local plans for housing or changes in the make up of the local population, we also need to be aware of emerging trends in society and the local economy, that directly impact on how we deliver our services.

One example of this is illustrated by the growth in our area, of the waste management and recycling industry.

As society becomes more demanding in its expectation for waste materials to be recycled and re-used, many areas of the industrial West Midlands have exploited the opportunity to develop a range of industries around this, generating employment and profits for the local economy.

However, the demand for recycled products such as paper, metal and plastics, tends to fluctuate over time, resulting in the accumulation of large stacks of materials that are often combustible.

Linked with the growth of these industries, we have witnessed an expansion in the number of serious fires involving waste materials and recycling products, placing a heavy demand on our resources.

It is useful to examine this example of how we have identified this issue and taken steps to redress some of the impacts.

Fires in the waste management and recycling industry

As part of our work to continuously monitor trends in our workload and the relevant changes occurring in our local communities, we identified an emerging trend in recent years, where the number of fires involving the waste management and re-cycling industry was seen to be a growing cause for concern.

Evidence was gathered from incident data, in an effort to gauge the extent of the problem and to begin to clarify the ways in which this type of fire causes problems for WMFS and for local communities.

Some of the main issues can be summarised as follows:

➢ Fires are often significant in scale, requiring the commitment of large numbers of firefighting personnel, vehicles and equipment. This involves a direct cost to the organisation and an indirect risk to local communities, as fire cover for high risk incidents may not be immediately available.

➢ Water supplies are often poor or water may be needed in bulk, requiring water relay or the use of the High Volume Pumping equipment and the commitment of resources that these entail.

➢ Fires in this type of site can be extremely hazardous and have caused firefighter fatalities and injuries. Dangers would include:

- Presence of cavities in burning materials
- Toxic smoke and fumes
- Collapsing stacks of burnt materials
- Exploding pressure vessels
- Manual handling problems

- The volumes of firefighting water consumed and the nature of the material involved in fire, often result in contaminated firewater run-off into groundwater or local watercourses.

- Smoke, fumes and other products of combustion create a nuisance and potential health problems.

Sifting existing data to identify incident numbers and to search for trends proved to be a problem, as the waste management and recycling sector includes operators handling a wide range of materials, such as:

- household refuse
- pallets and timber; sawdust
- computers, TVs, plastic-cased electrical goods
- scrap metal, scrap vehicles
- batteries
- paper; cardboard
- tyres, etc

Incident Trends

It is therefore not possible to obtain an accurate view of the actual number of incidents occurring, due to the inconsistency in the use of incident descriptions and terminology.

With this in mind, it was decided to focus attention on giving an overview of the range and type of sites involved and the scale of fires being generated.

Some individual examples are listed below:

Scale	Description
3 pump fire	20m^3 chipped wood; 60 tonnes in total; underground fire; violence from local youths; water relay in use
10 pump fire	2 water relays; 4 recycling bins out of 5; 100m x 30m in scale; bobcats used to dig out refuse
10 pump fire	Scrap yard; 100 cars; 5 Pump water relay
15 pump fire	Acetylene cylinders involved; road closure of Black Country Route; recycling unit; 40m x 60m 51 pumps deployed in total; 4 Hydraulic Platforms committed; 4 Pods; 43 other units (including officers etc)
4 pump fire	Wood pulverising machine
10 pump fire	Wood shredding machine; water relay; bulk timber & sawdust
10 pump fire	Factory 75m x 30m, recycling paper, plastic, metal.
12 pump fire	Battery recycling plant, 184 tonnes; atmospheric pollution, asbestos; 2 water relays; 2 Firefighters injured by exploding batteries
10 pump fire	131 pumps over a period of 16 days; 5 HP; 2 Pods; 60 others

This illustrates the scale of the problem for WMFS, but also highlighted that there are a number of sites in particular that have generated many of the more significant fires.

One incident in particular, has involved continuous WMFS commitment for a period of 16 days, with the cumulative deployment of 131 fire engines; 5 Hydraulic Platforms and the use of a High Volume Pumping Unit, together with approximately 60 other resources.

We can calculate the notional cost of our response to such an incident, but perhaps of greater significance, is the fact that whilst such fires as this are in progress, our front line response is being depleted when more serious, life threatening events could be occurring at the same time.

This is just one example of the issues that we identify through our risk analysis, performance monitoring and horizon scanning processes, and in this particular case, we have carried out a number of initiatives to reduce the impact of fires in this industrial sector, both on our workload and on local people:

➢ Close working with the Environment Agency and local councils, to examine ways of providing further advice or enforcement of good practice by site operators
➢ Visiting sites to assess appropriate systems of work and helping operators to create improvement plans
➢ Adapting our response plans to mitigate the impact of such fires on our front line fleet
➢ Circulating advice and guidance through sector-specific targeting of information, including a presence at the Waste Management and Recycling Exhibition at the NEC.

Climate Change

West Midlands Fire Service recognises the potential impact of climate change on the local communities and how this is likely to translate into affecting our role and the nature and scale of incidents we are called to deal with.

We have our own experiences of severe weather in the West Midlands, having responded to an increasing number of serious floodings in recent years, as well as some severe storms and the infamous Birmingham tornado of July 2005.

Some of the devastation caused in Sparkbrook by the Birmingham tornado of July 2005.

As part of our risk management process, we identified that climate change is an area to focus on and we engaged the expertise of the Met Office to help us to understand in some detail, the extent and nature of the hazards we are likely to meet.

We worked in partnership with climate experts from the Met Office and the Hadley Centre for climate change to produce a weather and climate change risk assessment, specifically for the West Midlands. This is a detailed assessment of the likely impacts on our service delivery plans, brought about by two factors in particular:

➢ Flooding risk
➢ Secondary fire risk

Floodings and outdoor fires (such as those involving grass, stubble or waste land) were examined, based on our own incident data over a 10 year period.
Projections of climate change were reviewed, to assess the possible impacts extending over a 30 year period into the future.

We looked at weather-related flooding incidents and identified critical factors that have the potential to create damage, such as:

➢ Population density
➢ Housing type
➢ Presence of cellars or basements

Results showed that we are likely to experience more severe flooding events in the future, as intense periods of rainfall are increasing, especially at certain times of the year.

We identified that some parts of our area are more vulnerable than others and that these areas are projected to suffer from increased rainfall and flooding risk into the future, especially in the winter.

Flooding incidents in the West Midlands Fire Service Region 1999-2009
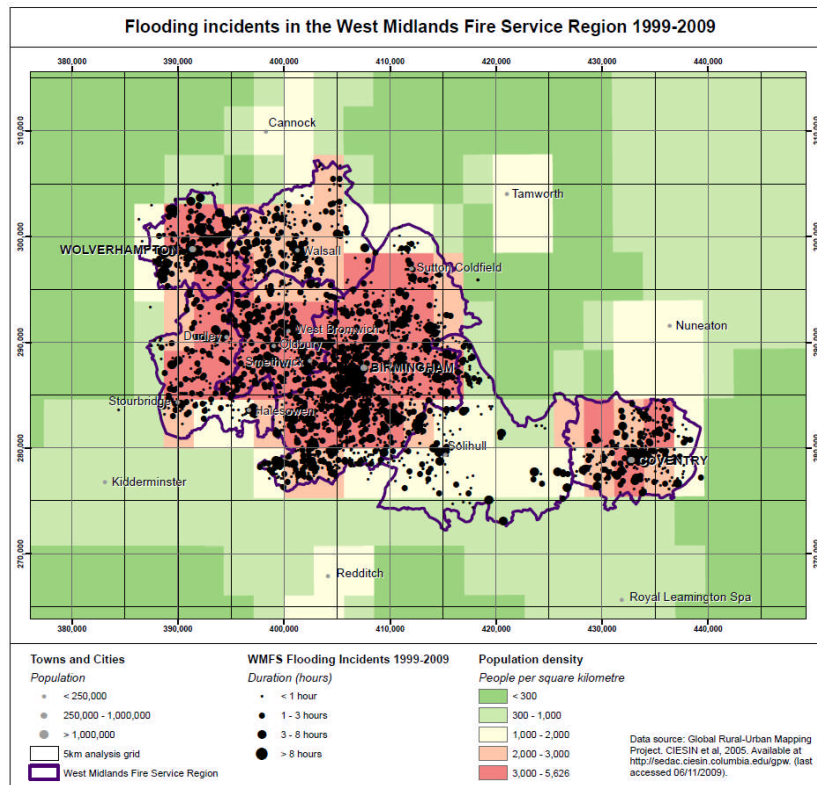
All flooding incidents in the West Midlands Fire Service between 1999 and 2009. Larger incident points reflect incidents with a longer duration

Secondary fires involving grass and other vegetation are closely linked with the weather, and whenever we have a prolonged period of dry weather during the summer months, we experience high volumes of fires of this type. Most of these fires are started deliberately.

In some years, vegetation fires alone have accounted for up to 40% of all the incidents we have attended.

We found that there was a close link between the number of fires, the weather and population density, which is largely explained by the fact that the great majority of these fires are arson-related.

The analysis of our existing data suggested that outdoor fires are likely to increase by around 33% in future years, placing a heavier demand on our response fleet.

The number of long, dry periods (number of days in preceding month having less than 1mm of rainfall) is set to increase from 100 days per year, up to 140, with summer and autumn projected to see the largest increases.

Long, dry periods in the summer alone are likely to increase from a current figure of 25 days, up to 38 days at a time, with serious implications for our resource planning.

Monthly breakdown of vegetation-related fires
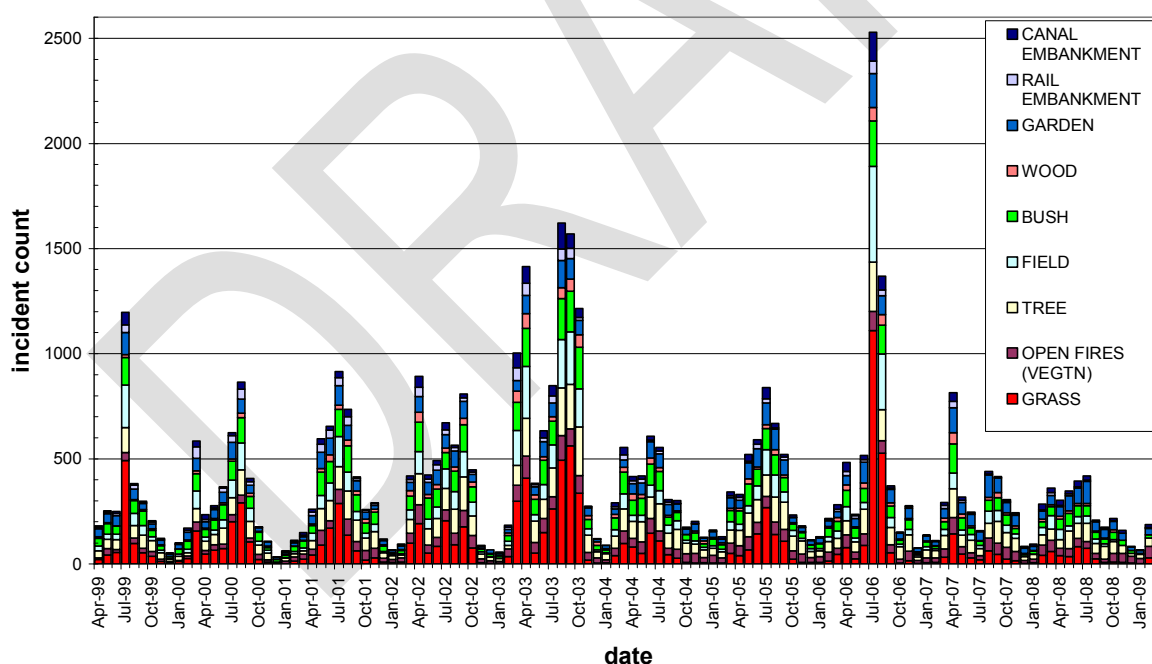
Monthly breakdown of vegetation-related fires for the study period, showing distinct concentration of fires in the summer months.

There are a range of factors that we are currently examining, where adaptations are necessary for our firefighters in the future, to deal safely and effectively with the changing demands brought about by climate change, such as:

➢ Different forms of personal protective equipment and clothing
➢ Acquisition of new vehicles and equipment to provide a flexible and appropriate response
➢ More versatile working patterns to cope with varying seasonal demands

Equally important, is that we work with local communities and partner agencies, to raise awareness of how people can take precautions to mitigate damage caused by floodwater, and to reduce the number of deliberate outdoor fires that are started.

For example, we have been working with the Birmingham Resilience Team, to identify areas of greatest risk for flood damage, where rainfall tends to be higher and where many of the houses are densely concentrated and have cellars, which will flood during periods of intense rainfall.

With regard to flood risk, there are 2 main causes of floodings that can impact on local people and the infrastructure:

➢ Pluvial, or deluge flooding referred to above. This is where we have periods of intense rainfall across an area, powerful enough to overwhelm drainage systems and overflow from roadways and land surfaces, into homes and businesses
➢ Fluvial, or river flooding. This is less common in West Midlands, as we do not have any major rivers within our area

Despite the lack of major watercourses, we still have a number of rivers and streams, many of which have been culverted or canalised, to control flow and divert water underground under normal circumstances. These can still cause problems and occasionally create serious localised floodings.

We have identified areas with potential vulnerability to river flooding, through our work with the Environment Agency and DEFRA and this has proven to be essential, not just to help plan for flooding events in the local community, but also to assess the potential impacts on our own business continuity.

If key arterial routes were to become flooded, this could hinder our response to fires and emergencies, so we need to make sure that we have systems in place to manage this type of occurrence.
In addition, we know that we are not exempt from flood damage affecting our own sites and facilities and we have taken steps to check that we will still be able to function effectively, even if some of our sites become inundated.

West Midlands Flood Map
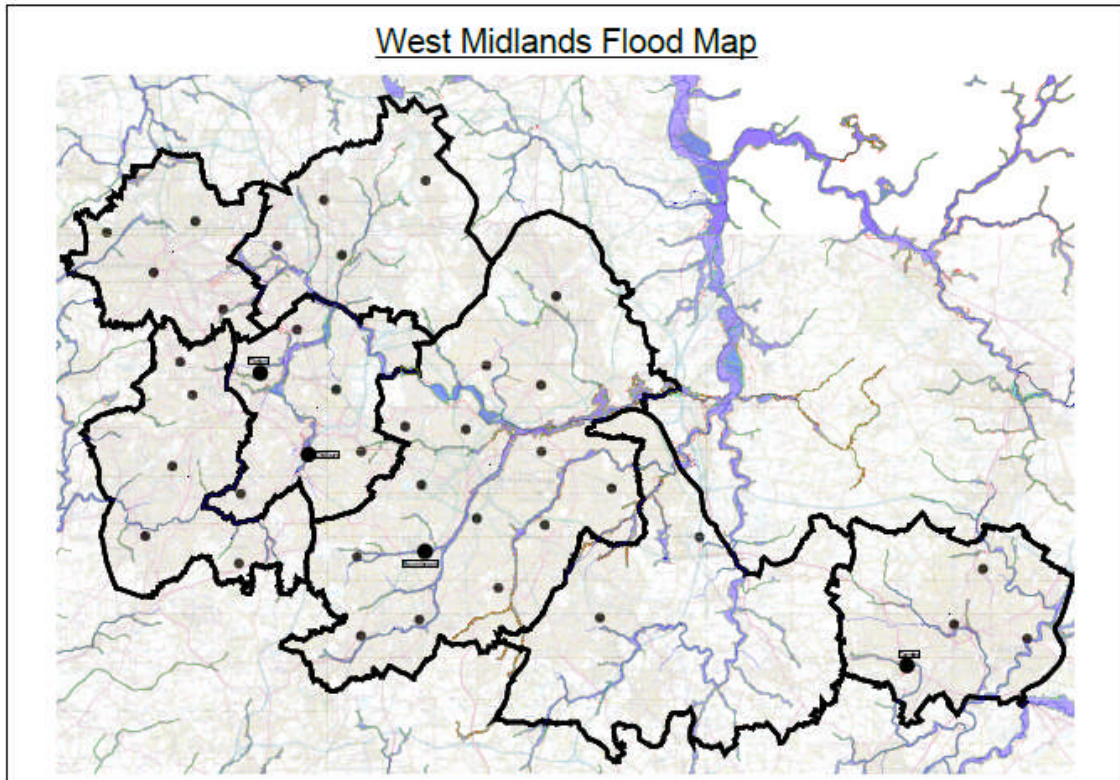
Armed with this knowledge, we can integrate our business continuity plans with our asset management strategy, to ensure that future station builds, such as at the new Cradley Heath station, are not within flood risk zones.

To assist in responding to floodings, we are able to deploy high volume pumping equipment that we have acquired within recent years, to remove water more quickly and help with a return to normality.

Heritage in the built environment

We have a duty to take into account the heritage sites present in the West Midlands when we consider our response plans and the work we do in fire protection.

Our historic environment enriches our quality of life, and contributes to local character and a sense of place; and some historic buildings, monuments, landscapes and areas are of special importance nationally or even internationally.

There is also a case to be made for its contribution to the local economy, as an employer, through associated business enterprise and through tourism. Whilst FRAs have a legal responsibility to ensure that effective arrangements are in place to deal with an incident that could adversely affect the rich heritage of our country through both planning and response, a moral responsibility also exists to ensure that the quality of life of the public is improved through the concept of sustainable development.

The historic buildings of the West Midlands are identified through their classification into different status as 'listed', according to the quality, significance and scarcity of such buildings nationally. The most important are classified as grade 1 and grade 2* listed, meaning that these are of exceptional interest, or 'more than special interest'.

Within our area, over 260 buildings have been identified as such and we have taken steps to ensure that wherever possible, we will act to preserve and protect these places, due to their value to our local heritage.

We have arranged to do this in a number of ways:

➢ Details of all high grade listed buildings have been communicated to our firefighters and incorporated within site risk information, so that whenever a fire or other emergency occurs, their status is immediately flagged during mobilisation. This allows appropriate preservative actions to take place.
➢ A training programme has taken place, involving WMFS firefighters working alongside managers and conservators from organisations including English Heritage, the National Trust, Royal Palaces and local museums and art galleries. This has raised awareness of appropriate actions to be taken during fires and floodings and improved understanding of the needs of all agencies in achieving successful resolution of emergency incidents.

- Events have been hosted by WMFS to raise awareness nationally, of the need to carry out effective disaster and emergency recovery plans for heritage sites, with specialist contributions from experts in the field.
- The risk based inspection programme for our fire safety officers includes an appropriate element of consideration of the heritage value awarded to key sites, so that this is taken into account during safety audits.
- A Heritage strategy has been created and adopted by the WMFRA to clarify our policy in this area and to stress the value we place on this issue.

Protection of the Natural Environment

We have a duty to protect the environment from harm, whether that involves helping to minimise damage resulting from a chemical spillage, or taking steps to control the pollution caused by firefighting actions.

To fulfil this duty, we have tried and tested procedures in place, to manage the way we respond to incidents involving hazardous materials and there have been some significant advances in this area within recent years.

Our capacity to identify unknown substances or mixtures of chemicals, has been greatly enhanced, in particular through the creation of a specialist team of officers with the skills and equipment available to do this. Not only can we identify hazardous materials where previously a slow process of laboratory analysis would have been required, but we can test and monitor atmospheric conditions to ensure safe and appropriate working systems are put in place to allow rapid intervention and clean up.

At the same time, our firefighters are aware of the need to control environmental pollution during and after fires and other incidents. We have emergency grab packs on all of our front line fire engines, so that surface drains can be blocked and pollutants diverted or contained until safe disposal is possible.

This is backed up by a range of more specialist equipment to contain contaminants, some of which has been provided for us by the Environment Agency, who we work with to achieve high standards of response at these incidents.

Trials with an experimental water capture and recycling unit, to control firefighting water pollutants

One of the main sources of pollution at fires, is the run-off of firefighting water which can often enter local watercourses with the contaminants created during a fire and the range of carbonaceous and synthetic products involved.

We are currently working in partnership with the Environment Agency and Aquamove, to experiment with ways of capturing, filtering and recycling firewater run-off. This has 2 significant benefits for the environment:

➢ Firstly, it prevents the contamination of watercourses locally, described above, with associated damage to ecosystems and water treatment facilities operated by water supply companies

> In addition, this means that we have the opportunity to reduce the volumes of water that we need to use for firefighting at large or long duration fires. This helps to reduce the carbon footprint of our service, and will become more critical as water shortages continue to take effect into the future.

We have also put some effort into researching the carbon output from our firefighting activities overall.

Financial Year	Dwellings		Non-Domestic Premises		Vehicles		Other FDR1s*		Secondary Fires		Totals	
	No of Incidents	CO_2 Emissions (kg)	No of Incidents	CO_2 Emissions (kg)	No of Incidents	CO_2 Emissions (kg)	No of Incidents	CO_2 Emissions (kg)	No of Incidents	CO_2 Emissions (kg)	Total Incidents	Total CO_2 Emissions
98/99	4,369	142,464	1,772	1,173,440	4,394	2,614,400	1,214	455,600	9,142	1,828,400	20,891	6,214,304
99/00	4,432	152,259	1,859	1,125,960	5,263	3,206,171	1,327	578,225	12,859	2,571,800	25,740	7,634,415
00/01	4,066	136,014	1,675	1,015,360	5,282	3,072,142	1,141	418,550	11,869	2,373,800	24,033	7,015,866
01/02	4,004	145,502	1,817	1,023,600	5,729	3,311,858	1,296	409,100	15,330	3,066,000	28,176	7,956,061
02/03	3,494	122,151	1,531	938,640	5,292	2,958,617	1,101	435,150	16,538	3,307,671	27,956	7,762,229
03/04	3,595	133,555	1,589	927,680	4,796	2,790,229	1,184	531,625	21,489	4,297,800	32,653	8,680,889
04/05	3,255	121,850	1,493	972,040	3,771	2,110,425	868	324,050	12,399	2,479,800	21,786	6,008,165
05/06	3,038	104,962	1,293	1,868,880	3,197	1,726,625	823	2,656,975	13,352	2,670,400	21,703	9,027,842
06/07	2,744	94,216	1,175	1,199,640	2,521	1,256,850	845	2,033,725	15,315	3,063,000	22,600	7,647,431
07/08	2,519	70,656	983	1,442,440	2,159	1,078,171	683	376,375	11,480	2,296,000	17,824	5,263,642
08/09	2,354	61,040	885	512,280	1,937	865,608	552	206,525	9,597	1,919,400	15,325	3,564,853

CO_2 Emissions: Brigade Wide Historic Breakdown 1998/99 – 2008/9

Over a 10 year period examined, we have been able to estimate the emissions of Carbon dioxide given off during the fires we attended, as shown in the table above. This can only be an approximation, but it serves to highlight the fact that we have been able to see a significant reduction in $CO2$ emissions generated directly by fires in the West Midlands, due largely to the related cut in the number and scale of fires occurring.

Dwelling Fires and Related CO_2 Emissions 1998/99 - 2007/8
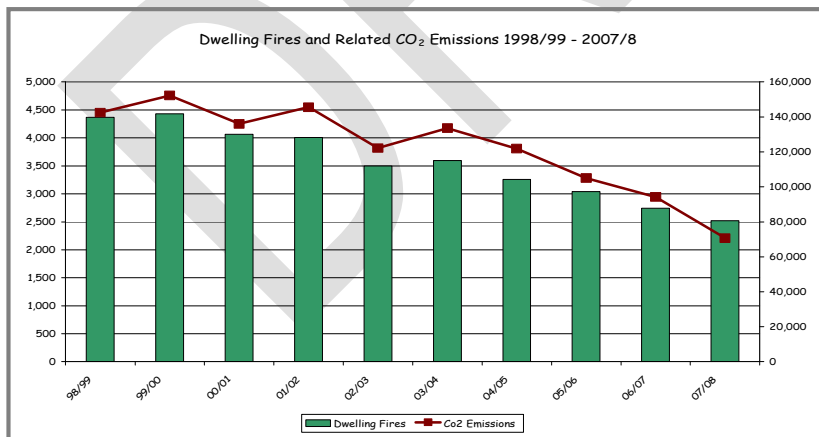
As the number of fires reduces year on year, so does the related carbon release into the atmosphere

Large fires have the greatest impact on this pollution

An innovation we have made in this area, is to sign up locally to the Biodiversity Partnership that exists in our area.

By doing this and working with local Wildlife Trusts, we have been able to obtain detailed information about the presence of rare or endangered species within local habitats, especially within important sites for nature conservation, such as:

➢ Sites of Special Scientific Interest
➢ Sites of Importance for Nature Conservation
➢ National Nature Reserves
➢ Local Nature Reserves

On the basis of this information, we have been able to update our mapping systems and inform our firefighters of the particular features found locally within key areas of the West Midlands, so that steps can be taken to avoid damaging biodiversity in local habitats during firefighting operations.

Firefighters at Woodgate Valley set up a beekeeping project to help support local ecosystems and to provide a focus for educational work with local schools and young people.

Other stations have now followed this example

In tandem with this focus on operational firefighting and environmental concerns, we also manage our routine business in an effective way, to proactively drive down our carbon footprint from year to year. The success of these actions has been recognised by a number of awards in recent years, as recognition of our efforts to lead the way in delivering best practice, evidenced by:

➢ A broad range of recycling waste materials, from paper and plastic to batteries and vehicle oils
➢ Effective control of energy consumption across our stations and all other sites, with intelligent monitoring and management systems in place
➢ Car share scheme; cycle to work scheme; campaigns to reduce vehicle usage
➢ Procurement of hybrid and low emission vehicles
➢ Creation of local cycle teams, to deal with issues around fly-tipping, abandoned vehicles, outdoor fire-setting and anti-social behaviour in local neighbourhoods.

Community cycle teams have been set up around key areas, to reduce anti-social behaviour and improve our communication with young people in local neighbourhoods, to effect positive changes in behaviour

In 2008 we moved into a new headquarters building. Sustainability was a major factor in the design and construction of the building. The land had been restored as part of the construction process and while any contaminated materials were removed, other materials resulting from the demolition were crushed on site and re-used. Where possible, the design incorporated materials that could be sourced locally. Environmental features on the site include a rain water harvesting system used to flush toilets, a water bore hole so that the rainwater tank can be topped up in periods of low rainfall and a green roof, which presents ecological advantages. As a result the building achieved an 'Excellent' rating under the BREEAM (Building Research Establishment Environmental Assessment Method) assessment process and also won a sustainability award from the Royal Institute of Chartered Surveyors.

More recently, we have installed ranges of solar voltaic panels on the roofs of this and a number of other buildings, to harvest and export clean electricity.

Based on our experience of successful environmental management, we will be able to build energy conservation and carbon reduction features into any future new build, as evidenced by our plans for the new Cradley Heath station.

Appendix

Consultation on our Community Safety Strategy

To gain a clear picture of the views of our local communities, our employees, partners and other stakeholders, with regard to the issues laid out in this strategy, we carried out an extensive consultation exercise.

This ran between November 2012 and January 2013 and by means of a range of media including our website, local meetings and announcements on local radio and the press, we elicited responses from a wide range of people, in response to the following specific questions:

Consultation Questions

1a We have established a risk based approach to managing our emergency response activity and the distribution of our fleet of response vehicles and firefighters. **Do you agree that this is the best way to deploy our firefighters and emergency response resources, so that the incidents with the greatest potential to cause harm to people are given top priority?**

1b **Should we continue to set a target of 5 minutes, for our attendance at high risk incidents such as house fires and road traffic collisions?**

2 We need to continue to deploy our staff into people's homes, schools and other places where we can exert a positive influence on behaviours and avoid an increase in numbers of fires and accidents. **Do you agree that we should continue our efforts to educate and inform people and control risk in this way?**

3 The number of road traffic collisions (RTCs) that we attend has increased and continues to rise. We have a legal duty to respond to these incidents but not necessarily to undertake prevention work to reduce the number of RTCs. We intend to take steps to reduce the number of RTCs and the injuries they cause. **Do you agree that we need to increase our efforts to prevent RTCs and to take a leading role in doing so?**

4 To refine our emergency response service, we have launched a range of different vehicles, sometimes sending fewer firefighters to low risk calls, based on information obtained from the caller. **Do you agree that we should continue to develop more flexible response options in this way?**

5a The number of responses we make to calls originating from automatic fire alarm systems has decreased because we are able to challenge these calls, to ensure we only turn out to a genuine emergency. **Do you agree that we should continue to challenge calls in this way, to reduce the number of attendances to non-emergency incidents?**

5b **Do you support our policy of challenging non-urgent Special Service Calls and on occasion, charging for our services?**

6a **Has your perception of West Midlands Fire Service changed as a result of reading this Community Safety Plan?**

6b **If so how?**

6c **What do you think we could do better, or differently?**

7 The services we provide currently cost the average council tax band 'D' payer £47.83 per annum, which is less than £1 per week. This compares with an average across the UK of £64.12 per annum, for fire and rescue services. **Do you think this represents good value for money?**

The feedback to these questions, together with a range of more general comments, were collated and analysed so that the views expressed could be acknowledged and used to influence the creation of this strategy in its final version.

The total number of responses received was 2291, comprising the following mix of electronic and paper format:

Electronic responses (via Website, www.wmfs.net)   354

Paper copies   1937

Given that the population of West Midlands is currently around 2,000,000 (Over 16 years of age), this equates to a response rate of 0.11%.

Analysis of Responses

To gain an insight into the views generated in response to the draft Community Safety Strategy, it is useful to examine the nature of the responses to each question posed in the questionnaire.

Most of the questions began with a simple choice of either 'yes' or 'no' and all questions gave respondents the opportunity to make comments.

The comments received have been summarised as far as possible into manageable categories and are described below, for each question.

Question 1a

We have established a risk based approach to managing our emergency response activity and the distribution of our fleet of response vehicles and firefighters. **Do you agree that this is the best way to deploy our firefighters and emergency response resources, so that the incidents with the greatest potential to cause harm to people are given top priority?**

In total   1846 or 80.58% responded YES
             342 or 14.93% responded NO

Question 1b

Should we continue to set a target of 5 minutes, for our attendance at high risk incidents such as house fires and road traffic collisions?

2042 or 89.13% responded YES
206 or 8.99% responded NO

With regard to questions 1a and 1b, the most frequent comment (82) was that respondents felt we should attend in less than 5 minutes. A further 51 stated that we should attend as fast as possible. 30 people thought we should always respond in the same way, with another 26 holding the view that there should be no target, just a fast response.

54 comments were positive about the changes being referred to and the policies described and 13 people specifically referred to the importance of risk analysis in managing our response resources. Another 13 responses were generally positive about WMFS and the services provided.

A popular response (49) urged WMFS to ensure we respond with a fully equipped fire engine, with sufficient crew members and no reduction in staff.

The total number of comments made to questions 1a and 1b was 364.

Question 2

We need to continue to deploy our staff into people's homes, schools and other places where we can exert a positive influence on behaviours and avoid an increase in numbers of fires and accidents. **Do you agree that we should continue our efforts to educate and inform people and control risk in this way?**

2115 or 92.32% responded YES
165 or 7.20% responded NO

The favoured comment to this question was an affirmation in some way, that we should continue our work in prevention activities, with a total of 127.

43 people felt that education was important, but not as essential as the response service, or that it should be kept in proportion, so as not to detract from response in any way.

28 comments were specifically positive about young person or schools education. 26 respondents felt that we should no longer continue with education / prevention, with references to the economy and budgets being restricted.

15 people supported prevention, but felt that it should be provided more by partners or other agencies.

In total, there were 285 comments made in response to question 2.

Question 3

The number of road traffic collisions (RTCs) that we attend has increased and continues to rise. We have a legal duty to respond to these incidents but not necessarily to undertake prevention work to reduce the number of RTCs. We intend to take steps to reduce the number of RTCs and the injuries they cause. **Do you agree that we need to increase our efforts to prevent RTCs and to take a leading role in doing so?**

1792 or 78.22% responded YES
447 or 19.51% responded NO

Despite the strong support for this approach shown in the YES / NO responses, the majority of the comments received (124) did not agree that WMFS should lead in RTC prevention, and stated that this is the work of other agencies.
A further 25 said that we should not be doing this work if the finances are not available currently to support it.

70 people responded with positive comments about our lead in road safety.
53 responses were positive, but felt that the Police or others should be more involved and another 18 were positive, but felt that other work is of a higher priority.

In total 331 comments were made in response to question 3.

Question 4

To refine our emergency response service, we have launched a range of different vehicles, sometimes sending fewer firefighters to low risk calls, based on information obtained from the caller. **Do you agree that we should continue to develop more flexible response options in this way?**

1534 or 66.96% responded YES
696 or 30.38% responded NO

The most frequent comment at 150, was that we should keep fire engines, stop the introduction of BRVs, or treat all incidents in the same way.

84 people commented positively to the question, supporting a flexible response option, with a further 48 saying yes, as long as there are still sufficient fire engines and people are not to be put at risk.

29 people felt that BRVs should not be sent to high risk incidents and 44 people were concerned that the information obtained from callers reporting an emergency incident was insufficient or unreliable.

Question 5a

The number of responses we make to calls originating from automatic fire alarms has decreased because we are able to challenge these calls, to ensure we only turn out to a genuine emergency. **Do you agree that we should continue to challenge calls in this way, to reduce the number of attendances to non-emergency incidents?**

1918 or 83.72% responded YES
313 or 13.66% responded NO

Question 5b

Do you support our policy of challenging non-urgent Special Service Calls and on occasion, charging for our services?

1628 or 71.06% responded YES
574 or 25.05% responded NO

The favoured comment (111) to these questions, despite the strong support in the YES /NO section, was that there should be no charges made as people already pay for the service.
84 people commented that we should charge and 62 people commented with positive statements about call challenge.
42 comments were supportive of charging, but only if done with an awareness of vulnerability of the elderly etc, or for certain types of incident.

31 people felt that call challenge was not safe because of insufficient detail or reliability of information given by caller and a further 23 supported call challenge, but with a cautious approach.

13 people felt that we should charge persistent offenders only.

In total, there were 428 comments received for questions 5a and 5b.

Question 6a

Has your perception of West Midlands Fire Service changed as a result of reading this Community Safety Strategy?
Q. 6b If so, how?

736 or 32.13% responded YES
1295 or 56.53% responded NO

89 respondents stated that after reading the document, or the summary, they have a better understanding of WMFS and the services provided; or their understanding of the service has improved. A further 55 responses were positive in general about the changes being made or proposed for the future.

70 comments were negative concerning the service or the proposals and another 27 were along the lines that policy changes are being driven by financial considerations.

14 comments stated that there was insufficient detail, or were otherwise negative about the consultation process, whilst 12 people stated that their views had not been altered.

There were 311 comments in response to question 6a and 6b in total.

Question 6c

What do you think we could do better, or differently?

This question generated 365 comments in total.

61 comments were general, positive statements regarding WMFS whilst a further 59 were unsure how we could improve, or did not know how.

52 people asked for better communication, or more attention to listening to concerns, or greater honesty or integrity.

40 responses were in support of protecting emergency response staff and resources, whilst a further 23 asked for greater emphasis on response and less on education or prevention.

21 asked for continued involvement in community safety and education, and 23 urged us to continue to lobby government for improved funding support or try to avoid more financial cuts.

11 comments were negative in relation to BRVs

There was a wide range of individual responses on particular issues, ranging from BRVs, call challenge, charging for calls and fast response times, to issues such as station locations, collaborative working or staff training.

Question 7

The services we provide currently cost the average council tax band 'D' payer £47.83 per annum, which is less than £1 per week. This compares with an average across the UK of £64.12 per annum**.**

Do you think this represents good value for money?

1985 or 86.64% responded YES
189 or   8.25% responded NO

The majority of comments in this area were positive, with 59 people making positive comments of a general nature and a further 30 believing that services provided good value for money.
29 people said that they would pay more council tax to uphold the service.

33 people took the opportunity to oppose cuts to front line services or to offer concerns about BRVs and other changes.

21 people shared their concerns about government funding of services and 11 people felt that would not want to pay more for the service or that the service was expensive.

The total number of comments here was 265.

Summary

Although the level of response from the community was limited, the responses received were very supportive of the service and its current and proposed policies, for the main part.

Positive and negative responses have been summarised in the following table.

Question	Nature of response	
	+ve	-ve
1a	81%	15%
1b	89%	9%
2	92%	7%
3	78%	20%
4	67%	30%
5a	84%	14%
5b	71%	25%
6a/b/c	N/A	
7	87%	8%

Percentage figures will not add up to 100% in the rows above, as not all respondents answered every question.

Conclusion

The above appendix has attempted to summarise the feedback received from the consultation exercise on the WMFS draft Community Safety Strategy 2013-16, serving the purpose of our Integrated Risk Management Plan.

The summary shows that the majority of responses were positive or supportive in nature, but we also acknowledge that numbers of comments and responses voiced concerns about the nature of changes being made to services provided, especially with regard to the impact of financial cuts.

The responses and comments have been taken into consideration when finalising the WMFS Community Safety Strategy.

Glossary of terms and abbreviations

AFA	Automatic Fire Alarm- an electric system to detect fire and sound the alarm so that occupants of a building will evacuate
ARC	Alarm Receiving Centre- a centre for the receipt of emergency calls from automatic fire alarms, and their forwarding on to the local fire and rescue service for response, if necessary
ARM	Area Risk Map- a WMFS map, used to highlight areas of high, medium and low risk
BBCWT	Birmingham and the Black Country Wildlife Trust
BREEAM	Building Research Establishment Environmental Assessment Method
BRV	Brigade Response Vehicle- a fully equipped emergency response vehicle; smaller than a full sized fire engine; usually carrying a crew of 3 firefighters
C&C	Command and Control- the process whereby we manage and structure our firefighting and other emergency response activity, according to a nationally recognised system
Cover moves	Actions taken by Fire Control, to transfer response vehicles from one place to another, to ensure an effective spread of resources at all times
CSR	Comprehensive Spending Review- the Government's review of public spending
DEFRA	The Department for Environment, Food and Rural Affairs
Fire Control	Our control centre which receives 999 calls and mobilises emergency response vehicles and firefighters
FDR	A property fire, as opposed to a minor, secondary fire. This requires a detailed fire damage report to be submitted
FRA	Fire and Rescue Authority- the body of elected councillors who govern the fire and rescue service
FRS	Fire and Rescue Service
HP	A Hydraulic Platform is a specialist vehicle able to reach heights through the use of folding and telescopic booms; used primarily for directing volumes of firefighting water from above
HSC	Home Safety Check- a visit by our staff, into local houses and flats, to check on fire and safety issues and give advice and guidance on how to improve or maintain safety levels. Sometimes, we will fit a smoke alarm to give early warning of fire.
HVPU	High Volume Pumping Unit- a very high capacity pump, mounted on a large lorry, for supplying bulk firefighting water, or for helping to remove water from a serious flooding
IRMP	Integrated Risk Management Plan- a public document covering a 3 year period, explaining how the fire and rescue service uses its people, vehicles and other resources to manage local community risk, through the combination of prevention; protection; response
IRS	Incident Recording System- a national, common system for the recording and collating of data from all the incidents attended by fire and rescue services.
JSNA	Joint Strategic Needs Assessment- JSNAs analyse the health needs of populations to inform and guide commissioning of health, well-being and social care services within local authority areas

KSI	Numbers of people killed or seriously injured (on the road)
LRFC	Low Risk Flexible Crewing is a staffing system using a team of firefighters on active duty during a 12 hour day, followed by a 12 hour rest period in adjacent accommodation, overnight. They are still available to be called out during the stand-down period
LSOA	Lower Super Output Area- a usefully small geographic area, with a minimum population of 1500 and 400 households, as used in the national census.
PM	Prime Movers are lorries used to transport demountable units, or 'pods' of specialist equipment to incidents. Each PM is able to transport a range of different pods, one at a time, as required
PRL	Pump Rescue Ladder- the standard fire engine adopted in WMFS, carrying a large pump and tank of water, together with a set of ladders and all other front line firefighting and rescue equipment
RBA Matrix	Risk Based Attendance Time Matrix- a tool we have created, to allow us to set and measure attendance time performance across a range of incident categories and areas of differing risk levels
RTC	Road Traffic Collision
SEC	Secondary Fire- a small fire involving vegetation, rubbish, or small sections of fencing etc
SINC	Site of Importance for Nature Conservation- a nationally recognised site, due to its value for biodiversity or the type of habitats it supports
SLINC	Site of Local Importance for Nature Conservation- as above, but on a local scale
SSC	Special Service Call- an emergency response to anything other than a fire (e.g. flooding, gas leak, chemical incident, person trapped)
SSSI	Site of Special Scientific Interest- nationally recognised and legally protected, due to its value for nature conservation
SVP	Solar Voltaic Panels- roof mounted panels that trap energy from the sun's rays, to create electricity
TRU	Technical Rescue Unit- the WMFS team of specialist responders that deal with rescue work involving water, rope, confined spaces etc.
TRV	Targeted Response Vehicle- a small emergency response vehicle dedicated to dealing with minor fires, to remove some of the workload from front line fire engines (PRLs)
Unwanted fire signal	Activation from a fire alarm system, when there is actually no fire in progress- leading to a false alarm call
Water relay	Process whereby water is pumped along a chain of fire engines, to transport water over long distances
WMFRA	West Midlands Fire and Rescue Authority- the governing body of WMFS, comprising 27 elected members from the 7 local councils
WMFS	West Midlands Fire Service
WMLRF	West Midlands Local Resilience Forum- our local group comprising all emergency responders and other relevant agencies who need to assess the risk of major incidents and ensure plans are in place to deal with them