Integrated Risk Management Planning

The National Document

Planning to make a **REAL** difference

Designed and Produced by the FBU National IRMP Department
Printed by Folium Group Ltd, Birmingham.

"...to serve the community by encouraging its members to be skilled at their craft."

The Fire Brigades Union
Bradley House
68 Coombe Road
Kingston-Upon-Thames
KT2 7AE

Foreword

Wasting Resources

The extremely tight timescale laid down by the ODPM for constructing and introducing first year Integrated Risk Management Plans (IRMPs) has in many cases meant that Fire & Rescue Authorities have been prevented from developing long term solutions and strategies to address the real problem of the level of deaths, injuries and losses occurring in their brigade areas.

The haste to introduce IRMP's in order to meet the challenging Government deadline has also limited the involvement of front-line workers. These key employees have generally been presented with an IRMP to comment on, rather than being invited to contribute to the actual construction of the plan.

Ignoring the tried, tested and proven process of a joint problem solving approach as a means to achieving the best solution has led to a huge waste of the talents and insight that can be brought to the IRMP process by employees at the 'sharp-end'.

Presenting what is widely perceived amongst employees as a 'fait-accompli', and reducing employees' influence to mere 'comment' on an IRMP that has already been constructed, will limit the effectiveness of any plan. And this will inevitably cost lives.

Fortunately for Fire & Rescue Authorities, their front-line employees have not remained silent on the problems and challenges that the fire & rescue service faces with the shift to Integrated Risk Management Planning. These employees have brought their important contributions to their representative body.

This National IRMP Document has been prepared based on the experience and insight of personnel employed at the sharp-end of fire & rescue service activities. Firefighters working all duty systems and Firefighters (Control) have brought to the FBU their 'real-world' experiences and understanding of the problems associated with effective strategies for reducing deaths and injuries - contributions which should have been central to the construction of first year IRMPs - in their belief that the FBU is the fire & rescue service organisation best placed to take their crucial input forward.

The FBU has also drawn upon the expertise of independent risk analysis consultants Arthur D Little in the development of systems to underpin the Integrated Risk Management Planning Process set out in this National IRMP Document, and Cap, Gemini, Ernst & Young for a costing analysis.

The FBU now invites Fire & Rescue Authorities, Chief Fire Officers, politicians and all other stakeholders to consider seriously and in detail the contributions of front-line fire & rescue service employees to this most critical Integrated Risk Management Planning process.

Andy Gilchrist
FBU General Secretary

May 2004

Integrated Risk Management Planning

On the 2nd April 2003 the Office of the Deputy Prime Minister (ODPM) issued Fire Service Circular 7/2003. The Circular informed all fire & rescue authorities in England, Wales and Northern Ireland that Integrated Risk Management Planning was a key element in the Government's programme of reform and modernisation for the fire & rescue service. As such each authority would be required to produce an Integrated Risk Management Plan (IRMP) for their brigade area.

On the 3rd April 2003 the Scottish Executive issued Scottish Fire Service Circular 4/2003 outlining proposals to introduce a similar system of Integrated Risk Management Planning in Scotland.

The ODPM has stated that a modern and effective fire & rescue service should serve all sections of society fairly and equitably. It has further stated that it does not believe that this can be done on the basis of the 1985 Standards of Fire Cover, which it saw as a prescriptive and formulaic national approach to providing fire cover.

The ODPM position is that the UK fire & rescue service needs a more modern, flexible, and risk-based approach that can deliver improvements in community safety based on locally identified needs.

The outcomes anticipated by the ODPM through this approach are:

- a reduction in the number of fires and other emergency incidents occurring;
- a reduction in loss of life in fires and other emergency incidents;
- a reduction in the number and severity of injuries occurring in fires and other emergencies;
- a reduction in the commercial, economic and social impact of fires and other emergency incidents;
- safeguarding of the environment and heritage (both built and natural); *and*
- provision of a fire & rescue service that represents value for money for the community.

The Westminster Government and Scottish Executive's proposals constitute a clear policy shift from previous fire & rescue service emergency response planning which was underpinned by the 1985 National Standards of Fire Cover.

IRMPs seek to merge the historic intervention and fire safety roles of the fire & rescue service with an emerging (and potentially far wider) statutory 'preventative' role to form what is intended to be a more holistic, targeted and focused approach to community risk management.

To be truly effective this approach must be grounded in accurate identification of all risks; both risks to the community and risks to employees. Any emerging strategy must strike the correct balance between the primary aspects of service delivery.

In simple terms these service delivery measures can be considered as being:

- **Prevention** – which aims to reduce the number of fires that actually occur, whilst at the same time providing a minimum standard of protection (for both persons and property) in cases where a fire does occur;
- **Emergency Intervention** – which involves having sufficient emergency resources in terms of Firefighters, Firefighters (Control), fire engines and equipment available and correctly located to deal with fires and other emergencies when they do occur.

The inter-relationship between necessary preventative and emergency intervention measures has been the subject of much debate since April 2003, when attempts to frame guidance which sought to develop the concept of fire & rescue service integrated risk management planning first emerged. At times this debate has appeared to be spinning out of control.

Diverging interests and 'pressures' within the widening fire & rescue service community have lead in some cases to the adoption of positions which are in danger of failing the primary IRMP focus – that of effective community risk management.

This National IRMP Document seeks to re-focus the fire & rescue service, not with a series of questions but (we would venture 'more helpfully') with answers grounded in front-line experience.

Many of these answers can be found not in new and innovative strategies (although clearly such strategies have their place given our anticipated wider statutory role), but through an examination of our history as the primary emergency service in the United Kingdom.

It is only through a clear and objective examination of where we have come from that we will be able to see with any clarity the direction that the UK fire & rescue service must take in respect of integrated risk management planning.

There is no Executive Summary provided with this document. To gain a clear understanding of both the issues posed, and the relevance of the solutions proposed for effective integrated risk management planning, the document must be read as a whole. To assist in this, the document follows a logical order considering issues surrounding;

- the development of the existing Standards of Fire Cover;
- the wider emergency response role; and
- preventative strategies.

It examines objectives and process, targets and standards, and sets out clearly the FBU's proposals for effective integrated risk management planning. These proposals are underpinned by recognised and statutory health & safety norms and good employment practice.

The Fire Brigades Union not only considers this new era to be challenging, but also sees a real opportunity to improve the safety of the communities we serve, to ensure as far as possible the safety of those who deliver the service, and to reduce significantly property and other losses.

Footnote: The references to 'Firefighter' and 'Firefighter (Control)' in this document refer to the roles of Firefighter, Firefighter (Control), Crew Manager, Crew Manager (Control), Watch Manager, Watch Manager (Control), Station Manager, Station Manager (Control), Group Manager, Group Manager (Control), Area Manager, and Brigade Manager.

Contents

On the 1st April 2004 the system of Integrated Risk Management Planning superseded the 1985 Standards of Fire Cover. On this date fire & rescue authorities implemented their first **local Integrated Risk Management Plans (IRMPs)**. These plans set out locally determined preventative strategies and emergency response standards based on the authority's assessment of risks to their community.

Within these plans fire & rescue authorities are required to set out how they intend to make adequate provision for intervention and prevention purposes to meet efficiently all normal requirements.

Broad statements have been made on the rationale and anticipated outcomes underpinning the policy shift to integrated risk management planning as the basis for determining all future fire & rescue service activity and resource deployments. However these statements bear closer scrutiny than would initially appear necessary.

There can be little doubt that former advocates of the 1936, 1955 and 1985 Standards of Fire Cover would have anticipated outcomes that, with each revision, moved progressively closer to the anticipated outcomes of integrated risk management planning. The authors of the former standards would have anticipated outcomes which:

- reduced the loss of life in fires;
- reduced the number and severity of injuries occurring in fires;
- reduced the commercial, economic and social impact of fires;
- safeguarded the environment and heritage (both built and natural); *and*
- provided a fire service that represented value for money for the community.

The notable differences between the outcomes anticipated under the former national standards of fire cover and the

"The IRMP process is the opportunity of a lifetime to make real progress in reducing the misery and loss resulting from fire and other emergencies. Our employers will miss this opportunity if they persist in treating the IRMP as a Cost and Human Resources project, rather than a risk driven process." **Merseyside FBU**

EMERGENCY INTERVENTION – RESCUE

Firefighters (Control) received an emergency call for a person trapped in a lime hopper. A site-worker was reported to have fallen some 35 feet into the hopper and was wedged between its side and an internal steel beam. Two Firefighters wearing breathing apparatus entered the hopper and undertook an arduous three-hour rescue. The limited space and difficulty of removing lime dust made the rescue extremely difficult. Both Firefighters sustained lime burns to their face, neck and wrists before successfully completing the rescue. The Firefighters required decontamination and ongoing medical treatment for the injuries they sustained. The man was transferred to hospital with life threatening injuries. **2001**

outcomes anticipated as a result of integrated risk management planning can be best established by looking at the full report and recommendations of the 1985 Standards of Fire Cover Review. In respect of emergency responses to incidents other than fires (Emergency Special Services) the report specifically stated:

- *"We believe that the provision of special services at fire authorities' discretion as recommended by the Holroyd Committee continues to be the most cost effective and operationally efficient way of meeting these important social needs, and we recommend no change in this general approach."* ***Recommendation XiV***

- *"We conclude that the recent Home Office guidance on the respective roles of the police and the fire service at road traffic accidents is appropriate, and recommend that it should be adhered to and should continue to be monitored by the relevant Inspectorate."* ***Recommendation XVi***

The 1985 Standards of Fire Cover report only considered environmental impact in its widest sense (para. 4.1), however the most notable difference is that the former Standards of Fire Cover included no planning considerations or requirements aimed at actually reducing the number of fires and other emergency incidents which occurred. There was, after all, no requirement placed upon fire authorities to give fire safety advice, other than when specifically requested (under para 1(i)e of the 1947 Fire Services Act).

Whilst the property bias in former Standards of Fire Cover is often quoted as their weakness, it is helpful to examine the reason for this perceived bias in order to truly appreciate risk, and to fully understand the challenge posed by integrated risk management planning.

The Development of National Standards of Fire Cover

It is reasonable to assume that in drafting national standards of fire cover in 1936 the Riverdale Committee were very conscious, even if it did not actually form a part of their terms of reference, that a war with Nazi Germany was both extremely likely and potentially imminent.

The Committee would have contemplated the effects of aerial attacks upon the UK, particularly in the light of similar events in the 1930's during the Spanish Civil War and the Japanese attacks upon China. In those conflicts quite deliberate aerial assaults upon undefended towns and cities had occurred for the first time for no other reason than to terrorise their occupants, to break the morale of the nation, and to overwhelm the civilian infrastructure by causing substantial civilian casualties.

It must have been clear at the time to even the casual observer that to defend itself against such attacks the UK would need a cohesive and effective fire and civil defence force. The aerial attacks (when they did come) would in all probability be concentrated initially upon the larger towns and cities of the UK, as they were in Spain and China.

The Spanish and Chinese conflicts received extensive media coverage and news reporting; for the first time the horror of war and its effect upon a civilian population could be viewed by all. It is extremely likely therefore that this thinking and imagery coloured the recommendations of the Riverdale Committee in their deliberations upon a set of national standards of fire cover.

Given that by 1939 the UK was at war, and by 1940 was under serious and sustained air assault, it is probably as well that it did.

The national standards recommended under Riverdale were further developed in the post-war years as a result of a review in 1958. In 1980 the Consultative Document on Future Fire Policy suggested that there was again a need for a national review of standards of fire cover. The review took place between 1981 and 1984, and the subsequent recommendations were accepted by the Home Secretary and formed the basis for the 1985 Standards of Fire Cover.

The 1985 review settled upon four categories of risk. These risk categories remained grounded in the original Riverdale recommendations, with larger town and city centres classified as the highest category of risk and requiring the fastest and largest response from the fire service, and progressively moving outwards and downwards in risk terms to the countryside and rural areas.

A special risk categorisation was also added in 1985 to include obvious (but independent) risks such as chemical and explosive manufacturers, petroleum and oil manufacturing and storage depots, which were generally sited outside of the towns and cities.

In 1995 the Audit Commission conducted a review of the UK fire service. One of the main recommendations in its report - '*In the Line of Fire*' - was that the system of planning fire

FBU Policy – Annual Conference 1991
Resolution 78
FIRE COVER STANDARDS

Conference demands that standards of fire cover be upgraded with a view to reducing attendance times in both "C" and "D" risk areas. **WEST YORKSHIRE**

FBU Policy – Annual Conference 1995 Emergency Resolution No 1 REPORT OF THE AUDIT COMMISSION

This Conference welcomes the acceptance by the Audit Commission in their report In The Line Of Fire of many of the issues which the Fire Brigades Union have campaigned on over many years. For example:

(a) Their call for a permanent and pro-active Fire Safety Campaign in order to make "Prevention Rather Than Cure" the priority of the future.

(b) Their recognition that the workload of the Fire Service has increased by fifty-five percent in the past decade even though staff numbers have not increased.

(c) Their call for a more sensible means of calculating and disbursing the Standard Spending Assessment and their recognition that the overspend by three out of every four County Fire Authorities will probably not be possible in the future.

(d) Their highlighting of the fact that "Special Service Calls" have increased to the extent that they now represent nearly thirty per cent of the workload of the Fire Service whilst at the same time there is no account of this taken within the Standard Spending Assessment.

(e) Their statement that there is no logic in the present seventy-five percent confidence level and that appliance staffing in future should be based on five riders on one hundred percent of occasions.

This Conference, however, condemns the fact that the report concludes that the necessary changes recommended should be funded from already inadequate resources. This has been brought about as a result of Government insistence that the terms of reference of the Audit Commission do not allow them to recommend additional funding. As a consequence it is proposed that the £67 million required will be found from reductions in fire cover and changes to existing conditions of service.

The Executive Council therefore recommend to Conference that we mount a campaign for the positive recommendations contained within the Audit Commission report to be introduced with additional "new" money being provided by Central Government.

The Executive Council further recommend to Conference that any attempt to reduce standards of fire cover or worsen conditions of service be met with the strongest resistance including industrial action as determined by Annual Conference policies. **Moved by the EXECUTIVE COUNCIL**

service emergency responses based on property size, construction, type and density (the 1985 Standards of Fire Cover) should be reviewed, and future emergency response planning for fires should primarily aim to reduce risk to life.

The Central Fire Brigades Advisory Council (CFBAC) set up the Joint Committee on the Audit Commission Report (JCACR) to respond to the issues raised by the Audit Commission. This committee investigated the feasibility of moving to a risk-based system for determining fire cover. Their report – *'Out of the Line of Fire'* – published in 1998 concluded that a risk-based approach to planning fire cover was feasible. The JCACR recommended that further research and trials should take place to develop such a system.

In response to the JCACR report the Government commissioned and funded a full research project into the standards of fire cover. The research was originally termed a review of standards of fire cover, but was subsequently re-titled the ***'Review of Standards of Emergency Cover'*** to more accurately reflect the historical role of the fire & rescue service as the primary rescue service in the UK. The research project was overseen by a 'Task Group'.

The Task Group developed a Fire Service Emergency Cover methodology, which included the use of risk-based computer modelling which sought to assess both the level of risk and the emergency response measures that would be required to reduce the risk.

The draft report of the Task Group on the Emergency Cover Review was published on the 20th December 2002, however this report was never implemented.

In peacetime society and since the return of the wartime National Fire Service to local authority control in 1947 the main risk of death and injury from fire has now switched from the workplace to the home. In the UK today approximately two-thirds of all deaths from fire occur in the home.

Latest UK Fire Statistics compiled by the Fire Research and Statistics Division of the Office of the Deputy Prime Minister show that UK fire & rescue services attended 64,400 fires in the home in the 12 months to the 31st March 2003. These statistics are based on Fire Damage Reports (FDR1) submitted by fire & rescue authorities. There were an estimated 574 deaths from fire in this period.

The movement in fire deaths and injuries from the workplace to the home can be attributed to a variety of factors. From 1961 there has been increasing statutory fire service involvement with fire safety enforcement, primarily in the workplace and places of entertainment. Coupled with the introduction of national Building Regulations and Standards which have led to safer building materials and greater controls over building construction methods these have been slow, but steady factors in this shift in fire and fire death risk.

The Development of Fire Safety Legislation & Enforcement

In order to appreciate risk and how it can be reduced, it is necessary to understand the relationship between preventative and emergency intervention strategies. A recognition of the reasons that fire safety legislation in the UK has developed in the manner that it has is important in this respect.

"Derbyshire FBU gave a thorough presentation on the draft IRMP and offered clear strategies on ways to reduce death and injury from fire. Local Councillors were very interested in our ideas. Sadly ODPM have also commented, and infer that the draft doesn't have enough cuts in it." **Derbyshire FBU**

The National Standards of Fire Cover were developed in response to a perceived threat or risk to the country. In a similar manner the development of fire safety legislation and the enforcement of such legislation by fire & rescue authorities in the UK has also developed in response to risk.

Unfortunately the development of fire safety legislation has been almost exclusively as a result of high profile fire tragedies, rather than an early appreciation of potential risk. With one notable exception this has resulted in the introduction of premises-related fire safety legislation which has aimed to prevent a similar fire to the disaster that had already occurred.

Successive Governments have reacted to fairly predictable fire disasters which have resulted in multiple fatalities and demands for action by the public. This reactive approach has occurred so frequently that the subsequent legislative changes are commonly referred to as 'stable-door' legislation in the fire & rescue service community. The stable-door approach is best appreciated if we consider the main fires that have shaped fire safety legislation in the UK.

The Keighley Mill fire in Yorkshire in February 1956 killed 8 people and led to the 1961 Factories Act.

Picture courtesy of the Press Association

Keighley Mill fire 1956

Keighley Mill was a multi-storey woollen mill dating back to the 19th century. A fire occurred in the building and the smoke and fumes spread rapidly trapping and overcoming workers on upper floors before they could make their escape. The fire led to the introduction of the Factories Act 1961 which was a consolidation of three previous Factory Acts.

EMERGENCY INTERVENTION HOTEL FIRE

An emergency call was received to an Automatic Fire Alarm sounding at a hotel in a city centre just after midnight. Fire & rescue crews were confronted with a serious fire at a 200 bed hotel. Firefighters entered the building and carried out multiple rescues whilst other fire & rescue crews dealt with a severe fire in a corridor on the 3rd floor. Two persons died in the fire. **2001**

The 1961 Act required owners of specified factories to apply for the issue of a 'means-of-escape' certificate from the fire authority, and placed fire authorities under a duty to issue such certificates, but only if they were satisfied that they should. Duties to ensure that other fire safety measures were provided under the 1961 Act were vested in Her Majesty's Inspectors of Factories. It was also acknowledged by the Government of the day that fire authorities were better qualified than district councils to certify means of escape and report on other safety provisions relating to fire.

A fire at the William Henderson and Sons Department Store in Liverpool in June 1960 killed 11 people and led to the introduction of the Offices, Shops and Railway Premises Act 1963.

Picture courtesy of Firepix International

Henderson's Department Store fire 1960

Ten people became trapped in the fourth storey of the building due to the rapid spread of smoke and fumes through suspended ceilings and via unenclosed escalators which cut off the means-of-escape from the premises. One man fell to his death from a ledge whilst assisting others to safety.

The Government reacted by introducing the fire sections contained in the 1963 Offices, Shops and Railway Premises Act - the clauses being modelled closely on the 1961 Factories Act. Once again the 1963 Act was a consolidation of previous Acts and required specified premises falling within its scope to hold a fire certificate.

Smaller premises caught by the 1963 Act were placed under a direct duty to ensure both adequate means-of-escape in case of fire and provision of firefighting equipment. The fire sections of this Act were predominantly enforced by fire authorities, however the Act did not place a duty upon them to do so in the manner that the Factories Act legislation had done. This situation changed in 1977 when the fire sections of the 1963 Act were transferred into the control of the Fire Precautions Act 1971.

A fire at The Top Storey Night Club in Bolton in May 1961 killed 19 people. As a result an amendment was put forward giving fire authorities greater powers over club premises under the Licensing Act 1964.

The premises consisted of a multi-storey industrial building, the top floor of which had been converted into a night club. The lower floors housed other occupants and were used for a variety of purposes.

Picture courtesy of the Press Association

Top Storey Club fire 1961

A fire occurred in one of the lower floor occupancies whilst the night club was in operation. The fire cut off the means-of-escape routes from the club and to escape the fire some guests jumped or fell to their deaths in a shallow river which ran at the rear of the building. Fourteen bodies were found in the club room and five in the adjacent river below.

During the proceedings on the Licensing Act, opportunity was taken to table an amendment with the intention of giving fire authorities greater powers over club premises. The amendment required fire authorities to be consulted before a licence under the Act could be granted. The fire authority could also object to the issue of a license. This Act effectively gave fire authorities the power to object to the issue of a licence on any fire related issue.

A Fire at the Rose and Crown Hotel in Saffron Waldon on Boxing Day 1969 killed 11 people and led to hotels and boarding houses being designated under the Fire Precautions Act in 1972.

Picture courtesy of the Press Association

Rose & Crown Hotel fire 1969

The fire started in a ground floor TV room after guests had retired for the night, and rapidly filled the escape routes with dense smoke and fumes. A number of people were injured whilst escaping and 17 people escaped or were rescued through windows by Firefighters using ladders. 7 people died on the second floor of the hotel and 4 more on the third floor.

The Rose and Crown fire was one of a series of hotel and boarding house fires that had occurred throughout the UK which effectively forced the Government to introduce the Fire Precautions Act 1971 and in 1972 to designate specified hotels and boarding houses under the 1971 Act as requiring a fire certificate.

A fire at the Woolworths Store in Manchester in 1979 killed 10 people and led finally to the introduction of the Upholstered Furniture Safety Regulations 1980.

The fire started in some foam filled furniture that had been temporarily stored on a sales floor and as a result the fire spread rapidly trapping people on upper floors. Some people were overcome in the restaurant where they were taking a meal.

The subsequent Inquiry into the tragedy identified the part that the flammability of the furniture had played in the disaster. This disaster and other fires involving inflammable foam filled furnishings, mainly in dwellings, led in 1988 to the introduction of The Furniture and Furnishings (Fire) (Safety)

"Lincolnshire Fire & Rescue Authority has produced and subsequently adopted a deliberately and dangerously vague IRMP which can only serve to store up problems for the future." **Lincolnshire FBU**

Picture courtesy of the Manchester Evening News

Woolworth's fire Manchester 1979

Regulations 1988. These regulations have produced a significant decrease in both domestic fires and fire deaths attributable to foam filled furnishings.

A fire at the Bradford Football Stadium in May 1985 killed 58 people and led to the Fire Safety and Safety of Places of Sport Act 1987.

The football match was televised and the fire took place in the full view of TV cameras. The fire was believed to have been caused by a cigarette end which ignited accumulated rubbish and debris under the wooden floor of a predominantly timber stand. Although initially it was a very small fire, it grew and spread rapidly.

Picture courtesy of the Press Association

Bradford City fire 1985

The majority of deaths occurred when spectators at the back of the stand tried to exit through the turnstile area by which they had entered the ground. The turnstile area however had been locked. Trapped and with nowhere to go the fire overcame them.

A full public Inquiry into the tragedy was held. Coupled with a separate Inquiry into another football related tragedy at Birmingham City football ground, it led to the introduction of the Fire Safety and Safety of Places of Sport Act 1987. This Act required sports grounds and football stadia to hold safety certificates. It also amended the Fire Precautions Act 1971 significantly to, *inter alia*, allow fire authorities to issue notices prohibiting use without the need to apply to a Magistrates Court.

A fire at the King's Cross Railway Station in November 1987 killed 31 people and led to the Fire Precautions (Sub Surface Railway Stations) Regulations Act 1989.

The fire appears to have started in grease and fluff that had accumulated between the treads of a timber escalator system, probably as a result of a discarded cigarette end. This fire spread to the machinery room beneath the escalator. Linings on the escalator walls served to spread the fire rapidly upwards and into a ticket hall area. The spread of the fire was also assisted by the airflow caused by underground trains arriving and departing the platforms beneath the escalator.

Picture courtesy of the Press Association

King's Cross fire 1987

The fire led to a full public Inquiry. As a result of the outcomes of the Inquiry the Fire Precautions (Sub Surface Railway Stations) Regulations 1989 made under the Fire Precautions Act 1971 were introduced. These Regulations remain in place today and include requirements for sprinkler systems in machinery rooms beneath escalators and a comprehensive smoking ban anywhere in underground stations.

EMERGENCY INTERVENTION – TRENCH COLLAPSE

Firefighters responded to an emergency call to a trench collapse where approximately 8 tons of clay from the unsupported side of the trench had buried a worker. The worker had been checking a drainage pipe that had recently been laid. Firefighters working in pairs in the trench carefully removed the clay using spades and shovels. After over an hour of digging and in spite of the risk of further collapse, the fire & rescue crews located and extricated the casualty. The worker did not survive. **1990**

Future Fire Safety Legislation

These high profile fatal incidents demonstrate clearly, albeit briefly, that fire safety legislation has grown in response to fire tragedies rather than as a result of any strategic planning. Similarly, fire & rescue authority enforcement responsibility has grown in depth and range as a result of such legislation being introduced.

By the early 1990's the Officers National Committee (ONC) of the FBU had come to the conclusion that fire safety for the future had to be the subject of properly considered long term strategic planning. In coming to this conclusion the ONC were aware of the effect that membership of the European Union was having on the status and range of health and safety law in the UK **(Section 2)**.

In their Report in the early 1970's the Robens Committee had recognised that the widely diverse range of statutes, which attempted to provide for the health and safety of workers in the UK, was not the best way to ensure a safe working environment. They therefore recommended the introduction of the Health and Safety at Work, etc. Act 1974 which consolidated a range of existing general health and safety law into one act.

The FBU ONC took the same view with regard to the existing range of diverse fire safety statutes and other statutes which included fire safety requirements. It was abundantly clear that to be truly effective these should be modernised and consolidated in one common statute, rather than continue with the fragmented fire safety legislative framework which was only in part enforced by fire authorities.

The FBU tasked Glyn Evans, their National Fire Safety Adviser, to draw up the FBU's Fire Safety Bill. The bill was far more wide ranging than existing statutes – and critically it was not simply 'means-of-escape' driven (important as that fire safety factor undoubtedly is).

In 1994 the then Government introduced a series of deregulatory proposals, purportedly to 'ease the burden' of red tape on business. The FBU's proposed Fire Safety Bill received very high levels of support throughout the fire community when it was fed into the debates that raged around the Government's proposals.

In late 1996 the FBU's Fire Safety Bill finally reached the floor of the House of Commons where it received its First Reading. John Heppell MP raised the Bill and following a Division of the House the Bill was accepted and set down for a Second Reading. In January 1997 the Bill received its second reading. Here it was objected to and so was set back for a full debate.

In May 1997, a General Election took place and the Labour Party was returned as the party of Government. Almost immediately the incoming Minister with responsibility for the fire service at the Home Office, George Howarth MP, set up a working party to turn the FBU Bill into a Government Bill. Some adaptation of the Bill did take place at this time to ensure that it met fully the EU requirements contained in the Framework and Workplace Health and Safety Directives. Nevertheless, this was achieved with remarkable speed due mainly to a high level of consensus around the principles on which the Bill was based.

The intense parliamentary programme for the Government's first term in office meant that it was impossible to schedule parliamentary time to introduce a Bill which was in effect a 'consolidating measure'. As a result it was proposed that the Bill should be transformed into an Order under the Regulatory Reform Act 2001. This would facilitate a far

FBU Policy – Annual Conference 1990
Emergency Resolution 12
FIRE SAFETY

This Conference demands that following the recent Bickerdike Allen Partners report and the current attempts to reduce fire protection standards contained in the building regulations the Executive Council resist any attempts to undermine or diminish the role of the Fire Service in Fire Safety matters and mounts a political and public campaign to achieve this end. **WARWICKSHIRE**

FBU Policy – Annual Conference 1999
Emergency Resolution 48
FIRE SAFETY BILL

Conference demands that the Executive Council redouble their efforts to secure the Fire Safety Bill as the primary piece of Fire Safety Legislation, with the Fire Service the enforcement body for this legislation. **DORSET**

FBU Postcard Campaign 1994 – Interdepartmental Review of Fire Safety Legislation and Enforcement

"The IRMP process offers the opportunity to further improve the safety of our communities. It would appear that the Essex Fire & Rescue Authority have missed this opportunity. Their proposals appear to be driven by cost rather than effective and evidenced strategies to reduce risk to our communities." **Essex FBU**

EMERGENCY INTERVENTION – SHOP FIRE

A pet shop specialising in the sale of reptiles and insects, including venomous species, was deliberately set on fire. An arsonist had lit a number of fires both in the shop and in the stairwell leading up to residential flats on the floor above. While Firefighters wearing breathing apparatus made their way through the smoke-logged ground floor to extinguish the blaze, colleagues similarly equipped pitched ladders to the upstairs rooms to search for people who might be trapped. A third team of Firefighters was assigned to rescue 'livestock' from the shop. There were no human casualties and most of the creatures were also rescued. **2003**

swifter passage through the parliamentary process, without affecting the status of the original FBU Bill. With the public consultation process concluded the draft Order is waiting to be placed into the Parliamentary process. It is anticipated that the draft Fire Safety Order will finally go before Parliamentary Committees in 2004 and given a trouble free passage it is likely to come into force early in 2005.

The Fire Safety Order is by its nature pro-active; it will give fire & rescue authorities the ability to target their inspection and enforcement programmes on the basis of risk. This should enable them to prevent fire tragedies occurring in the first place, in contrast to the 'stable-door' legislative development seen over the last 40 years.

However for this approach to be effective, fire & rescue authorities will undoubtedly need to invest considerably in their fire safety inspection and legislative enforcement programmes. Information from these programmes must be cross referenced and firmly integrated into other preventative and emergency intervention strategies, and vice-versa, as part of an effective integrated risk management planning process. Put simply, fire & rescue authorities must develop clear and integrated prevention and emergency intervention community fire risk strategies.

Changing Risk

Risk is not a constant. It changes as a result of changes in society, and a number of distinct but ultimately interrelated factors. Historically town and city centres have been viewed essentially as commercial centres with a floating population. Once the normal working day was completed this population had returned in a steady commuting stream to the suburbs where they lived, leaving only property at risk from fire in the evenings and at weekends.

Whilst that may have been true in the past it is not true now. Today there are identifiable demographic population shifts back into town and city centres. These population shifts have been encouraged by the conversion of redundant commercial and industrial buildings into dwellings. Student residency fluctuations in town and city centres are also becoming more pronounced.

The regeneration of UK town and city centres has seen continued growth in 'entertainment outlets', increasing the

FBU Policy – Annual Conference 2000 – Emergency Resolution No 5 FIRE SAFETY ENFORCEMENT IN SCOTLAND

Conference views with great concern the publication of a consultation paper by the Scottish Executive Development Department called "Improving Building Standards" received in the Scottish Regional Office on 20th April 2000 from FBU Head Office. This document which may be well intentioned effectively opens up again the battle for ongoing enforcement of fire safety provisions in new and existing buildings which we last saw in 1994 with the interdepartmental review of fire safety Legislation and enforcement in the U.K.

The consultation paper in Scotland seeks to encourage respondents to transfer fire safety enforcement in all buildings from Fire Boards to Local Authorities.

Conference therefore instructs the Executive Council to resist this latest threat to our members' professional expertise and public safety by organising opposition to those parts of the consultation paper which we deem to be detrimental to our members and the public of Scotland.

LOTHIAN & BORDERS

dining and café culture that many European town and city centres already enjoy. This culture change in the UK has led to the redevelopment of many town and city centres into areas which are workplaces by day, and then become both residential and entertainment centres in the evenings and at weekends (often in high rise complexes or multipurpose complexes combining commercial and residential use). The simple assumption or categorisation of building risk in town or city centres and life risk in the suburbs can no longer be made.

Demographic changes of this nature are long-term in effect and this shift in risk has to be dealt with in part through the planning of long term fire safety measures relating to the design and construction of such buildings. From a fire & rescue perspective the effective application of building regulations and standards, and the maintenance of those standards becomes a crucial feature in planning for such changes, as is the determination of appropriate and risk-based emergency intervention standards.

EMERGENCY INTERVENTION ROAD TRAFFIC ACCIDENT

Firefighters were mobilised to a road traffic accident involving a trailer and a mini-bus which had been ferrying passengers to the nearby airport. Despite the severe and challenging working conditions, fire & rescue crews assisted by ambulance paramedics managed to extricate eight persons who survived the crash. There were 7 fatalities. **2003**

BOY STUCK IN MUD

A boy of 14 was stuck in mud for thirty minutes by the time an emergency call was made to Fire & Rescue Control. Three fire appliances, an Aerial Ladder Platform, an Incident Control Unit and a Major Incident Support Unit were mobilised. A Firefighter waded out to the child to reassure him and stave off hypothermia with warm clothing while colleagues deployed rescue equipment consisting of an inflatable walkway, sand lance, inflated hose and duck boards. The boy was quickly released by fire & rescue crews and was conveyed to hospital, where he made a full recovery. **2003**

AIRCRAFT CRASH

Firefighters (Control) received a call to a micro-light aircraft which had crashed in a field. The pilot was severely injured and trapped in the wreckage. Fire & rescue crews worked with paramedics to extricate the man, using the equipment and techniques routinely employed to free people from vehicles involved in road traffic accidents. The casualty's injuries demanded supreme care throughout the process of extrication in order to minimise the risk of permanent spinal damage. The casualty was conveyed to hospital by air ambulance. **2003**

New building materials and rapidly advancing construction technology will affect the fire safety of future buildings. An effective process will be required to ensure that these advances are both considered and tested in order that they do not introduce new and unsuspected fire hazards and risks. Fire safety research will need to be properly funded in order that it can develop cost effective solutions to new and complex fire safety problems.

Whilst population densities and flows are generally considered in the context of towns, cities and suburbs, rural areas also pose their own problems in terms of both expectations and risk. The Countryside Agency and the Local Government Association (LGA) conducted a survey in 2003 to assist authorities to take full account of rural issues in their policy development, scrutiny processes and service delivery arrangements. This process is termed 'rural proofing'. It aims to assess the impact a policy (such as a local integrated risk management plan) might have in rural areas. Where necessary such policies should make adjustments or compensations to reflect rural needs and circumstances. 'Community Safety' in rural communities features as one of the concerns identified as needing to be addressed in a local authority's policy.

A major conflicting pressure within the construction of integrated risk management plans arises from the primary requirement of an IRMP to consider measures aimed at reducing the risk of death and injury in fires, as opposed to measures required to reduce the risk to property.

Fire Precautions Act Circular 29, issued to fire & rescue authorities in January 2004, provides the latest guidance to authorities on the suggested priorities for their fire safety legislative inspection and enforcement programmes. The risk table in Fire Precautions Act Circular 29 – which is a crude indicator of the 'most-at-risk-building-types' in terms of life risk from fire – is in fact almost the reverse of a table (if there were one) showing the most at risk buildings in terms of potential fire losses. This risk analysis is of course because fire safety and building control legislation is aimed in the first instance, quite rightly, at the safety of the person, not property.

This situation however produces a potential conflict between two competing risk priorities for fire & rescue authorities. The latest school fire statistics are a clear example of these potentially conflicting priorities. Schools are identified in Fire Precautions Act Circular 29 as being a relatively low life risk in case of fire; however statistically (at present) they in fact pose a major property loss threat, mainly due to arson. The changing pattern of school arson, with an increasing number of fires being started deliberately during school hours, will almost inevitably change this risk analysis unless the trend is not only halted, but reversed.

A recent Press announcement by the biggest public building insurer, Zurich Municipal, says the annual number of large school fires, causing more than £100,000 of damage, has risen by 55%. Arson attacks in England, Wales and Scotland are damaging or destroying an average of 20 schools each week. There are other costs that are more difficult to quantify - such as the disruption to students preparing for exams and the destruction of pupil records or the loss of school work. The effect of a loss of a school on a local community is devastating. In addition to a clear focus on the saving of life, integrated risk management planning must be effective in first controlling and then reducing the risk to property.

The acceptance of new countries into the European Union and the assimilation of European immigrant workers into UK society will present new challenges for all areas of the UK which is growing increasingly cosmopolitan and ethnically diverse. Fire & rescue services will have to constantly review the effect of this increasing integration on risk in relation to their prevention and emergency intervention activities, and also its effect on their recruitment and retention polices.

Fire & rescue authorities must also now consider the effects of almost everything that they do upon wider crime and disorder issues. Crime and anti-social behaviour is a major problem for government and citizen alike. It has a major impact on the ability of the fire & rescue service to discharge

FBU Policy – Annual Conference 2000 Resolution 13 STAFFING LEVELS

This Conference recognises that increased workloads on all aspects of Fire Service statutory responsibilities are having a serious effect on the Health and Safety of our members. Therefore Conference demands that the Executive Council actively negotiates with our employers to increase all staffing levels in line with Conference policy.

WEST MIDLANDS

"Due to location, Cornwall has to rely on its own resources more than most Brigades. However the financial savings predicted in the IRMP for urban areas will only be made if the Fire & Rescue Authority accepts increased attendance times and reductions in crewing levels. This will cost lives." **Cornwall FBU**

FBU Policy – Annual Conference 1999 Resolution 29 – FIRE SAFETY

This Conference applauds the efforts to date, in campaigning that Fire Safety remains an integral function of all Local Authority Fire Brigades. We wish to press on the Labour Government the need for parliamentary time to be allotted for this legislation to be introduced. The introduction of a Fire Safety Commission is also sought, as it will lead to improvements in safety for everyone in the communities we serve. KENT

its two primary functions of prevention and emergency intervention. Arson and deliberate fire-raising are growing trends, as are attacks upon Firefighters whilst in the proper discharge of their duties. In developing integrated risk management plans the fire & rescue service must consider the effects of crime and disorder and consider what can be done to reduce the impact of these factors upon its day-to-day work and for the benefit of the communities it serves.

The problem of abandoned cars is one example of a potential crime and disorder issue. Whilst a number of fire & rescue authorities have successfully entered into local partnerships to reduce the impact of stolen and abandoned car fires, a further problem now looms which has the potential to increase this risk.

The End of Life Vehicles (ELV) Directive (2000/53/EC) is EU legislation that lays down measures which aim, as a first priority, at the prevention of waste from vehicles. In addition the Directive aims to increase the re-use, recycling and other forms of recovery of end-of-life vehicles and their components so as to reduce the disposal of waste. It also aims to improve the environmental performance of all the economic operators (including scrap-yards) directly involved in the treatment of end-of-life vehicles.

Part of the UK introduction of the Directive has been to licence authorised centres to 'take-back' and destroy end of life vehicles. Until 2007 there will be a charge for a vehicle owner wishing to dispose of an end-of-life vehicle. This cost will undoubtedly deter some from doing so.

As a result concern has been expressed over the effect of the End of Life Vehicle Regulations 2003 and Parliamentary Questions have been tabled on this matter. It is likely that until the free 'take-back' scheme for end-of-life vehicles comes into operation in 2007 there will continue to be an increase in the number of abandoned vehicles which are destroyed by fire in order to deliberately conceal the identity of the owner. Even after the introduction of the scheme, distances of travel to 'take-back' centres may deter their use.

At face value the wider 'statutory' emergency response role planned for UK fire & rescue services can be argued to be little more than a formalisation of the local emergency response arrangements that have been in place for many years. However non-fire emergencies continue to increase in both number and severity, and are making up a far larger proportion of fire & rescue services' emergency commitments. The risk-based premise intended for this statutory role

MAN TRAPPED IN CRANE

***An emergency call reported that a man was trapped midway up a crane after having fallen around 10 metres. Firefighters using rope-rescue techniques and a para-guard stretcher enabled ambulance crews to successfully remove the casualty. The casualty recovered from injuries to his neck, spine and legs. Fire & rescue crews received commendations for their efforts.* 2001**

presents serious planning challenges. Whilst former emergency responses were often considered to be almost 'good-will' in nature, statutory requirements increase the need for effective risk-based planning.

The Standard Operating Procedures (SOPs) which the fire & rescue service employs to deal effectively with emergency incidents also impinge on the integrated risk management planning process. These emergency procedures are based on minimising risk as far as reasonably practicable. Changes in risk and better understanding and appreciation of risk will undoubtedly necessitate changes in procedures and standards.

As an example the ODPM Buildings Division and the Building Regulations Advisory Committee have just commenced a review of Approved Document B (AD(B)) – Fire Safety 2000. AD(B) forms part of a suite of guidance documents on various subjects which are known as Approved Documents supporting the Building Regulations in England and Wales. AD(B) relates to the design of buildings in relation to fires in buildings. There are a number of recommendations in AD(B) relating to building design and the building's interaction/interface with fire & rescue service equipment and procedures that will be both identified and assessed during this process.

Similarly, the ODPM's Fire & Buildings Directorate and Her Majesty's Fire Service Inspectorate (HMFSI) have, for the first time, been involved in a series of physiological trials of Firefighters. These trials have tested the personal protective equipment, SOPs, and a number of assumptions made in Approved Document B. The number of lengths of charged hose that Firefighters wearing breathing apparatus are 'physically able' to drag into a building is one area covered in the trials. The outcomes of this research programme are likely to affect both Standard Operating Procedures and also the future design criteria for fire safety measures provided in buildings. Such building design criteria should aim to assist the fire and rescue service at emergency incidents.

The setting of local emergency response standards, as opposed to following standards that have been set nationally, introduces a further risk. Whilst the fire & rescue service has always potentially been at risk of liability claims as a result of 'procedural negligence', the shift to integrated risk management planning potentially increase the prospect for claims that the procedures themselves, or the number of Firefighters initially mobilised to carry out such procedures as part of an emergency response, were inadequate.

With regard to their employees, fire & rescue authorities will now have to consider the effects of their IRMP decisions in terms of the increased '*personal financial risk*' to which their

FBU Policy – Annual Conference 1996
Resolution 60
FIREWORKS

This Conference demands that the FBU join with other interested parties in organising for a total ban on the sale of fireworks to the general public, and that organised displays are only run by properly trained persons. **NORTH WALES (CLWYD)**

FBU Policy – Annual Conference 2000
Resolution 57
ASSAULTS ON FIREFIGHTERS

This Conference demands that the Executive Council raise, as a matter of urgency with the Home Office, the alarming increase in acts of violence towards Firefighters. **SOUTH YORKSHIRE.**
As amended by STRATHCLYDE

employees may be exposed as a result of local decisions. This consideration is in addition to consideration of the likelihood that 'inadequate' local procedures and emergency response standards may pose a risk of physical injury to their employees.

Where fire & rescue authorities proposes to move into new areas of emergency response work such as providing co-responding services for medical emergencies, the potential personal financial liabilities to which they are exposing their employees must be clearly understood. The exclusion of any rights to benefits under the Fireman's Pension Scheme for Firefighters injured during co-responding activities will need to be addressed, possibly by the authority underwriting those benefits in a separate insurance policy taken out by the authority itself on behalf of its employees.

In a similar manner the personal financial liabilities to which employees may be exposed as a result of a requirement to attend a terrorist attack type incident must also be addressed by fire & rescue authorities. The majority of current personal insurance policies linked to mortgages, and personal credit card insurances and the like, specifically exclude claims where the death of the policyholder has occurred as a result of acts of terrorism.

In simple terms this means that if Firefighters and/or Firefighters (Control) are killed at a 'terrorist' incident to which the fire & rescue authority has sent them, the financial livelihood of their family will potentially be threatened, even where personal insurances are held. This will be a double blow where a member of the family has already been lost.

Losses from fires can be far greater than simply the cost of re-building or re-stocking. It has been estimated by insurers that as many as 90% of businesses fail within twelve months of a major crisis such as a catastrophic fire. Business interruption costs pose perhaps the biggest threat to companies, and to the communities who rely on those companies for their livelihood. Community sustainability is a far wider factor that must be considered as part of effective integrated fire risk management planning. Government have recognised this factor by transferring the Building Division of the ODPM from the Fire and Buildings Directorate to the Sustainable Communities Directorate.

Risk and the Future

The planning template provided by the 1985 Standards of Fire Cover has now been superseded as a result of a shift in Government fire & rescue service policy. There are many potentially conflicting issues for those charged with providing more effective fire & rescue service delivery through the construction of local integrated risk management plans. However a newly emerging threat has the potential to overshadow the many other areas of risk that a local IRMP must address.

Following the attacks on New York and Washington on September 11 the fire and rescue service started developing a programme to ensure that the UK could cope with the aftermath of similar attacks on the UK mainland. This work has been termed 'New Dimension' (ND). The ND resilience programme consists of providing the fire & rescue service with the necessary equipment and training for both mass decontamination of the public and urban search and rescue.

The safety of fire & rescue service personnel will be fundamental to effective intervention in an ND incident. Any dilution in the safety management system will place personnel at risk. This will in turn cut across the *raison d'etre* of the service and the role which it will be expected to play in, for example, mass decontamination of the general public.

It has been acknowledged that within any incident where there are large numbers of people who have been contaminated by chemical, biological, radiological or nuclear material, there will be an element of panic, along with pain and suffering, dependent upon the nature of the contaminant. In a mass decontamination scenario, unless the public can be processed through the decontamination process quickly, delays could cause major public order problems at the site

EMERGENCY INTERVENTION – SUSPECT VEHICLE (BOMB THREAT)

Firefighters (Control) received a call requesting fire & rescue crews to stand-by whilst bomb disposal teams were attempting to diffuse a device in a suspect vehicle in a city centre on a busy Saturday morning. As crews were standing-by the device exploded. Firefighters assisted in the rescue of an unknown number of casualties; one person who was stranded some 25m above the ground was rescued by the crew of an aerial appliance. Searches of the city centre continued for many hours, with fire & rescue crews working in extremely hazardous conditions which were compounded by repeated warnings of secondary devices. Subsequent police investigations reported that the terrorist device had been the largest bomb on the mainland since WW II. **1996**

> *"The FBU in Northern Ireland remain fully supportive of real and meaningful modernisation, but we will not stand idly by if Integrated Risk Management Planning is unscrupulously used as a means to make immoral financial savings."* **Northern Ireland FBU**

of any attack, where people will be in a state of shock and panic.

There is a very high risk that members of the public may give vent to their panic on the fire & rescue service's first response. The emotional impact of extraordinary events and the effects on Firefighters of coping with extraordinary or special circumstances, coupled with the need to prepare the incident ground in readiness for the arrival of specialist units, will be severely hampered by traumatised members of the public. Without effective support from other emergency services, fire & rescue service personnel will be at greater risk of violence or threats of violence, both of which possess the potential to have significant psychological impact.

Proper account must be taken of the length of time fire & rescue service personnel will be tied up at an ND incident when authorities are constructing their local IRMPs. The planning arrangements for a regional and if necessary a national fire & rescue service response to such an incident are factors that must be considered locally. Proposals to introduce a UK wide helicopter fleet to transport fire & rescue service personnel to the site of an ND incident will undoubtedly introduce the need for additional training based on an assessment of the risks this proposal poses. Equally dealing with an ND incident has implications for the operational effectiveness of the fire & rescue service in dealing with other routine incidents which occur at the same time. Fires and other emergencies do not simply stop when there is a national scale incident. The King's Cross fire, a relatively small incident when compared to a potential ND scenario, took up almost the entire resources of the London Fire & Civil Defence Authority on the night of the fire. An ND incident could realistically tie up equipment and personnel for days, weeks and even months.

A major concern of frontline personnel is the view expressed by several brigades that normal fire cover will be 'suspended' in some areas while an ND incident is dealt with. A complication for local fire & rescue authorities has been that in providing the equipment assessed as necessary for ND type incidents and emergency response, the Government has not provided funding for commensurate staff levels. The obligation to reduce health and safety risk to "*as low as reasonably practicable*" (ALARP) has only been applied to ND equipment provision. ALARP does not appear in any Government guidelines to authorities for constructing IRMPs. Here 'local judgement' replaces the standard ALARP principle.

There is justifiable concern within Government and the security services over the likelihood of a high profile terrorist attack upon UK towns, cities or other strategic targets that will be designed to maximise damage and casualties. Such an attack will probably be planned to be delivered by persons who have little or no regard for the sanctity of life and are prepared to sacrifice their own lives for a cause that they deem warrants such a sacrifice. Any attack will potentially provoke a hostile response by elements of the ethnic majority upon some ethnic minority groups resident in British society.

Since the attack upon the World Trade Centre in New York on the 11th September 2002, and subsequent terrorist bombings and attacks around the world, the concerns of Government have once again become focused upon the spectre of unrestricted attacks upon civilian targets. As in 1939 the UK fire & rescue service will be in the forefront of dealing with such an event.

Picture courtesy of the Press Association

Picture courtesy of Merseyside Fire & Rescue Service / Chris Phillips

Integrated Risk Management Plans are plans for determining future fire & rescue service activity aimed at keeping people safe from fire and other emergencies, and protecting property, heritage and the environment. **Effective integrated risk management planning** requires the correct balance to be struck between Prevention and Intervention. To achieve this it is necessary to have a clear understanding of the basic philosophies of risk management (i.e. risk assessment and risk control), and how these philosophies apply to the UK fire & rescue service's widening fire protection role.

A variety of fire & rescue service strategies can be employed to reduce risk to the community in general. However these strategies can be broadly grouped under two headings – Prevention and Emergency Intervention.

Prevention

In terms of attempting to reduce risk from fire through a strategic fire safety approach, prevention aims to reduce the number of fires that actually occur, whilst at the same time providing a minimum standard of protection in those cases where a fire does occur.

Currently property protection from fire does not feature in the 'statutory' elements of prevention. Property protection from fire is a secondary and non-statutory issue which relies on the influence of the protection provided for people. Put simply, in protecting people you will as a consequence provide a degree of protection to property.

This position may however change in the not too distant future as the Government is currently considering the Sustainable and Secure Buildings Bill. Should this Bill become an Act, it will serve to amend the Building Act 1984 to provide for an element of property protection from crime

"The Isle of Wight Fire & Rescue Authority intend to reduce the crewing levels at the only wholetime fire station on the Island, in an attempt to resource Community Fire Safety. They have recognised that additional resources are needed, but won't invest in them." **Isle of Wight FBU**

FBU Policy – Annual Conference 1999
Resolution 39
COMMUNITY FIRE SAFETY

Following the success of Community Fire Safety, Conference demands that this must not result in the reduction of Local Authority, Standard Spending Assessment or Grant Aided Expenditure, but should result in increased funding from the Government to maintain the effectiveness of both the firefighting and fire safety arms of the Fire Service in the United Kingdom. GLOUCESTERSHIRE
As amended by FIFE & LONDON

and to improve the sustainability of buildings. However whether this principle of protecting property will be extended to encompass fire protection issues remains to be seen.

Preventative strategies relating to fire matters cover the key areas of:

- Community Fire Safety (CFS);
- Consumer Safety;
- Statutory Fire Safety & Fire Law Enforcement;
- Building Regulations & Standards; *and*
- Arson Control.

Successful preventative strategies are both resource dependent and resource intensive. Prevention strategies which are statutorily based also require a high degree of training, technical expertise and skill for and from the personnel who administer and deliver them on behalf of their enforcing authorities. Such strategies can be long-term in nature, and as such effective prevention has long term implications for fire & rescue authorities. Individual strategies cannot be viewed in isolation. The reality is that achieving lasting success in any one of these areas is dependent on all other areas.

Emergency Intervention

Effective emergency intervention strategies support effective prevention strategies. They must also recognise and support statutory health & safety duties. Intervention cannot be viewed as an alternative to prevention, in the same way that prevention cannot be viewed as an alternative to emergency intervention.

Effective intervention involves effective planning of emergency response strategies in support of preventative strategies and aimed at minimising the risk to the community and the risk faced by Firefighters who attend incidents as part of an emergency response.

As Safe As Houses?

In 1990, and in response to a series of multi-casualty fatal fires that had occurred in dwellings in the late 1980's, the Fire Brigades Union produced a discussion document entitled '*As Safe As Houses*'.

The document predated by many years not only the integrated risk management planning system, but also the Audit Commission Report which recommended the shift to risk-based fire cover planning.

As Safe As Houses set out what was arguably the first systematic, risk-based methodology aimed at reducing/controlling risk from fire. The document was constructed around a series of philosophies relating to the key factors in preventing future fire deaths in the home environment, hence its title. These philosophies relate directly to the preventative and emergency intervention elements of an effective integrated risk management plan. The document was aimed primarily at domestic dwelling or home fire safety and so did not include reference to the key area of fire law enforcement.

PHILOSOPHY 1

Prevention is Better than Cure – Community Fire Safety & Arson Control

The philosophy that prevention is better than cure places almost total reliance on meeting the fire safety educational needs of society in this respect.

For this philosophy to succeed the population in general, and in particular those groups identified as being most at risk from fire, must be aware of those risks. They must be able to identify the problems that cause fires and fire fatalities, particularly in the home. They must understand how to remedy such problems, and importantly they

must be committed and able to remedy the problems. This is best achieved through direct contact with the fire & rescue service, and direct involvement with local authorities and local communities, government bodies and voluntary/charitable groups.

UK Fire Statistics consistently show that the groups most at risk from dying in a fire are the very old and the very young. Additionally fire deaths disproportionately affect the 'socially disadvantaged' sectors of UK society bands. The two most at risk age groups – the young and the old – are very much in the hands of third parties in relation to their fire safety. The very young will presumably be in the care of adults, normally their parents/guardians. At the other end of the spectrum the very old may not be able to comprehend or indeed afford the fire safety measures suggested in any fire safety education programme.

It makes little sense to educate a person of whatever age to identify a problem if they are unable to remedy it because of a lack of independent control over their lives, a lack of understanding, or a lack of finance.

Picture courtesy of Firepix International

No matter how 'fire-aware' the young may be through the educational process at school, if their parents/guardians remain unconvinced of the teaching or possibly even unaware of it, then the time spent on educating the child could almost be considered to have been wasted. Children live what they learn, and particularly what they learn as a result of the example set by their parents/guardians in the home. To be effective across all socio-economic groups, particularly those identified as being most at risk from fire, Community Fire Safety (CFS) strategies must where possible target children at the same time as their parents/guardians. This can be achieved if fire safety education through schools actually encourages parents/guardians to become involved with their children in joint fire safety awareness programmes.

EMERGENCY INTERVENTION WARDEN CONTROLLED PREMISES

Firefighters (Control) received a call to a fire in storage heater. The fire was in a warden controlled premises but the warden was not in attendance. When fire & rescue crews arrived they discovered that the building was smoke-logged. Firefighters wearing breathing apparatus rescued one bedridden occupant who was treated for smoke inhalation. **2004**

At the opposite end of the spectrum, it is of little practical use to tell a pensioner that their heating apparatus is potentially dangerous if they are then left with a choice – as a result of lack of finance – of either not heating their home or possibly being killed in a fire. Linked very closely to the educational process for the elderly is the need for a properly funded aid programme involving both central and local government departments, and voluntary/charitable groups.

Since the FBU published the above philosophy in 1990, the Government has recognised the need for Community Fire Safety to be driven from the centre. It has entered into a number of major community safety initiatives, including publishing its own community safety strategy document *'Safe As Houses'* (the FBU Document was entitled *'As Safe As Houses'*) and creating the National Community Fire Safety Centre. It is about to place a duty upon all fire & rescue authorities in England and Wales, through the proposed Fire and Rescue Services Bill, to undertake community fire safety programmes.

Community Fire Safety education is not the panacea for all fire safety problems. It provides no 'quick-fix' solution for reducing deaths and injuries from fire. CFS is undoubtedly important fire safety work, but to achieve maximum effect it must first be carefully targeted on the most vulnerable.

Personnel delivering CFS must be well trained and confident in both their abilities and limitations. Whilst organised leaflet drops have the potential to hit large proportions of the community relatively easily, direct contact with the fire & rescue service through CFS initiatives will always be central to lasting success.

Arson Control

Arson Control programmes are relatively new in fire & rescue service terms, and have only really been viewed as a national issue since 2001. As with CFS programmes, arson reduction programmes must be developed as part of an overall strategic community safety plan which identifies and develops local tactical initiatives to deal with the growing problem of arson and deliberate fire-raising.

These two programmes are inextricably linked and cannot be separated. It is clear statistically that those areas where CFS programmes are needed because of poverty and social disaffection are exactly the same areas where crime and arson control measures are needed.

In April 2001 the government created the Arson Control Forum (ACF) to lead the national drive against arson in all its many forms. The work of the group has been linked with other legislation which the Government has introduced such as the Crime and Disorder Act 1998 (as amended), which places fire & rescue authorities under a statutory duty to consider the effects of their day to day work upon crime prevention issues.

The ACF has launched a number of initiatives to reduce the crime of arson. These are however likely to be long term measures that may not demonstrate a safety return for some years. To date, the work of the Arson Control Forum has not produced any notable successes in driving down arson related fire levels, although this lack of success is also in all probability related to issues which are not necessarily caught within the ACF's remit.

"IRMPs are a real opportunity to increase the safety of both public and Firefighters alike and it would be absurd if any future plans suggest a decrease in prevention or intervention resources." **Gloucestershire FBU**

EMERGENCY INTERVENTION FLAT FIRE

Firefighters (Control) received a call to a fire in a second-floor flat. On arrival at the incident fire & rescue crews found that two people had already jumped from a window and multiple persons were still in the building. Firefighters rescued two residents from the second floor by ladder and led a further three residents to safety. In total five people were taken to hospital. One man died as a result of his injuries. **2004**

FIRE INVOLVING LIFT RESCUE

Fire & Rescue Control received a call to a person trapped in a lift. When Firefighters arrived at the incident they found smoke issuing from the building. An armchair had been deliberately set on fire adjacent to the lift, and had trapped a disabled man who was in the lift. The man had made the emergency call on his mobile phone. He was rescued by Firefighters and treated on the scene before being transported to hospital. The man survived. **2004**

Arson is not purely a fire & rescue service issue and must be approached in a fully developed partnership approach flowing from a comprehensive and strategic plan. One of the main problems for the ACF is that it operates in a vacuum caused almost entirely by the method of its creation and the lack of any common agenda with the other fire safety groups operating at a national level. The ACF must become far more integrated into main stream community safety planning under the common title of fire prevention.

In the same way, and in order to achieve lasting success at a local level, the problem of arson must be integrated with other local fire & rescue service and crime prevention initiatives and fully resourced accordingly.

PHILOSOPHY 2

Detection – Community Fire Safety

Secondly, the philosophy that if the educational and preventative measures fail and a fire occurs it should be identified or detected early enough for the occupants of the dwelling to be alerted, and to respond to the warning and escape with minimal risk to themselves.

This philosophy is based on an assumption that both the education programme and the subsequent measures put in place to prevent fires occurring will one day fail and a fire will occur. The fire must be detected at a very early stage in its growth by an electronic device which will sound an alarm and give the occupants adequate time to respond and escape before their escape routes are rendered impassable.

Picture courtesy of Firepix International

This is the smoke and/or heat detector option. However the detector/alarm merely identifies that a critical situation is occurring and attempts to warn the occupants of the premises of the situation. In short it buys the occupants time – nothing more.

Should the occupants not hear the alarm, or make proper use of the time, or be physically unable to make use of the time that the detector/alarm has bought them, they are likely to be no better off in real terms than somebody who has not had the benefit of an early warning.

The success of the detection option revolves around the system being correctly planned, sited and maintained (particularly in single dwellings), and on the mental and physical well being or attributes of the person(s) receiving the early warning. If those individuals, due to age or physical/mental infirmity, or incapacity through for instance drink or drugs, are unable to react promptly and properly then the detection option will have failed. Additionally in the case of the most at risk age groups, the old and the young, the technology must serve not only to warn them but also to warn the carers, neighbours or any other person or group able to render rapid assistance.

Detection systems utilising the domestic electricity supply are available which reduce the need for maintenance and to an extent the need for battery replacement, however they are more expensive to fit than a battery operated smoke/heat detector and alarm. In recent years the Building Regulations in England, Northern Ireland and Wales and the Building Standards in Scotland have been amended to require all new and extended domestic buildings to be fitted with permanently wired and interlinked smoke detectors. This is clearly a long term fire safety strategy, but one which is already beginning to bear 'statistical' fruit.

The reality remains however that the groups most at risk from fire are the socially disadvantaged and the elderly, and these are the very groups least likely to own their own homes. There is a clear need to continue to develop strategies which target these groups for the fitting of smoke alarms, and to provide them with one if they cannot afford to do so. In the final analysis the fire detection philosophy, which is a relatively low cost option and easily put into place, must be carefully exploited by the fire & rescue service to the advantage of those who are most likely to benefit from it.

PHILOSOPHY 3

Reduce the Fire Load – Consumer Safety

Thirdly, the philosophy that by reducing the fire load and flammability of contents and structure, the ability for a fire to grow and spread rapidly to the point where it poses an immediate risk to life is significantly reduced.

This requires a two-fold approach involving central Government; firstly to legislate effectively to achieve a reduction in the ignitability and flammability of household contents, e.g. furnishings and bedding, and secondly, to legislate to ensure that in new build or extended/altered domestic property the structure of the premises is such that it will neither take or spread fire easily and will not therefore collapse prematurely.

Responsibility for consumer fire safety rests with the Department of Trade and Industry (DTI) who oversee a number of consumer protection fire safety regulations. These relate to the sale of fireworks, foam filled furnishings and the flammability of children's nightwear.

Consumer safety matters, as with many statutes relating to fire safety issues, are extremely long term investments in fire safety. In the case of the Furniture and Furnishings (Fire) (Safety) Regulations 1988 it took 10 years for them to demonstrate their effectiveness in reducing fires and deaths and injuries from fires involving foam filled furnishings. It is necessary therefore for a close relationship to be maintained between the Government department with responsibility for the fire & rescue service and the Government department with responsibility for consumer fire safety. This relationship is necessary to both monitor what exists now and to plan for future regulation.

FBU Policy – Annual Conference 1994
Resolution 76 – HEALTH AND SAFETY
Conference condemns the failure of the Fire Service at almost all levels to respond positively to the challenge of new Health and Safety Regulations. Conference demands that the Fire Service implements appropriate and systematic risk assessments, with proper levels of consultation, guidance and training. Conference declares that unless sufficient progress is made on this matter by Conference 1995 then progressive sanctions will be applied against appropriate activities not subjected to agreed risk assessments. **DEVON**

EMERGENCY INTERVENTION
FLAT FIRE
An emergency call was received for a fire in a seventh-floor flat. Six fire appliances and more than 30 Firefighters fought the blaze, which gutted the property. One man was taken to hospital with burns and more than 100 residents had to be evacuated.
2004

The philosophy does not address the 'at risk' groups in the lower socio-economic groups of our society who are likely to live in sub-standard or older accommodation and are not likely to be able to afford the new generation of fire retardant furnishings. Recently the effectiveness of these Regulations has also been threatened by illegal furniture imports from Eastern Europe and door to door selling of unsafe furniture. As a result, Ministers at the Department of Trade and Industry held meetings with representatives of HM Customs and Excise, Trading Standards Departments and fire service groups to discuss the issue.

The Government have legislated to prevent the second hand sale of the older non fire retardant furnishings, and plan greater enforcement activity against the sales of such furniture. However with the entry into the EU of some of the countries producing such furnishings it is likely that this trade will still continue and people will therefore remain at risk simply because of their economic circumstances or reduced purchasing power.

The second approach is for central Government to actively support local authorities and private landlords in measures to upgrade their domestic stock/property to meet both current building regulation standards and power supply supplier standards. For private domestic occupiers, particularly the elderly, a similar grant facility should be made via the local authority as is currently done with property insulation for energy conservation purposes.

PHILOSOPHY 4

Fire Containment – Statutory Fire Safety and Building Regulations

Fourthly, the philosophy that at some time there will be a failure of the first three philosophies either partially or totally. A fire will occur and will pose a grave danger to the lives of occupants. Such a fire must be confined to a predicted area for a defined timescale during which the occupants can make their escape. During this

"IRMPs are meant to be open, honest and transparent. It's a pity East Sussex Fire & Rescue Authority didn't read the script. Perhaps they will listen to their Chief Officer who says their draft IRMP will increase risk to the public and reduce Firefighter safety." **East Sussex FBU**

period neither the escape routes nor the building must suffer premature collapse.

This philosophy can be best summed up as the containment of a fire to a predicted area by the use of fire resisting walls, floors, ceilings and doors. As such it is heavily dependent upon the structure of the premises being both able to meet the criteria required to achieve the design performance, and being maintained at that level.

Legislative Fire Safety Enforcement

Fire & rescue authorities in the UK have been involved in fire safety enforcement in the workplace since the introduction of the Factories Act 1961. In that time and through their efforts they have ensured that deaths and injuries due to fire in the workplace, other than those for which an industrial or commercial process is responsible, have been reduced to the point where they rarely feature in workplace injury statistics.

Fires do still occur in the workplace, but fortunately, and due to the enforcement efforts of fire & rescue authorities and the Health & Safety Executive, these fires are at a minimum. Despite this success rate fire safety enforcement programmes have been gradually reduced throughout the service in order to switch resources to Community Fire Safety programmes.

The Regulatory Reform Order (RRO) **(Section 1 page 8)** offers one of the most significant advances in fire safety legislation for over 30 years, and certainly since the advent of the Fire Precautions Act in 1971. The RRO will aim to consolidate in one piece of fire safety legislation, and under one enforcing authority – the fire & rescue authority – the many strands of fire safety legislation contained in numerous different fire safety statutes.

The RRO and the recently issued Fire Precautions Act – Circular 29 (advice on planning fire safety legislative inspection and enforcement programmes) gives fire & rescue authorities the opportunity to write their own fire safety intervention and enforcement programmes. However in order to support the wider prevention role of the fire & rescue service these programmes must be based upon accurate statistical data capture and interrogation. This will enable effective risk reduction through accurate targeting of resources.

Fire safety intervention and enforcement programmes need to be fully integrated into the overall IRMP planning process as part of a complete preventative strategy. Unfortunately, Fire Precautions Act Circular 29 gives limited advice upon this issue. The advice is based solely upon life safety risks, to the potential exclusion of property safety measures. The Circular sets no performance benchmarks for fire & rescue authorities.

In terms of securing risks at their present levels and reducing or driving down fire risks wherever possible in a non-domestic situation, only the RRO offers fire & rescue authorities the statutory 'teeth' to do this. However one remarkable omission from the RRO is that of any duty to be placed upon fire & rescue authorities to develop and publish a fire safety enforcement strategy. In fact there are currently no proposals to measure or 'prove' the success or otherwise of the legislative fire safety efforts of fire & rescue authorities.

Crown Premises

Crown Premises 'immunity' places an artificial barrier in the way of a common fire safety strategy, or indeed, a common health and safety strategy across the UK. In terms of Crown Premises and Crown Immunity there really is no longer any justifiable reason for not abandoning this concept. The problem of who should assume ultimate responsibility if

EMERGENCY INTERVENTION - ALARM SOUNDING

A caller on a mobile phone contacted Fire & Rescue Control and stated that they could hear a fire alarm operating in a house. Firefighters (Control) mobilised two fire appliances and an Aerial Ladder Platform to the emergency call. The first fire & rescue crews to arrive at the fire were confronted with a scene of panic. Two residents were on the sill ready to jump; one of them had attached a line to themself. The fire was in a multi-occupancy house on 3 floors. Numerous persons were reported as being trapped in the building. Firefighters rescued six persons from the third floor. Ten persons and one dog were rescued via ladders; fourteen were led to safety by foot. In total 6 people were injured and 4 were taken to hospital. There were no fatalities. **2003**

Crown Immunity is withdrawn has apparently proved the main stumbling factor for the Government in this respect.

At present fire & rescue authorities are only asked to 'be aware' of the contribution that Crown Inspectors can make to their IRMP plans. However, in authority areas which have large areas of Crown Premises and may have Defence Fire Service appliances and personnel forming part of their existing overall emergency response arrangements there is a clear necessity for a far higher level of consultation than a simple chat with the local Crown Inspector.

If the situation of this artificial demarcation of safety responsibility persists then fire & rescue authorities that have Crown Premises and MoD premises within their area will need to have a close relationship with both the Defence Fire Services (DFS) and the Crown Premises Inspection Group (CPIG). The Government will also need to establish a clear relationship between the DFS, CPIG and Fire & Rescue Authorities at a national level.

The Building Regulations and Building Standards

The Building Regulations in England, Northern Ireland and Wales and the Building Standards in Scotland have had a substantial and identifiable long term influence upon the risk of fire, the development and spread of fire, and the safety of Firefighters. They offer a long term solution to many fire safety problems in terms of the built environment and the construction of buildings. They are an extremely important, but often overlooked, fire safety factor.

When this option is properly implemented it can provide significant levels of long term protection to occupants from fires that occur in another part of the premises. However, it is entirely dependent on occupiers not downgrading those measures provided, and also understanding that such measures will not necessarily protect them from a fire that occurs in the same room as they are.

The advice that fire & rescue authorities give under a Building Regulations or Building Standards consultation must be pertinent, accurate and most importantly, pragmatic and based upon reliable data. Local level advice and negotiations, important as they are, revolve around the Building Regulations/Standards as they are written and the duties that they impose.

Whilst it is undoubtedly important that at a local level the relationship between the fire & rescue service and the Building Regulations bodies is maintained and developed, it is equally important that the relationship at a national level is maintained within the ODPM so that the lessons learned at a local level can be transferred to the national level.

FBU Policy – Annual Conference 1995
Resolution 54 – RISK ASSESSMENT
Conference demands that a national standard be agreed and adopted by the CFBAC Committees in Risk Assessment, to ensure the health, safety and welfare of our members. **STAFFORDSHIRE**

The proposed review of the Building Regulations in 2004 offers the most significant opportunity in decades for a real and proper review of building fire safety in the light of current knowledge and experience. The Building Regulations and Building Standards, linked to Community Fire Safety, arson reduction, consumer fire safety and fire & rescue service legislative inspection and enforcement programmes are all parts of an overall preventative strategy and must be seen and developed as such.

PHILOSOPHY 5

Fire Suppression & Extinguishment – Community Fire Safety, Statutory Fire Safety and Building Regulations

The fifth philosophy offers two possible variations; that either a fire will occur and the dwelling is fitted with automatic fire suppression measures that will rapidly detect the fire in its incipient stages and then suppress and/or extinguish it so that the immediate risk to life is removed, or, the fire will be detected by the occupant who will then use a fire extinguisher themselves to suppress or extinguish it.

Sprinkler Systems

The first variation on this philosophy is not particularly new but has come to the forefront recently due to technological advances in domestic sprinkler installations. The new build property is fitted with a domestic sprinkler system working from the town mains water supply or, the existing property is retro-fitted with such a system.

The system would be capable of detecting a fire anywhere in the premises by the heat generated in its incipient stages. The system would then sound an audible alarm and deliver a fire suppression agent (e.g. water) on to the fire to suppress or extinguish it whilst the occupants make their escape.

"It seems that the Cleveland Fire & Rescue Authority are content to use the IRMP process as a means for achieving planned cuts, rather than a real opportunity to save life and take the service forward to improve both public and Firefighter safety." **Cleveland FBU**

Whereas the second philosophy (detection) was potentially flawed by the fact that it only served to warn the occupants, and the third and fourth philosophies (reducing fire load & fire containment) were both costly and long term in effect whilst not necessarily protecting the person in the room where the fire originated, the sprinkler philosophy offers on the surface a fairly low cost alternative whilst providing a significant degree of fire safety.

FBU Policy – Annual Conference 2002
Resolution 32
DOMESTIC SPRINKLERS

This Conference calls on the Executive Council to bring forward through the Central Fire Brigades Advisory Council changes in building regulations to make it a requirement of all new residential builds that domestic sprinkler systems be installed.
CORNWALL
As amended by WEST YORKSHIRE & DEVON

However, it does not offer complete safety from fire because like most mechanical devices (which in the end analysis is what it is) it is dependent upon being maintained properly and not being abused by the occupants or their agents. It must also be protected from the effects of the weather and/or the failure of the domestic water supply, and to prevent accidental operation the rating of the sprinkler heads has to be set at a relatively high temperature.

Nonetheless this method of protecting the occupants of domestic premises from the results of their own or some other agency's folly has much to commend it. As with all the other preventative strategies however it is entirely dependent upon the financial resources being made available to implement and fund such programmes.

Since the sprinkler philosophy was first published in 1990 there has been a substantially developing interest in domestic and residential sprinklers as fire safety measures. The vision of the FBU and others in recognising the potential of domestic and residential sprinklers appears to have been fully vindicated. More and more domestic and residential sprinkler systems are now being fitted, often as a relaxation measure agreed with local fire & rescue authorities for Building Regulations and Standards.

The use of such systems is now being actively promoted, with fire & rescue authorities often leading on the use of them. The pressure on the Government to introduce building regulations that require the use of domestic or residential sprinklers is growing. It is likely that there will be further recommendations for their use following the current review of Approved Document (B) of the Building Regulations. The Office of the Deputy Prime Minister (ODPM) has also sponsored a research programme at the Building Research Establishment into the effectiveness of residential sprinklers. The results of this research programme have confirmed the fact that these systems do constitute an extremely viable life saving fire safety measure.

Statistical evidence of the effectiveness of domestic and residential fire sprinkler systems is already beginning to register. The latest available information relates to calendar year 2002 and is still provisional. However in that year, fire and rescue services in the UK attended 22 fires in dwellings equipped with water sprinklers. There were no deaths reported. In the same period, there were 64,613 fires in dwellings not equipped with water sprinklers, and 443 deaths.

Fire Extinguishers

The second variation on this philosophy is one where the occupants detect a fire and then extinguish it with a fire extinguishing agent. To be effective this approach depends entirely upon the ability and knowledge of the occupant in using the appropriate fire extinguisher properly, effectively and in time whilst not jeopardising their own safety. This is often easier said than done and as such this approach can only really apply to the adult middle age range group occupant.

The cost of portable fire extinguishers has fallen and their availability to the person in the street has improved dramatically, so much so that they can now be readily purchased from most DIY retailers. As a result more and more house owners are purchasing portable fire extinguishers for their own protection.

To be effective portable fire extinguishers must be purchased in conjunction with an automatic fire detector and alarm so that the occupant is in the position of dealing with a fire that is in its earliest stages of growth. Fire extinguishers are designed purely to deal with fires in their earliest stages; at the point when a fire is small and can be safely tackled, and not when it has reached or is reaching major proportions.

The FBU would not wish to appear to discourage people from providing a fire extinguisher in their home, but we would urge that they ensure that they are buying the correct type and capacity extinguisher for their home and the associated fire risks within it, and secondly that they know how to use it and when not to use it.

A Summary of the Philosophical Approach

It is clear that as a strategy prevention has to be viewed and developed in the broadest context and in conjunction with an extremely wide range of organisations and bodies. Not all prevention issues can be dealt with solely by the fire & rescue service. Whilst the service may identify a fire safety problem, the ability to resolve that problem may not rest with them, but with other local authority and national government service providers and associated groups, including charitable groups.

EMERGENCY INTERVENTION – FLAT FIRE

Fire & Rescue Control received a call from a member of the public to an alarm sounding in a flat. Two fire appliances were mobilised. The building was some distance from the nearest access point for the fire appliances and up a steep bank. The fire & rescue Incident Commander and a Breathing Apparatus team proceeded on foot to investigate whilst a second crew fed a hose reel up the bank. A strong smell of burning was apparent at the flat and smoke could be seen through the letter box. The BA team forced an entry and one person was rescued. **2004**

The 2002/3 British Crime Survey (BCS) estimates that the statistics produced by the Fire Research and Statistics Division of the Office of the Deputy Prime Minister (compiled from returns submitted to them by fire & rescue services) only actually represent 22% of all fires that occur annually.

This estimate indicates a very high near-miss ratio of total fire incidents compared to fire incidents actually identified. Put simply, according to the British Crime Survey the fire & rescue services in England and Wales are only dealing with the tip of a very large iceberg.

The 78% of fires which are not identified in the annual fire statistics, coupled with the 22% that are, emphasise the current limited effect that education has in preventing fires occurring in the first instance. It is clear that additional resources must be employed and targeted effectively in the area of Community Fire Safety for this strategy to begin to realise its true potential.

A closer examination of fires affecting one at-risk group gives further cause for concern over adopting a purely philosophical approach to prevention. Fires in care homes have attracted substantial publicity recently as a result of the fatal fires at the Rosepark Care Home in Lanarkshire and the Old Rectory Residential Care Home in Pembrokeshire. However these tragic incidents aside, between 1997 and 2002 there were 935, 940, 1041, 851, 738 and 780 fires respectively each year in care homes for elderly people in England alone.

This level of fires has occurred despite the perceived intrinsic 'fire-safety' of these premises. A further major concern is the dramatic fluctuations over this period by brigade for fires in these premises, with only two fire & rescue authorities being able to demonstrate a progressive year by year fall in these types of incidents.

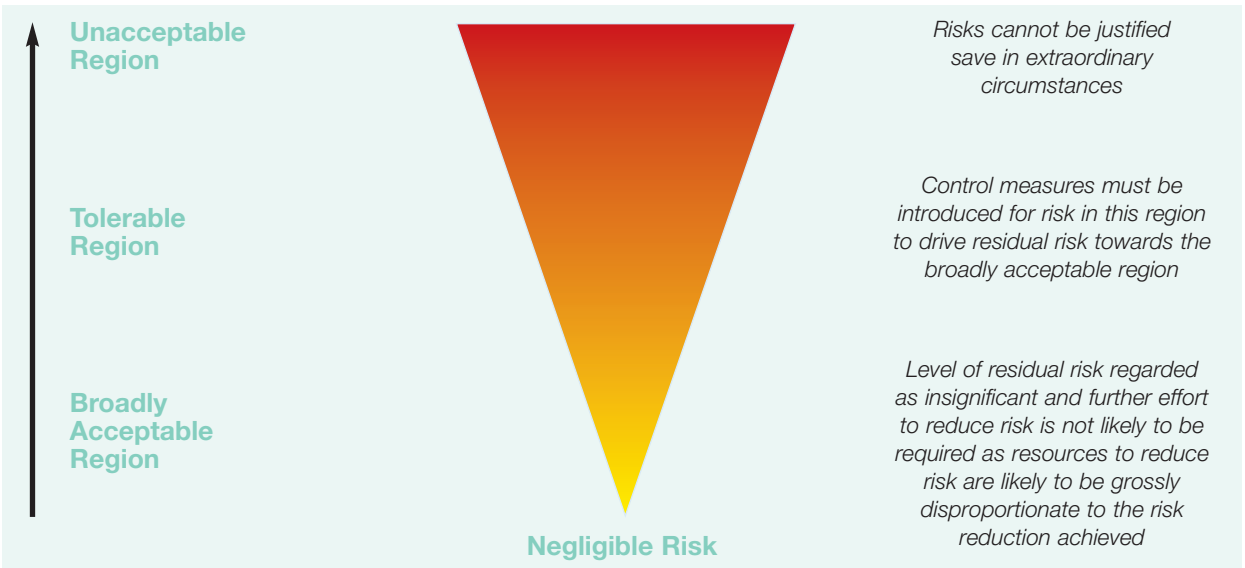
Because none of the fire prevention philosophies, even when integrated successfully, guarantees 100% fire safety for the householder, occupier or property, successful emergency intervention by the fire & rescue service to save life and property remains a critical factor in effective integrated risk management planning.

The Management of Health & Safety at Work Regulations (MHSAW)

The Management of Health and Safety at Work Regulations 1999 (as amended) set out the responsibilities that an organisation carries to manage the risks to its employees and others resulting from their activities. There is a legal requirement to risk assess all operations to ensure that the risks are first of all understood, and then eliminated or reduced. Any residual risk must then be managed to ensure that risks are effectively reduced to As Low As Reasonably Practicable (ALARP).

***Risk* is defined as the product of the *likelihood* of an event occurring and the *consequences* should that event occur.**

The Health & Safety Executive has developed an approach for helping to determine the acceptability of risk. This approach is known as the 'Tolerability of Risk' (ToR) framework. The ToR framework sets out criteria for determining whether risk is broadly acceptable, tolerable or unacceptable. The Tolerability of Risk framework delineates these three regions of risk, as shown below.



"Strathclyde FBU welcome the change to emergency cover planning based on life-risk, and greater emphasis on preventative strategies. However preventative initiatives must not be introduced to the detriment of frontline emergency cover." **Strathclyde FBU**

EMERGENCY INTERVENTION PROPERTY FIRE

Firefighters (Control) received an emergency call for a roof on fire. On arrival fire & rescue crews discovered that both the first floor and the roof were well alight, with a real danger that the fire could spread to adjacent properties. The fire spread had forced one person onto the roof from where he was rescued. One casualty who was rescued by Firefighters was treated for smoke inhalation and another was taken to hospital by air ambulance.

2004

If something is very likely to happen, and the consequences are predicted as being very bad if it should happen, then the risk can be considered to be unacceptable (or intolerable). Alternatively if something is unlikely to happen, and even if it should happen the consequences are not predicted as being serious, then the risk may be considered to be broadly acceptable (or even negligible).

Between these extremes is a region where the risk is tolerable, but attempts should be made to reduce it to a level that is *'As Low As Reasonably Practicable'* (ALARP).

How does Risk Management Work?

Risk Management is a systematic process which aims to predict the future. Having predicted how 'risky' the future looks, this process then seeks to determine the measures that are necessary to reduce the predicted risk to a level that is acceptable.

Having predicted what is **likely to happen** from the risk assessment, it is necessary to look at **what else can be done** to lower that prediction. Where risks can be lowered or **'managed'** using **'control measures'** that are available at a reasonable cost, these control measures should then be applied.

Predicting the future is not (indeed cannot be) an exact science in all but the simplest of situations i.e. if a pencil is dropped it can be predicted with almost 100% certainty that it will fall to the ground due to basic knowledge of the effect of gravity.

Many risk assessments use a numerical assessment **(Quantitative Assessment)** to determine risk levels and if they are too high. Even before the introduction of the MHSAW Regulations, the 1985 Standards of Fire Cover followed a risk assessment methodology using a simple points formula in an attempt to determine and control risk to property from fire.

Under the 1985 Standards property was graded into different areas according to the results of a numerical assessment of risk. Points were awarded to buildings based on their construction, the number of floors they had, how close they were to other buildings, and what they were used for.

The points were then added up and the resulting total score was used to determine the risk category for an area. A-risk was the highest risk category, followed by B-risk, C-risk, D-risk and Remote-rural risk.

The predicted risk in each area was then managed (or controlled) by assigning different emergency responses to these different risk areas. A larger and faster emergency response was assigned to higher risk areas and a smaller and slower emergency response was assigned to lower risk areas.

Integrated Risk Management Plans & Risk Assessment

Integrated Risk Management Plans are risk assessments and their associated control measures on a massive scale. They have to take into account numerous factors, many of which may appear to conflict with one another. However in the final analysis an IRMP attempts to predict the future in exactly the same way that any risk assessment attempts to predict the future and how to respond to it. The primary risk to be managed by the fire & rescue service i.e. fire, can be reduced by a combination of:

Preventative Strategies – which aim to reduce the probability of exposure to the hazard (the fire) or to protect against the effects of exposure to the hazard;

- Community Fire Safety (CFS);
- Consumer Safety;
- Statutory Fire Safety & Fire Law Enforcement;
- Building Regulations & Standards;
- Arson Control.

and

Emergency Intervention Strategies – which aim to reduce the consequence of exposure to the hazard.

The Risk Management process involves a number of stages:

- Identification of hazards;
- Analysis of relevant data and information;
- Assessment of the risk of the adverse event occurring;
- Identification of control measures;
- Implementation of the selected control measures.

FBU Policy – Annual Conference 1996 Resolution 40 – ASSAULTS

Due to the ever increasing assaults on our members this Conference demands that the Executive Council pursue with Employers/Home Office nationally better and non-confrontational equipment, procedures and systems of protection for Firefighters from physical assault in the course of their duties, and in particular, Regional and Brigade Officials shall seek to reinforce through the local news media our policy on neutrality in regard to civil disturbances and reaffirm to the General Public that the role of the Fire Service is purely humanitarian and not that of law enforcement.
HUMBERSIDE. As amended by WEST YORKSHIRE, CLEVELAND and TYNE & WEAR

EMERGENCY INTERVENTION
AFA via CALL HANDLING CENTRE

Firefighters were mobilised to an Automatic Fire Alarm operating in a school in the early hours of the morning. The first crews to arrive were confronted with a severe fire in the central classroom area. Additional fire appliances and an Aerial Ladder Platform were immediately requested to attend. Initially two fire & rescue crews wearing breathing apparatus gained entry into the school to fight the fire. The fire was found to involve 2 classrooms and the central corridor area, and had broken through the classroom ceilings into the large undivided timber-trussed roof void where it was spreading rapidly; there was heavy smoke-logging of all remaining classrooms and corridors. Crews working from ladders and the Aerial Ladder Platform used hand tools to break into the roof void either side of the fire to contain its spread. In total 10 BA, five fire-fighting jets and 1 Aerial Ladder Platform Monitor were required to bring the incident under control.

2003

Hazards are often difficult to define accurately. They may be physical, psychological, operational, systemic or procedural. In order to manage the risk cycle fully, not only must all elements of the risk assessment process be put in place, but the hazard identification process must be undertaken rigorously to ensure that all significant hazards have been identified.

The risk assessment must also be '*suitable and sufficient*'. This means that the degree of rigour needed in the assessment of risk should match the actual level of risk. In cases of minor injury or property damage, it would usually be sufficient for competent experts to carry out an assessment based on their experience.

At the other end of the spectrum, in the case of very high risk, a combination of **quantitative** (numerical) assessment and **qualitative** assessment (expert judgement) is more appropriate. In this respect, the expert knowledge of Firefighters is essential to the targeting of appropriate control measures and demonstrating that all risks are reduced *'As Low As Reasonably Practicable'* (ALARP).

Adopting a Risk-Based Philosophy

The IRMP philosophy is to provide a systematic process for planning and prioritising fire & rescue service activity under an Integrated Risk Management Plan. However, to determine the priority for each element in this approach it is necessary to consider the problem of fire deaths and injuries, other deaths and injuries, and fire losses from the point of view of **risk**.

Since people and systems are fallible, preventative strategies alone will not reduce risk to ALARP, and effective emergency intervention remains the final and critical control measure aimed at protecting the public, Firefighters, property and the environment. This principle is fundamental to the production of the truly 'integrated' risk management plan.

The question is not whether prevention is better than cure, but where the balance of effort should be applied to ensure that risks are reduced to ALARP.

Emergency intervention is not the only control measure. A range of control measures is necessary – but emphasis on one control measure must not be allowed to marginalise another in the risk management process.

Managing & Controlling Risk

One of the possible conflicts that arise under the IRMP process is that between ensuring the safety of the community and ensuring the safety of those employees actually delivering the service. The requirements of the integrated risk management planning process are clearly directed at controlling risk to the community. The requirements of the Management of Health & Safety at Work Regulations are directed more at controlling risk to employees.

In addition to the need for legal compliance, there are the wider moral obligations (and expectations of society and the organisation's own employees) to provide a healthy and safe working environment.

In the case of the fire & rescue service, their *raison d'etre* is to apply specialist skills and experience to real or potential life-threatening situations. In responding to a call, this requires judgements and assessments of risk to be made rapidly and often in situations of heightened alarm, where the potential for error is increased. To manage such situations as effectively as possible, and to minimise the risks to both Firefighters and also the general public, an holistic approach to the management of risk is needed.

This must take into consideration the various contexts within which the fire & rescue service is required to function, the range of response options available and the resources

FBU Policy – Annual Conference 1996
Resolution 49 – STAFFING LEVELS

Due to the constant need to work within the realms of the Health and Safety at Work Act, and the necessity to use the correct level of Command and Control on the Fireground, this Conference instructs the Executive Council to pursue all avenues to ensure that CFBAC guidance regarding appliance crew levels be altered to guarantee a minimum of 5 riders on all pumping appliances on all occasions. This to be achieved without any reduction in establishment figures or the loss of any appliances.

NORTHUMBERLAND

"Although the principle of IRMPs appears to be totally logical, it became apparent very early on in the process that the process was not being used to assess and manage risk at local level, but simply to manage the fire & rescue service's budget." **Lancashire FBU**

required to achieve a level of emergency response which fulfils both legal and moral obligations. The balance between statutory duty to employees and service to the community must be carefully struck.

To determine the balance for these distinct but overlapping requirements effectively Integrated Risk Management Planning must be approached from the perspective of systematic risk management.

Gathering of hazard information has taken place over numerous years. It is this information that informs the many procedures put in place by the fire & rescue service for emergency incidents. However as society changes, the hazards to which it is exposed also change. **Section 1** gave details of the changing hazard profile of the UK from 1936 when Riverdale considered the first Standards of Fire Cover to the present day.

These changing hazards also affect Firefighters. The increasing number of attacks on fire & rescue crews stands in contrast with the situation 20 years ago. The threat of terrorism has also increased to a level where it constitutes a risk in its own right for front-line workers in the fire & rescue service, as well as a risk to society.

Section 6 gives details of the quantitative assessments necessary to predict risk as it affects society in general from the perspective of integrated risk management planning. **Section 4** and **Section 9** give details of qualitative assessments necessary to support the quantitative assessment, specifically the procedures and control measures necessary to ensure that Firefighters are not exposed to greater risks than they should normally expect to be exposed to.

FBU Policy – Annual Conference 2000 Resolution 29 – RISK ASSESSMENT

Conference demands that the Fire Service be given the right to inspect and carry out risk assessment on all property in light of the fire involving depleted uranium at Featherstone in Staffordshire and to supply the results of the assessments to surrounding Brigades that may attend an incident at these premises. **STAFFORDSHIRE**

As amended by WEST MIDLANDS

Whilst the Fire Services Emergency Cover Toolkit **(Section 6)** attempts to assess the impact of different emergency response times on risk to the community, it cannot assess the effect of different emergency response strategies on the health & safety of Firefighters making up those emergency responses. A qualitative approach/ assessment is necessary to supplement the quantitative analysis **(Section 4)**.

There are many 'layers' of risk which must be considered in the IRMP process including risk to the public, risk to property, risk to the community in its widest sense, risk to the environment, risk to employees and risk to the organisation. The ability of the fire & rescue service to perform in accordance with the proposals set out in their

EMERGENCY INTERVENTION HOUSE FIRE

Fire & Rescue Control received an emergency call to a 2-storey terraced property. The callers were upstairs in the property and trapped by a fire that had started downstairs. Fire & rescue crews were mobilised whilst Firefighters (Control) remained on the telephone line giving emergency FIre Survival Guidance to the persons trapped in the property to maximise their chances of rescue by emergency crews when they arrived. FIrefighters (Control) were able to determine the exact location of the trapped persons in the property, and passed this information on to fire & rescue crews who were en-route to the incident. The information reduced the time taken by Firefighters to locate the casualties in the premises. Three persons were rescued by Firefighters and transported to hospital by ambulance. **2003**

IRMP will depend upon the availability of competent resources, in its widest context, and the promotion of a risk-based culture at all levels of the fire & rescue service itself. To view integrated risk management planning in the context of a purely resource management problem, or to engage in risk-trading to spread rather than reduce risk, will have failed the process.

In the final analysis any risk assessment will only be as good as the data which informs it. The quality and accuracy of the information which is used to inform the risk assessment will dictate the accuracy of the results. For a complex risk assessment it is critical that all relevant data is considered. This will be crucial to ensure the accuracy of the risk assessment and resultant risk management strategies employed today, and also to ensure that provision is made for the predicted risk profile of the future.

Picture courtesy of Firepix International

Picture courtesy of Merseyside Fire & Rescue Service / Chris Phillips

The 1936, 1958 and 1985 Standards of Fire Cover effectively set measurable targets for the fire & rescue service to achieve in terms of the time taken for all fire appliances sent as part of the initial response to reach emergency incidents after receiving an alarm of fire. In addition the **Standards of Fire Cover** laid down minimum crewing levels for fire appliances and introduced a **'confidence factor'** to measure the number of occasions on which the recommended crewing levels (the number of Firefighters on fire appliances) were met.

For fire appliances sent as part of the initial emergency response to a fire, the required crewing levels were 5 Firefighters on the first fire appliance and 4 Firefighters on the second fire appliance. This was expressed as a percentage of the overall number of emergency responses a fire & rescue service made in any one year. The crewing standard had to be met on 75% of occasions. However the 1995 Audit Commission report into value for money in the fire & rescue service (*In the Line of Fire*) stated that it could see no logic in this 75% confidence factor, particularly given the problems of dealing with a property fire with fewer than even a crew of five.

Historical Targets and Standards

These simplistic, but accurate measures of the efficiency of a fire & rescue service were linked precisely to the delivery of the emergency response role. A range of 'Performance Indicators' were developed by Government in the 1990's to measure each authority's performance in meeting the:

- speed of response (how quickly the fire & rescue service got to fires); *and the*
- weight of attack (number of fire appliances and Firefighters sent to a fire)

requirements of the 1985 Standards of Fire Cover. This was in line with the Government requirement that public services should strive to provide 'Best Value'.

An historical failing of the National Standards of Fire Cover has been that by concentrating the recordable duties of fire & rescue authorities upon the intervention role of the service, any prevention role was initially seen as peripheral. A series of multi-casualty fatal fires which occurred from the late 1950's until the mid 1980's demonstrated to politicians and the public alike the need for a greater investment in the service's prevention role **(Section 1)**.

"Berkshire Fire & Rescue Authority set ZERO fire deaths as its target in 2002 and this has been carried into the IRMP. The union locally is confident that it can work with the Authority and the people of Berkshire to structure our services in order to realise this target." **Berkshire FBU**

Current Government Targets

In 1997 a Community Fire Safety Task Force was appointed by the Home Secretary. Its remit was to recommend a five-year strategy to reduce fires and fire casualties in the home.

Picture courtesy of the Press Association

As a result of the Task Force's report 'Safe As Houses' *(the FBU's 1990 discussion document was called 'As Safe as Houses' –* ***Section 2****)* the Home Secretary set key performance targets for the fire & rescue service. These 5-year targets set from 1998 were:

- to **reduce** the number of accidental fires in dwellings by **one third**
- to **reduce** the number of accidental fire deaths by **40%**
- to **reduce** serious non-fatal casualties by **5%** year on year
- to **achieve** measurable annual improvement in fire safety awareness, attitudes and behaviour.

Effective April 2001 the Westminster Government recommended that fire & rescue authorities in England and Wales enter into Public Service Agreements (PSAs) setting out what the fire & rescue authority aimed to delivery to the public in return for their money. The recommended PSAs for fire were:

- a **10%** reduction in the number of building fires;
- a **20%** reduction in the number of accidental fire related deaths;
- a **30%** reduction in the number of deliberate fires.

However in 2003 – the 5th year of the 1998 key performance target period – the targets were abandoned in favour of 'different' targets. The Westminster Government's White Paper, 'Our Fire and Rescue Service', issued by ODPM in June 2003 set only two targets – to reduce accidental deaths from fire in the home and to reduce the number of fires started deliberately.

The White Paper targets were worded as follows:

"To reduce the number of accidental fire related deaths in the home by 20% averaged over the 11 year period to 31st March 2010 compared with the average recorded in the five year period to 31st March 1999 – with no local authority fire brigade having a fatality rate of more than 1.25 times the national average by 31st March 2010"

"To reduce by 10% the number of deliberate fires by 31st March 2010 from the 2001/02 baseline."

Output Measurement & Outcome Measurement

In simple fire & rescue service terms:

- an **output target** aims to measure **the level of response**, e.g. **how many,** or **how fast** you are;
- an **outcome target** aims to measures **how effective** you are, or what you actually **achieve** and how much the public appreciate the service that they are receiving.

The requirements set by the Standards of Fire Cover that a specified number of fire appliances carrying a specified number of Firefighters should arrive within a specified time from the receipt of the fire call by the brigade were **output-based targets**. Essentially these targets measured the efficiency of a fire & rescue authority in planning and managing its resource deployment (the locations of fire stations, and the crewing of fire appliances).

The 1998 targets agreed by the Home Secretary, and then replaced in 2003 by lower/different Westminster Government targets to coincide with the introduction of fire & rescue authority integrated risk management planning, are **outcome-based** targets. These targets aim to measure how effective a fire & rescue authority has been in planning and implementing strategies to save lives and (to a lesser degree) property.

FBU Policy – Annual Conference 1995 Resolution 77
HOUSES IN MULTIPLE OCCUPATION

This Conference demands that the Executive Council campaign for enforcement powers to be given to Fire Authorities over houses in multiple occupation. New powers should be made available to Fire Authorities to ensure that flats and bedsits converted to HIMO's come into the fire safety process. Furthermore, the enforcement of fire safety in such properties cannot be compromised by housing authorities claiming that they are unable to house people if restrictions/prohibitions of use are enforced. Finally we believe that self compliance by owners in an area of housing whose history of fire safety is poor and whose tenants are by and large the most disadvantaged in our society is not the way forward in this crucial area of concern. NORTH YORKSHIRE As amended by LONDON

EMERGENCY INTERVENTION – FLAT FIRE

Fire & rescue crews were mobilised to an emergency call for a fire in a large semi-detached house which had been converted into flats. On arrival the Firefighters found that the entrance lobby to the three storey building was alight and smoke had spread upwards through the building. Firefighters rescued two people from the second floor by ladder and three people from the first floor. **2003**

EMERGENCY INTERVENTION HOUSE FIRE

Firefighters (Control) received a call to a house fire where persons were reported as still being on the premises. On arrival fire & rescue crews had to break the front door down to gain access. There was a fire on the ground floor and the house was heavily smoke-logged. Firefighters in breathing apparatus rescued one unconscious person from the first floor. Neither of the two fire alarms in the house was working, and one had had its battery removed. **2004**

EMERGENCY INTERVENTION OLD PERSONS HOME FIRE

Fire crews were called to a fire on the ground floor of an aged persons' home. Firefighters using breathing apparatus rescued three residents. One casualty was taken to hospital and two others were treated at the scene. **2004**

Problems with Existing Targets

The Government has signalled that the move to a risk-based system for planning both emergency response and preventative strategies will be supported by measurement of fire & rescue authority performance based on what outcomes are achieved. However the standard of fire & rescue service emergency response that can be expected by members of the public in an emergency under the integrated risk management planning process has not been set nationally. This stands in contrast to the national standard set by all previous Standards of Fire Cover. Each individual fire & rescue authority will now decide the level of emergency response it will send to any emergency incident in the area it covers, both in terms of how many Firefighters and fire engines it will send, and how long they can take to get there.

In addition the Government fire death & arson reduction targets only become 'measurable' in the year 2010.

FBU Policy – Annual Conference 1997 Resolution 74 – FIRE SAFETY CHILDREN

Conference demands that in light of the continued unacceptable number of injuries and deaths sustained by children playing with matches and lighters, the Executive Council, at every opportunity, and via every avenue open to them, campaign for the introduction of a new law prohibiting the sale of matches and lighters to children under the age of 16, in line with the laws on the sale of tobacco products and fireworks. BUCKINGHAMSHIRE

No indicators have been set which measure actual progress towards these targets before 2010 (some 6 years away). Meaningful national performance targets underpinned by best value performance indicators would measure progress towards any fire death reduction and arson reduction target. However the current Westminster system places no requirement on fire & rescue authorities to demonstrate that their fire and community safety strategies are improving public safety standards and reducing death and injuries from fire in the interim period.

The Government's proposals appear to offer no obvious sanctions for underperforming authorities. The Audit Commission will be required to inspect fire and rescue authorities and monitor their performance, but there will not be any real benchmark best value performance indicators for those authorities to be measured against in these inspections. There appears to be no obvious sanction programme to deal with underperforming fire & rescue authorities.

In 2010 (and not before) a simple statistical calculation will be made which will either show that the targets have been achieved or not, and no detail has been provided by the Westminster Government on how a reduction in deaths caused by both accidental and deliberate fires will be achieved. This will be left to 'local judgement'.

Picture courtesy Firepix International

A National Approach?

The Westminster targets will only apply to fire & rescue authorities in England.

Responsibility for the fire & rescue service in Scotland lies with the Scottish Executive, and in Northern Ireland with the Northern Ireland Assembly. The 2003 Fire & Rescue Service White Paper proposes that responsibility for the service in Wales should be devolved to the Welsh Assembly Government (in all probability this will take place later this year).

In response to the proposals for devolution of fire responsibility the Welsh Assembly Government has stated that it wants to see the numbers of people dying and seriously injured by fire reduced significantly to the point at which

"… these totally preventable events are eradicated in Wales."

"When we heard the targets that the Welsh Assembly Government intended to set for reducing fire deaths we thought - finally someone seems to really understand what the Service is all about." **North Wales FBU**

EMERGENCY INTERVENTION FLAT FIRE

Firefighters (Control) mobilised fire crews to a call to a flat fire. The flat was on the second floor of a house. A mains operated smoke alarm was fitted in the property and had alerted residents to the fire. Eight people escaped before fire & rescue crews arrived. Three of the escapees were taken to hospital suffering from burns and the effects of breathing in smoke. **2003**

EMERGENCY INTERVENTION FLAT FIRE

Firefighters (Control) received a call to a flat fire with persons reported as being still in the flat. A smoke alarm had woken the occupier. Firefighters rescued the occupant from the window of the flat by ladder. The fire destroyed the first floor flat and caused damage to a shop below. The casualty was taken to hospital and survived. **2004**

FBU Policy – Annual Conference 1999 Resolution 38 COMMUNITY FIRE SAFETY

This Conference condemns the practice of reducing staffing to facilitate personnel to carry out Community Fire Safety and other non-operational duties. Whilst we remain fully committed to the principles and benefits of Community Fire Safety, we believe it should be properly resourced in its own right and not at the expense of reducing a Brigade's ability to meet its own operational obligations.

WEST YORKSHIRE

Picture courtesy of the Press Association

It has further stated that it intends to set ambitious targets for the three Welsh fire & rescue services to

"... reduce deaths in fires by between 30% and 50% in the first five years."

Policy responsibility for the fire & rescue service in Northern Ireland is a devolved power of the Northern Ireland Assembly. As such the Westminster targets do not apply. However the Westminster Government is currently operating a policy of direct rule over the province, and implicit in this direct rule is policy responsibility for the Northern Ireland Fire & Rescue Service. The Scottish Executive has set no target for reducing fire deaths in Scotland.

The differing expectations signalled by the different targets for different parts of the UK do little to instil any confidence in the national policy shift to integrated risk management planning, or to improve workforce confidence in it.

A Narrow Focus that Costs Lives?

The Westminster fire death reduction target is very narrow in its focus. The target's 20% reduction does not relate to all fire deaths, but only to those fire deaths classed as being 'accidental', and occurring in the home.

For the purpose of this target an 'accidental' death is a fire death as a result of a fire that is judged to have started accidentally and in the home. If the fire death occurs as a result of a fire that does not occur in the home, is judged to have been started deliberately, or for which the cause is not established, the fire death is not counted against the Westminster target.

As a result of this approach a trend is now emerging where such deaths from fire are not simply classified as being accidental, but are being referred to as preventable. This suggests that any death in a fire that has been started deliberately – for example an arson attack – is not preventable by fire & rerscue authority integrated risk management planning. The problem with this approach to target setting is best illustrated if we consider two identical fires in the same house;

- The first fire starts at night as a result of a candle accidentally being left to burn too close to curtains. The candle ignites the curtains, and a fire develops in the house which kills two adults and a child who are on the first floor. **THESE DEATHS ARE CLASSIFIED AS ACCIDENTAL – and are recorded against the Westminster Government's target.**

- The second fire starts at night as a result of a deliberate act where an adult who is disaffected by a family decision sets the same curtains on fire with a lighter and then leaves the house. The curtains ignite; the fire develops in exactly the same way, and at exactly the same rate, and kills the same two adults and child who are on the first floor. **THESE DEATHS ARE NOT CLASSIFIED AS ACCIDENTAL** – because the fire was started by a deliberate act. **The deaths are not therefore recorded against the Westminster Government's target.**

Under the Westminster Government's current fire death reduction target, a situation could arise where more people actually die in fires than at present, and yet the targets set for fire & rescue authorities are still achieved.

The most recent UK Fire Statistics, covering the 12 months up to the 31st March 2003, showed an overall reduction in all fire deaths of 28, compared to the previous 12 month period. But within these figures there was a decrease of 50 accidental dwelling fire deaths (fire deaths caused as a result of fires that started accidentally). These figures suggest that non-accidental fire deaths must presumably have increased by 22 for the 12-month period. **These are the fire deaths specifically excluded from the Westminster Government's target.**

In contrast to the Westminster Government's fire death reduction target the proposed Welsh Assembly Government fire death reduction target makes no distinction between accidental fire deaths, preventable fire deaths or indeed the location of the fire death.

A target of ZERO Fire Deaths

Any commitment to reduce fire deaths is of course welcomed by all Firefighters and Firefighters (Control). Integrated risk management planning clearly has the potential to reduce fire deaths. However to have any real meaning the targets set must be UK wide, and must include a much wider definition of a fire death. For the purposes of a UK wide target of ZERO fire deaths, a fire death must be classified as:

"The death of a person occurring as the direct result of a fire or the products of fire in any building or fixed structure howsoever caused, but not including the death of a person caused by fire or the effects of fire as the direct result of a deliberate act or omission of that person which is intended to end their own life prematurely, or any death resulting from an act whereby a person has been deliberately restrained against their will by a third party in such a manner that they cannot escape from fire or the effects of fire or raise an alarm of fire in such a manner that they may then reasonably expect to be rescued from fire."

This definition is effectively the 'mission statement' for integrated risk management planning activity related to reducing deaths from fire. It draws together all the key elements of a strategic approach to community fire risk management. In respect of fire deaths;

FBU Policy – Annual Conference 2001 Resolution 22 – ASSAULTS

Due to the increasing number of assaults on our Members, this Conference demands that the Executive Council pursue as a matter of urgency with our employers, a National Media Campaign against violence in its many forms against Firefighters. This Campaign will publicise to the General Public our neutrality and that the role of the Fire Service is purely Humanitarian. **LOTHIAN & BORDERS. As amended by STRATHCLYDE & KENT**

EMERGENCY INTERVENTION FACTORY FIRE

Firefighters were called to a fire at a factory by a security guard. Firefighters were deployed in breathing apparatus to fight the fire, and limited fire damage to stock items. Police confirmed that they were treating the arson attack as a racially motivated incident having discovered race hate messages and Nazi swastikas daubed on the building. **2004**

Picture courtesy of the Press Association

"The Fife FBU IRMP Team continues to work to ensure that the Fife Fire & Rescue Authority's IRMP will deliver ZERO fire deaths and health and safety protection for our members." **Fife FBU**

- the number of accidental fires occurring in the UK can be reduced by effective and sustained Community Fire Safety initiatives. The number of accidental fire deaths will fall as a result;
- effective arson reduction campaigns can reduce the number of deliberately started fires. This has the potential to reduce fire deaths;
- effective and joined-up partnership working across agencies and Government departments can improve fire detection & automatic suppression rates. This has the potential to reduce fire deaths;
- well planned fire safety legislative inspection and enforcement programmes which are fully integrated with other preventative and intervention strategies can hold down the number of fires occurring in buildings other than the home. This also has the potential to reduce fire deaths;

EMERGENCY INTERVENTION HOUSE FIRE

Firefighters (Control) received an emergency call to a house fire with persons reported as being in the building. When they arrived the fire & rescue crews discovered that the house was 'well-alight' and were informed by neighbours that an elderly woman was trapped inside. Four Firefighters wearing breathing apparatus entered the house to search for occupants and to fight the fire. Firefighters removed 3 persons as part of their rescue attempts. A further casualty was discovered in a bed destroyed by fire and was left in that location. 2 adults and 2 children were found to have died. A subsequent police investigation found that 4 murders had been committed, and the house had then been set alight. **1999**

EMERGENCY INTERVENTION AFA – BUILDING

Firefighters (Control) received a call to a fire at a building which was under construction and due to open shortly. The Automatic Fire Alarm (AFA) at the building had actuated and indicated a fire on the fifth floor. A security guard had gone to investigate the cause of the alarm however on alighting from the lift he found that he was on the floor of the fire. He attempted to alert his colleagues to the fire by means of his hand held radio. Firefighters were severely hampered in their attempts to carry out a rescue and fight the fire due to the security locks in the building activating. The security guard died. **1993**

however without effective emergency response planning, fire deaths will continue. Whilst fire deaths classified as accidental can be reduced by preventing the accidental fires occurring in the first place, the reduction of fire deaths caused as a result of fires which are started deliberately, or which are not prevented, requires a different approach.

Research initially carried out as part of the recent Review of Standards of Emergency Cover (2002) derived a statistical link between fire brigade response time and the fatality rate in fires (**Sections 5, 6 and 9** give further details). In simple terms longer emergency response times produce a higher fatality rate.

No matter how hard fire & rescue authorities work to prevent fires from starting, in the foreseeable future it is unlikely that they will be able to prevent all fires. The simple fact remains that people do not die in the fires that are prevented; **they die in the fires that still occur**. To accept anything less than a target of ZERO Fire Deaths as the target towards which fire & rescue authorities are working will effectively write-off as 'acceptable losses' hundreds of people each year - and thousands of people over the full term of the Westminster Government target period.

A UK wide target of ZERO fire deaths is not simply desirable; it is achievable through effective planning and resourcing of both preventative and emergency intervention strategies. Such a target will be owned by the whole workforce, by all departments, all fire stations and all control rooms.

This common ownership will dictate our chances of success.

Picture courtesy of the Press Association

Arson attack on Yarlswood Detention Centre – 2003

Picture courtesy of Northern Ireland Fire & Rescue Service

Within an Integrated Risk Management Plan, local fire & rescue authorities are required to set out how they intend to make adequate provision for prevention and emergency intervention to meet efficiently all normal requirements. In order to understand the relevance of the **Critical Attendance STandard (CAST)** to integrated risk management planning it is first necessary to have some understanding of what is actually required of the fire & rescue service at emergency incidents.

The first widely accepted description of what a Firefighter's job entails was written over a century ago by Sir Eyre Massey Shaw. In his book *'Fires and Fire Brigades'* Shaw stated;

"A fireman, to be successful, must enter buildings; he must get in below, above, on every side, from opposite houses, over back walls, over side walls, through panels of doors, through windows, through loopholes, through skylights, through holes cut by himself in the gates, the walls, the roof; he must know how to reach the attic from the basement by ladders placed on half burned stairs, and the basement from the attic by rope made fast on a chimney. His whole success depends on getting in and remaining there and he must always carry his appliances with him, as without them he is of no use."

In 1960 the Fire Brigades Union launched the FBU's campaign for a new and highly trained technical fire service. The task, as the union conceived it, was to ***'change the service into a modern fire protection – firefighting force'***.

The challenges facing the fire service in organising to support this vision were detailed in the FBU document *'A Service for the Sixties'*. Launching this document at the 1960 FBU Annual Conference in Rothesay, John Horner, the FBU General Secretary, stated:

"We say in this document that when all is said and done, at the end of it firefighting comes down to this; that a small number of men will go into a darkened,

"This year's IRMP comes against a background of funding for an increased establishment. We hope that future IRMPs are not used simply as a means to make cuts. We need to ensure that the safety of Firefighters is at the heart of the IRMP process." **London FBU**

Picture courtesy of the Hereford Times

Sun Valley Fire 1993

smoke-logged building not knowing what they are going to meet, having faith in each other, in the long run prepared to risk their lives to save the lives of other people. In the long run, no matter what transformations we effect in the fire service, firefighting in its final stages remains just that. And we do not forget it."

Today's Firefighters and Firefighters (Control) will perhaps better recognise and be able to identify with this less glamorous description of the realities of the job.

Although both these statements were written many years ago, their relevance to the current integrated risk management planning process is clear. In essence they deal with what is required to actually get the job done, in terms of Firefighters, equipment, personal skills and courage.

Standard Operating Procedures (SOPs)

Standard Operating Procedures (SOPs) – the way the fire & rescue service does things at fires and other emergency incidents – have developed over numerous years. The old Fire Service Drill Book was full of very basic SOPs which were written and religiously trained against to ensure quick and effective discharge of the more routine tasks undertaken at fires.

Most Firefighters will remember their first introduction to these on their recruit's course, where in a 4-man (sic) Pump Drill No.3 ran out the first length of hose from the pump, No.1 the second length (taking a branch), etc. etc.

The 'Manuals of Firemanship' produced by the Home Office from the 1950s onward included many SOPs, covering procedures for emergency incidents other than fires, such as road traffic accidents, trench collapses and sewer rescues. This was in spite of the fact that the service had no statutory responsibility to attend such emergency incidents.

Standard Operating Procedures are constructed with the aim of ensuring that the requirements placed on Firefighters, and their actions at emergency incidents, do not exceed accepted minimum standards of health & safety. In simple terms they are designed to minimise the risks which Firefighters routinely face in situations which are in themselves inherently risky.

SOPs have developed over the years not only to match the complexity of incidents attended by the service, but also in an attempt to maintain compliance with a raft of legislative health & safety requirements placed on local authority employers. European legislation has arguably had the biggest single influence on the way the UK fire & rescue service plans to do things at emergency incidents.

EMERGENCY INTERVENTION FACTORY FIRE HSE IMPROVEMENT NOTICE ISSUED

Fire & Rescue Control received an emergency call to a roof fire at a poultry processing and packaging plant. Two fire appliances were initially mobilised to the incident.

On arrival at the fire an 'assistance' message was sent to Fire & Rescue Control requesting further fire appliances to be mobilised to the incident.

Firefighters wearing breathing apparatus (BA) were committed to the building to fight the fire. However unknown to BA crews the fire was rapidly developing in the un-divided and un-ventilated roof space. This was constructed of panels which had an inflammable insulating section sandwiched between outer protective layers and the fire spread was severely weakening the structure.

The ceiling structure collapsed and brought down plant located in the roof space trapping a BA crew and engulfing the entire block.

Further assistance messages were sent, including a request for an Aerial Appliance however the aerial appliance was delayed as there were no Firefighters available on the nearest station to crew this appliance.

Two Firefighters lost their lives at the incident.

Following an investigation by the Health & Safety Executive the Brigade was issued with two HSE Improvement Notices. The first HSE notice related to Breathing Apparatus SOPs and the second HSE notice required the brigade to improve its systems for gathering information on 'risk buildings' in its area, and to improve its systems for passing this risk information to Firefighters who may be sent to such buildings, in order that the correct SOPs could be employed. **1993**

FBU Policy – Annual Conference 1995
Resolution 52
HEALTH AND SAFETY

In the light of resolution 76 carried at Annual Conference 1994, Conference instructs the Executive Council to assess whether appropriate and systematic risk assessment exists at all levels within the UK Fire Service, with proper levels of consultation, guidance and training.

If this is found not to exist, Conference instructs the Executive Council to undertake a national campaign of action, as part of which FBU Health and Safety representatives would be fully trained to enable them to identify unsatisfactory health and safety arrangements locally, produce their own risk assessments appropriate to the risk, and implement any practical preventative measures, whether with or without the agreement of management. **DEVON**

As amended by SURREY

Unfortunately, and in a similar manner to the development of fire safety legislation **(Section 1)**, changes to Standard Operating Procedures have often followed the deaths or serious injury of Firefighters at emergency incidents, or during training for such incidents.

It has long been recognised by Firefighters that to employ Standard Operating Procedures effectively, and to safeguard health & safety, it is necessary to have adequate numbers of personnel and equipment available at incidents.

Risk Assessment – The Management of Health & Safety at Work Regulations (MHSAW)

In the 1990's the manner in which consideration of employee health & safety was approached in the UK underwent a fundamental change. European legislation was enacted which shifted the emphasis from prescriptive requirements to requirements and procedures based on an assessment of risk.

The Management of Health & Safety at Work (MHSAW) Regulations placed a requirement on employers to consider all work activities from the perspective of the risk they posed to their employees, and the risk posed to other persons who could be affected by the way their employees were doing things.

In spite of arguments to the contrary it was ruled that fire & rescue authorities (as employers) were not exempt from the requirement to comply with this legislation. This had major implications for the service, particularly in relation to procedures at emergency incidents, where the risks posed to Firefighters were potentially the greatest.

Fire & Rescue Service Employers now had to develop Standard Operating Procedures for Firefighters which could be proved to have actively reduced the risk to a level that was considered as acceptable. For this purpose risk could basically be considered as being:

- **Intolerable** – the risk must be reduced
- **Tolerable** – the risk should be reduced as far as reasonably practicable using 'risk-control' measures
- **Broadly Acceptable** – consider whether the cost of further risk-reduction outweighs the benefits
- **Negligible** – the risk is insignificant (but must be monitored)

Section 2 page 23 gives a fuller explanation of the risk assessment process and requirements.

The Chief and Assistant Chief Fire Officers Association (CACFOA) summed up the new health & safety requirement in their 1996 publication *'Guidance on the Application of Risk Assessment in the Fire Service'*, stating that it was now necessary to:

"... define the safety critical support issues for fire service personnel and others ..." (Guidance on the Application of Risk Assessment in the Fire Service – page 6)

The initial fire & rescue service response to this new health & safety requirement was to develop a range of Generic Risk Assessments (GRAs) covering the broad range of risks that Firefighters could routinely expect to encounter at emergency incidents. The GRAs were grouped into:

- rescues (from ice, lifts, sewers, collapsed structures etc);
- fighting fires;
- incidents involving transport systems (road, rail, air etc);
- generic hazards (such as acetylene, electricity, chemical hazards, civil disturbances etc.).

These GRAs were published in 1998 under the title 'A Guide to Operational Risk Assessment'. It was however stressed to fire & rescue authorities at the time that the GRAs simply provided information to inform the authority's own risk assessments and SOPs for the various incidents which Firefighters could routinely expect to attend:

"It is imperative that brigades use these assessments as part of their own risk assessment strategy not as an alternative or substitute to it. They are designed to help brigades assess their own risks, so they should be included in the brigade's normal planning process."
(A Guide to Operational Risk Assessment – page 4)

FBU Policy – Annual Conference 1994
Resolution 61
STAFFING LEVELS

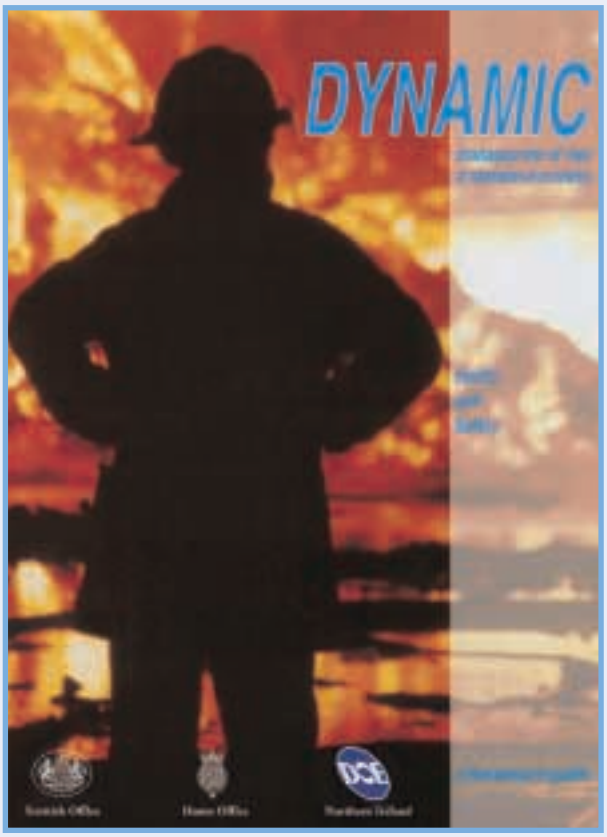
Conference demands that minimum staffing of water ladders and water tenders or equivalent be five, and all special appliances have a minimum of two, one to be a junior officer, at all times. These staffing levels to be reinforced by competent risk assessment in all areas of operational activity, as identified in Management of Health and Safety at Work Regulations 1992 and that establishment figures are increased to accommodate this. **DORSET**

As amended by MERSEYSIDE, FIFE, GMC & BUCKINGHAMSHIRE

"Before the Lothian & Borders Fire & Rescue Authority's IRMP was even published the local Fire Board agreed to cut 16 frontline Firefighter posts." **Lothian & Borders FBU**

Simply adopting the GRAs alone did not discharge the individual employer's responsibility to carry out a full risk assessment, and to subsequently ensure that the Standard Operating Procedures assessed as being necessary were put in place. There were three further publications in the series:

- A Guide for Managers;
- A Guide for Senior Officers;
- Dynamic Management of Risk at Operational Incidents – a fire service guide.



The *'Dynamic Management of Risk at Operational Incidents'* guide is personal issue to all Firefighters in the UK. The guide states as a maxim:

"We may risk our lives a lot, in a highly calculated manner, to protect saveable lives."

This *'highly calculated manner'* refers to the Standard Operating Procedures that are developed and trained against in an attempt to ensure that risk is minimised as far as possible. However to have any real meaning from a risk assessment perspective, SOPs have to reflect the actual situation (and associated risk) which Firefighters are faced with at operational incidents.

The Review of Standards of Fire Cover – Pathfinder

It is perhaps no surprise that the 1995 Audit Commission Report into the fire & rescue service (*In the Line of Fire*) recommended a shift to a risk-based system for planning emergency responses. The Audit Commission report was, after all, written at the same time as the MHSAW Regulations came into force in the UK. The Management of Health & Safety at Work Regulations introduced the concept of risk assessment as the planning tool to determine correct Standard Operating Procedures. In short, effective Standard Operating Procedures are dependant on accurate risk assessment.

EMERGENCY INTERVENTION HOUSE FIRE – HSE IMPROVEMENT NOTICE ISSUED

Firefighters (Control) received an emergency call for a house on fire. The initial information from the caller was that there were no persons in the house. One fire appliance was mobilised to the incident however on receipt of further emergency calls stating that persons were still in the house a second fire appliance was mobilised from a neighbouring station.

The first fire & rescue crew to arrive discovered that thick smoke was issuing from the house. They were informed by members of the public who had gathered outside the house that two children were still inside. Two Firefighters in breathing apparatus entered the house and rescued one child, and resuscitation attempts were started. The Firefighters then re-entered the house to search for the second child, however they were caught in a backdraught (a sudden ignition of smoke and gases produced by the fire) and themselves became trapped in the property.

The remainder of the crew attempted to rescue the Firefighters but they were severely overstretched in terms of resources. When the second fire appliance arrived, Firefighters from that crew eventually managed to drag the trapped Firefighters out of the house.

Two Firefighters and one child were killed in the incident.

The LAG in time between the arrival of the first fire appliance and the second fire appliance was 9 minutes and 47 seconds. If both fire appliances had been mobilised at the same time the LAG in arrival times would have been 4 minutes and nine seconds. The backdraught occurred 5 minutes and 46 seconds after the first crew arrived at the house fire.

Following an investigation by the Health & Safety Executive the Brigade was issued with a HSE Improvement Notice. The notice required the brigade to introduce systems for training personnel in recognition and SOPs for potential backdraught and flashover situations. **1996**

Blaina House Fire – February 1996

Even the casual observer would correctly identify that this risk assessment, by necessity, must include consideration of the number of Firefighters and the type of equipment needed to effectively minimise risk to those Firefighters (the employees) sent to emergency incidents. *'In the Line of Fire'* prompted the ***'Review of Standards of Emergency Cover'*** **(Section 1 page 4).** The review considered not only an assessment of risk to the community, but also an assessment of the risks faced by Firefighters attending incidents as part of the emergency response, and critically, an assessment of how to maintain this risk at an acceptable or tolerable level. In the fire & rescue service this review became known as the ***'Pathfinder'*** because the 11 brigades who carried out the series of computer-based trials to test the review methodology were called ***'Pathfinder Brigades'***.

The Pathfinder Review developed a range of what were termed **'Worst Case Planning Scenarios' (WCPS)**. The WCPS built on the work that had already been undertaken on Generic Risk Assessment as detailed in the *'Guide to Operational Risk Assessment'* referred to above. By assessing the actual situation that Firefighters were faced with at emergency incidents, the WCPS methodology was then able to determine what was needed to deal with the emergency incident and what was needed to maintain risks to Firefighters (as far as reasonably practicable) at an acceptable level.

FBU Policy – Annual Conference 1991
Resolution 79 – FIRE COVER

Conference demands that all property fire calls received are responded to with an attendance of at least 2 pumps, and in the case of "A" risk 3 pumps, irrespective of if the call is received from an AFA.

DORSET

FBU Policy – Annual Conference 1997
Resolution 33
MINIMUM STAFFING

This Conference demands that following the Health and Safety Report on the Blaina incident and in line with Conference Policy of 1994, that the Union vociferously pursue its policy on Minimum Staffing of appliances, including a public awareness campaign highlighting staffing deficiencies.

WEST MIDLANDS
As amended by SOUTH YORKSHIRE

Pathfinder – Worst Case Planning Scenarios (WCPS)

The WCPS system for planning emergency responses was based on the recognised risk assessment process of identifying the hazard, assessing the risk posed by the hazard, and then determining the necessary 'control' measures necessary to reduce the risk to acceptable or tolerable levels **(Section 2 page 23)**.

The Worst Case Planning Scenarios were only designed as planning tools to assist fire & rescue authorities in determining the resources required for a limited range of emergency incidents. They did not include detail to assist in planning emergency responses for larger incidents such as multiple road traffic accidents (where many casualties are trapped) or large aircraft or rail crashes. Instead they sought to provide clear risk-based guidance on the resource requirements for those emergency incidents that brigades would more routinely expect to attend. Despite the connotations that might be associated with the term *'Worst Case Planning Scenario'*, the research project stated clearly that a WCPS was:

"... not the worst case that can be imagined, but the worst case for which Fire Service Emergency Cover is to be planned in a particular risk area and should reflect what is reasonable provision for that area."

The research project first sought to establish the different types of emergency incident routinely attended by the fire & rescue service. 35 identified incident scenarios were grouped into different 'types' of emergency incident as follows;

- fires in buildings;
- casualty retrieval incidents (such as water rescues and hazardous material rescues);
- casualty trapped incidents (such as road traffic incidents);
- 3 lesser scenarios (covering small fires)

Having determined the incident types, the required emergency response for a given incident scenario (for example a single occupancy house fire where it was anticipated that rescue would be necessary via an internal staircase) could then be established.

"The FBU in Central want to work with management to produce an IRMP that improves public safety whilst providing safe system of work for Firefighters on the front-line." **Central FBU**

EMERGENCY INTERVENTION HIGH RISE FLAT FIRE HSE IMPROVEMENT NOTICE ISSUED

Fire & Rescue Control received an emergency call to a fire in a 26-floor high-rise flat within a mile of the city centre. The fire was reported as being on the twenty-second floor. On arrival at the building the Firefighters initiated the Standard Operating Procedure for high rise building fires. Two Firefighters from the initial emergency response rigged in breathing apparatus and started up their sets becoming self-contained. Accompanied by the fire & rescue service Incident Commander and a Firefighter designated as the Breathing Apparatus Entry Control Officer (BAECO) they proceeded in the lift to the floor directly below the fire to set up a bridge-head control point from which to direct firefighting & rescue operations.

The lift stopped at the twenty-first floor however when the lift doors opened the Firefighters found that it was the twenty first, and not the twenty second floor which was on fire. The lobby was thick with smoke and there was intense heat and the Firefighters were unable to close the lift doors as the door close button would not work. The lift car filled with smoke and overcame the Incident Commander and BAECO who collapsed.

A second crew of Firefighters in BA arrived on the twenty-first floor in a second lift. When they discovered that the fire was actually on this floor they took the lift immediately to the twentieth floor and proceeded on foot up the stairwell to the twenty-first floor where they assisted the first BA crew in rescuing one adult, one child, the Incident Commander and the BAECO. These casualties were taken down the stairwell to the twentieth floor, and then to the ground floor using the second lift which was still operating.

Emergency resuscitation attempts were made on the fire service Incident Commander, and the other casualties were treated for smoke inhalation.

Following an investigation by the Health & Safety Executive the Brigade was issued with a HSE Improvement Notice. The notice required the brigade to provide a system of work (SOP) which took account of the likelihood of the wrong fire floor being reported to the fire & rescue service in multi-storey building incidents. The notice stated that in practice and experience there is often confusion and doubt about this information.

The Notice also required the brigade to provide command & control procedures in high rise buildings which aimed to protect the health & safety of other persons not in their employment (in this case the ambulance service personnel), who might be put at risk by the brigade's SOPs. **2003**

Determining the Emergency Response

The required emergency response was determined by assessing the real situation faced by Firefighters at emergency incidents, and then planning risk-control measures which dealt with these 'real world' situations. Pathfinder sought to establish what actually happened at a range of common emergency incidents – what the fire & rescue service was actually faced with when they turned up – and the response and resource requirements (numbers of Firefighters and equipment) that would be required to implement effective Standard Operating Procedures. Experienced fire & rescue service Incident Commanders were interviewed to determine both the emergency incidents that were routinely faced, and the number of Firefighters and the amount and type of equipment that would be needed at these different types of emergency incident.

The Qualitative experience of these operational Crew and Watch Managers was critical to the process. They are almost always the first fire officers to arrive at an emergency incident quite simply because they are part of the crew on the fire appliances sent when an emergency call is first received by a brigade.

In fire & rescue service circles one of the more commonly known conclusions of this element of the 'Pathfinder' research project is that 9 Firefighters are needed at a house fire where persons are reported as being trapped. This level of response is required to deal with the incident effectively whilst ensuring that the Firefighters who deal with the incident are not placed at greater risk than is avoidable.

It is interesting to note that the 1985 Review of Standards of Fire Cover attempted a similar exercise to determine what was actually needed at fires. However the research methods employed in the 1985 Review were not robust and no conclusions could be agreed by the Committee conducting that review.

Concerns with Worst Case Planning Scenarios

As stated above the final part of the Review of Standards of Emergency Cover research project involved applying the WCPS methodology to the 11 brigades who had been selected to take part in the Pathfinder trials. This was done using a computer model of the brigade area. The aim was to find out what results a risk-based system of planning emergency responses would produce. Areas of risk within the brigade (based on historical fire and emergency

FBU Policy – Annual Conference 1994 Resolution 94 SAFETY OF FIREFIGHTERS

This Conference calls upon the Executive Council to ensure that the safety of firefighters, when attending fires in high rise and high fire risk buildings, is considered by the appropriate committees of the Central Fire Brigades Advisory Council and any other National Committees of the Home Office, Department of the Environment and the British Standards Institution and the appropriate technical guidance produced and issued to fire authorities. **WEST MIDLANDS**

FBU Policy – Annual Conference 1999
Resolution 40 – FUNDING

Conference demands that the Executive Council meet with the relative ministerial departments in order that proper funding for the Fire Service can be achieved. The new funding method must reflect risk assessment and current commitments to the safe person concept and should therefore be an increase on the current Local Authority Fire Service budgets. **TYNE & WEAR**

As amended by LONDON

incidence data, and population socio-economic groupings) were first loaded onto the computer. The Firefighter and equipment requirements for the different emergency incidents (WCPS) predicted as being likely to occur were then mapped.

The results caused concern. In some cases brigades found that they would have to more than double in size to meet the risk-based requirements of the WCPS for the more commonly occurring incidents. This was in part due to the way in which the computer model had been set up to run. In calculating the fire & rescue service attendance times at incidents, the computer model did not deem the service to have arrived until the last appliance attending the incident as part of the initial emergency response had arrived. For emergency responses to incidents involving the mobilisation of fire appliances from more than one fire station, using the attendance time of the last fire appliance to arrive significantly affected the results and potential resource implications for fire & rescue authorities.

However irrespective of the resource implications which the Pathfinder trials produced, it could not be argued that the WCPS methodology had calculated the wrong resource requirements (the numbers of Firefighters and equipment) needed at emergency incidents. The assessment was, after all, determined using a robust methodology and was grounded in qualitative information (actual experience) of what was needed to deal effectively with routine emergency incidents without increasing the risk to which Firefighters were exposed above an 'acceptable' level.

The Critical Attendance STandard (CAST)

The Review of Standards of Emergency Cover and Worst Case Planning Scenario methodology was the most robust risk-based determination of the initial fire & rescue service resource requirements for routine emergency incidents that had ever been undertaken in the UK.

However the trials conducted by the 11 Pathfinder brigades were flawed - not as a result of the initial research process or methodology, but due to a key assumption in the software model.

As stated above, the computer model assumed that there was no fire & rescue service response until the last fire appliance attending the incident as part of the initial emergency attendance had arrived. This assumption ignored the effect of fire appliances arriving before the last fire appliance in terms of their ability to reduce (or as a minimum to control) the risk to life and property at the incident. The resource requirements however – the numbers of Firefighters and equipment assessed as being necessary to deal with certain types of incidents - were correct. These resources had been determined through qualitative analysis (what is known from experience) to ensure that the job could be done without compromising unnecessarily the safety of Firefighters.

It has therefore been necessary to establish a Critical Attendance STandard (CAST) methodology to deal with this apparent conflict.

Picture courtesy of the Press Association

"The duty which IRMPs place on members of the FBU is to highlight to fire & rescue authorities any shortfalls contained within their local IRMPs, and to agree improved SOPs and ways of achieving ZERO fire deaths based on their front-line experience." **Kent FBU**

The CAST methodology allows for a tightly-controlled phased arrival of fire appliances at emergency incidents. It takes account of the effect of this phased arrival on both the incident and on the ability of Firefighters to carry out Standard Operating Procedures without increasing the risk to themselves above a level which they would normally expect to face in situations which are themselves inherently risky. Determining what is an acceptable phased arrival – or **LAG** – in fire appliance attendance times i.e. the time between the arrival of the first fire appliance and the second fire appliance sent as part of the initial emergency response to an incident, is critical.

Picture courtesy of the Press Association

TRAINING ACCIDENT WATER RESCUE INVESTIGATION IN PLACE

Fire & rescue crews were mobilised to a man trapped in a weir. En-route to the incident it became apparent that fire & rescue crews from another station had got into difficulties whilst undertaking a routine training exercise, and it was Firefighters from that crew who were trapped in the weir. The service's inflatable rescue boat they had been using in the training exercise had got caught in the weir and two Firefighters had been thrown into the river. One of the Firefighters had struck his head when he was thrown into the water. The blow had rendered him unconscious.

This Firefighter was caught in the weir, and was estimated to have been under the water for approximately 8 to 10 minutes before other Firefighters were able to rescue him. When he was pulled out of the water he was not breathing.

Resuscitation attempts by Firefighters assisted by a paramedic were carried out on the river bank and continued in the ambulance on the way to hospital.

The Firefighter was admitted to the Intensive Care Unit and regained consciousness 48 hours later, after sedation treatment to reduce swelling to the brain had been discontinued. He is currently on sick leave. An investigation is in progress. **2004**

Why LAG is Important

Planning arrangements under the 1985 Standards of Fire Cover included an 'implied' acceptance that the mobilising protocols drove the Standard Operating Procedures put into place at emergency incidents. Indeed many SOPs at local and national level have been written with one eye clearly focused on these mobilising standards. As an example Stage 1 Breathing Apparatus Entry Control Procedures (Technical Bulletin 1/97) do not require an Emergency Team of BA wearers to be available in case Firefighters who have been sent into a building for firefighting or rescue purposes need themselves to be rescued. This SOP is not based on an assessment of risk to Firefighters, but on availability of firefighting resources. Fires in 1985 Standards of Fire Cover 'C', 'D' and 'Remote-Rural' risk areas only required an attendance of one fire appliance under the 1985 Standards, and one fire appliance does not carry enough Firefighters to set up a BA Emergency Team!

From a health & safety perspective this 'acceptance' was questionable at best; nonetheless it has formed the basis of planning for fire & rescue service emergency responses for some 19 years. In their defence the 1985 Standards did provide a quantitative planning tool for fire cover. They were seen by almost all stakeholders as providing a safety net, a measure against which fire & rescue authorities should plan the number and distribution of fire stations, and the crewing systems employed on those stations. Nonetheless the 1985 Standards were fundamentally flawed; the so-called 'safety net' was and is a contradiction in terms, 'skewed' by the thinking that these national response standards automatically protected Firefighters.

In too many cases what was actually happening at emergency incidents during this period (and is still happening today) stands at odds with what it was 'comfortable' to believe was happening. Very often the Standard Operating Procedures against which Firefighters were training simply could not be put into practice in the real world due to a lack of resources being available when they were most needed – in the early stages of the incident. Delays in the arrival of fire appliances – even delays which did not result in a failure to meet the 1985 Standards of Fire Cover - often resulted in risks being taken over and above those planned for under Standard Operating Procedures.

Whilst it may be comfortable to consider these as acts of individual heroism – and many of these take place – the simple fact remains that on too many occasions Firefighters have no alternative other than to act when faced with the incident. They are, after all, the professionals who have been sent to deal with an emergency situation, and there is a public expectation that they will act when they arrive.

When someone is screaming at you to act, to rescue their parent, their partner or their child, and you are there as part of the fire service response, it does not matter how *'self-disciplined to work within accepted systems of work'* you may be, a Firefighter will act.

These are not individual decisions. Such is the frequency of this event that they have become accepted group decisions amongst Firefighters throughout the service. In short – they are given no alternative.

The Review of Standards of Emergency Cover recognised this problem, and the 'Pathfinder' report is crystal clear on this point. In any planning decisions relating to when the required Firefighters and equipment should arrive at an emergency incident, it warns against placing Firefighters in a position where they have no option but to act – even when there are insufficient resources available:

"... it is essential to avoid situations which could motivate or pressurise firefighters to act unsafely in the interests of saving life."

(Review of Standards of Emergency Cover - Technical Paper C – Response & Resource Requirements)

Picture courtesy of Firepix International

FBU Policy – Annual Conference 1998
Resolution 41 – STAFFING LEVEL

In light of Technical Bulletin 1/97, this Conference demands that the Executive Council negotiate with the Employers a policy that every Pumping Appliance has a minimum crew of five for every type of incident. **NORFOLK**

FBU Policy – Annual Conference 2000
Resolution 26
MINIMUM CREW LEVELS

This Conference re-affirms its demand for a minimum crew level of five on all front line pumping appliances. Conference is appalled at the continued use of three riders on such appliances and demands that this dangerous practice ceases with immediate effect to ensure the safety of our members and the public. **BUCKINGHAMSHIRE**

Assessing LAG under the Critical Attendance STandard

Using the Critical Attendance STandard methodology, the maximum LAG for Standard Operating Procedure purposes is:

APPLIANCE ARRIVAL	MAXIMUM LAG
arrival of first fire appliance to arrival of second fire appliance	**3 minutes**
arrival of second fire appliance to arrival of third fire appliance	**2 minutes**

The maximum 3 minute LAG between the arrival of the first & second fire appliances at an incident assumes an attendance of 5 Firefighters on the first fire appliance to attend every incident covered by a CAST planning scenario. The 3 minute LAG reflects

- the time required for an initial assessment of the incident to be made by the first attending fire & rescue service Incident Commander;
- the time required for initial briefing and deployment of crews (including where necessary deployment in breathing apparatus) before the arrival of the second fire appliance.

The maximum 2 minute LAG between the arrival of the second & third fire appliances at an incident covered by a CAST planning scenario reflects:

- the time required for the Incident Commander to brief the Crew Manager of the second fire appliance attending the incident and for the crew from the second fire appliance to be deployed, prior to the arrival of the third fire appliance.

Employing the CAST methodology supports the building of effective command structures at emergency incidents in line with national Incident Command Standard Operating Procedures. Span of Control maximums (the number of direct lines of communication that any Firefighter should have in a developing command structure) are an additional consideration for responses to incidents which require larger fire & rescue service incident command structures.
(Fire Service Manual – Volume 2 – Fire Service Operations – Incident Command refers).

Increasing LAG above these maximums potentially compromises the safety of Firefighters who will be left with insufficient resources to work within Standard Operating Procedures and safe systems of work at emergency incidents.

The Firefighters will have been knowingly placed in a situation by their employer where it is reasonably foreseeable that they will be motivated or pressurised to act unsafely in the interests of saving life. The pressure to act unsafely will be as a result of a deliberate planning decision which delays the arrival of the necessary resources for an emergency incident which can be reasonably expected to occur.

Any risk assessments which seek to introduce or justify excessive LAG times will have failed to risk assess the real situation faced by Firefighters at emergency incidents. In short, the risk assessment will not be suitable and sufficient.

"IRMPs, where constructed based on full and proper risk assessments, will reduce deaths from fire and other emergencies. The danger for both the public and Firefighters is that they will simply be used as a tool by fire & rescue authorities to make cuts in emergency cover to save money." **South Yorkshire FBU**

CAST Planning Scenarios

Incident Group	Incident Type	CAST Scenario Description	Ref. No.	MINIMUM Command Personnel & Firefighters Required in initial response
FDR 1 Fires: DWELLINGS	Multiple Occupancy High Rise	2 to 4 casualties involved rescue via internal staircase	CAST 1	Command – 2 Firefighters – 11 **TOTAL - 13**
	Multiple Occupancy Low Rise	2 to 4 casualties involved rescue via 135 ladder	CAST 2	Command – 1 Firefighters – 9 **TOTAL – 10**
		2 to 4 casualties involved rescue via 9/105 ladder	CAST 3	Command – 1 Firefighters – 9 **TOTAL – 10**
		2 to 4 casualties involved rescue via internal staircase	CAST 4	Command – 1 Firefighters – 8 **TOTAL – 9**
	Multiple Occupancy Medium Rise	2 to 4 casualties involved rescue via 135 ladder	CAST 5	Command – 1 Firefighters – 9 **TOTAL – 10**
		2 to 4 casualties involved rescue via 9/105 ladder	CAST 6	Command – 1 Firefighters – 9 **TOTAL – 10**
		2 to 4 casualties involved rescue via aerial appliance	CAST 7	Command – 2 Firefighters – 11 **TOTAL – 13**
		2 to 4 casualties involved rescue via internal staircase	CAST 8	Command – 1 Firefighters – 8 **TOTAL - 9**
	Multiple Occupancy Single Basement	2 to 4 casualties involved rescue via internal staircase	CAST 9	Command – 1 Firefighters – 8 **TOTAL – 9**
	Single Occupancy	2 to 4 casualties involved rescue via 135 ladder	CAST 10	Command – 1 Firefighters – 9 **TOTAL – 10**
		2 to 4 casualties involved rescue via 9/105 ladder	CAST 11	Command – 1 Firefighters – 9 **TOTAL – 10**
		2 to 4 casualties involved rescue via internal staircase	CAST 12	Command – 1 Firefighters – 8 **TOTAL – 9**
	Underground Complex	2 to 4 casualties involved – using firefighting lift	CAST 13	Command – 2 Firefighters – 12 **TOTAL – 14**

CAST Planning Scenarios *continued*

Incident Group	Incident Type	CAST Scenario Description	Ref. No.	MINIMUM Command Personnel & Firefighters Required in initial response
Special Services: CASUALTY RETRIEVAL FROM:	Hazardous Material Incident	Generic incident – BA CPS with HRJ – 1 casualty retrieved	CAST 14	Command – 3 Firefighters – 15 **TOTAL – 18**
		Generic incident – BA GTS with HRJ – 1 casualty retrieved	CAST 15	Command – 3 Firefighters – 15 **TOTAL – 18**
	Height	Rope rescue equipment – 1 casualty retrieved	CAST 16	Command – 2 Firefighters – 7 **TOTAL – 9**
		With 135 extension ladder – 1 casualty retrieved	CAST 17	Command – 1 Firefighters – 4 **TOTAL – 5**
		With 9/105 extension ladder – 1 casualty retrieved	CAST 18	Command – 1 Firefighters – 3 **TOTAL – 4**
		With aerial appliance – 1 casualty retrieved	CAST 19	Command – 1 Firefighters – 3 **TOTAL – 4**
	Lift	Lift – 1 casualty retrieved	CAST 20	Command – 1 Firefighters – 4 **TOTAL – 5**
	Lock-in	Conventional – 1 casualty retrieved	CAST 21	Command – 1 Firefighters – 2 **TOTAL - 3**
		With 135 extension ladder – 1 casualty retrieved	CAST 22	Command – 1 Firefighters – 4 **TOTAL – 5**
		With 9/105 extension ladder – 1 casualty retrieved	CAST 23	Command – 1 Firefighters – 3 **TOTAL – 4**
		With aerial appliance – 1 casualty retrieved	CAST 24	Command – 1 Firefighters – 3 **TOTAL – 4**
		With short extension ladder – 1 casualty retrieved	CAST 25	Command – 1 Firefighters – 2 **TOTAL – 3**
	Water	1 casualty retrieved	CAST 26	Command – 2 Firefighters – 5 **TOTAL – 7**

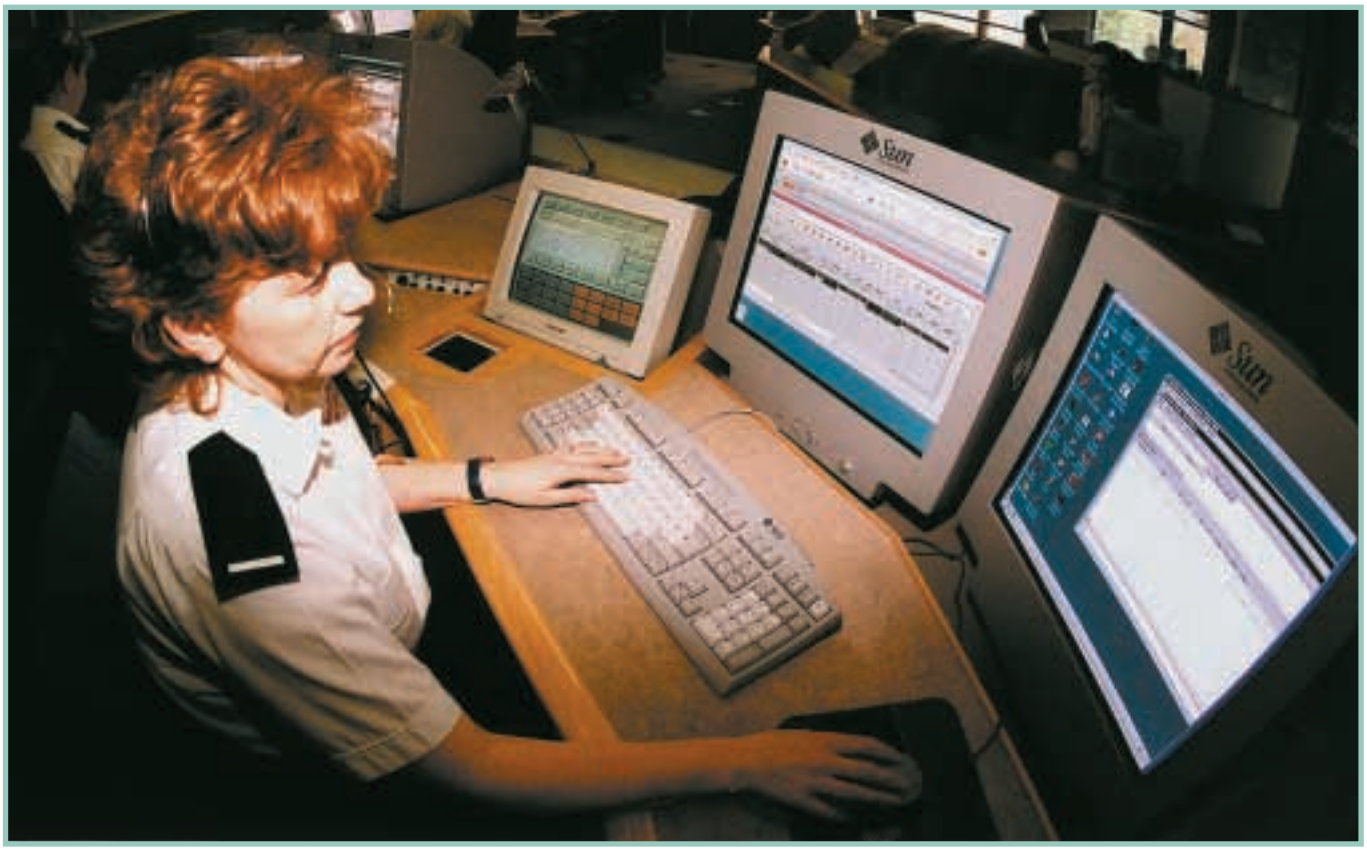
"Leicestershire's IRMP is little more than a cost-cutting exercise disguised as a document of so-called efficiency improvements. It reduces the safety of Firefighters and puts at greater risk the public we are paid to protect." **Leicestershire FBU**

CAST Planning Scenarios *continued*

Incident Group	Incident Type	CAST Scenario Description	Ref. No.	MINIMUM Command Personnel & Firefighters Required in initial response
Special Services: Casualty Trapped	Extrication from Machinery / Structures	1 casualty trapped	CAST 27	Command – 2 Firefighters – 6 **TOTAL – 8**
	Rail Transport Above Ground Accident	2 carriages – 1 casualty trapped in each carriage	CAST 28	Command – 2 Firefighters – 11 **TOTAL – 13**
	RTA	Generic incident – 2 vehicles – 1 casualty trapped in each vehicle	CAST 29	Command – 1 Firefighters – 9 **TOTAL – 10**
	Ship Accident	1 ship – 2 casualties trapped	CAST 30	Command – 2 Firefighters – 9 **TOTAL – 11**
	Small Aircraft Accident	1 aircraft – 2 casualties trapped – with LX foam branch	CAST 31	Command – 3 Firefighters – 8 **TOTAL – 11**
	Small Boat Accident	1 small boat – 1 casualty trapped	CAST 32	Command – 1 Firefighters – 6 **TOTAL – 7**
FDR1 Fires: Property Other Than Buildings		Generic small fire	CAST 33	Command – 1 Firefighters – 3 **TOTAL – 4**
FDR 3 Fires	Chimney	Generic small fire	CAST 34	Command – 1 Firefighters – 4 **TOTAL – 5**
	Secondary	Generic small fire	CAST 35	Command – 1 Firefighters – 3 **TOTAL – 4**

Where the required number of personnel and equipment for an emergency incident can be transported in one fire appliance the LAG times clearly do not apply. The CAST Planning Scenario system assumes that Firefighters attending as part of the initial fire & rescue service response to an emergency incident have received the necessary training for the anticipated incident and are deemed to be competent to carry out the tasks they are assigned.

Detailed risk and task analyses for the above CAST Planning Scenarios are included in **Section 9 pages 108-139.**



Picture courtesy of Northern Ireland Fire & Rescue Service

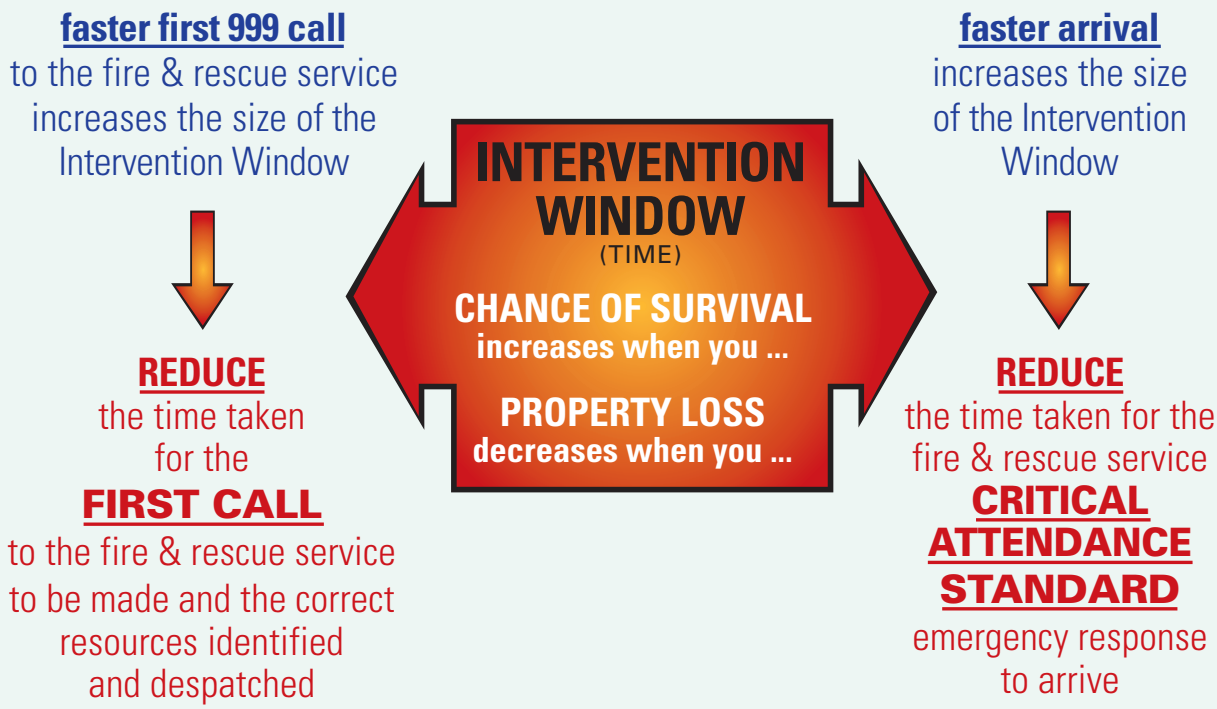
Effective integrated risk management planning is potentially a detailed and complex process. A large number of apparently conflicting factors have to be taken into account. However as the IRMP process (as any risk management process) is essentially about reducing risk, there is a simple test that can be applied to each and every proposal in a local IRMP which will measure whether the proposed strategy increases risk or decreases risk – the INTERVENTION WINDOW.

The Intervention Window model allows a very simple assessment to be made of the effect of each and every integrated risk management planning proposal on both public and Firefighter safety at fires and other emergency incidents. It also assesses the potential effect of these proposals on property loss and the environment.

The Intervention Window formula is grounded in both **Qualitative Assessment** (expert judgement – the experience of front-line workers) and **Quantitative Assessment** (numerical assessment using data). This combination of qualitative and quantitative assessment is critical to the outcome of a complex risk assessment such as an integrated risk management plan.

The Philosophical Approach to fire risk management **(Section 2)** adopts prevention as the starting point. This approach has much to commend it – it is clearly better to prevent the fire starting in the first place rather than having to deal with the consequences of a fire that has already occurred. The Intervention Window takes a more pragmatic approach to the problem of fire deaths, fire injuries and fire property loss and environmental damage. It assumes that efforts to prevent fires occurring in the first place will not be completely successful, and that for the foreseeable future fires will continue to occur and so pose a risk. This assumption is based on current statistical evidence of fire occurrence and fire trends. The fact remains that people do not die in the fires that we manage to prevent; they die in the fires that still occur. The Intervention Window highlights the risk-control measures necessary to minimise the effect of these continuing events.

"The Northamptonshire Fire & Rescue Authority's IRMP does not provide a true picture of the service that is provided by Firefighters and Firefighters (Control). It cannot therefore be relied upon to provide a basis for informed decisions about provision of future service." **Northamptonshire FBU**



The Intervention Window model assists in making outcome-based predictions of the effect of wider preventative and emergency intervention strategies. Prevention is not considered in the context of preventing the fire (or other emergency) occurring, but rather on minimising the effect of the event when it does occur i.e. reducing the likelihood of the event causing fire deaths and injuries and also reducing the likelihood of extensive property and other losses.

Former Standards and the Intervention Window

The inclusion of the Critical Attendance STandard methodology in the Intervention Window model assists in overcoming many of the shortcomings of earlier emergency response standards. Former National Standards of Fire Cover set output-based targets which measured the level of emergency response planned by fire & rescue authorities for different risk areas (A-risk, B-risk, etc.) in the authority's overall area **(Section 3 page 27)**. However the 1985 Standards of Fire Cover report also recognised that there was a clear link between **output** *(how many fire appliances were sent and how fast they got to fires)* and **outcome** *(how good or how bad things would be when the emergency response arrived)*. The full 1985 report stated:

"... the longer travelling times in the lower risk category areas generally implied that fires in these areas would be more fully developed by the time the first attendance appliance(s) arrived."

The 'lower' risk category areas referred to above were areas categorised as C-risk, D-risk and Remote-Rural-risk. The outcomes of fires in these areas (in terms of life and property loss) were anticipated as being worse than the outcomes of fires in former risk areas which had been set larger and faster emergency response standards.

Interestingly the full 1985 Standards of Fire Cover report recommended that fire & rescue authorities should review attendance policies for areas categorised as C-risk to determine whether, and if so to what extent, parts of the C-risk area should attract an *'enhanced'* attendance of two fire appliances with the second fire appliance aiming to arrive as soon as realistically possible after the first. This recommendation did not however extend to D-risk or Remote-Rural-risk areas.

The single fire appliance emergency response level and minimum attendance times set for former C-risk, D-risk and Remote-Rural-risk areas have always been of concern to fire & rescue crews, particularly those crews who are routinely on the first fire appliance to arrive at fires in these areas. In simple terms the Firefighters covering these areas were provided with less resources to fight potentially more fully developed fires, and in the knowledge that 'reinforcements' would generally take far longer to arrive than at fires in former A-risk and B-risk areas.

The contradiction which such a system of emergency response planning throws up is best illustrated by considering the risks posed by two identical industrial cutting machines. The machine that is used daily is provided with a guard to prevent entrapment; however the other machine is not provided with a guard as it is used less frequently. Both machines have the potential to maim or kill, but based on frequency of use, one machine has a lower standard of risk-control measures. Such a health & safety planning system would clearly not protect all employees adequately; however this is exactly what the 1985 Standards of Fire Cover required in terms of emergency response control measures in former C-risk, D-risk and Remote-Rural risk areas. Of equal concern to Firefighters has been the fact that the 1985 Standards only required planning of emergency responses capable of dealing with one call – the first call a fire & rescue service received, irrespective of evidence that brigades routinely attend more than one call or emergency incident at any one time.

Picture courtesy of Merseyside Fire & Rescue Service / Chris Phillips

The Critical Attendance STandard & the Intervention Window

Whilst the Critical Attendance STandard **(Section 4)** may initially appear to focus on Firefighter safety, it is a simple fact that if you get the right resources to the emergency incident in time, you will not only increase Firefighter safety you will also increase the likelihood of effective intervention. The likelihood that Firefighters will then be compelled to act outside SOPs as a result of a planning decision which does not take into account the real world situation they are faced with will in turn be reduced. This will also increase the chances of effective intervention which will save lives and property. In essence the Intervention Window model deals effectively with two sides of the same coin.

Every operational person within the UK fire service should be fully conversant with Breathing Apparatus procedures. If asked whether BA teams ever split up at incidents the formal answer will be *"no – it is against procedures"*. If asked if BA Entry Control Officer duties are always carried out by a dedicated Firefighter as per procedures you will be told that this is what the procedure says. The reality however is often very different to the answer given.

EMERGENCY INTERVENTION
HOUSE FIRE

Firefighters (Control) received a call from a child. The child and her sibling were in an upstairs bedroom and stated that there was a fire downstairs in the kitchen. The children wanted to climb out of the window onto a small porch roof, however the Firefighter (Control), having ascertained that the fire was in the kitchen and that the children were in an upstairs room with the door closed, advised them to remain in the room as the arrival of fire & rescue crews was imminent. All relevant information as to the location of the children in the house was passed to the responding fire & rescue crews to assist in rescue. On arrival both children were rescued from the bedroom by Firefighters using a ladder. The fire, which involved a chip pan, was extinguished by two Firefighters wearing breathing apparatus and using a CO2 extinguisher.

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The simple truth is that corners are cut at emergency incidents; Standard Operating Procedures are temporarily 'suspended'; risks over and above those planned for under SOPs are taken. That is, quite simply, what happens because all too often the necessary resources mobilised to incidents, or available at incidents when needed, have not arrived due to deficiencies in fire & rescue authority planning decisions. Whilst the 'Safe Person Concept' requires Firefighters to act in accordance with Standard Operating Procedures, it also requires the fire & rescue authority to provide the resources to allow this to happen. For the potential within the 'Safe-Person' system to be realised, the responsibility must be shared, and not simply off-loaded onto fire & rescue crews.

The inclusion of the Critical Attendance STandard methodology within the Intervention Window model aims to ensure that the necessary resources are sent as part of the initial fire & rescue service emergency response. This increases the chance of successful intervention and aims to maintain Firefighter safety. However it must be recognised that the CAST methodology only applies to the more routine incidents that fire & rescue authorities can expect to encounter in their areas. Development of CAST Planning Scenarios for more complex incidents must also be undertaken.

FBU Policy – Annual Conference 1999
Resolution 35
STANDARD SPENDING ASSESSMENT

This Conference condemns the method of calculating the Standard Spending Assessment and Grant Aided Expenditure for Fire Authorities. The inclusion of the "perverse incentive", which penalises Brigades who conduct effective fire safety campaigns, should be the subject of an urgent meeting with the Secretary of State in order to negotiate a fairer funding policy for the Fire Service.
CHESHIRE As amended by FIFE

Quantitative Assessment & the Intervention Window

Published research carried out to inform the recent Review of Standards of Emergency Cover (Pathfinder) established a statistical link between fire & rescue service attendance times at fires and fatality rates at those fires. The primary data used in the research was taken from historical Fire Damage Reports (FDR1s) produced by fire & rescue authorities for fire incidents.

The research was only able to predict the effect on fire fatality rates of faster or slower attendance times for the first fire appliance to arrive as part of an emergency response. This was due to the lack of data in FDR1s on arrival times of subsequent fire appliances. Nonetheless a statistical (**quantitative**) relationship was derived, and the research has been considered robust enough to merit its inclusion in the FSEC Toolkit **(Section 6)**. This ***'emergency response arrival time Vs fatality rate'*** relationship has been factored into the FSEC Computer Model to assist fire & rescue authorities in predicting the likely effect of different first fire appliance attendance times on fire death rates. Put simply

"IRMPs should deliver a risk-based service that is locally coordinated. This service will only be supported effectively and efficiently by Fire & Rescue Service Controls which are based in the counties they serve." **Hampshire FBU**

EMERGENCY INTERVENTION HOUSE FIRE

Firefighters responded to an emergency call to a house fire. When fire & rescue crews arrived they found that smoke was issuing from the property and that two men were trapped in the front bedroom. Firefighters rescued one unconscious casualty through the window by ladder and a further casualty was led out of the house by Firefighters wearing breathing apparatus.

The house was not fitted with smoke alarms. Both casualties survived. **2004**

it is a statistically proven fact that faster fire & rescue service emergency response times will reduce fire deaths. The research also found a similar relationship between survival rates at Road Traffic Accidents and fire & rescue service attendance times.

The research attempted to establish if there was a statistical relationship between fire & rescue service first appliance attendance times and fire casualty rates, however no relationship was found. This is not surprising. No matter how fast the emergency response is, it is impossible to prevent a person from being affected by a fire merely as a result of the speed of that emergency response. Immediately a person breathes smoke, they potentially become a casualty. The emergency response can (and very often does) prevent that casualty becoming a fatality, but response time alone cannot prevent the fire or the products of the fire from affecting a person's health in some way.

Qualitative Assessment & the Intervention Window

The results of the quantitative research will be of no surprise to personnel in the front-line of fire & rescue operations. Firefighters and Firefighters (Control) have always known that there are two interdependent factors in their ability to save life at a fire or other emergency incident:

1. *The time between the start of the fire or the emergency occurring and the first call the fire & rescue service receives for the incident;*

2. *The time of arrival of sufficient fire & rescue service resources at the incident to undertake emergency operations effectively.*

It is these factors which dictate the size of the available 'Intervention Window'. The length of time that this window is open ultimately dictates the ability of the fire & rescue service to save life with an emergency response. The fact is borne out by the direct experience of the front-line personnel who deal with emergency incidents where lives are lost. If asked what would have made a difference at fires (or other emergencies) where people die Firefighters and Firefighters (Control) will usually give one of two answers; *"if we'd had the call earlier …."* or *"if the other fire appliances had arrived sooner…we could have made a difference."*

EMERGENCY INTERVENTION FLAT FIRE

Firefighters (Control) received an emergency call from a woman trapped in a smoke filled flat. The caller was unable to see to find her way out of the building and could not open the window to her room. The woman described dense smoke pouring through the door to the room she was in. Two fire appliances were mobilised to the incident. Firefighters (Control) advised the woman to stay low on the floor, away from the smoke and breathe slowly. They also secured information on the layout of the building and the location of the casualty and passed this to the fire & rescue en-route to the incident. The casualty was rescued by Firefighters and was taken to hospital suffering from smoke inhalation. **2004**

In recent years, Firefighters (Control) have added a further dimension to the ability of the service to save lives at fires, by giving what is termed 'Fire Survival Guidance' to callers who are trapped in burning buildings. This guidance is given via telephone by Fire & Rescue Control to persons who are trapped and in deteriorating fire conditions. Very often these persons are in a condition of extreme panic and distress. The guidance given relates to the most effective actions that trapped persons should take in order to maximise their chances of staying alive until fire & rescue crews get to the incident to affect their rescue. It has saved numerous lives, and is a further example of the team approach necessary in the fire & rescue service for effective life-saving emergency intervention.

FBU Policy – Annual Conference 2002 Resolution 45 COMMUNITY FIRE SAFETY

This Conference demands that the Executive Council enter into negotiations at the earliest opportunity with our employers and the Government, with the aim of making community fire safety a statutory duty for the Fire Service. The extra funding needed by Fire Brigades should reflect the overall resources that are required to deliver community fire safety to their communities and should not punish Brigades for a reduction in calls by the perverse funding mechanisms. NORTHUMBERLAND
As amended by WEST YORKSHIRE

Emergency Response Planning & the Intervention Window

The first critical factor in relation to Emergency Response Planning and the Intervention Window model is the ability to process calls for emergency assistance quickly and professionally. This will ensure that the correct emergency resources are identified and dispatched as fast as possible, and that where necessary, callers are provided with life-saving advice whilst awaiting the arrival of fire & rescue crews.

EMERGENCY INTERVENTION ALARMS OPERATING

Firefighters (Control) received an emergency call from a foreign visitor who reported a fire alarm sounding in a building. The call was made by mobile phone and the caller had limited knowledge of their location. Through systematic questioning of the caller the Firefighter (Control) ascertained the caller's location. The Firefighter (Control) was aware that the building had just been renovated, had re-opened as a restaurant, and was not yet on the brigade's computer mobilising system. Two fire appliances were mobilised to the incident. The incident escalated to an 8-pump incident and required an Aerial Ladder Platform. **2003**

Picture courtesy of Northern Ireland Fire & Rescue Service

Resolution 44
STAFFING LEVELS

Due to the constant need to work within the realms of the Health and Safety at Work Act, and the necessity to use the correct level of command and control on the fireground, this Conference demands that the current level of staffing of fire appliances be increased to a minimum of five on all pumping appliances. This is to be achieved without loss of any appliances. **WEST MIDLANDS**

As amended by CLEVELAND

FBU Policy – Annual Conference 1998
Resolution 39
FUNDING FIRE SAFETY

This Conference views with concern many of the findings of the Community Task Force report, in particular their view that increased Community Fire Safety Education can be achieved within existing budgets. This can only be achieved by a redeployment of already overworked and under resourced staff and budgets. Therefore, this Conference calls on the Executive Council to press the Government that any such initiatives shall be introduced nationally with extra and adequate funding. **CLEVELAND**

As such fire & rescue authorities must consider emergency call handling times, and ensure that sufficient numbers of Fire & Rescue Control personnel are available to process these calls and to provide Fire Survival Guidance (where required) to keep the Intervention Window open long enough for successful emergency rescue and firefighting. Correct fire & rescue authority decisions here will dictate:

- **PUBLIC FIRE SURVIVAL RATES** – *faster incident identification, resource mobilisation times, and Fire Survival Guidance opportunities increases the prospect of successful rescue;*
- **FIREFIGHTER SAFETY** – *faster incident identification and resource mobilisation times, coupled with the initial mobilisation of the resource levels necessary for the incident, reduces the risk to Firefighters who may otherwise be faced with more fully developed fires, and/or be compelled to act outside Standard Operating Procedures due to a lack of resources being mobilised to the incident;*
- **PROPERTY LOSS** – *faster incident identification and resource mobilisation times, coupled with the initial mobilisation of the resource levels necessary for the incident, increases the likelihood of firefighting operations being successful.*

EMERGENCY INTERVENTION HOUSE FIRE

An emergency call was received by Firefighters (Control) to a house where a firework had been deliberately set off through the letterbox. Two persons were trapped inside the house by the resulting fire. Fire & Rescue Control remained on the line giving emergency Fire Survival Guidance to the caller to maximise their chances of rescue by emergency crews when they arrived. When fire crews arrived they assisted two casualties out of the property. Both persons were transported to hospital by ambulance suffering from the effects of smoke inhalation. **2002**

"The Somerset Fire & Rescue Authority didn't conduct a proper IRMP process. They simply extended mobilising times from 5 minutes to 7 minutes to save money. IRMPs should reduce risk, not increase it." **Somerset FBU**

EMERGENCY INTERVENTION HOUSE FIRE

A local councillor was leaving a meeting when he noticed smoke issuing from the rear of a house. He immediately went to a nearby building where he knew that FBU Brigade Committee members were meeting and asked for assistance. The off-duty Firefighters quickly established that the fire was serious and that there may be persons in the house. They contacted Fire & Rescue Control stating that the fire was a potential 'persons reported' call. A neighbour was assisted from his house by the off-duty Firefighters prior to the arrival of the emergency crews who extinguished the fire. The Councillor expressed his surprise at how long it seemed to take the fire & rescue service to arrive. The 1985 Standards of Fire Cover attendance times were met. **2004**

The second critical factor in relation to the Intervention Window model for fire & rescue authorities charged with making local decisions on emergency attendance times (in the absence of national standards of fire cover) is first fire appliance emergency attendance times. These must be set in order to reduce the existing level of fire deaths and improve public and property safety. Correct fire & rescue authority decisions here will dictate:

- **PUBLIC FIRE SURVIVAL RATES** – *faster first fire appliance attendance times increases the prospect of successful rescue (but see also LAG opposite);*
- **PROPERTY LOSS LEVELS IN FIRES** – *faster first fire appliance attendance times increases the likelihood of firefighting operations being successful (but see also LAG opposite).*

FBU Policy – Annual Conference 1999 Resolution 37 – FUNDING COMMUNITY RELATIONS

This Conference, whilst supporting the principle of "Community Relations", is concerned at the lack of additional funding from Central and Local Government, which Conference believes is required to allow Brigades to carry out these initiatives without compromising the levels of fire cover in each Brigade. We call on the Executive Council to negotiate with all relevant Government departments in order to secure the necessary additional funding. **WEST MIDLANDS**

Having decided the first fire appliance emergency attendance time the fire & rescue authority must then factor in the attendance LAG maximums (Section 4 page 40). These ensure that the correct level of resources to get the job done are available when needed, and importantly that Firefighter safety is maintained at an acceptable level as a result. Correct fire & rescue authority decisions here will dictate:

- **PUBLIC FIRE SURVIVAL RATES** – *faster full Critical Attendance STandard arrival increases the prospect of successful rescue;*
- **FIREFIGHTER SAFETY** – *arrival of the full Critical Attendance STandard emergency response within tightly-controlled phased arrival times reduces the risk to Firefighters who may otherwise be compelled to act outside Standard Operating Procedures due to a lack of available resources in the critical early stages of the incident;*
- **PROPERTY LOSS LEVELS IN FIRES** – *arrival of the full Critical Attendance STandard emergency response within tightly-controlled phased arrival times increases the likelihood of firefighting operations being successful.*

EMERGENCY INTERVENTION HOUSE FIRE

Fire & Rescue Control received an emergency call from a family of four who were trapped by thick smoke in their house. A fire had started in the kitchen. Firefighters (Control) mobilised fire & rescue crews to the incident, and remained in contact with the family by mobile phone. Based on the information passed to them, they advised the family to move to a second floor bedroom to await rescue. This information was conveyed to Firefighters en-route to the fire. The information enabled fire & rescue crews to make fast, well-informed decisions on the extent of the fire and the critical actions necessary when they arrived. Fire & rescue crews located the family quickly, and rescued them by ladder. **2004**

EMERGENCY INTERVENTION FLAT FIRE

Fire & Rescue Control received an emergency call to a fire reported as being on the ground floor of a block of flats with persons on the first floor trapped by the fire. Two fire appliances were initially mobilised to the incident. Firefighters (Control) remained in contact with the caller who was one of the persons trapped, giving emergency Fire Survival Guidance to maximise their chances of rescue by emergency crews when they arrived. On arrival of fire & rescue crews a further two fire appliances were requested to be sent to the incident. Three persons were rescued from the premises by Firefighters using a 13.5m ladder. The fire was extinguished by Firefighters wearing breathing apparatus. **2002**

EMERGENCY INTERVENTION HOUSE FIRE

Fire & Rescue Control received an emergency call from a person trapped in a house fire. The fire was on the ground floor and smoke was issuing from both ground and first floor windows. The woman was in a state of distress and informed Firefighters (Control) that she intended to jump from an upstairs window. Fire & Rescue crews were mobilised to the incident whilst Firefighters (Control) persuaded the woman, based on the information that they were able to extract from her, to remain where she was, to shut her bedroom door and to block the gap beneath the door with bedding to prevent smoke seeping in. Information on the woman's location was passed to Firefighters en-route to the incident, who rescued her by ladder. The woman was treated in hospital for the effects of smoke inhalation and survived. There was no smoke alarm in the house.

2003

The Intervention Window model assists by clearly focussing integrated risk management planning decisions on strategies for reducing fire deaths, reducing deaths from other emergency incidents, and reducing property and other fire losses. By including the Critical Attendance STandard methodology it also deals with the deficiencies in many of the current 1985 Fire Cover Standards-based Standard Operating Procedures.

Assessing Emergency Response and Attendance Times

The fire fatality rate Vs attendance time research found that there was some difference in the rate of fire deaths for first fire appliance attendance times of between 5 and 10 minutes. The research found that persons remaining in areas affected by high levels of heat, fire or smoke for longer than 5 minutes are likely, but not certain, to be incapacitated, with death or serious injury being likely for longer exposures. However as the time from flaring of fires to the time of rescue increases from a few minutes to over 10 minutes, the likelihood of death also increases.

As stated the research was only able to consider the effect of attendance times on fire fatality rates based on the first fire appliance to arrive. Additionally the research calculated the fatality rate not from the time of the first call to the fire service, but from the time that Firefighters were alerted and mobilised i.e. from the time that fire station alarm bells were sounded or Firefighter personal alerters were activated.

Picture courtesy of Northern Ireland Fire & Rescue Service

"Nottinghamshire Fire & Rescue Authority mention a 10 minute emergency attendance time in their IRMP. In many areas this is a worsening of attendance times under the former Standards of Fire Cover. We cannot see how this can be called an improvement." **Nottinghamshire FBU**

FBU Policy – Annual Conference 1991 Resolution 85 CONTROL STAFFING LEVELS

Due to the present financial difficulties caused by the standard spending assessment, Conference instructs the EC to pursue as a matter of urgency a minimum staffing level for controls.
SOUTH YORKSHIRE

Taking an emergency response attendance time of 8 minutes as being the 'optimum' attendance time for effective rescue, and also taking into account Critical Attendance STandard LAG maximums and average call handling times, the following attendance time maximums can be set:

CRITICAL EVENT	MAXIMUM Running Times
Receipt of first emergency call for incident at Fire & Rescue Control	**ZERO minutes**
Fire & Rescue Control call handling time prior to mobilisation of fire & rescue emergency response	**2 minutes after first call**
Attendance of FIRST fire appliance at incident	**8 minutes after first call**
Attendance of SECOND fire appliance at incident *(where required by CAST)*	**11 minutes after first call**
Attendance of THIRD Fire Appliance at incident *(where required by CAST)*	**13 minutes after first call**

EMERGENCY INTERVENTION SHELTERED HOUSING COMPLEX FIRE

A smoke detector operated at a sheltered housing complex. The resident was contacted via the intercom system of the council's Lifeline service to ascertain what had caused the alarm, but told the council operator that he was alright. The policy at the sheltered accommodation was to first ask residents why their smoke detectors had activated and then to send a warden to investigate. The fire & rescue service were only called after an alarm went off in the flat above, and a warden, who had been called to investigate that alarm found the flat full of smoke. The resident was rescued by Firefighters, but died. The Coroner subsequently wrote to the council and the fire & rescue service requesting that they consider whether the emergency services should be called immediately, rather than getting a warden to investigate first in such cases. **2003**

EMERGENCY INTERVENTION ROAD TRAFFIC ACCIDENT

Fire & rescue crews were mobilised to a road traffic accident involving a car, a heavy goods vehicle and a bus. Two adults and three children were trapped in the car which had been crushed between the bus and the heavy goods vehicle. One child died, and one child (according to the hospital) survived only as a result of the speed of the extrication carried out by Firefighters and ambulance crews. 4 casualties were treated in hospital for their injuries. **2004**

Wider Preventative Strategies & the Intervention Window

The size of the Intervention Window will dictate both survival rates of the public in fire, and the ability to mount effective firefighting operations without increasing risk to Firefighters over and above that to which they would normally expect to be exposed in an inherently 'risky' job. Legislative fire safety activity and CFS strategies must be planned with the aim of increasing the size of this Intervention Window. These strategies can be seen therefore as having the dual role of both preventing fires occurring in the first place, and preparing people for the fires that do occur. Preventative strategies must be effective in reducing the time taken for the first emergency call to be made to Fire & Rescue Control.

Information recorded on fire & rescue authority FDR1 reports indicates that almost half of fire fatalities occur in fires which are estimated to have been burning for more than 30 minutes before the alarm of fire is raised. However the Pathfinder research concluded that there appears to be only a minority of fires where emergency attendance in response to a call will not avert death irrespective of how fast the attendance is.

Strategies aimed at preventing fires happening in the first instance aside, all available research evidence suggests that earlier fire detection and first call to the fire & rescue service will undoubtedly reduce significantly fire fatality rates, particularly where self-rescue is not possible. Fire Survival Guidance strategies also play an increasingly important role in effective emergency intervention. The challenge for preventative strategies, particularly strategies aimed at giving earlier warning of fires that do occur, undoubtedly begins here. Section 9 page 97 gives further details.

FBU Policy – Annual Conference 2001 Resolution 99 FITTING OF SMOKE ALARMS

This Conference urgently demands clear national guidelines on the fitting of smoke alarms by operational Firefighters. Until that is achieved the fitting of smoke alarms will only be undertaken after an appropriate written risk assessment and proper training, on a voluntary basis. **ISLE OF WIGHT**
As amended by WEST MIDLANDS

Picture courtesy of the Press Association

In guidance issued to fire & rescue authorities on the 2nd April 2003 the Office of the Deputy Prime Minister (ODPM) has stated that an effective IRMP should:

- identify existing and potential risks to the community within the authority area;
- evaluate the effectiveness of current preventative and response arrangements;
- identify opportunities for improvement and determine policies and standards for prevention and intervention;
- determine resource requirements to meet these policies and standards.

A **Quantitative** planning tool which can be used to inform this process is the **Fire Services Emergency Cover (FSEC) Toolkit**. This is a computer-based model which has been loaned to fire & rescue authorities by the ODPM to assist them in the construction of local Integrated Risk Management Plans.

The model has been developed as a result of considerable national research, the vast majority of which was carried out under the most recent Review of Standards of Emergency Cover – Pathfinder **(Section 4 page 35 – 38)**.

The Development of FSEC

Section 1 gave details of the historical development of standards of fire cover, and the rationale that underpinned earlier reviews and planning decisions. The original version of the FSEC model was developed to form part of the most recent review of standards of emergency cover – Pathfinder. The history of that review, and the FSEC model's development which was intrinsic to it, bears repeating.

"Avon Fire & Rescue Authority intended to increase establishment and emergency appliance provision in accordance with our statutory wider rescue role. They are also making no changes in Emergency Cover until they have assessed the FSEC Toolkit using all the information required to do so." **Avon FBU**

In 1995 the Audit Commission conducted a review of the UK fire service. One of the main recommendations in its report – *'In the Line of Fire'* – was that the system of planning fire service emergency responses based on property size, construction, type and density (the 1985 Standards of Fire Cover) should be reviewed, and future emergency response planning for fires should primarily aim to reduce risk to life.

The Central Fire Brigades Advisory Council (CFBAC) set up the Joint Committee on the Audit Commission Report (JCACR) to respond to the issues raised by the Audit Commission. This committee investigated the feasibility of moving to a risk-based system for determining fire cover. Their report – *'Out of the Line of Fire'* – which was published in 1998 concluded that a risk-based approach to planning fire cover was feasible. The JCACR recommended that further research and trials should take place to develop such a system.

In response to the JCACR report the Government commissioned and funded a full research project into the standards of fire cover. The research was originally termed a review of standards of fire cover, but was subsequently re-titled the **'Review of Standards of Emergency Cover'** to more accurately reflect the historical role of the fire & rescue service as the primary rescue service in the UK. The research project was overseen by a 'Task Group'.

The Task Group developed a Fire Service Emergency Cover methodology, which included the use of risk-based computer modelling which sought to access both the level of risk and the emergency response measures that would be required to reduce that risk.

The FSEC Toolkit Today

The draft report of the Task Group on the Emergency Cover Review was published on the 20th December 2002, and further 'development' of the FSEC computer model originally created as part of that review has since been undertaken. This work has aimed to modify the computer model in order that it can inform the newly emerging Integrated Risk Management Planning process which has replaced the 1985 Standards of Fire Cover resource and response planning arrangements.

The FSEC Toolkit can be considered as an 'encyclopaedia' of information about an individual fire & rescue authority's area. Each set of information (data) within FSEC can be regarded as a chapter of that encyclopaedia, containing information on that specific subject. Like an encyclopaedia, the FSEC Toolkit enables the user to look at individual chapters (subjects), or to use some or all of the information contained within those chapters at the same time in order to view the overall composition of all or part of an authority's area, and the predicted effect on risk of activities carried out by the service in that area.

The data within the 'chapters' is based on information provided from fire & rescue service records (FDR1 returns, station and fire appliance location and crewing systems etc.), or information from other agencies and sources e.g. The Valuation Office (for buildings) and 2001 Population Census (for people). These different types of information provide some of the quantitative (data) building blocks which are required to assist in the construction of local Integrated Risk

FBU Policy – Annual Conference 2002
Emergency Resolution 2
FIRE SERVICE EMERGENCY COVER

Conference acknowledges the intention of the Executive Council to move an Emergency Resolution on the report of the CFBAC Fire Cover Review Task Group and regrets that this has not been possible due to the report having not been published as intended in March 2002. Conference notes that the Executive Council held a seminar of Brigade and Regional Officials on 18 April and also endorses their decision that the report of the Task Group will be sent to all branches once it is received. Conference notes that special meetings of the CFBACs are planned for July to consider the report and is concerned that this timetable will not allow for the full consultation with the membership and Officials that the Executive Council planned. Conference also notes though that given the preliminary results from the Pathfinder Trials, as reported to the Officials seminar in April, it is unlikely that a final position will be sought or adopted at the July CFBAC meetings.

Conference endorses the Executive Council's recommendation to pursue the following strategy:

- **Support the Principle of Risk Based Emergency Cover**
- **Public protection should be improved**
- **Safety of firefighters must not be compromised**
- **Cover should directly address risk to life**
- **Risk to environment, heritage and property should be taken into account**
- **A risk based approach to Special Services**
- **Demand legislation on special services**
- **Campaign for increased funding**
- **Campaign for commensurate staff levels**
- **Protect conditions of service**
- **Establish emergency cover strategy group**
- **Monitor the implementation process**
- **Implement FBU training and awareness campaign**

Conference in endorsing the above strategy is recognising that a risk based emergency cover system for the UK can lead to safer communities and a safer work force but this can only be achieved if Government and fire authorities are prepared to invest considerable increased resources in the Fire Service. Conference gives full endorsement to the Executive Council's intention to recall Annual Conference with a recommendation for strike action if Government or the national employers attempt to divert a risk based approach to emergency cover to one which puts at risk public safety, firefighter safety, conditions of service or jobs. **EXECUTIVE COUNCIL**

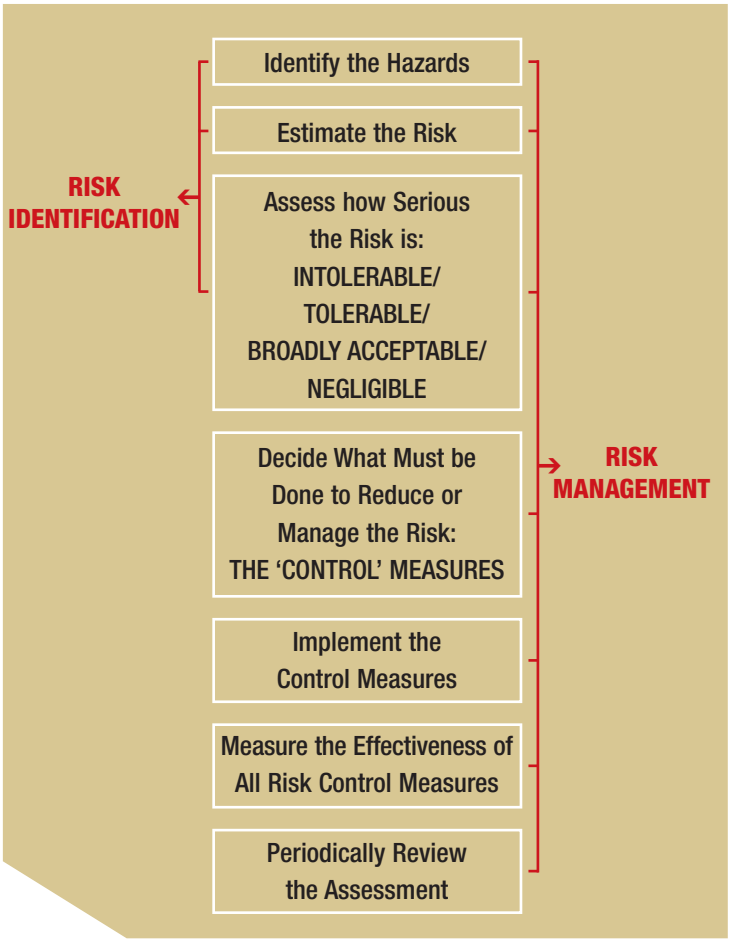
Management Plans. They are provided in the FSEC Toolkit to assist fire & rescue authorities to make an assessment of the various types, levels and areas of risk in their brigade using a common approach.

Risk Identification, Risk Assessment & FSEC

In very simple terms, the FSEC Toolkit attempts to calculate (predict) how good, or how bad, things are in terms of 'risk' for all communities in a fire & rescue authority's area. It allows authorities to 'try out' different combinations of fire station locations, crewing systems and emergency responses on the computer model. The model calculates whether the predicted risk for each community or area within the fire & rescue authority's total area has increased or decreased as a result of the different proposed combinations.

To identify/predict risk quantitative data sources are used in an attempt to establish the likelihood of a fire occurring and the likelihood of members of the public being injured or killed, or property damaged by that fire. To predict risks to life the data sources primarily used are Fire Damage Reports (FDR1 reports) and British Crime Survey reports. By combining information from these data sources it is possible to construct a 'risk map' for a fire & rescue authority area which can be used as an indicator of (for example) high fire fatality risk areas.

There is however a fundamental difference between risk identification, risk assessment and risk management.



The FSEC Toolkit is only able to assist in identifying/ predicting risk levels (the first part of the risk assessment process). It is able to predict the consequences of different resource deployment strategies – for example the predicted consequences in terms of increased or decreased risk as a result of moving a fire station from one location to another. It does not specify what must be done to reduce or manage risks (the full risk assessment process).

ODPM IRMP Guidance Note 3 *(Provision of Fire Service Emergency Cover [FSEC] Risk Assessment Toolkit)* is clear on this issue:

"The FSEC toolkit will not include the resource allocation strategy based on the Tolerability of Risk (ToR) framework used during the Pathfinder trials."
(ODPM IRMP Guidance Note 3)

Section 2 pages 22-23 gave details of the Tolerability of Risk (ToR) concept as a system for assessing whether a predicted risk must be reduced. The ToR system is widely recognised and endorsed as a standard methodology for risk assessment and risk reduction/management. Under the ToR system risk can be categorised as:

- **Intolerable** – the risk must be reduced
- **Tolerable** – the risk should be reduced as far as reasonably practicable using 'risk-control' measures
- **Broadly Acceptable** – consider whether the cost of further risk-reduction outweighs the benefits
- **Negligible** – the risk is insignificant (but must be monitored)

From the perspective of fire & rescue authority integrated risk management planning, the assessment of whether risk is intolerable, tolerable, broadly acceptable or negligible is critical as this is an indicator of the likelihood of:

- members of the public being killed or injured in fires;
- members of the public being killed or injured in other emergency incidents to which the fire & rescue service is routinely called;
- Firefighters being killed or injured at emergency incidents;
- property damage or destruction;
- damage or destruction of heritage;
- damage or destruction of the environment.

As stated the resource allocation strategy is not included in the FSEC Toolkit. This was a major element of the Pathfinder research project and covered the emergency response strategies necessary to reduce risk. Pathfinder actually calculated where to locate fire stations and fire appliances, the crewing systems for such stations and fire appliances, and what should be sent to emergency incidents based on the ToR framework. In respect of the FSEC Toolkit ODPM IRMP Guidance Note 3 continues:

"We are being continually assured that any changes resulting from the Dorset Fire & Rescue Authority's IRMP will be evidence based. The IRMP must not be used to cut the service to the public simply to save money, but must aim to achieve ZERO fire deaths." **Dorset FBU**

Reproduced courtesy of ODPM/Ordnance Survey/Larrie Barlow, Fire Service College

"Nor will it include the feature which required detailed analysis to determine the total resource requirements at expected incidents (response options)."
(ODPM IRMP Guidance Note 3)

Sections 4 and 9 give further details of the research into what the fire & rescue service need to send as an initial emergency response to deal effectively with emergency incidents. To determine the necessary emergency response 'control' measures the Pathfinder research project first sought to establish the different emergency incident types routinely attended by the fire & rescue service. These emergency incidents were grouped into 35 incident types. The required emergency response for a given incident type (e.g. a 2-storey house fire) was then established by identifying the resources (Firefighters and equipment) that would be required to deal with the emergency incident in line with Standard Operating Procedures (SOPs). The research results were grounded in the actual experience of what is needed by Firefighters at emergency incidents. The research considered this from the perspective of reducing risk to the public, reducing risk to property and improving/maintaining Firefighter safety. The results of this research aimed to ensure that Firefighters had the correct resources available when they were needed at emergency incidents. These resources related to both equipment and the number of Firefighters sent.

The ODPM is clear in its advice to fire & rescue authorities that a 'resource requirement' feature which would determine the required resources and response options to effectively reduce/manage risk at expected emergency incidents is not included in the FSEC Toolkit. ODPM IRMP Guidance Note 3 further states:

"Instead, for each type of risk, brigades will need to decide and input, on the basis of their own judgement, details of the responses and resources required and their deployment locations. Once this information has been input, the software will be able to predict the expected loss of life and property associated with a given deployment." (ODPM IRMP Guidance Note 3)

The FSEC Toolkit does not include any intrinsic function or capability which actually determines the control measures (the location and number of fire stations, fire appliances and crewing) necessary to reduce risk in the community and cannot therefore:

- determine the levels of emergency response (numbers of fire appliances, equipment and Firefighters) necessary to ensure that Firefighters are able to 'get the job done' whilst not exposing them to greater risks than they should normally expect to be exposed to during firefighting or rescue operations;
- take account of resource requirements to ensure that realistic Standard Operating Procedures can be carried out at emergency incidents as per training;
- predict the health & safety implications of different emergency cover deployments for employees.

When is Risk Too High under FSEC?

Because the FSEC model does not include any facility to determine what constitutes an acceptable level of risk for;

- a fire & rescue authority as a whole;
- any single community, group or area within a fire & rescue authority's total area;
- employees (Firefighters);

the decision as to whether risk is intolerable, tolerable, broadly acceptable or negligible as it relates to members of the public, property, employees (Firefighters), heritage and the environment will be for the fire & rescue authority alone. The authority will be guided in this decision, and in the strategies necessary to reduce the risk, by reference to the **quantitative** and **qualitative** data that exists, by the expectations of the public, and by their legal and moral duties to their employees. Risk exists in all things. Accepting a level of risk predicted by the FSEC Toolkit, either for an authority area as a whole or for any single community, group or area within a fire & rescue authority's total area, will mean that a projection can then reasonably be made as to the:

- number of fire deaths;
- amount of property loss;

that can be expected in an authority's area as a result of the level of risk that that fire & rescue authority has accepted.

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FSEC as a Planning Tool

The FSEC Toolkit currently at the disposal of fire & rescue authorities is an extremely useful planning tool. To realise the full potential of this tool however, the 'corporate will' to use it to its full potential must exist, and the strengths and weaknesses of the model must be clearly understood. As with any new system (even one which has gone through a lengthy development stage) there are issues surrounding the FSEC Toolkit which will require further refinement. It is unlikely that the Toolkit will ever be robust enough to be relied upon exclusively to 'direct' (rather than inform) all resource deployment decisions. As such the FSEC Toolkit will be only one of a range of planning tools available to fire & rescue authorities.

Qualitative assessment (what is actually known through experience) of local risk and the necessary control measures to reduce or manage that risk will undoubtedly on occasion stand at odds with the results of the quantitative assessment of risk levels using the FSEC Toolkit. **National trends do not always match local experience.**

FSEC allows for a brigade-wide prediction of risk levels based on existing fire station locations and crewing. It aims to predict the risk in each individual community. The Toolkit can predict the effects on risk for any combination of fire stations, fire station locations, fire appliance locations or crewing systems. In the final analysis however it is the fire & rescue authority – and not the FSEC Toolkit – that will make the decision on which combinations the model runs.

From the perspective of the public, business, heritage, the environment and of course Firefighters, any fire & rescue authority proposals to make changes to emergency cover – the number of fire stations, the station locations, the number of fire appliances or the crewing systems for fire appliances – must aim to reduce (or at a minimum maintain) the predicted risk levels for all communities, groups and areas. This predicted risk is the risk of members of the public dying or being injured in fires, in other emergency incidents, and the risk of property loss in each community (the Toolkit is unable to predict in any way the risk to which Firefighters are exposed). If an authority decides to use the model for little more than risk-trading, where different deployment strategies are proposed and 'trade' the risks predicted for one community against the risks predicted for another community, then the most fundamental premise of risk assessment will have been sacrificed. The authority's risk assessment will have resulted in increased risk for some of the communities it is committed to protecting. This is perhaps easiest understood by considering not the FSEC Toolkit, but a game of chess.

As a result of each move of a chess piece other pieces on the board are placed at either greater risk or less risk. The expert player will deliberately sacrifice certain chess pieces. The less experienced player will lose chess pieces due to poor moves which are made as a result of a lack of appreciation or understanding of the overall impact of a move. The sacrifice or loss of chess pieces may be judged as being acceptable in a chess game; however when considering the loss of lives or property as opposed to the loss of chess pieces then the true cost of getting the deployment strategy wrong becomes crushingly apparent.

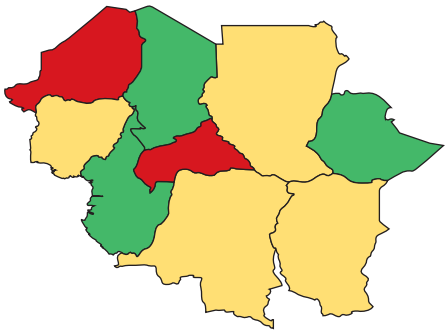
Considering a map of a fire & rescue authority's area, the FSEC Toolkit will be capable of predicting existing risk levels by areas similar to **figure 1**. Moving fire stations or changing crewing systems in an attempt to 'trade' risk (increasing the risk in one area of the brigade in order to reduce the risk in another area of the brigade) could result in predicted risk levels as shown in **figure 2**.

Figure 1

existing predicted risk

all **existing** risk levels in different areas/ communities are shown as yellow

Figure 2



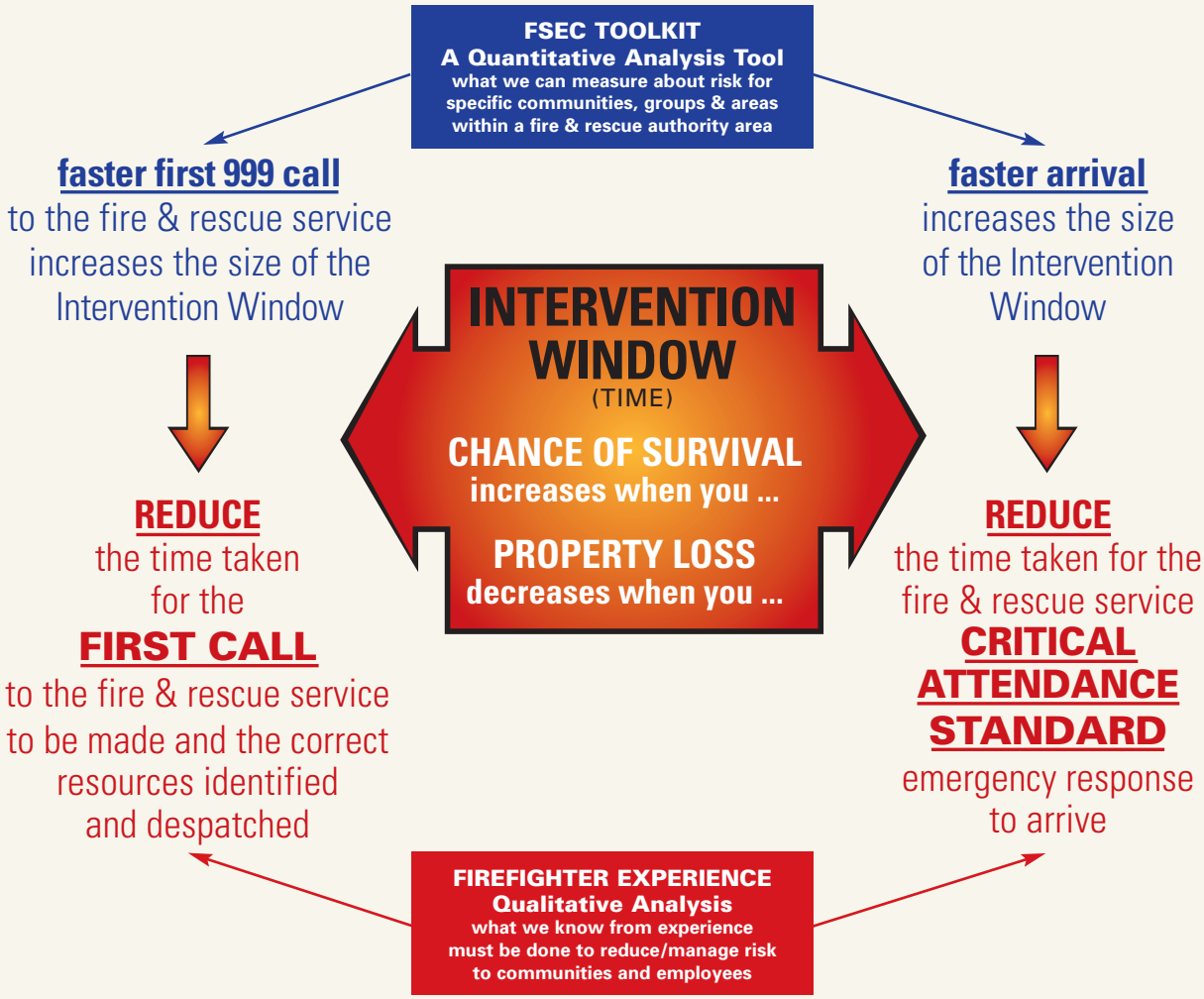
traded risk

red - higher predicted risk than existing

green - lower predicted risk than existing

If a fire & rescue authority uses FSEC to underscore a risk methodology that actually increases the predicted risk for any community then the authority will have failed that community. Equally using FSEC to underscore a risk methodology that actually increases the known risk to Firefighters will have failed the authority's employees.

> *Hereford & Worcester Fire & Rescue Authority decided to cut almost 10% of the operational wholetime firefighting force even before the Authority was able to systematically assess risk levels for its communities using the FSEC Toolkit.* **Hereford & Worcester FBU**



Planning Emergency Responses
the quantitative/qualitative data relationship

The Intervention Window, the Critical Attendance STandard & FSEC

Returning to the Intervention Window model **(Section 5)** the FSEC Toolkit has the potential to provide the **quantitative** (measurable) data required to predict the effect of improved emergency attendance times as a risk control/reduction measure. **Qualitative** information (what is known from experience and expert judgement) is provided by reference to the Critical Attendance STandard (CAST) for the particular incident being considered **(Section 4)**. In a complex risk assessment, both qualitative and quantitative data/information is needed to accurately determine the necessary risk-reduction and risk-control measures.

FSEC is most usefully used for quantitative data analysis. It can provide information on predicted risk levels for individual communities. This quantitative data must then however be combined with qualitative data (what is known from experience and expert judgement) in order to properly inform the risk assessment process. Combining these two sources of information to inform risk assessments both for individual and authority-wide communities should ensure that Integrated Risk Management Plans are able to realise their true potential – that of reducing risk for all communities and the Firefighters who protect those communities.

There is however a major conflict in this approach as it stands at present. The quantitative analysis provided by FSEC and qualitative analysis provided by the Critical Attendance STandard are incompatible.

When using qualitative data to map risk areas in brigades, and when calculating the predicted effect on risk levels of existing emergency response arrangements, the FSEC Toolkit has been programmed to predict **the effect of the arrival of the first fire appliance only** in terms of its ability to reduce risk in any area of a brigade. This is its default (centrally programmed) setting. The FSEC Toolkit has been programmed with information from Fire Damage Reports (FDR1s), and as these reports only contain information on the attendance time of the first fire appliance to arrive, this is the only information that has been input into the FSEC computer model.

However in almost all incidents routinely attended by the fire & rescue service the **Critical Attendance STandard (CAST) requires the attendance of more than one fire appliance**, either to transport the required Firefighters or to provide the equipment needed for effective operations at different 'routine' incident types (e.g. a 2-storey house fire).

FSEC modelling for Pathfinder and FSEC modelling for IRMPs

To assist in resolving the apparent conflict between qualitative & quantitative data it is useful to compare the default settings of the FSEC computer model used as part of the Pathfinder trials, and the default settings of the FSEC computer Toolkit now supplied by the ODPM for integrated risk management planning.

- when used for the Pathfinder trials, the Pathfinder FSEC model predicted the reduction in risk for a community, group or area of a brigade based on the time of arrival of the last fire appliance required as part of the total emergency response for an emergency incident that could reasonably be expected to occur (such as a house fire);
- the ODPM IRMP FSEC Toolkit predicts the reduction in risk for a community, group or area of a brigade based on the time of arrival of the first fire appliance only, irrespective of the total number of fire appliances required as part of the emergency response for an emergency incident that could reasonably be expected to occur.

Using FSEC Effectively to Determine Emergency Responses

Although the default settings of the FSEC Toolkit are incompatible with the Critical Attendance STandard (CAST), the model does allow this information to be input manually. The CAST information is a critical element of the risk assessment process carried out by a fire & rescue authority as part of their integrated risk management planning.

Section 4 gave full details of the factors in a Critical Attendance STandard emergency response. The key points can be summarised as:

- the required number of Firefighters must be sent to each incident type;
- the required equipment must be sent to each incident type;
- the Firefighters and equipment required must arrive sufficiently close together for effective operations in line with realistic Standard Operating Procedures (arrival LAG maximums).

A suitable and sufficient risk assessment will consider risk to public, property and the risk to Firefighters as the risk stands at present. To be robust, the full risk assessment process must involve the use of the FSEC Toolkit to identify risk areas and first appliance attendance times (quantitative assessment), and Critical Attendance STandard information to determine the size of the emergency response required and arrival LAG maximums (qualitative assessment).

Community Safety & FSEC

Despite the limitations imposed by the default settings of the FSEC Toolkit (i.e. you cannot use qualitative analysis as the sole planning information for determining fire & rescue emergency responses) it does constitute an

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excellent planning tool for identifying the communities, groups and areas that will most benefit from targeted community safety initiatives. The facility to predict those communities, groups and areas most at risk from fire means that strategic planning can be better informed, and community safety resources directed to areas that have been predicted as being most at risk.

Quantitative data on the effects of such initiatives will periodically update the FSEC Toolkit. If a community safety initiative is proving successful the number of fires in an area will fall, and the FSEC model will use this information in its ongoing calculations of risk levels across a fire & rescue authority's area. The calculation of these risk levels will however still be based on a calculation of the effect on risk of the arrival of the first fire appliance only, and CAST qualitative data will be required to complete the risk assessment.

'Guestimates' of what is hoped will be the effect of a community safety initiative cannot skew the FSEC Toolkit's risk predictions Any risk level prediction for an area will be updated with quantitative data – the actual fall in the number of fires, fire casualties and fire fatalities as compared with the risk level prediction before the initiative began.

Legislative Fire Safety & FSEC

For effective and integrated risk management planning the FSEC Toolkit cannot be viewed simply as a tool for determining emergency intervention and Community Fire Safety strategies. Information from Legislative Fire Safety inspection and enforcement programmes must be effectively matched to the other data sources for robust risk prediction. This currently presents some problems.

Codings used under FSEC and codings used for current 'operational' fire reporting are not compatible with each other, and neither are they compatible with legislative fire safety inspection and enforcement reporting codes. This current lack of compatibility has been identified by the Data Definition Group of the Office of the Deputy Prime Minister during the review of the current FDR1 system.

If the codes for the various planning and recording process are not compatible it will be difficult for the FSEC Toolkit to give an accurate prediction of the actual risk which fire & rescue authorities have to address. Sound and compatible data capture and analysis are essential to the process.

"The Humberside Fire & Rescue Authority's IRMP has stated the course of action to be taken when reviews are concluded. The trouble is the reviews haven't even started yet. Why bother reviewing when they already know the outcome? The recommendations should fit the evidence - not vice versa." **Humberside FBU**

The FSEC Toolkit must be capable of taking into account the strategic fire safety planning of fire & rescue authorities and particularly their enforcement activity.

The guidance to fire & rescue authorities offered in Fire Precautions Act Circular 29 on developing a risk based approach to managing a fire safety inspection programme could be considered as something of an isolationist policy which does not appear to recognise the need for an integrated approach with the emergency intervention and other preventative strategies of the authority. Put simply, to be successful there is a fundamental need for all the preventative (including fire safety inspection and enforcement) and emergency intervention sections of a fire & rescue authority to be communicating with each other both tactically and strategically. To assist this process the 'returns' that these different sections produce must use compatible codings so that both sides can understand what the other is doing and where fires are occurring.

Fire safety enforcement has a huge role to play in extending the Intervention Window. From the perspective of the FSEC Toolkit it must be viewed as a significant partner with an important part to play in the development of Integrated Risk Management Plans.

The Key Areas of Risk considered by the FSEC Toolkit

There are four areas of risk (or modules) identified by the FSEC Toolkit as follows:

- **Dwellings** – *the risk from fire posed to individuals in the home;*
- **Other Buildings** – *the risk from fire posed to occupants of buildings such as hospitals, shops, offices and factories and the risk to the property itself;*
- **Special Services** – *the risk posed by emergency incidents other than fires - special service calls;*
- **Major Incidents** – *the risk posed by larger incidents such as rail or aircraft crashes and flooding.*

Producing Useful Results from the FSEC Toolkit

Any risk assessment will only be as good as the data which informs it, whether quantitative or qualitative. The FSEC Toolkit includes the following quantitative data:

- **Fire Station Locations**;
- **Historical Incident Data** – *three year's worth of incident data (mainly from FDR1 reports) specific to each fire & rescue authority;*
- **Ordnance Survey Digital Maps**;
- **Ordnance Survey Road Network Data** – *which can be used to calculate fire appliance running times between fire stations and locations throughout the fire & rescue authority area;*
- **Ordnance Survey Address Point Data** – *addresses and postcodes for all buildings within a fire & rescue authority's area;*
- **Ordnance Survey County Boundaries**;
- **Census Output Areas** – *key statistics from the 2001 census for the fire & rescue service area, including demographic profiles and a count of the population in the area;*
- **Valuation Office Data** – *an initial count and occupancy type and additional detail of buildings in the authority's area;*
- **Microsoft Office Software**

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All Ordnance Survey (OS) based data that is provided was subject to an agreement being produced by the ODPM. However April 1st 2004 saw a new Service Level Agreement between Ordnance Survey and Local Authorities. This means that licensing arrangements for the OS products used within the FSEC Toolkit are now attributable to the licenses held under the Local Authority Service Level Agreement and not to the ODPM. Local Fire and Rescue Services will need to ensure that they have the appropriate licenses under this Service Level Agreement with Local Authorities to enable them to use the OS data that they require. Any part of the FSEC Toolkit Data that is not licensed in this way may have to be deleted from the system.

The accuracy of all quantitative data is central to the accuracy of risk identification and subsequent risk assessment. To ensure that risk identification is carried out robustly within a fire & rescue authority area, any potential data inaccuracies which could 'skew' this process must be systematically identified, understood and corrected before the risk predictions produced by the Toolkit can be relied upon.

In order to ensure accuracy of data (and so accuracy of the predicted risk levels by area from the FSEC Toolkit) some fire & rescue authorities have already implemented a Geo-coding Policy for all their incident data. Geo-coding is the process of identifying and plotting exact locations on the maps provided with the FSEC Toolkit. Accurate geo-coding (the exact locations where incidents took place) is necessary not only for historical incident data but also for Fire Safety records, hydrant records etc. etc. For ongoing updating of the Toolkit it is essential that accurate geo-coding exists for all incident and property locations within an authority's area. The Toolkit requires a geo-code format in a 6 figure *Easting* and 6 figure *Northing* to ensure positional accuracy (a 12-figure code).

If Geo-coding is inaccurate, a low risk area could be mistakenly upgraded to an area of higher risk, or alternatively (and with potentially far more serious consequences) a high risk area could be downgraded to an area of lower risk, simply because the information has been plotted to the wrong location.

Ordnance Survey Road Data
The data provided in the Toolkit is Mastermap ITN layer. This (as with any road network data) requires a substantial amount of verification and checking with regard to:

- ***Road Network*** – this must be confirmed as being up-to-date and accurate. New roads may be missing; links to adjoining fire stations must be verified. This will need to be updated on a regular basis in conjunction with Address Point data.
- ***Traffic Flow Direction*** – motorways, dual carriageways and one way streets must have the traffic flow set in the correct direction. Calculated attendance times for the first emergency fire appliance (and predicted effect on risk) will be incorrect if these times are calculated based on flawed data.
- ***Default Speed Limits*** – these must be verified against actual road conditions and traffic flow and density. For example a fire station situated on an A-Class Road within one kilometre of a busy city centre may only achieve an average attendance speed of 14 mph within a one kilometre radius of the fire station, although the default speed for that A-Class road into the city centre may be set at 40 mph on the FSEC Toolkit. Other factors to be taken into account when calculating achievable travel speeds include areas with known access problems due to parking, narrow streets in small towns and villages, traffic calming measures etc. This information will be based on local knowledge of fire station areas.

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Fire Station Locations
The location of each fire station in a fire & rescue service area must be confirmed against the Toolkit's plotted location. Fire Station locations must be correct and within 50 metres of a junction on the OS Road Network for accurate calculation purposes. The location of stations in adjoining fire & rescue authority areas must be confirmed against a correct geo-coded location (map point), and the road network to stations in adjoining fire & rescue authorities must be validated.

Ordnance Survey Address Point Data
Due to the amount of building and developments taking place throughout the country the data provided will need to be checked for accuracy, modified where necessary using the Graphic Information System software provided in the Toolkit, and updated on a regular basis.

Fire & Rescue Service Historical Incident Data
As part of the roll-out programme for the FSEC Toolkit fire & rescue services provided the ODPM with their past three years of emergency incident data. This data was then geo-coded and plotted on the FSEC Toolkit within the ODPM before being re-supplied to brigades. The whole process has taken place using Address Point Data and every incident has been given an 'accuracy' rating. It is therefore feasible that a fire & rescue service who geo-coded each incident manually at the correct location will now receive data back (plotted in the Toolkit) that is less accurate than they submitted where there is no match to Address Point Data.

Census Output Areas and Key Statistics
By cross referencing to existing robustly accurate data, some Local Authorities have established that there are inaccuracies in the 2001 Census Data that has been released. Local Authorities have been successful in legal challenges to prove that the Census Data is inaccurate. This data in part relates to the level of central government funding that they are allocated to provide local services. Even where a Local Authority wins a legal challenge based on inaccuracy of census data, the additional data cannot simply be divided up and added to the census output areas plotted in the FSEC Toolkit to produce a more accurate prediction of fire and fire fatality risk. To adopt such a simplistic approach would undoubtedly lead to inaccuracies in risk level predictions using the Toolkit, as the estimated population figures would not be demographically correct regarding race, age and gender etc. Where these inaccuracies are proven the local fire & rescue authority must take this information into account in the overall risk identification for dwelling fire and fatality risk in their area.

Valuation Office Data
This provides an initial 'count' of occupancy types and additional details of **Other Buildings** in a fire & rescue authority's area. Validation and correction of this initial data will without doubt create a vast amount of work for FSEC Teams, Fire Safety Departments and Operational stations and personnel.

It cannot be emphasised enough how important this information is in order to accurately identify the risk posed by buildings other than dwellings (Other Buildings Risk) and so that the correct emergency response strategy can be planned.

The provided Valuation Office data will need to be verified against all existing fire & rescue authority records held by Fire Safety and other brigade departments that have relevant information e.g. Risk Cards or information held on fire stations. The status and location of Hospitals and Care Homes will need to be verified both by fire & rescue service personnel and through liaison with the appropriate agencies and Trusts. Information regarding Houses in Multiple Occupation, purpose built flats and houses converted to flats will need to be collated by fire & rescue service personnel, and this process will require liaison with other agencies. As with other data, all

"West Midlands Fire & Rescue Authority made changes to their draft IRMP which completely ignored the results of their initial risk predictions. They ignored the FBU's submission, and stated that this was because it wasn't received until the last few days of the consultation period." **West Midlands FBU**

Other Buildings will need to be plotted to the correct address and location, and types of occupancy within the same building or premises will need to be defined and recorded. An assessment of risk to Firefighters can then take place based on identified building hazards which will include the:

- building type;
- construction;
- layout;
- age;
- contents;
- processes taking place within the building.

Other risks to be identified will include environmental risk, heritage risk, a sole supplier or unique centre of manufacture risk such as a specialist hospital unit, and risk to properties of exceptional value.

In respect of the **Other Buildings** plane, once the FSEC Toolkit has been populated with statistically robust and validated data, and coupled with site assessment by experienced fire & rescue service personnel, it will be possible to plan the required fire & rescue service emergency response to **Other Buildings** based on a building-by-building assessment, rather than by relying on Pre-Determined Attendances for generic building types. Although the long term strategy will be to produce such evidence-based responses to all local risk areas and types, it is initially envisaged that planned responses will reflect current Pre-Determined Attendances.

Data from Other Agencies / Data Sharing
Other agencies e.g. Local Authorities and Police may be able to provide data that is required for the ***Other Buildings***, ***Special Service*** and ***Major Incident Modules*** within the FSEC Toolkit. Some of this data may also be available from New Dimensions Officers within the fire & rescue service. There may however be incompatibility issues in the IT Systems being used for New Dimension planning compared with the current system used in the FSEC Toolkit (such as road networks).

Long-Term Planning with FSEC

The FSEC Toolkit is an evidence-based tool for quantifying risk, and the effects of the work of the fire & rescue service, both in emergency intervention, and in preventative strategies such as Community Fire Safety initiatives and fire safety inspection and enforcement programmes. The Toolkit will require constant management and updating of information. In addition to updating with data from emergency incidents, and information on **Other Buildings** etc., information is available from other sources that may not initially have been considered. Each local authority publishes a Development Plan (usually a 10-year development plan) which outlines proposed areas of residential, commercial and industrial development, together with proposed new roads etc. Planning Application lists are also available from local authorities.

The evidence provided from these sources will be extremely relevant when considering fire & rescue service emergency cover and deployment decisions. Such long-term development planning proposals will require long-term emergency response planning strategies to be developed to ensure that future risk does not overtake provision.

Integrated Risk Management Plans are risk-based plans which aim to manage/reduce the risk to communities and employees from fire and other emergencies. The Management of Health and Safety at Work Regulations 1999 (as amended) set out the responsibilities that a fire & rescue authority carries to manage the risks to its employees and others resulting from the activities of their undertaking. Under these regulations there is a legal requirement to risk assess all operations to ensure that the risks are first of all understood, and then eliminated or reduced. Any residual risk must be managed to ensure that all risks are effectively reduced to 'As Low As Reasonably Practicable' (ALARP).

In addition to the need for legal compliance there are wider moral obligations to, and expectations of, society and the authority's own employees, to provide a healthy and safe working environment.

In the case of the fire & rescue service, its *raison d'etre* is to engage in effective preventative strategies, and to apply specialist skills and experience to real or potentially life-threatening situations. When responding to an emergency call, this requires judgements and assessments of risk to be made rapidly and often in situations of heightened alarm, where the potential for error is increased. To manage such situations as effectively as possible, and to minimise the risks to both Firefighters and also the public, an holistic approach to the management of risk is needed. This approach must take into consideration the various contexts within which the service is required to function, the range of emergency response options available and the resources required to achieve an agreed level of response.

Ultimately, the ability of a fire & rescue service to perform in accordance with the proposals set out in their IRMP will depend upon the availability of competent resources, in its widest context, coupled with the promotion of a risk-based culture at all levels of the service itself. Effective pre-planning is essential for both public and Firefighter safety.

Risk Assessment, ALARP & IRMPs

Risk is defined as **the product of the likelihood of an event occurring and the consequences should that event occur.** The primary risk to be managed by the fire & rescue service i.e. fire, can be reduced by:

- promoting fire prevention i.e. reducing the probability of exposure to the hazard; *and/or*
- providing emergency rescue and firefighting intervention i.e. reducing the consequence of exposure to the hazard.

The Risk Management process involves a number of stages:

- Identification of hazards;
- Analysis of relevant data and information;
- Assessment of the risk of the adverse event occurring;
- Identification of control measures;
- Implementation of the selected control measures.

Hazards are often difficult to define accurately and may be physical, psychological, operational, systemic or procedural. In order to manage the risk cycle fully, not only must all elements of the risk assessment process be put in place, but the hazard identification process must be undertaken rigorously to ensure that all significant hazards have been identified.

The degree of rigour in the assessment of risk must be commensurate with the level of risk i.e. the risk assessment should be suitable and sufficient. In cases of minor injury or property damage, it would usually be sufficient for competent experts to carry out a qualitative assessment. At the other end of the spectrum, in the case of very high risk involving multiple deaths, a combination of quantitative (numerical) assessment and qualitative assessment (expert judgement) is more appropriate. In this respect the expert knowledge of Firefighters and Firefighters (Control) is essential to the targeting of appropriate control measures and demonstrating that risks are reduced ALARP.

An IRMP is a complex risk-based plan. In order to ensure that all hazards have been systematically identified, the risks posed by those hazards considered, and effective control measures determined, the entire risk management process must be considered. The diagram opposite shows the typical risk management process as it relates to integrated risk management planning. The relationship between this risk management process and Sections 1 to 9 of the National IRMP Document is also shown in this diagram.

"IRMPs will only improve the fire & rescue service if they are constructed properly. The real danger is that the opportunity that IRMPs present will be wasted, and people that we could have saved will continue to die because of planning that is politically driven rather than risk-based." **South Wales FBU**

The Systematic Risk Management Process for IRMPs

HAZARD

Agreeing the Objective – *Section 1*
Understanding Process – *Section 2*
Critical Attendance STandard – *Section 4*

Identifying Hazards
The aim is to gather information on the various identified hazards both for the community and employees, including but not limited to:

- Fire
- CRBN
- Marine/water incident
- Other rescues
- Attacks on Firefighter
- Road Traffic Accidents
- Environmental
- Aviation incident
- Explosion
- Terrorist attack
- Inadequate Standard Operating Procedures

RISK ASSESSMENT

Agreeing the Objective – *Section 1*
Understanding Process – *Section 2*
Critical Attendance STandard – *Section 4*
FSEC as a Planning Tool – *Section 6*

Risk Assessment
This stage uses Quantitative and Qualitative analysis on the collected information and data on hazards. The **Quantitative** approach cannot be applied to all hazard situations. The hazards will also need to be subjected to a **Qualitative** risk assessment (based on expert judgement). The advantages of this approach to risk assessment are:

- Standardised approach
- Allows filtering of lower risks
- Complex relationships can be handled:
- Provides an auditable path

RISK REVIEW & RANKING

Agreeing the Objective – *Section 1*
Understanding Process – *Section 2*
Critical Attendance STandard – *Section 4*
FSEC as a Planning Tool – *Section 6*

Risk Review and Ranking
The results from the risk assessment need to be reviewed and ranked in preparation for the next stage of the process and includes the:

- Review of the risks by area
- Ranking of risks

RISK WORKSHOP

Agreeing the Objective – *Section 1*
Understanding Process – *Section 2*
Critical Attendance STandard – *Section 4*
The Intervention Window – *Section 5*
FSEC as a Planning Tool – *Section 6*

Risk Workshop
The aim of this part of the process is to facilitate **expert judgement** on the result from the risk assessment that considers:

- Agreement of risk levels
- Definition of action plan
- Prioritisation and ranking of risks
- Agreement of risk ALARP

RISKS ALARP

Agreeing the Objective – *Section 1*
Understanding Process – *Section 2*
ZERO Fire Deaths Target – *Section 3*
Critical Attendance STandard – *Section 4*
The Intervention Window – *Section 5*
FSEC as a Planning Tool – *Section 6*
Getting the IRMP Process Right – *Section 7*
The Cost of Getting it Wrong – *Section 8*
Solutions from the Front Line – *Section 9*

Risks As Low As Reasonably Practicable (ALARP)
The decision on the level of risk considered acceptable under the IRMP must take into account both the acceptable risk to the community and the acceptable risk to Firefighters, Firefighters (Control) and other employees.

REPORT & ACTIONS

Report & Actions
The final stage of all risk management processes is the implementation of the results from the process and monitoring the actions taken. This includes implementation of and monitoring of the effectiveness of both preventative strategies and emergency intervention strategies. This monitoring will consider risk levels to the community and risk levels for Firefighters, Firefighters (Control) and other employees.

To satisfy the obligation to review and continually improve the management of risk, the above process is a closed loop and must remain continuous and 'live'.

Safety Management Systems

The Health and Safety Executive publication HSG(65) entitled 'Successful Health and Safety Management' sets out the building blocks for putting in place suitable arrangements for the whole process of managing health and safety risk i.e. the management system. Whilst the risk assessment principles set out are for application within an organisation, the same principles are valid for a fire & rescue authority within the context of the wider fire and other risk issues which they are required to manage under an Integrated Risk Management Plan.

The six key elements of such a management system are:

- Policy
- Organisation
- Planning and Implementation
- Measuring Performance
- Reviewing Performance
- Auditing

The relationships between these elements are shown in **Figure 3.**

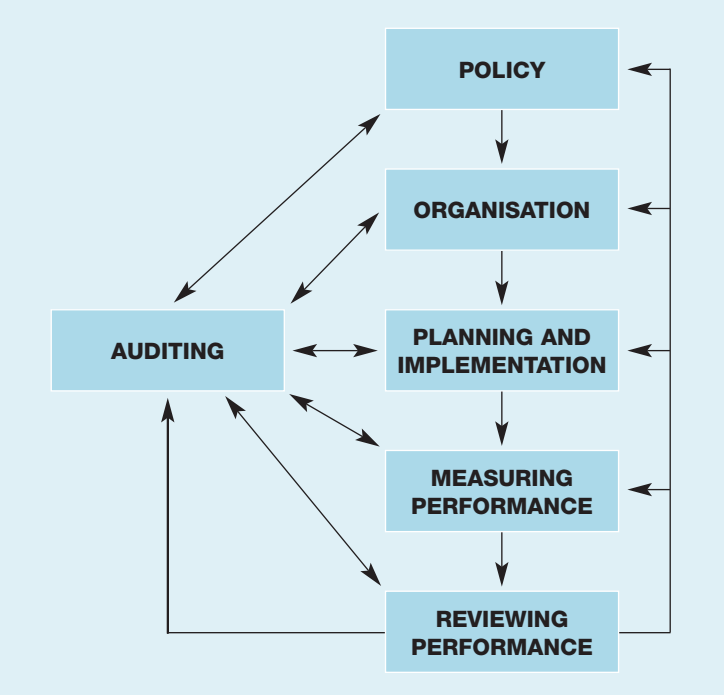


Figure 3 – Safety Management System

1. Policy

Policies set a clear direction for the organisation to follow in all aspects of performance. The IRMP should set out a clear policy for the direction of the fire & rescue authority which embraces all aspects of the authority's performance and its relationships with other emergency services, government departments and agencies, local government departments, the business sector, the voluntary sector, the general public and community policies.

2. Organisation

The IRMP should define the responsibilities and relationships that are necessary to promote a positive health and safety culture and to secure the implementation of the IRMP proposals. Organising includes the identification of an effective management structure, effective and reliable communication arrangements (both internally and with the wider community), competence requirements and training needs.

3. Planning & Implementation

A planned and systematic approach is required to implement the policy, through an effective health and safety management system. The IRMP should clearly demonstrate how the proposals will be implemented and within what timescales. It should identify what consideration has been given to the provisions of the resources necessary to successfully implement the plan and how that provision is to be obtained and allocated.

4. Measuring Performance

Performance is measured against agreed standards to reveal when and where improvement is needed. The objectives of active and reactive monitoring are to determine the immediate causes of sub-standard performance; and to identify the underlying causes and the implications for the design and operation of the health and safety management system. The IRMP should identify targets and key performance indicators (KPI) to aid the measurement of performance and should be able to demonstrate continuous improvement over time in the delivery of the services of the fire & rescue authority.

5. Reviewing Performance

An organisation learns from all relevant experience and applies the lessons learnt. Performance is assessed by reference to local and national targets and internal key performance indicators (KPI), and external comparison. The IRMP should include procedures for regular reviews of its progress to help build upon the knowledge and experience gained in order that the arrangements may be continuously improved through suitable corrective action plans.

6. Auditing

The audit system must demonstrate that all aspects of the safety management system, ie the IRMP, are assessed (policy, organising, planning and implementation, measuring systems and review systems) and must also demonstrate the mechanism for updating the IRMP.

Specific audit arrangements should be identified to assist in providing an understanding of the fire & rescue authority's performance, including audits of KPIs. These are used to provide a basis for targeting of effort and resources in the future.

"The new Integrated Risk Management Planning process offers the Hertfordshire Fire & Rescue Authority an opportunity to greatly improve on its current service, and to further improve the safety of both its employees and the community that it serves." **Hertfordshire FBU**

An IRMP Checklist

The following questions relate to the Systematic IRMP Risk Management Process on page 63 and will assist in ascertaining whether or not the IRMP is based upon a clear understanding of the scope of the issues to be addressed, the scale of the risks involved and the effort involved in both mitigating the risks and managing the residual risk.

Being able to answer these questions positively and demonstrate how the issues raised have been addressed will provide a level of assurance that the fire & rescue authority has met both the requirements of the IRMP and also its responsibilities under the law. A 'no change' strategy is unlikely to be an acceptable demonstration of understanding or compliance.

It is also important to remember that whilst the plans must consider both commercial risk and safety risk, the primary concern is for the safety of people (the public, Firefighters, Firefighters [Control] and other fire & rescue service staff) and the risk implications for individuals.

1. Are you able to demonstrate that the data which has been considered in the drafting process for your IRMP has been collected over a suitable period of time and includes the number and type of all incidents attended, their geographical location, seriousness and cause and is the data sufficiently robust and reliable to be used for that purpose?

2. In your assessment of community related risk have you taken into account community related factors such as age range, ethnic origins, socio-economic ratings and patterns, nature of housing, crime and disorder issues (particularly the incidence of arson), social mix, etc? Have you established regular lines of communication with local authority planners, housing departments and social service departments to ensure that any proposed or likely change in demographic risk is notified to you? Have you used national statistics to indicate trends that have informed your judgement about the risks that you might reasonably expect to find and face in the fire & rescue authority area?

3. Does your IRMP specifically address the risk trends or implications from the available data?

4. Are you able to demonstrate that you have had access to and utilised sufficient reliable information/data from all areas forming your fire & rescue authority area to enable you to:

- understand the fire risks in the various categories in your area;
- assess the risks in detail;
- map out those risks and plan the necessary fire & rescue service emergency intervention response to them;
- assess the level of fire safety resources necessary to maintain those risks at their present level and reduce them wherever possible;
- provide and initiate the required fire & rescue service emergency intervention response predicted by the plan;
- monitor and assess new risks being created and existing risks being removed or replaced;
- provide a regular risk based fire safety enforcement programme.

5. Have you developed and justified strategic fire safety plans to reduce fire risks, improve the level of fire safety awareness and fire safety measures throughout your fire & rescue authority area? For example, have you implemented fire safety inspection and enforcement programmes, community fire safety initiatives and programmes, public fire safety access programmes and developed contacts with other agencies to ensure joint working on fire safety programmes and also with the local press and media for swift fire safety messaging. Have you drafted a crime reduction strategy in accordance with your current duties under the Crime and Disorder Act 1998 (as amended) and does that strategy adequately deal with the crime of arson?

6. Have you developed permanent links and established agreed consultation procedures with the Planning and Building Control departments of the local authorities within your fire & rescue authority area so that you can advise upon and monitor fire safety standards and fire safety measures in sites to be developed and buildings to be constructed. Have you put in place the trained uniformed fire safety resources, administrative staff and technological resources to support this process?

7. Have you provided resources and procedures to ensure that investigation of fires can take place so that lessons can be learned from incidents and any information so gained fed back into the IRMP?

8. Have you assessed the adequacy of fire & rescue service vehicular access, the availability of firefighting water and other firefighting media supplies and the levels of security to be overcome before firefighting may commence at all existing high fire risk buildings and sites within your fire & rescue authority area.

9. Have you prepared a long-term strategic funding plan to secure the necessary investment in new fire stations, uniformed personnel, fire appliances, uniforms and equipment, state of the art mobilising systems and technology, fire & rescue service and community training facilities, fire safety offices and equipment, community fire safety equipment and facilities, modern electronic technology support, vehicle repair and maintenance support and the appropriate level of non-uniformed support?

10. Have you made a clear and robust risk-based case that is based upon unequivocal and reliable statistical evidence which has developed over a substantial period of time and which demonstrates a clear downturn in the level of incidents attended and the reduction of risk levels before making proposals for the downgrading or closure of an existing fire station, or the removal or redeployment of fire appliances from an existing fire station?

11. Are you able to demonstrate that the optimum deployment of firefighting resources necessary to respond to all anticipated incidents in all areas of the fire & rescue authority and at all times, in terms of vehicles, personnel and any specialist support, has been identified through a robust and detailed fire risk assessment of the risk involved?

12. Have you identified and located all special risks within the fire & rescue authority area which could give rise to an incident that requires enhanced levels of fire & rescue service emergency intervention provision, and are emergency response plans in place which have been agreed with the owner(s) of the premises/site and such other agencies or emergency services as are appropriate, and are those plans regularly practised and reviewed? Are such sites and premises regularly subjected to fire safety enforcement inspections and are they part of the fire safety inspection programme and, if necessary, are fire safety inspections made in conjunction with other safety enforcers?

13. Does the Brigade IRMP demonstrate how local authority and other development plans are catered for in the emergency intervention response model?

14. Are you able to demonstrate that you have had access to and utilised sufficient reliable information/data for non-fire incidents such as special services calls to enable you to:

- understand the risk of such incidents in your fire & rescue authority area;
- assess those risks in detail and the likely frequency of occurrence;
- map out those risks;
- assess the appropriate level of fire & rescue service emergency intervention response and the level of assistance likely to be required from other agencies to such incidents;
- plan the necessary fire & rescue service emergency intervention response to them including any assistance from other agencies;
- initiated arrangements capable of delivering the planned emergency intervention response at all times;
- review and assess the effectiveness of the planned emergency intervention response when measured against real incidents;
- update the Integrated Risk Management Plan as the ongoing assessment process predicts.

15. Does the available data that you are using recognise that particular areas of, or sites within, the fire & rescue authority area pose an increased risk to the public from a non-fire incident and does this predict a requirement for the implementation of fire safety enforcement procedures, community fire safety initiatives, or joint approaches with other safety enforcers or Local Authorities, to drive down the level of risk to the public?

16. Are you able to demonstrate that there is within the IRMP a clear line of communication and close liaison with other local and national agencies and service providers to assess the risk of pollution events occurring, how they interface with other fire & rescue service functions including firefighting and fire safety enforcement and what could be done jointly to reduce the likelihood of such an incident occurring and to mitigate the consequences if it does? Where such a potential risk exists within your fire & rescue authority area what plans do you have for responding to it?

17. Are you able to demonstrate that you have sufficient data and local information available to you to allow you to assess the level of heritage risk present in your fire & rescue authority area and to enable you to plan and prepare an adequate emergency response to a heritage risk incident? Do your plans involve other interested bodies and groups who may be able to assist in the preservation of valuable historic artefacts or buildings? Have you contacted the National Heritage Agencies, or Local Authorities to obtain details of the sites of heritage or historic interest within your fire & rescue authority area? Are such premises or sites subject to regular fire safety inspections and is fire safety advice for the owners or occupiers of such sites or premises readily available from your brigade?

18. Are you able to demonstrate that you have assessed the risk of a major accident hazard site or premises being present within your fire & rescue authority area and where such a site or premises does exist can you demonstrate that there is regular and adequate liaison between the fire & rescue service, the site managers/owners, the Health and Safety Executive, the relevant Local Authorities, other safety or environmental enforcers, other emergency services and local residents? Have you consulted or been consulted over the preparation of an emergency response plan for that site in order to protect the general public, the environment, the emergency services and the site employees from an incident at that site or premises? Can you also demonstrate that such an emergency response plan and the fire & rescue service's role within it is both adequate and periodically practised and reviewed? Where enforcement of such an emergency response plan rests with another safety enforcer, can you demonstrate that they have taken into account the views and any concerns of the fire & rescue authority?

19. Can you demonstrate as part of your IRMP that adequate plans are in place that are regularly reviewed and practised to deal with any of the following incidents:

- a major incident involving a fire or explosion where large numbers of the public or employees are present;
- a major incident caused by unusual or severe weather conditions;
- a major incident involving road vehicles both on a motorway and elsewhere;
- a major incident involving the railway;
- a major incident involving an aircraft crash on an airport and/or an incident involving an aircraft crash off an airport;

> *"The IRMP lacked detail and confused members of the public and employees alike. The question asked was how it will affect local fire stations and emergency cover? Unfortunately many of the proposals are merely a mask to achieve savings, by reducing emergency cover and staffing levels."* **Cheshire FBU**

- a major incident involving a terrorist attack (conventional, chemical, biological, nuclear);
- a major incident involving an uncontrolled release of radioactive material;
- a major incident involving the collapse of a building;
- a major incident involving a ship, or port, or harbour, installation *(coastal authorities or authorities with ports or harbours)*.

20. Where you have major incident procedures and plans for dealing with such incidents have they been drawn up in conjunction with the other emergency services, Local Authorities and Emergency Planning Departments, and are such plans subject to regular review and re-assessment?

21. Can you demonstrate that sites or premises assessed as having the potential to pose a major incident hazard are regularly subjected to fire safety inspections, including fire safety enforcement inspections where enforcement of the adequacy of the fire safety measures rests with the fire & rescue authority?

22. Has your review demonstrated that the assessed risk to Firefighters and Firefighters (Control) has changed (increased or decreased) for the range of scenarios, duties and activities required of them?

23. Has there been any change in the facilities (appliances, uniform and equipment, fire stations, training facilities, buildings, transport, duty systems, staffing levels, fire safety enforcement support, etc) which Firefighters and Firefighters (Control) may reasonably expect to have at their disposal and are you able to demonstrate how this impacts upon their ability to respond to incidents safely and effectively?

24. Are there any changes proposed that are likely to raise the levels of stress experienced by Firefighters, Firefighters (Control) and other fire & rescue service staff, and will their coping strategies, e.g. team support and management support, be adversely affected by the proposals?

25. Does your IRMP take into account the need for and provide both planning and resources for the skills and training necessary to enable Firefighters, Firefighters (Control) and other fire & rescue service staff to perform their duties and roles with confidence and safety? Is such training regularly reviewed to assess its adequacy and relevance?

26. Does your IRMP take into account the effect of the Building Regulations and Building Standards upon the safety of Firefighters and do you have a fire safety enforcement inspection programme and procedure in place to deal with these issues?

27. Does your IRMP take into account the effect of the Health and Safety at Work etc. Act 1974 and of Regulations made there-under upon the safety of Firefighters, Firefighters (Control) and other fire & rescue service employees and have you got the appropriate structures and resources in place to consult with staff and their appointed representatives on health and safety matters and to investigate incidents in accordance with that legislation?

28. Are you able to demonstrate that Firefighters and Firefighters (Control) have been heavily involved in the preparation of the IRMPs and fully understand the risk assessment process and the agreed response/control measures that have been developed?

29. Are you able to demonstrate that you have evaluated fully the effectiveness of fire safety and fire service emergency intervention arrangements and their inter-relationship?

30. Does statistical analysis of incident data indicate that more could be done through preventative initiatives to save lives and protect property by targeting specific areas of risk and is this addressed within the proposals?

31. Has the fire & rescue authority's ability to respond to fires and other incidents been adversely affected by the geographical distribution of resources and do the proposals demonstrate and address this issue?

32. Are changes needed to reduce the limitations in the fire & rescue authority's ability to rescue people due to resource restrictions e.g. initial emergency intervention response times and levels, number of trained staff and/or type/availability of equipment?

33. Where improved fire prevention arrangements are proposed, do the plans demonstrate that sufficient allowance for incremental improvement/phasing has been made for such proposals to become effective by synchronisation with the associated response arrangements from other local services? (e.g. education may take several years, practical solutions may be effective almost immediately).

34. Has a detailed review of current safety arrangements identified how improvements could be made to the safety of the community as a whole?

35. Do the proposals identify what could be done differently to improve the inter-relationship between the fire safety and emergency intervention roles of the fire & rescue service in order that community risk levels are minimised?

36. Has a proper assessment been made of changing the balance between the preventative role and the emergency intervention role?

37. Have risk reduction targets been set?

38. Has an assessment been made of the resources required for the fire safety role to be truly effective?

39. Have specific levels of response for differing areas of risk been assessed to determine the optimum level of resource requirements in terms of staffing levels, vehicles, appliances and equipment and their distribution within the fire & rescue authority area?

40. Has relevant best practice within other emergency services been considered or researched and taken into consideration in the IRMP proposals?

41. Has a balance between cost, safety and commercial benefit been made in assessing the level and deployment of resources to achieve the IRMP requirements?

42. Have the detailed costs of the IRMP proposals been assessed on an annual basis, plus start up costs?

43. Have various options been assessed and considered on a Net Present Value (NPV) basis to aid selection of the proposed approach?

44. Has a VPF (Value for Preventing a Fatality) figure been identified and used in any Cost Benefit Analysis (CBA)?

45. Has commercial loss in its widest context been incorporated into the CBA process (e.g. property, business interruption, worker dislocation, job losses, data protection)?

46. Has all relevant data been considered and used in a model to test the proposals and their sensitivity to change or varying conditions including high resource deployment levels in times of peak demand?

47. Has the risk assessment process included an assessment by experts with key competencies in a consensual setting e.g. facilitated workshop?

48. Have any intolerable risks been identified for either the public or Firefighters, Firefighters (Control) and/or other fire & rescue service staff and, if so, are you able to demonstrate that measures are being put in place to reduce these to broadly acceptable or tolerable levels?

49. Has a reasonable range of alternative approaches been considered and documented when arriving at preferred IRMP strategies, in order to demonstrate the exhaustiveness of the ALARP approach?

50. Are you able to demonstrate that all stakeholder groups have been identified and consulted and are happy that their views have been heard and taken into consideration in formulating the IRMP?

51. Has due consideration been given to the nature and extent of responsibilities and measures proposed or provided by other local or Government initiatives and emergency services, in order that the interfaces between these activity areas is properly understood and managed through the IRMP?

52. Does the IRMP include for an awareness-raising process, piloting or bedding-in process to ensure that all stakeholders fully understand the proposed changes?

53. Do the elected members of the fire & rescue authority fully understand the liability aspects of the IRMP which have been devolved to them?

54. Has the full extent of training and competence requirements been assessed and budgeted for within the IRMP?

55. Policy – does the IRMP set out a clear policy for the direction of the fire & rescue authority? Does it embrace all aspects of the authority's performance and its relationships with other emergency services, government departments and agencies, local government departments, the business sector, the voluntary sector, community policies and the general public?

56. Organising – is an effective management structure identified, including effective and reliable communication arrangements (both internally and with the wider community), competence requirements and training needs? Is it demonstrable that the workforce is committed to the IRMP proposals?

57. Planning – does the IRMP clearly demonstrate how the proposals will be implemented and within what timescales? Does it identify what consideration has been given to resource provisions necessary to successfully implement the plan and how that provision is to be obtained and allocated?

58. Measuring Performance – does the IRMP identify targets and key performance indicators (KPI) to aid the measurement of performance? Will these enable the fire & rescue authority to demonstrate continuous improvement over time in the delivery of services?

59. Auditing – are specific audit arrangements identified to assist in providing an understanding of the fire & rescue authority's performance, including audits of KPIs, to provide a basis for targeting of effort and resources in the future?

60. Reviewing – does the IRMP include for regular reviews of its progress to help build upon the knowledge and experience gained in order that the arrangements may be continuously improved through suitable corrective action plans?

Further IRMP Detail and Guidance

Further information on the expected content of local Integrated Risk Management Plans is outlined below under the following headings:

A. Risk Identification

B. Allocation of Resources

C. Planning and Consultation

D. Communication

E. Risk Management

F. Changing Demands

G. Monitoring Performance

H. Reviewing Performance

A. Risk Identification

Reliable Data

The IRMP should demonstrate that reliable data has been considered which has been collected over a suitable period of time (3-5 years). In relation to recorded incidents, the following data should have been considered as a minimum:

> *"The Cambridgeshire Fire & Rescue Authority managed to consider and take full account of the local FBU Preliminary Observations on their draft IRMP in a matter of days before making the decision to go ahead with their proposals unchanged. Consultation was no more than a tick box exercise."* **Cambridgeshire FBU**

- number of incidents;
- type of incidents attended;
- geographical location;
- severity;
- cause.

Statistical Analysis

Statistical analysis of incident data should be used to indicate if more could be done through preventative initiatives to save lives and protect property, by targeting specific areas of risk. This will demonstrate a full understanding and evaluation of the effectiveness of prevention and the emergency intervention arrangements and their inter-relationship.

Community Risk

The assessment of community-related risk should take into account factors including (although not exclusively):

- age range;
- nature of housing;
- socio-economic ratings and patterns;
- crime and disorder issues (particularly the incidence of arson).

The IRMP should identify what could be done differently to improve the inter-relationship between the prevention and emergency intervention roles of the service in order that community risk levels are minimised.

Scope of Fire Risk

The IRMP should be capable of demonstrating that sufficient reliable information/data has been utilised from all areas within the fire & rescue authority, to enable:

- an understanding of the fire risks in the various categories;
- an understanding of other risks e.g. non-fire emergencies;
- assessment of the risks in detail i.e. consequences and likelihood of occurrence;
- mapping of emergency intervention resources to the identified risks;
- assessment of the level of resources necessary to maintain those risks at their present level and reduce them wherever possible;
- provision and implementation of the required fire & rescue service emergency intervention response predicted as being necessary by the IRMP;
- monitoring and assessment of new risks being created and existing risks being removed or replaced;
- provision of a regular risk-based fire safety inspection and enforcement programme.

Major Hazard Sites

The IRMP should demonstrate that sites or premises assessed as having the potential to pose a major incident hazard are regularly subjected to fire safety inspections, including fire safety enforcement inspections where enforcement of the adequacy of the fire safety measures rests with the fire & rescue authority.

High Risk Site Access

The IRMP should demonstrate the approach that has been taken to the assessment of the adequacy of fire & rescue service vehicular access, the availability of water and other firefighting media supplies, and the levels of security to be overcome before firefighting may commence, at all existing high fire risk buildings and sites within the fire & rescue authority's area.

Heritage Risk Sites

The IRMP should demonstrate that sufficient data and local information is available to allow an assessment of the level of heritage risk present in the fire & rescue authority area, and to plan and prepare an adequate emergency response to a heritage risk incident. The development of such plans should involve other interested bodies and groups who may be able to assist in the preservation of valuable historic artefacts or buildings.

The IRMP should demonstrate that National Heritage Agencies or Local Authorities have been contacted to obtain details of the sites of heritage or historic interest within the authority area. It should ensure, where appropriate, that such premises or sites are subject to regular fire safety inspections and that fire safety advice for the owners or occupiers is readily available.

Firefighter & Firefighter (Control) Risk

The IRMP should demonstrate that the risk to Firefighters and Firefighters (Control) has been assessed in respect of all initiatives and response strategies for the range of scenarios, duties and activities required of them.

Firefighter & Firefighter (Control) Stress

The risk assessment of any changes proposed should include the assessment of levels of stress experienced by Firefighters, Firefighters (Control) and other fire & rescue service staff, and whether any coping strategies, e.g. team support and management support, could be adversely affected by the proposed changes.

Expert Judgement

The risk assessment process should be documented and include for an assessment to be made by experts with key competencies in a structured, consensual setting e.g. facilitated workshop. This is particularly important in respect of the development and agreement of CAST Planning Scenarios for the more complex emergency incidents.

Building Regulations & Standards

The IRMP should take into account the effect upon the safety of Firefighters of the Building Regulations and Building Standards, and any proposed revisions to these regulations

and standards, and be capable of demonstrating that a fire safety inspection and enforcement programme and procedures are in place to deal with these issues.

Risk Model
To help manage large amounts of data, all relevant data should be considered and used in a computer-based model to test the proposals set out in the IRMP, and importantly to test their 'sensitivity' to changed or varying conditions, including high resource deployment levels in times of peak demand.

Reliable Data on Non-Fire Risks
The IRMP should demonstrate that sufficient reliable information/data has been utilised for non-fire incidents such as special services calls. This should be capable of demonstrating that the fire & rescue authority has:

- understood the risk of such incidents in the authority's area;
- assessed those risks in detail and the likely frequency of occurrence;
- assessed the appropriate level of fire service emergency intervention response and the level of assistance likely to be required from other agencies to such incidents;
- planned the necessary fire & rescue service emergency intervention response to them including any assistance from other agencies;
- initiated arrangements capable of delivering the planned emergency intervention response at all times;
- reviewed and assessed the effectiveness of the planned emergency intervention response when measured against real incidents;
- updated the IRMP as the ongoing assessment process predicts.

High Risk Sites
The fire & rescue authority should ensure the data used recognises that particular areas or sites within the authority's area pose an increased risk to the public from non-fire incidents. If this data predicts a requirement for the implementation of preventative strategies (including fire safety enforcement procedures and/or community fire safety initiatives) or joint approaches with other safety enforcers or Local Authorities to drive down the level of risk to the public, then the appropriate resources should be identified and allocated.

B. Allocation of Resources

Legal Obligations
The IRMP should take into account the effect of the Health and Safety at Work etc. Act 1974 and related regulations upon the safety of Firefighters, Firefighters (Control) and other fire & rescue service employees. Also, the need for appropriate structures and resources to be in place to consult with staff and their appointed representatives on health and safety matters and to investigate incidents in accordance with that legislation.

Resource Levels
There needs to be a clear demonstration within the IRMP that specific levels of emergency intervention response for differing areas of risk have been assessed to determine the optimum level of resource requirements in terms of staffing levels, vehicles, appliances and equipment and their distribution within the fire & rescue authority's area.

Resource Assessment
The IRMP should demonstrate that an assessment of the fire & rescue authority's ability to respond to fires and other incidents is not adversely affected by the geographical distribution of resources.

Training and Competence
The IRMP should take into account the need for, and provide both planning and resources for, the skills and training necessary to enable Firefighters, Firefighters (Control) and other fire & rescue service staff to perform their duties safely and with confidence. The fire & rescue authority should ensure such training is regularly reviewed to assess its adequacy and relevance.

Deployment of Resources
The IRMP should demonstrate the effective deployment of firefighting resources to respond to all anticipated incidents in all areas of the brigade and at all times of the day and night in terms of vehicles, personnel, equipment and any specialist support necessary.

Varying Resource Levels
The IRMP should identify all special risks which could give rise to an incident that requires enhanced levels of fire & rescue service emergency intervention within the authority area. It should be able to demonstrate that emergency intervention response plans are in place. Such plans should be agreed with the owner(s)/occupier(s) of the premises/site and such other agencies or emergency services as are appropriate. The plans should be regularly practised and reviewed. They should be capable of demonstrating that resources have been allocated to ensure such sites and premises are part of the fire safety inspection programme, are regularly subjected to fire safety enforcement inspections, and that where necessary, such inspections are made in conjunction with other safety enforcers.

Standard Operating Procedures (SOPs)
The IRMP should demonstrate that SOPs are based upon a set of standards or procedures that have been developed to co-ordinate the activities of the fire & rescue service and which ensure that everyone is clear what they are expected to achieve. It is important that these documents clearly identify who is responsible, what they are responsible for (including resource provision) and what are the expected results.

Health and Safety Responsibilities
The IRMP should clearly identify those members of the fire & rescue service with specific responsibilities for health and safety and these responsibilities must be included within their job description.

"A 100% focus on CFS leaves little time for training for emergency intervention. There needs to be a balanced approach. A properly constructed, thought out and evidenced based IRMP could improve the safety of the public we serve and the Firefighters and Firefighters (Control) who serve them." **Staffordshire FBU**

Competence of Employees
The IRMP should demonstrate that adequate plans are in place and are regularly reviewed and practised to ensure the competence of Firefighters, Firefighters (Control) and other fire & rescue service staff to deal with potential incidents relevant to the fire & rescue authority's area, which may include any of the following;

- fire or explosion where large numbers of the public or employees are present;
- major incident caused by unusual or severe weather conditions;
- incident involving multiple road vehicles both on a motorway and elsewhere;
- major railway incident;
- an aircraft crash at an airport and/or an incident involving an aircraft crash off an airport;
- a terrorist attack (conventional, chemical, biological, nuclear);
- an uncontrolled release of radioactive material;
- the collapse of a building;
- an incident involving a ship, or port, or harbour, installation *(coastal authorities or authorities with ports or harbours).*

Training Budgets
The full extent of training and competence requirements must be assessed and budgeted for within the IRMP.

C. Planning and Consultation

Strategic Fire Safety Plans
The IRMP should demonstrate the development of strategic fire safety plans to reduce fire risks and improve the level of fire safety awareness and fire safety measures throughout the fire & rescue authority area. These plans should include:

- the implementation of fire safety enforcement inspection programmes;
- community fire safety awareness initiatives and programmes;
- the development of public fire safety awareness access programmes;
- the development of contacts with other agencies to ensure joint working on fire safety awareness programmes and also with the local press and media for swift fire safety messaging;
- the preparation of a crime reduction strategy in accordance with the Crime and Disorder Act 1998 (as amended).

Firefighter & Firefighter (Control) Involvement
The IRMP review process should demonstrate that Firefighters and Firefighters (Control) have been heavily involved in the preparation of the IRMP and fully understand the risk assessment process and the agreed response/control measures that have been developed.

Stakeholder Involvement
The IRMP should demonstrate that all stakeholder groups have been identified and consulted and are happy that their views have been heard and taken into consideration in formulating the IRMP.

Interfaces with Other Organisations
The nature and extent of responsibilities and measures proposed or provided by other local or government initiatives and emergency services should be considered in order that the interfaces between these activity areas are properly understood and managed through the IRMP.

Phasing of Plans
Where improved prevention strategies are proposed within the IRMP, the plans need to demonstrate that sufficient allowance for incremental improvement/phasing has been made for such proposals to become effective through synchronisation with the associated response arrangements from other local service providers (e.g. education may take several years, practical solutions may be effective almost immediately).

Best Practice
The IRMP should take into consideration and be informed by relevant best practice within other emergency services and/or relevant research.

Consultation Process
The IRMP should demonstrate the development of permanent links and the establishment of agreed consultation procedures with all Local Authority Planning and Building Control Departments within the fire & rescue authority's area in order that advice can be given and received on fire safety standards and fire safety measures in sites to be developed and buildings to be constructed.

D. Communication

Key Information
The IRMP should demonstrate the means by which key information is gathered and communicated to Firefighters, Firefighters (Control) and other fire & rescue service staff. This should include, but not be limited to:

- policy statements;
- plans, standards and procedures;
- performance measurement and reports;
- lessons learned from incidents;
- ideas for improvement.

Lines of Communication
The IRMP should include strategies to establish and maintain regular lines of communication with other agencies to ensure that any proposed or likely change in demographic risk is notified. These include, but are not limited to:

- Local Authority planners;
- Housing Departments;

- Social Service Departments;
- Police Forces;
- Coast Guard;
- Health Authorities;
- Local Education Authorities.

Environmental Risk

The IRMP should identify a clear line of communication and close liaison with other local and national agencies and service providers to assess the risk of pollution events occurring. This assessment should include details of how the plans of these agencies interface with other fire & rescue service functions including firefighting and fire safety enforcement. Consideration should be given as to what can be done jointly to reduce the likelihood of such an incident occurring and what can be done to mitigate the consequences if it does occur. Where such potential risks exist within the fire & rescue authority area the IRMP should describe what plans are in place for responding to it.

Major Hazard Sites

If major accident hazard sites or premises are present within the fire & rescue authority area, the IRMP should demonstrate that:

- there is regular and adequate liaison between the fire & rescue service, the site managers/owners, the Health and Safety Executive, the relevant Local Authorities, other safety or environmental enforcers, other emergency services and local residents;
- the fire & rescue service has consulted with or been consulted over the preparation of an emergency intervention response plan for that site in order to protect the general public, the environment, the emergency services and the site employees from an incident at that site or premises;
- the emergency intervention response plan and the fire & rescue service's role within it is both adequate and periodically practised and reviewed;
- where enforcement of such an emergency intervention response plan rests with another safety enforcer, that enforcer should be able to demonstrate that they have taken into account the views and any concerns of the fire & rescue authority.

IRMP Briefing

The IRMP should include for an awareness-raising process, piloting or bedding-in process to ensure that all stakeholders fully understand the proposed changes to the fire and rescue service.

E. Risk Management

Cost Benefit and Option Selection

There is a need to demonstrate that a balance between cost, safety and commercial benefit has been made in assessing the level and deployment of resources to achieve the IRMP objectives. This should include detailed costs of the IRMP proposals assessed on an annual basis, plus start up costs.

A reasonable range of alternative approaches or options need to be considered and documented when arriving at preferred IRMP strategies. These may be evaluated using Cost Benefit Analysis (CBA) techniques which consider all relevant costs on a like-for-like basis. A standard approach, such as discounted cash flow, allows the time-value of money i.e. the relative costs of taking immediate or deferred actions, to be taken into consideration. This approach is based upon the concept of Net Present Value (NPV) i.e. all future costs are reduced to current costs for comparison purposes.

A robust CBA process will consider commercial loss in its widest context e.g. property, business interruption, worker dislocation, job losses.

Risk Tolerability

If any risks identified for either the public or for Firefighters, Firefighters (Control) or other fire & rescue authority employees are assessed as intolerable, then the IRMP must demonstrate that effective measures are being put in place to reduce these to broadly acceptable or tolerable levels.

F. Changing Demands

Impact of Change

If within the IRMP there is a proposal that could result in a change in the facilities (appliances, uniform and equipment, fire stations, training facilities, buildings, transport, duty systems, staffing levels, fire safety enforcement support, etc) which Firefighters and/or Firefighters (Control) may reasonably expect to have at their disposal, then the proposal should demonstrate how this impacts upon their ability to respond to emergency incidents safely and effectively.

National Statistics

National statistics should be reviewed to indicate trends used to inform judgement about the risks that Firefighters and/or Firefighters (Control) might reasonably expect to find and face in the fire & rescue authority area and surrounding authority areas. The IRMP should specifically address the risk trends and implications from the available data and demonstrate how these are managed.

Strategic Funding Plan

The IRMP should contain a long term strategic funding plan to secure the necessary investment in new facilities and equipment, including:

- fire stations;
- uniformed personnel;
- fire appliances;
- uniforms and equipment;
- state of the art mobilising systems and technology;
- fire & rescue service and community training facilities;
- fire safety offices and equipment;

"The Highlands & Islands Brigade Committee fully supports the provision of an improved service which achieves safer communities. However we will vigorously oppose any proposals from our employers or management which simply seek to use the IRMP process to introduce cuts in the service." **Highlands & Islands FBU**

- community fire safety equipment and facilities;
- vehicle repair and maintenance support;
- the appropriate level of non-uniformed support.

Facility Closure

Where there are proposals within the IRMP to downgrade or close existing facilities a clear and robust risk-based case should be made, that is based upon unequivocal and reliable statistical evidence which has been developed over a substantial period of time. The case must demonstrate a clear downturn in the level of incidents attended and the reduction of risk levels in the area affected by the proposals.

G. Monitoring Performance

Risk Reduction Targets

The IRMP should clearly state risk reduction targets and have procedures and resources in place to monitor performance on an on-going basis.

Active Monitoring

Active monitoring should be defined within the IRMP to ensure the achievement of specific initiatives and objectives and compliance with performance standards. It is important that these systems are used to measure success and used to reinforce good practice as well as to monitor for problem areas.

The IRMP active monitoring systems should provide ongoing feedback and the following elements should be considered for inclusion:

- compliance with health and safety;
- systematic inspection of equipment;
- employee health surveillance;
- observation of actual behaviour;
- specific initiatives;
- audit systems;
- regular feedback reports.

The IRMP should demonstrate how the outputs of the active monitoring system will be utilised to identify problems with current Standard Operating Procedures and other procedures and standards and so inform the update of the IRMP. The IRMP should also identify the necessary resources and procedures to ensure that investigation of fires and other emergency incidents can take place in order that lessons can be learned from incidents and any information gained fed back into the IRMP.

Reactive Monitoring

As a minimum, the IRMP reactive monitoring systems should include the identification and reporting of the following:

- hazards encountered;
- injuries;
- ill health;
- damage to equipment;
- improvements to procedures and standards.

The IRMP should demonstrate how the outcome of the reactive monitoring system will be utilised to identify the reasons for the incident, learn from the event, prevent its recurrence and inform the update of the IRMP.

H. Reviewing Performance

The IRMP should demonstrate that procedures and resources are in place to continually review performance at all levels of the fire & rescue service.

Review Process

The review process reflects the objectives of the planning stage and should include consideration, as a minimum, of the following:

- operation of the safety management system i.e. the IRMP;
- performance of the system as designed;
- response of the system to changing circumstances;
- results from active and reactive monitoring systems;
- results from audits.

Review Schedule

The schedule for the review of performance should be clearly stated to ensure that relevant information is fed back into the IRMP in a timely manner.

Information Capture

The IRMP should demonstrate that procedures and resources are in place to capture the relevant information for use in both active and reactive monitoring systems including:

- the completion and collation of forms;
- the review of documentation;
- interviews of individuals;
- direct observation by a responsible and competent person.

Picture courtesy of Firepix International

Integrated Risk Management Planning has huge potential, however this potential will only be realised if it is translated into meaningful planning and actions which are based on a clear understanding of the principles and systems which underpin effective risk management. The outcomes anticipated as a result of the shift to integrated risk management planning are a reduction in loss of life and injuries as a result of fires and other emergency incidents, a reduction in the occurrence of these incidents, a reduction in the commercial, economic and social impact of these incidents, the safeguarding of the environment and the provision of a fire & rescue service that represents value for money for the community. Fire & rescue authorities now have a unique opportunity; and one which is quite simply too good to miss. However as with all opportunities, it must be embraced and developed to ensure that its full potential is realised.

"It is quite clear to staff and FBU Officials in the Mid & West Wales Brigade that the IRMP process has nothing to do with improving the safety of the public or Firefighters. It is simply being used to push through cut-backs in front line services." **Mid & West Wales FBU**

Fire & Rescue Services in the UK are highly regarded amongst public and business alike. A survey of business leaders published in February 2004 found that overall there was widespread dissatisfaction with public services in general. Of eleven public services administered by central or local government, the Fire & Rescue Service was the only one to escape criticism, with 74% of employers rating it as good or very good. The Service remains universally well-regarded, however this current enviable position could change if mistakes are made in Integrated Risk Management Planning.

The Cost to the Community

Home Office research put the annual cost of fire in England and Wales at £6.9 billion in 2002. Fire material damage and related business interruption costs totalled £1.4 billion in the UK in this year, the third consecutive year these costs have risen. The cost of arson contributes £2.1 billion to the total cost of fire, and insurers estimate that arson results in insurance claims totalling £700 million each year in the UK.

The public sector estate gives rise to a significant proportion of fire and arson losses. According to Government statistics there were 2,284 fires in schools in 2001. There are 20 arson fires per week in the schools sector, or three every day across the UK. School arson represents 15-20% of the value of arson insurance claims, completely disproportionate to their representation in the building stock. Research carried out by the Association of British Insurers (ABI) shows that one third of these arson attacks now occur during school hours whilst pupils are in the buildings.

Public administration buildings, homes for the elderly and children's homes, recreational and cultural services accounted for 6,325 fires, or 5.6% of total fires in 2001. This places a triple burden on Council Tax payers. Firstly they lose the use of these public facilities; secondly they must fund rising insurance costs driven by these high incidence levels; and thirdly they have to support fire & rescue services who must be resourced to respond to heavy demand in this area in addition to being resourced to carry out their other preventative and emergency intervention activities.

In the same year there were 637 arson fires in hospitals in the UK. Many hospital fires are discovered and dealt with quickly, but the potential for tragedy is worrying, quite apart from the unnecessary drain on over-committed National Health Service budgets.

The insured cost of domestic fire claims was £351 million in 2002. This figure has risen by an average of 5.2% a year since 1988. These statistics demonstrate that little real impact has been made in reducing domestic fire property losses despite public and private sector fire safety campaigns. Whilst 81% of all homes have fitted smoke detectors, only 59% of homes suffering a fire in 2001 had smoke detectors fitted. Additionally around 25% of households (and 50% of households in the lowest income decile) have no household insurance.

The cost of fire falling on lower income households will therefore be under-represented in insurance claims figures. Government research suggests that socially deprived households are 31 times more likely to suffer fires than households in general, and these households are 16 times more likely to suffer a fire death than an 'average' household. The National Community Fire Safety Centre has shown that social classes D and E are less likely to own smoke detectors than other social classes.

Whilst life safety is the first priority of the fire & rescue service, protecting the economic assets and capacity of the nation must also be taken into account in local IRMPs. In drawing up IRMPs and risk maps as predictive tools for future fire and other emergency incidents it is important to accurately assess potential hazards rather than being driven by historic events. Risk assessment must take account of the wider impact or damage that will occur as well as the probability of something happening.

Many businesses never completely recover from large fires: as many as 90% of businesses fail within 12 months of a major crisis such as a catastrophic fire. Around 8 in 10 large fire losses occur in businesses with less than £100 million annual turnover. From an insurance perspective, the greater the probability of a claim, and the larger the likely size of that claim, the higher the insurance premium that must be paid. Businesses can directly benefit from reduced insurance costs by controlling both risk and impact, although it is unlikely that many of these businesses have in-house risk management expertise. This has clear implications for the promotion of preventative measures in businesses, particularly as the new 'risk-based' approach to statutory fire safety inspections will be a major factor in local Integrated Risk Management Plans.

There remain however elements of risk management which impact on insurance costs that can only be influenced by external agencies. These include social and economic policy, building regulation and control as well as adequate resourcing and deployment of police and fire & rescue services.

Business leaders have expressed concern over proposals in some first year IRMPs to alter fire & rescue service responses to emergency calls generated by Automatic Fire Alarm (AFA) systems. They fear that such changes would place business at greater risk from the damaging effects of fire.

The issue of unwanted fire signals generated by AFA systems is not new. There have been numerous studies, reports and proposals over the years into how best to deal with this problem. Integrated Risk Management Planning provides the opportunity to look at this issue again, not from the perspective of the effect of any strategy on the former Standards of Fire Cover response standards, but (more appropriately) from the perspective of wider risk management. **Section 9 page 98** sets out such a risk-based approach for reducing the impact of unwanted fire signals.

For many areas of the UK, safeguarding the economic base of the community is a high priority. The social and environmental impact of business closures and re-locations can be significant. For many businesses experiencing a significant fire, it may actually be cheaper to re-locate to other areas of the UK rather than re-building in-situ. The increasing availability of local start-up grants, and the potential of lower insurance premiums as a result of, for instance, a more robust risk-based legislative enforcement regime or better fire & rescue service emergency intervention

response standards will be factors taken into account by these businesses when considering whether to re-build or relocate.

Considering both risk of fire death and risk of other fire losses it is clear that it is the most vulnerable in society who face the highest risk of fire, are the least prepared for fires, and have the least financial protection. They are also amongst the most likely to lose their jobs as a result of fires in commercial premises, and as the least skilled they will generally be less likely to find replacement employment quickly. The potential impact of these interrelated factors on a local community is enormous.

The Costs to Fire & Rescue Authorities

Until now, Section 1 of the Fire Services Act 1947 (as amended) has remained almost peripheral, acting as a preamble to the prescribed requirements of Section 19 of that Act. The implied requirements under Section 19 were that fire & rescue authority establishments must be capable of making emergency responses in line with the requirements of the former National Standards of Fire Cover. However, with the repeal of the majority of Section 19, Section 1 will become the primary control mechanism to enforce the new IRMP duties upon fire & rescue authorities.

It is clear that the fire & rescue service has no general immunity from third party proceedings. In the case of Capital and Counties Plc v Hampshire CC the Court of Appeal rejected the argument by Hampshire that there should be a general immunity based on public policy. That case concerned a claim brought alleging 'operational negligence' at incident level where a sprinkler system was judged to have been isolated in direct contravention of fire & rescue service Standard Operating Procedures, thereby creating or increasing the danger and consequential loss. It was established that Hampshire were liable in such circumstances.

Where a fire & rescue authority actively seeks to make savings under a local IRMP by establishing lower emergency intervention response standards as a basis for station closures, personnel cuts etc. then any challenge would be based on public law rather than specific liability. Section 1 of the Fire Services Act 1947 (as amended) refers to securing 'efficient arrangements'. Such a measure of 'efficiency' will undoubtedly include an analysis of how well emergency intervention response standards within local IRMPs compare with former National Standards of Fire Cover.

Where Section 1 is not complied with, the IRMP itself and the deployment of resources based upon that IRMP would properly be regarded as unlawful. Those members of the public and fire & rescue service personnel killed or seriously injured in consequence of an unlawful IRMP may then seek to pursue legal remedies in respect of their consequential losses.

An inadequate emergency intervention response, arriving at a later stage, will place operational personnel in a far more difficult position than an appropriate response arriving at an earlier stage. There will be a far greater likelihood of creating or increasing the risk of fatalities, serious injuries and avoidable property damage. The risk of legal liability, civil and potentially criminal, will correspondingly increase in such circumstances. Whilst criminal prosecutions, such as corporate manslaughter, will inevitably arise only in extreme circumstances, the removal of the 1985 Standards of Fire Cover will remove a layer of legal protection which formerly amounted to a form of partial immunity.

The transfer of responsibilities from central government to fire & rescue authorities and from fire & rescue authorities to principal officers will inevitably focus legal duties upon principal officers. The ODPM has not sought to provide an immunity in respect of these liabilities and duties. Indeed, it would be inconsistent with the policy of the ODPM, as evidenced by the Independent Review of the Fire Service, the 2003 White Paper, ODPM Guidance Notes on IRMP's, legislative amendments etc, to seek to do so. The law would regard responsibility as carrying with it the appropriate legal liability, and the fire & rescue service is not immune from this general principle.

The Management of Health & Safety at Work Regulations

Until very recently employees had no power where an employer failed to carry out a risk assessment. This position was changed when a new Section 22 was introduced to the 1999 Management of Health & Safety at Work Regulations by the 2003 MHSAW Regulations. The new Regulation 22 states:

"Breach of duty imposed on an employer by these Regulations shall not confer a right of action in any civil proceedings insofar as that duty applies for the protection of persons not in his employment."

This means that where an employer fails to implement his duties under the 1999 Regulations this will give rise to civil liability insofar as it applies to protection of employees.

This has three very important implications:

1. Where an employer fails to carry out a risk assessment at all and the Health & Safety Executive (HSE) fails in its duty to enforce this requirement, and an employee suffers personal injury in circumstances where it can be established that had a risk assessment been carried out it would have highlighted the danger and the need to introduce control measures, the employee will have a right of action for damages against the employer.

2. Where an employer fails to carry out a risk assessment an employee can go to Court and seek the remedy of specific injunction or declaration (implement or declarator in Scotland) in relation to which the Court will direct the employer to carry out the risk assessment. The employer will of course carry the cost of the civil Court process because his failure forced the employee to raise the matter in Court.

3. If an employer carries out a risk assessment which is wholly inadequate such that it is not suitable and sufficient an employee may, as in the two situations above, successfully pursue a personal injury claim should an accident occur. Alternatively where the HSE

"There appears to be a headlong rush towards untried and untested working practices which will leave Fire & Rescue Authority Members and Service Managers open to possible legal action in the event of wholly avoidable tragic incidents." **Tyne & Wear FBU**

fails in its duty to enforce this requirement the employee may seek declaration (declarator in Scotland) from the Courts. In evaluating whether or not a risk assessment is suitable and sufficient it must be judged against the general principles of prevention set out in Schedule 1 to the 1999 Regulations. If an employer could avoid a risk altogether but instead jumps to the last control measure in the hierarchy, simply giving instructions to employees to always act in a certain manner when exposed to the risk, then that assessment will not be sufficient and the employer will expose himself to civil litigation.

Considering again the "Safe Person" concept detailed in the *'Dynamic Management of Risk at Operational Incidents'* document **(Section 4 page 35)** the employer's duties listed include providing safe systems of work for employees. This includes the provision of the necessary emergency resources (which arrive at the incident at the right time) to allow this safe system of work to be put into operation.

Where a risk assessment highlights a risk which requires a specific control measure, and where that control measure is not introduced properly, if an employee suffers personal injury where it can be shown that had the control measure been introduced the injury would not have occurred, the employee will again have a basis of claim in an action for damages against the employer. Additionally where the HSE fails in its duty to enforce, an employee may be able to go to Court and seek a declaration (declarator in Scotland) that a control measure must be introduced.

Costs and Targets

In 2002 the Fire Brigades Union commissioned a report by Cap Gemini Ernst & Young (CGEY) which assessed the impact of fire, flood and road traffic accidents on the UK economy, and the scale of potential savings that could be achieved if fire & rescue services met the targets recommended to them by central government in 2000. The report was based on Public Service Agreement (PSA) targets for fire & rescue authorities which were intended to be effective from April 2001. A PSA is a 'contract' between the local authority service provider and the public. In simple terms it sets out what a local authority (in this case the fire & rescue authority) aims to deliver to the public in return for their money.

The CGEY report considered 3 fire-related targets:

a 10% Reduction in the Number of Building Fires;

a 20% Reduction in the Number of Accidental Fire Related Deaths;

a 30% Reduction in the Number of Deliberate Fires.

The report also considered the savings to the economy that could be made by achieving the Westminster Government's targets for reductions in road traffic accidents.

Since the publication of the Cap Gemini Ernst & Young Report the Westminster Government has 'altered' the fire-related targets for fire & rescue authorities in England **(Section 3 page 27)**; however the scale of potential financial savings to the economy from meeting the targets on which the CGEY report is based is illustrative of what could be achieved by effective integrated risk management planning. More challenging fire-related targets would clearly deliver far higher savings.

According to CGEY, the true cost of the consequences of fire, flood and road traffic accidents to the UK economy in 2002 was estimated to be between £23 billion and £26 billion. The estimated savings that could be achieved by meeting the PSA targets were up to £643 million in respect of fires and up to £2.388 billion in respect of road traffic accidents. As stated the potential savings in respect of fires are based on a mere 20% reduction in accidental fire-related deaths.

Savings for the economy over and above these can be achieved in respect of fire, and with the provision of proper legislation, resources and training the fire & rescue service can play an important and crucial role in achieving the savings in respect of road traffic accidents. There are also potential savings for the economy in the area of floods but these have not been quantified as no targets exist in this area.

Key to achieving these financial savings will be a modern fire & rescue service where employees continue to develop and participate in fire safety initiatives, where arson control is a priority, where emergency intervention responses are developed against a meaningful risk-based standard, and where already highly skilled Firefighters and Firefighters (Control) are supported in continuous development to meet the ever changing needs of their communities.

The costing analysis shown on pages 78 to 95 gives an example not of the cost of getting things wrong, but more positively, an example of the potential financial benefits to the UK of getting things right. Firefighters and Firefighters (Control) recognise from their direct experience of dealing with emergencies however that no report can ever quantify the 'human' cost that is felt as a result of such incidents.

The modern fire & rescue service in the UK has developed considerably over recent years. It boasts a highly skilled workforce, and its current hard won reputation is thanks to the skills and commitment of the Firefighters, Firefighters (Control) and other employees who make up this workforce. If these staff lose confidence in the corporate will that is driving the integrated risk management planning process then that would undoubtedly be the highest cost of all.

Summary

SUMMARY

The Cost of Fire, Flood and Road Traffic Accidents to the UK Economy

Cap Gemini Ernst & Young was commissioned by the Fire Brigades Union to make an independent assessment of the cost of fire, flood and road traffic accidents (RTAs) to the UK economy. Identifying ways in which the Fire Service could make it possible to meet government targets for reductions in areas such as Fire and RTAs was specifically excluded from this work.

The work was undertaken by building on Government data wherever appropriate. This was supplemented by information collected from a large number of secondary sources and subject experts. The work identified a range of costs, rather than a single value for each area. These are:

	Government-based estimate	CGE&Y low estimate	CGE&Y high estimate
Fire	£3,488m	£3,968m	£4,327m
Flood	£814m	£1,844m	£2,177m
RTAs	£18,683	£19,159m	£19,159m
Total	***£22,985m***	***£24,971m***	***£25,663m***

The result of achieving government targets in the areas of fire and RTAs is

	Government-based estimate	CGE&Y low estimate	CGE&Y high estimate
Fire	£559m	£607m	£643m[1]
RTAs	£2,388m	£2,388m	£2,388m[2]
Total	**£2,947m**	**£2,995m**	**£3,031m**

1- This reflects the achievement of government targets. London Fire Brigade , for example, has set higher reduction targets.
2 – Targets apply to reported incidents, which are the same in each estimate – the result is therefore the same throughout.

Objectives

OBJECTIVES

The primary objective was to assess the cost of fire, flood and road traffic accidents to the UK economy

Study Objectives:

- **To assess the consequential impact of fire, flood and road traffic accidents (RTAs) on the UK economy.**
- **To identify the cost savings likely to be achieved if the government targets for fire and RTAs are met.**
- **Out of scope is:**
  - CGE&Y analysis of how the overall numbers can be used to support a business case for the Fire Brigades Union pay claim.
  - CGE&Y assessment of the way in which the Fire Service could change to meet government targets.

"Each time we have asked for information on risk, even requests in writing, we have been fobbed-off and told that we are just trying to delay change." **Northumberland FBU**

Approach

APPROACH

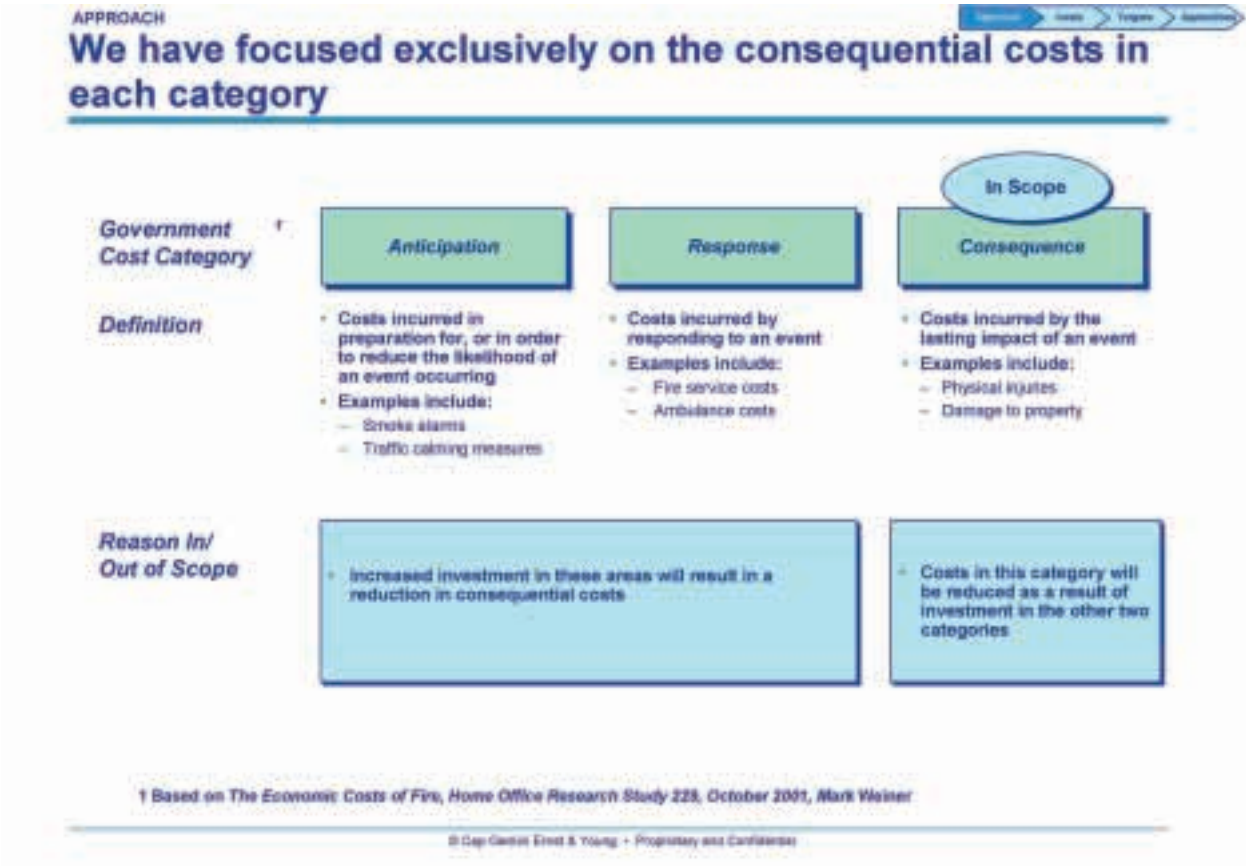
CGE&Y have compiled a range of estimates building on published government reports

- **It is not possible to build a single definitive number for the cost of these events:**
  - A range of estimates were built for each category.
- **Government data and approaches were used where appropriate.**
- **CGE&Y built on government data by:**
  - Interviewing over 20 subject experts from public bodies, academic institutions and the insurance and other industries.
  - Finding alternative sources of data to fill areas not covered by government reports.
  - Extending the range of assumptions used in government data, building on discussions with subject experts.
- **All estimates were reviewed by a number of subject experts.**

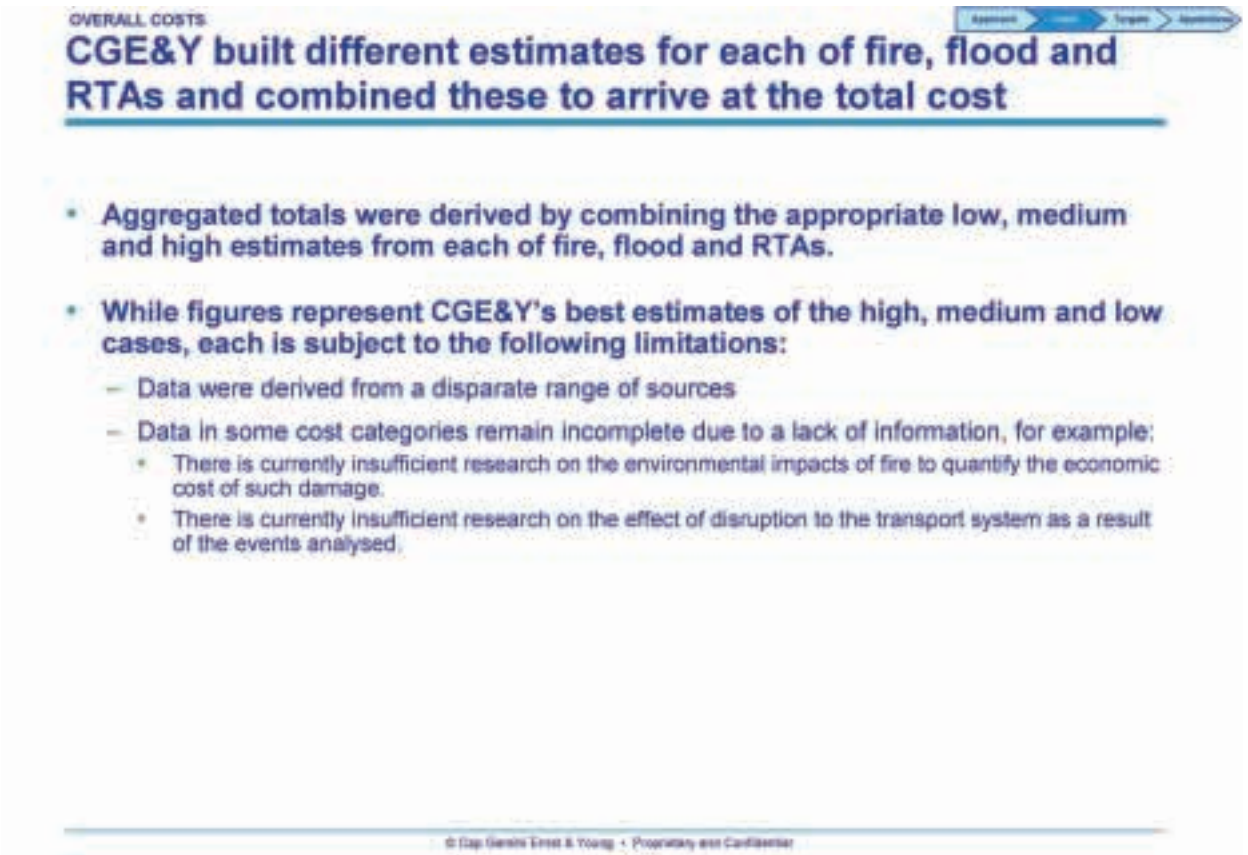
APPROACH

Our research drew on a large number of secondary sources

Fire	• The Economic Costs of Fire, Home Office Research Study 229, October 2001, Mark Weiner • The Costs of Fire Model (unpublished), ODPM Research Report, Scott Dennison • Scottish Executive Statistical Bulletin, Fire Statistics Scotland 2000, July 2002 • ABI Gross Incurred Claims Tables • The Cost of Fires: A Review of the Information Available, Home Office Report, 1997, Donald Roy • Fire Statistics United Kingdom, Home Office Report, November 2000
Flood	• Flood & Coastal Defence Research News, Environment Agency, 2001 • Lessons Learned Autumn 2000 Floods Environment Agency, March 2001, Lorraine Watson for Gamble Robert Schofield • ABI Gross Incurred Claims Tables • Flooding: A Partnership Approach to Protecting People, ABI, November 2001 • National Appraisal of Assets at Risk from Flooding and Coastal Erosion, DEFRA, July 2001 • Out of the Frying Pan, Into the Flood, Green Party Briefing Paper, November 2000 • The Flood and Coastal Defence Funding Review, OXERA, August 2001
RTAs	• Highways Economics Note No. 1: 2000 Department for Transport, Kate McMahon • Tomorrow's Roads: Safer for Everyone, DFT, March 2000 • Priorities in EU Road Safety, Resolution of the European Parliament, 2002 • Road Accidents Great Britain, The Casualty Report 2000, DFTR, September 20001
General	• UK National Accounts, The Blue Book • Appraisal and Evaluation in Central Government, The Green Book, HM Treasury 1997



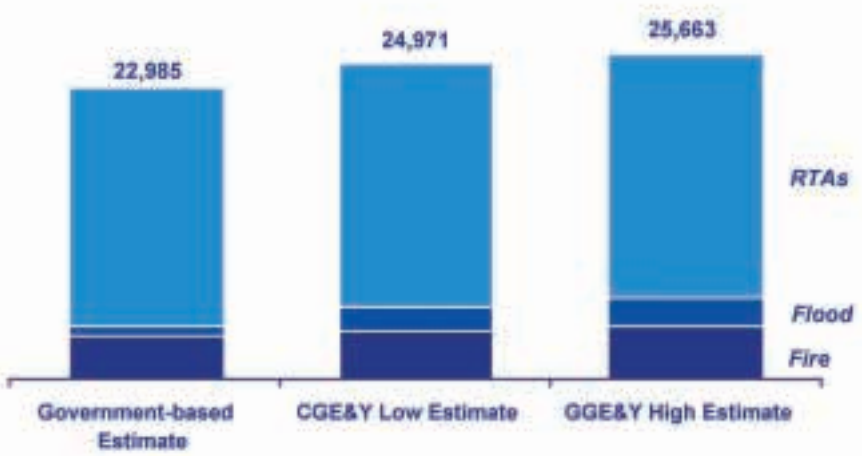
Overall Costs



"Unfortunately in GMC the authority have used the IRMP process to rehash old ideas and best value reviews aimed at cutting costs. This kind of approach will threaten the safety of both the public and Firefighters alike." **Greater Manchester FBU**

OVERALL COSTS

The consequential cost to the UK economy of fire, flood and RTAs is estimated to be between £23bn and £26bn



Note: Costs attributable to flood could be significantly higher in exceptional years, such as 2000.

Fire Costs

COST OF FIRE

We created three scenarios for fire, following the government approach

Government –based Scenario

- Based on a Home Office Report "The Economic Costs of Fire" published in 2001
- Changed data to 2002 prices, using GDP Deflator
- Increased figures to include Northern Ireland and Scotland

CGE&Y Low Scenarios

- Compiled using the government framework of public, domestic and commercial high-level categories
- Obtained estimates for some of the sub-categories government had been unable to complete
- Used more recent ABI data for insurance payouts
- Based on industry discussion slight modifications were made to the range of assumptions used for:
  - Levels of under-insurance
  - Uninsurance
  - Proportion of the market covered by Lloyds
- For this scenario the lower assumptions were used

CGE&Y High Scenarios

- As low scenario except that the higher assumptions were used

COST OF FIRE

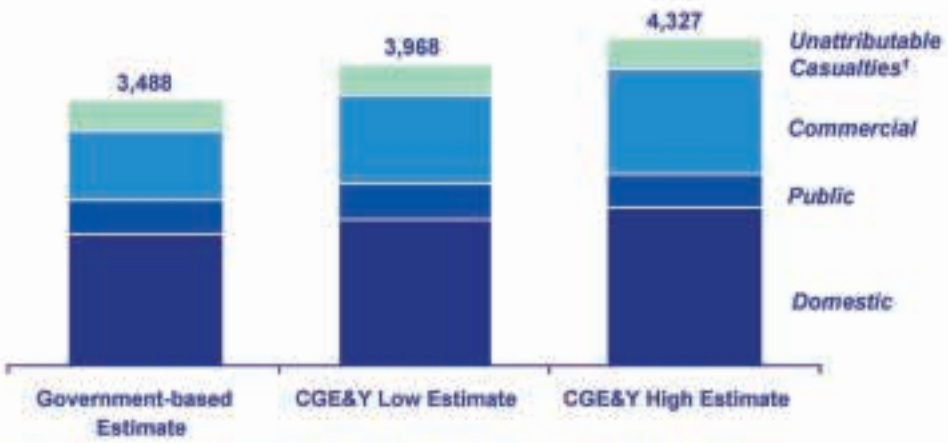
CGE&Y made minor modifications to government assumptions after consulting industry experts

	Methodology	Assumptions	Data
Government - based Estimate	Data published in the Economic Costs of Fire increased by: – Including figures for Northern Ireland and Scotland – Increasing to 2002 prices	Average cost per fire the same in Northern Ireland and Scotland as in England and Wales	Base data from the Economic Costs of Fire, Home Office Research Report 229 Numbers of fires in Scotland and Northern Ireland taken from the Scottish Executive Fire Statistics Bulletin, July 2001
CGE&Y Low Estimate	Followed framework used in Government report (Economic Costs of Fire) followed ABI claims data increased to take into account: – Levels of under-insurance – Levels of uninsurance – Lloyds claims	Lower estimates assumed, where a range was given: – Of the 15% of households who are estimated to be under-insured, it was assumed that they were underinsured by 5% – Lloyds was assumed to represent 5% of the total insurance market	Recent ABI claims data for actual insurance claims used for: – Commercial and domestic buildings and contents damage – Commercial loss of income Home Office data used for all other categories Assumptions obtained in interview with ABI for: – Under-insurance – Uninsurance – Lloyds element
CGE&Y High Estimate	As low estimate	Higher estimates assumed, where a range was given: – Of the 15% of households who are estimated to be under-insured, it was assumed that they were underinsured by 20% – Lloyds was assumed to represent 30% of the total insurance market	As Low Estimate

COST OF FIRE

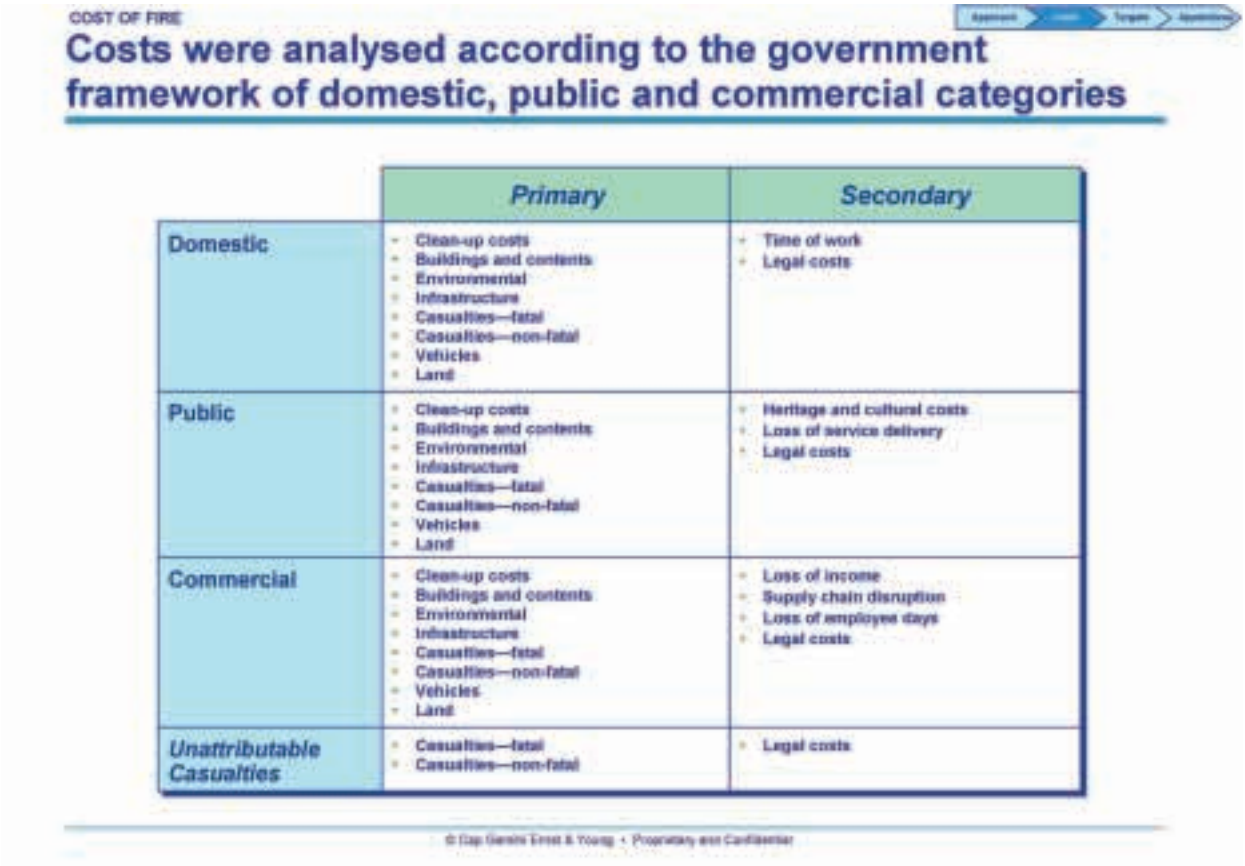
The consequential costs of fire to the UK economy are between £3.5bn and £4.3bn

Consequential Cost of Fire to the UK Economy (£m) 2002 Prices



1 – These are casualty data which are not attributed to any given property type

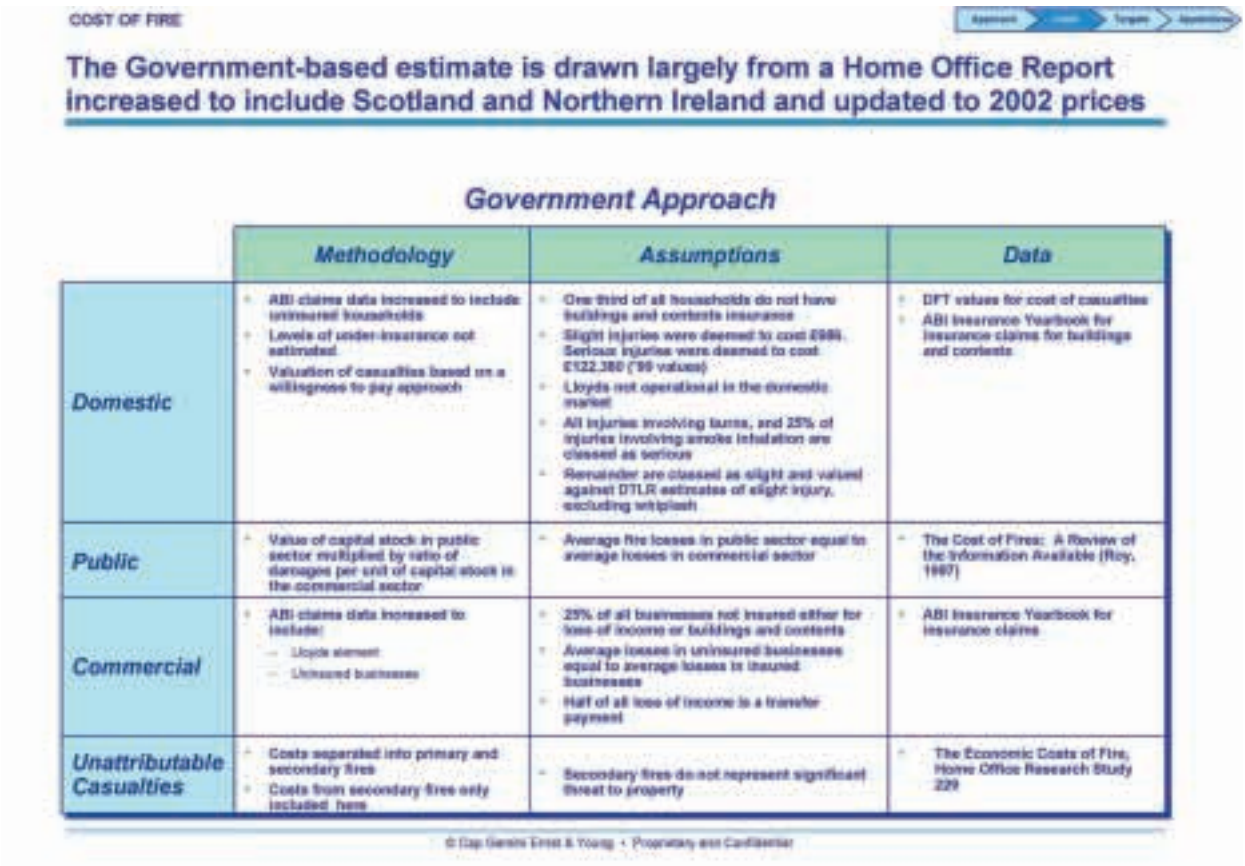
"The IRMP is clearly being used as a cost cutting exercise by the Devon Fire & Rescue Authority, rather than being constructed to save lives." **Devon FBU**



COST OF FIRE

Costs were analysed according to the government framework of domestic, public and commercial categories

	Primary	Secondary
Domestic	• Clean-up costs • Buildings and contents • Environmental • Infrastructure • Casualties—fatal • Casualties—non-fatal • Vehicles • Land	• Time of work • Legal costs
Public	• Clean-up costs • Buildings and contents • Environmental • Infrastructure • Casualties—fatal • Casualties—non-fatal • Vehicles • Land	• Heritage and cultural costs • Loss of service delivery • Legal costs
Commercial	• Clean-up costs • Buildings and contents • Environmental • Infrastructure • Casualties—fatal • Casualties—non-fatal • Vehicles • Land	• Loss of income • Supply chain disruption • Loss of employee days • Legal costs
Unattributable Casualties	• Casualties—fatal • Casualties—non-fatal	• Legal costs



COST OF FIRE

The Government-based estimate is drawn largely from a Home Office Report increased to include Scotland and Northern Ireland and updated to 2002 prices

Government Approach

	Methodology	Assumptions	Data
Domestic	• ABI claims data increased to include uninsured households • Levels of under-insurance not estimated • Valuation of casualties based on a willingness to pay approach	• One third of all households do not have buildings and contents insurance • Slight injuries were deemed to cost £986. Serious injuries were deemed to cost £122,380 ('99 values) • Lloyds not operational in the domestic market • All injuries involving burns, and 25% of injuries involving smoke inhalation are classed as serious • Remainder are classed as slight and valued against DTLR estimates of slight injury, excluding whiplash	• DFT values for cost of casualties • ABI Insurance Yearbook for insurance claims for buildings and contents
Public	• Value of capital stock in public sector multiplied by ratio of damages per unit of capital stock in the commercial sector	• Average fire losses in public sector equal to average losses in commercial sector	• The Cost of Fires: A Review of the Information Available (Roy, 1997)
Commercial	• ABI claims data increased to include: – Lloyds element – Uninsured businesses	• 25% of all businesses not insured either for loss of income or buildings and contents • Average losses in uninsured businesses equal to average losses in insured businesses • Half of all loss of income is a transfer payment	• ABI Insurance Yearbook for insurance claims
Unattributable Casualties	• Costs separated into primary and secondary fires • Costs from secondary fires only included here	• Secondary fires do not represent significant threat to property	• The Economic Costs of Fire, Home Office Research Study 229

COST OF FIRE

The CGE&Y low estimate modifies the Government-based estimate using independent data and assumptions

CGE&Y Modifications to Create Low Estimate

	Methodology	Assumptions	Data
Domestic	• ABI claims base data increased to include: – Lloyds element – Under- and uninsured households	• Lloyds represent 5% of domestic market • Of the 18% of households that are underinsured, they are underinsured by 5% • Fires unreported to insurers likely to be in uninsured properties, or where the level of damage is below the insurance policy excess	• Recent ABI claims data for buildings and contents and loss of income • ABI estimates: – Lloyds element – Levels of under- and uninsurance
Public	• Same assumptions as Government-based estimate	• Same assumptions as Government-based estimate	• Same assumptions as Government-based estimate
Commercial	• ABI claims base data increased to include: – Lloyds element – Uninsured businesses	• Lloyds represent 5% of the insured commercial market	• Recent ABI claims data for buildings and contents and loss of income • ABI estimates for Lloyds element
Unattributable Casualties	• Same assumptions as Government-based estimate	• Same assumptions as Government-based estimate	• Same assumptions as Government-based estimate

COST OF FIRE

CGE&Y high estimate uses the highest values in the range of assumptions

CGE&Y Modifications to Create High Estimate

	Methodology	Assumptions	Data
Domestic	• ABI claims base data increased to include: – Lloyds element – Under- and uninsured households	• Lloyds represent 20% of domestic market • Of the 18% of households that are underinsured, they are underinsured by 20% • Fires unreported to insurers likely to be in uninsured properties, or where the level of damage is below the insurance policy excess	• Recent ABI claims data for buildings and contents and loss of income • ABI estimates: – Lloyds element – Levels of under- and uninsurance
Public	• Same assumptions as Government-based estimate	• Same assumptions as Government-based estimate	• Same assumptions as Government-based estimate
Commercial	• ABI claims base data increased to include: – Lloyds element – Uninsured businesses	• Lloyds represent 20% of the insured commercial market	• Recent ABI claims data for buildings and contents and loss of income • ABI estimates for Lloyds element
Unattributable Casualties	• Same assumptions as Government-based estimate	• Same assumptions as Government-based estimate	• Same assumptions as Government-based estimate

"West Yorkshire's draft IRMP changed fundamentally in the week prior to approval by the Fire & Rescue Authority, but this revised plan was never sent for consultation to either the public of West Yorkshire or the local FBU." **West Yorkshire FBU**

COST OF FIRE

All estimates are limited by significant gaps in available data

- **Infrastructure:**
  - There are currently no publicly available estimates for the cost of damage to transport and utilities infrastructure.
  - Work could be undertaken to aggregate costs from all of the businesses responsible for managing infrastructure in the UK.
- **Environment:**
  - There is currently insufficient research on the environmental impacts of fire to be able to quantify the economic costs of such damage.
- **Public sector:**
  - Little work has been done to understand actual costs of fire in the public sector.
  - It is possible that actual costs in the public sector are much higher than in any of the estimates presented here.
  - For example, it is estimated that a recent prison fire resulted in a cost of £100m in property damage and business interruption costs.[1]
- **Loss of service delivery/commercial output:**
  - The knock-on effects of fire in terms of service delivery and output in both the commercial and public sectors are known to be significant.
  - Comparatively little work has been done to quantify these effects, or to collect the underlying data necessary.
- **Under-insurance in the commercial sector:**
  - There is currently no estimate for levels of under-insurance in the commercial sector.

1. This figure actually relates to a privately run prison, but is indicative of public sector costs

COST OF FIRE

Estimates could be improved by further research to support assumptions

- **Under-insurance:**
  - Current estimates for levels of under-insurance in the domestic sector are based on a survey of residents in Lewes after the Autumn 2000 floods, provided by the ABI.
  - The sample surveyed could be extended to include a more representative range of households.
- **Levels of uninsurance in the commercial sector:**
  - Current data are estimated and based on the assumption of equal average damages per unit of capital stock in both the insured and uninsured sectors, used in the Government report 'The Economic Costs of Fire'.
  - Actual damages in the uninsured sector could be very different as this sector is likely to comprise:
    - Businesses that self-insure that have a very large capital stock base
    - Small businesses that have very little capital stock or are operated from a domestic dwelling
- **Casualties:**
  - Current data are based on estimates of the severity of non-fatal casualties used in the Government report 'The Economic Costs of Fire.
  - Little data are available to support these assumptions.

Flood Costs

COST OF FLOOD

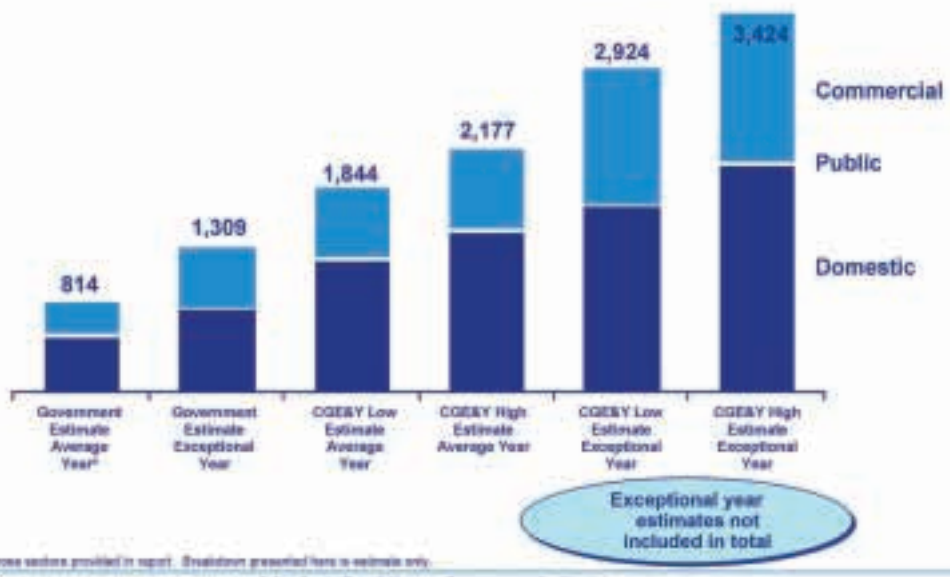
For flood, estimates were compiled for both average and exceptional years to take into account the variable nature of their occurrence

	Methodology	Assumptions	Data
Government Estimate Average Year	• Assessment of assets at risk from flood damage • Calculation of likelihood of flood occurring and its effects	• N/A	• Mathematical appraisal of risk to property • DEFRA Report 'National Appraisal of Assets at Risk From Flooding' July 2001
Government Estimate Exceptional Year	• No comprehensive study • Disparate estimates presented only	• N/A	• Disparate range of estimates from affected parties • Environment Agency Report "Lessons Learned Autumn 2000 Floods'
CGE&Y Low Estimate Average Year	• Average of insurance claims for last 10 years taken for business and commercial sectors • Applied framework as for fire	• Levels of under-and uninsurance the same as for fire as the same policy is likely to cover both events • As for fire, lowest value used where range presented	• Recent ABI claims data for insurance pay-outs in domestic and commercial sectors • Estimates from insurance industry for effects on public sector
CGE&Y High Estimate Average Year	• Average of insurance claims for last 10 years taken for business and commercial sectors • Government framework for fire used	• Levels of under-and uninsurance the same as for fire as the same policy is likely to cover both events • As for fire, highest value used where range presented	• Recent ABI claims data for insurance pay-outs in domestic and commercial sectors • Estimates from insurance industry for effects on public sector
CGE&Y Estimate Exceptional Year	• Insurance claims for 2000 used • Government framework for fire used	• Levels of under-and uninsurance the same as for fire as the same policy is likely to cover both events	• Recent ABI claims data for insurance pay-outs in domestic and commercial sectors • Estimates from insurance industry for effects on public sector

COST OF FLOOD

The consequential costs of flood to the UK economy are estimated to be between £800m and £3bn

Consequential Cost of Flood to the UK Economy (£m) 2002 Prices



a No breakdown across sectors provided in report. Breakdown presented here is estimate only.

"The IRMP process should not be used to instigate cuts, however the management in Grampian Fire & Rescue Service are proposing to cut jobs, to downgrade posts and to reduce emergency attendances to AFA premises. Grampian FBU will oppose any and all proposals that affect public and/or Firefighter safety." **Grampian FBU**

COST OF FLOOD

It is difficult to make an assessment of the methodology and assumptions of the Government estimates for the cost of flood

Government Estimate Average Year

- Total cost to property only
- Not disaggregated by sector affected

Government Estimate Exceptional Year

- No comprehensive survey and no consistent methodology followed
- Total is made up of a disparate range of estimates from a wide variety of sources, including:
  - Railtrack
  - The National Farmers' Union
  - ABI

COST OF FLOOD

The CGE&Y low estimate (average year) is based on an average for the last ten years of insurance data

CGE&Y Modifications to Create Low Estimate

	Methodology	Assumptions	Data
Domestic	• Average of last 10 years taken from insurance claims for buildings and contents damage • ABI claims base data increased to include: – Lloyds element – Under- and uninsured households	• One third of all households do not have buildings and contents insurance • Lloyds represent 8% of domestic market • Of the 15% of households that are underinsured, they are underinsured by 8% • Floods unreported to insurers likely to be in uninsured properties, or where the level of damage is below the insurance policy excess	• ABI actual claims data for buildings and contents • ABI estimate for: – Lloyds element – Uninsurance – Under-insurance
Public	• Discussions with industry experts	• Lowest value of range given used (£5m)	• Insurance industry estimate for annual average damage
Commercial	• Average of last 10 years taken for insurance claims for: – Buildings and contents damage – Loss of income • ABI claims base data increased to include: – Lloyds element – Uninsured businesses	• 25% of all businesses not insured either for loss of income or buildings and contents • Average losses in uninsured businesses equal to average losses in insured businesses • Half of all loss of income is a transfer payment	• Recent ABI claims data for buildings and contents and loss of income • ABI estimates for Lloyds element

COST OF FLOOD

The CGE&Y high estimate for an average year is based on the highest values where a range was presented

CGE&Y Modifications to Create High Estimate

	Methodology	Assumptions	Data
Domestic	• Average of last 10 years taken from insurance claims for buildings and contents damage • ABI claims base data increased to include: – Lloyds element – Under- and uninsured households	• Lloyds represent 20% of domestic market • Of the 15% of households that are underinsured, they are underinsured by 20% • Floods unreported to insurers likely to be in uninsured properties, or where the level of damage is below the insurance policy excess	• ABI actual claims data for buildings and contents • ABI estimate for: – Lloyds element – Uninsurance – Under-insurance
Public	• Discussions with industry experts	• Highest value of range given used (£20m)	• Insurance industry estimate for annual average damage
Commercial	• Average of last 10 years taken from insurance claims for: – Buildings and contents damage – Loss of income • ABI claims base data increased to include: – Lloyds element – Uninsured businesses	• 25% of all businesses not insured either for loss of income or buildings and contents • Average losses in uninsured businesses equal to average losses in insured businesses • Half of all loss of income is a transfer payment	• Recent ABI claims data for buildings and contents and loss of income • ABI estimates for Lloyds element

COST OF FLOOD

The CGE&Y exceptional year (low estimate) used actual data for 2000 and the lowest values presented

CGE&Y Modifications to Create Low Estimate for Exceptional Year

	Methodology	Assumptions	Data
Domestic	• 2000 figures taken from insurance claims for buildings and contents damage • ABI claims base data increased to include: – Lloyds element – Under- and uninsured households	• Lloyds represent 5% of domestic market • Of the 15% of households that are underinsured, they are underinsured by 5% • Floods unreported to insurers likely to be in uninsured properties, or where the level of damage is below the insurance policy excess	• ABI actual claims data for buildings and contents • ABI estimate for: – Lloyds element – Uninsurance – Under-insurance
Public	• Discussions with industry experts	• Lowest value of range given used (£5m)	• Insurance industry estimate for annual average damage
Commercial	• 2000 figures taken for insurance claims for: – Buildings and contents damage – Loss of income • ABI claims base data increased to include: – Lloyds element – Uninsured businesses	• 25% of all businesses not insured either for loss of income or buildings and contents • Average losses in uninsured businesses equal to average losses in insured businesses • Half of all loss of income is a transfer payment	• Recent ABI claims data for buildings and contents and loss of income • ABI estimates for Lloyds element

"The chance to improve the service in Surrey has been overshadowed by a cuts agenda. Job losses, appliance losses, reduced emergency cover and extended emergency attendance times have all taken precedence, with only minor improvements in Community Fire Safety provision." **Surrey FBU**

COST OF FLOOD

The CGE&Y exceptional year (high estimate) used 2000 data and the highest values presented

CGE&Y Modifications to Create High Estimate for Exceptional Year

	Methodology	Assumptions	Data
Domestic	• 2000 figures taken from insurance claims for buildings and contents damage • ABI claims base data increased to include: – Lloyds element – Under- and uninsured households	• Lloyds represent 20% of domestic market • Of the 15% of households that are uninsured, they are underinsured by 20% • Floods unreported to insurers likely to be in uninsured properties, or where the level of damage is below the insurance policy excess	• ABI actual claims data for buildings and contents • ABI estimate for: – Lloyds element – Uninsurance – Under-insurance
Public		• Highest value of range given used (£20m)	• Insurance industry estimate for annual average damage
Commercial	• 2000 figures taken for insurance claims for: – Buildings and contents damage – Loss of income • ABI claims base data increased to include: – Lloyds element – Uninsured businesses	• 25% of all businesses not insured either for loss of income or buildings and contents • Average losses in uninsured businesses equal to average losses in insured businesses • Half of all loss of income is a transfer payment	• Recent ABI claims data for buildings and contents and loss of income • ABI estimates for Lloyds element

COST OF FLOOD

Flood data are subject to similar limitations to that of fire

Available Data

- **Similar data gaps occur as for fire, particularly with regard to:**
  - Infrastructure
  - Loss of service delivery/ output
  - Under-insurance in the commercial sector

Assumptions

- **Similar work could be done to support assumptions as for fire, in particular:**
  - Levels of uninsurance
  - Levels of under-insurance
- **In addition, detailed research could be undertaken to :**
  - Assess the effects of climate change on the likelihood of occurrence of exceptional years
  - Quantify the effects of flood on health. It is known that incidences of respiratory problems and depression in particular can increase by as much as 50% after a flood but no assessment has yet been made on the effects to the economy of this

RTA Costs

COST OF RTAs

Two estimates were built for the impact of road traffic accidents on the economy

	Methodology	Assumptions	Data
Government Estimate	• All costs calculated on a willingness-to-pay approach • Unreported accidents not covered • All government data changed to Q1 2002 prices	• Insurance administration costs outlined in HEN1 are largely costs in anticipation and so not included in this estimate	• Highways Economic Note No1, DFT July 2001
CGE&Y Estimate	• Government data increased to include unreported accidents	• 40% of all accidents are unreported • All unreported accidents are slight • Level of casualties and material damage in unreported accidents the same as for slight reported accidents	• Highways Economic Note No1, DFT July 2001 • Subject expert discussions

COST OF RTAs

The costs of road traffic accidents were broken down into primary and secondary costs

Cost Categories

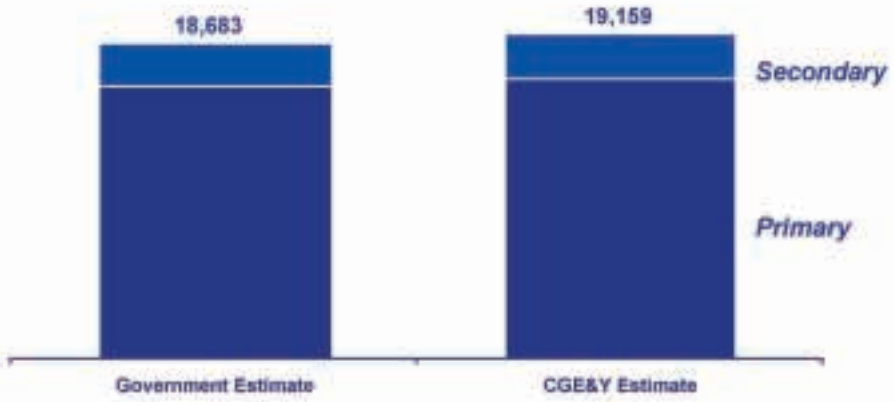
Primary	• Vehicle damage • Road/infrastructure damage • Property destruction (non-vehicle) • Casualties—fatal • Casualties—non-fatal serious • Casualties—non-fatal slight
Secondary	• Transport system disruption • Lost income • Legal costs

"The FBU in Cumbria requested information relating to the IRMP but this was not supplied by the Cumbria Fire & Rescue Authority. Cumbria has one of the highest rates of deaths in Road Traffic Accidents in the country yet measures to combat this are not even mentioned." **Cumbria FBU**

COST OF RTAs

The costs of road traffic accidents to the UK economy are between £18bn and £19bn per annum

Consequential Cost of RTAs to the UK Economy (£m) 2002 Prices



COST OF RTAs

Estimates for the cost of road traffic accidents are subject to limitations

- **Insufficient data are available about the level of unreported road traffic accidents.**
- **Further research could be undertaken to assess the legal costs associated with road traffic accidents:**
  - HEN1 covers police costs only.
  - There are likely to be significant litigation costs associated with road traffic accidents.
- **Little is currently known about the levels of damage to infrastructure (roads, central reservations, bridges) caused by road traffic accidents.**
- **Loss of income costs currently based on a willingness-to-pay approach and may be under-estimated:**
  - Long hold-ups caused by RTAs are frequent and may create significant costs.
  - Insufficient data are publicly available concerning time off work as a result of road traffic accidents.

Targets

TARGETS

Assessing the benefits of meeting targets to reduce the number of fires and RTAs

It is outside the scope of this work to identify changes in the Fire Service which could reduce the economic impact of fire, flood and RTAs on the UK economy. However, published government targets do quantify the extent of national aspirations in the areas of fire and RTAs. The Fire Service clearly has a significant role to play in realising these aspirations. This could include, for example, changes in procedures, training, fire and other safety promotion, and enforcement of fire safety legislation. As an illustration of the potential for reduction in the economic cost , therefore, the effect of achieving the published targets is assessed below.

As this assessment is purely illustrative the target reductions for England & Wales have been applied, for simplicity, directly to the costs identified for the UK as a whole in 2002, and have not factored in any difference between the targets' baseline years and 2002

Targets Addressed

Fire

- **Two different sets of targets were assessed.**
- **PSA targets which outlined:**
  - 10% reduction in the number of building fires.
  - 30% reduction in the number of deliberate fires.
  - 20% reduction in the number of accidental fire-related deaths.

Road Traffic Accidents

- **The DTR have published the following targets relating to road traffic accidents:**
  - Reduce the number of deaths by 40%.
  - Reduce the number of children killed or seriously injured by 50%.
  - Reduce the slight casualty rate by 10%.

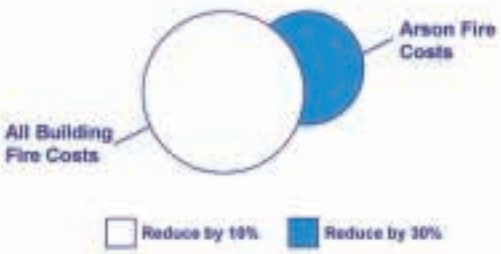
TARGETS

The PSA fire targets are ambiguous and can be interpreted two ways

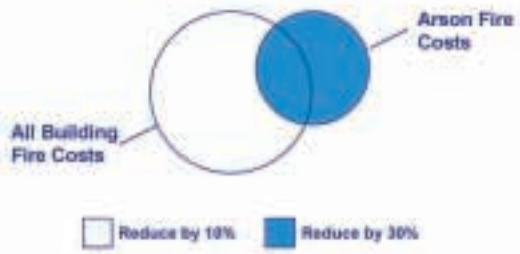
Nature of Ambiguity

- **It is not clear whether the targets for arson fires is included within or is in addition to the target for buildings.**
- **Therefore it is not clear whether the targets for buildings fires relate to all fires or only accidental.**

Interpretation A



Interpretation B



We have assessed the cost benefits using Interpretation B.

"The opportunity to improve emergency cover provision whilst providing additional resources for community safety has been missed in Suffolk Fire & Rescue Authority's IRMP. With a relatively short consultation period and limited publicity the community in Suffolk have not been as involved in the process as they perhaps would have wished." **Suffolk FBU**

TARGETS

Using interpretation B, achievement of the PSA targets would reduce costs by between £578 and £662m

Target Area	Target Reduction	Government Estimate £m	CGE&Y Low Estimate £m	CGE&Y High Estimate £m
Accidental Building Fires	10%	159	207	243
Deaths in the Home	20%	90	90	90
Arson	30%	310	310	310
Total		559	607	643

Note/Assumptions

- Accidental buildings costs do not include arson.
- Arson costs include the proportion of building fires which are malicious.
- Accidental building fire costs include:
  - Buildings and contents damage
  - All non-fatal casualties
  - Loss of income associated with buildings fires

TARGETS

Achievement of Government targets for RTAs would significantly reduce costs

Reduction in the Number of Incidents by Achieving Government Targets

Target Area	Target (%)	Number Reduced By
Adult Deaths	40	1,346
Child Deaths	50	100
Serious Injuries (Children)	50	2,312
Slight Casualty	10	27,494

Cost Reduction By Achieving Government Targets

Target Area	Government Estimate £m
Adult Deaths	1,653
Child Deaths	123
Serious Injuries (Children)	319
Slight Casualty	293
Total	2,388

Government case presented only as this represents reported incidents and targets relate to reported incidents.

TARGETS

Total potential savings based on achieving government targets for reduction in Fire and RTAs are about £3bn

Target Area	Government - based Estimate £m	CGE&Y Low Estimate £m	CGE&Y High Estimate £m
Fire	559	607	643
RTAs	2,388	2,388	2,388
Total	2,947	2,895	3,031

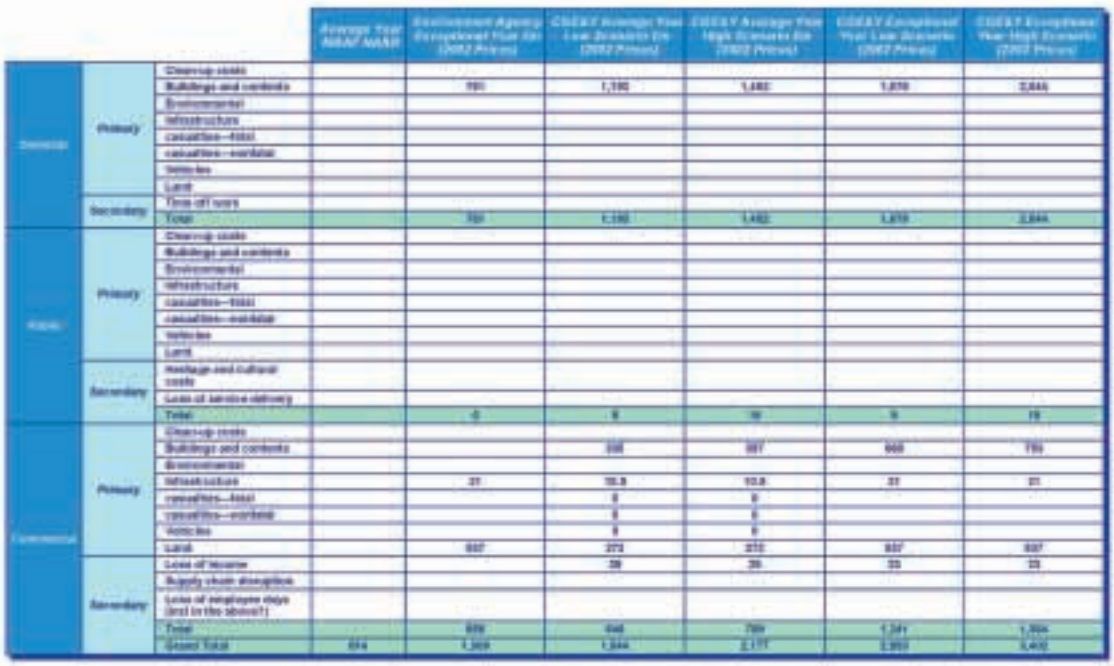
Detailed Cost Models

Detailed cost model—fire

			Home Office UK £m 2002 Prices (Weighted)	CGE&Y Low Case UK £m 2002 Prices	CGE&Y High Case UK £m 2002 Prices
Domestic	Primary	Clean-up costs			
		Buildings and contents	449	607	643
		Environmental			
		Infrastructure			
		casualties—fatal	539	592	592
		casualties—non-fatal	488	489	489
		Vehicles	343	343	343
		Land			
	Secondary	Time off work			
		Legal costs			
		Total	1,729	1,930	2,066
Public	Primary	Clean-up costs			
		Buildings and contents	449	494	494
		Environmental			
		Infrastructure			
		casualties—fatal	13	13	13
		casualties—non-fatal	37	37	37
		Vehicles			
		Land			
	Secondary	Heritage and cultural costs			
		Loss of service delivery			
		Legal costs			
		Total	444	444	444
Commercial	Primary	Clean-up costs			
		Buildings and contents	782	994	1,199
		Environmental			
		Infrastructure			
		casualties—fatal	13	13	13
		casualties—non-fatal	54	54	54
		Vehicles			
		Land			
	Secondary	Loss of income	54	121	144
		Supply chain disruptions			
		Loss of employee days			
		Legal costs			
		Total	902	1,175	1,378
Unattributable		Fatality	342	342	342
		Injury	98	98	98
		Legal costs	91	91	91
		Total	513	513	513
		Grand total	3,588	3,868	4,127

"The emphasis in North Yorkshire Fire & Rescue Authority's IRMP is directed towards reducing cost and saving money rather than reducing risk and saving lives." **North Yorkshire FBU**

Detailed cost model—flood



Detailed cost model—RTA

		DTR £m 2002 Prices	CGE&Y £m 2002 Prices
Primary	Vehicle damage	5,803	6,189
	Road/infrastructure Damage		
	Property destruction		
	casualties—fatal	2,865	2,865
	casualties—fatal serious	4,838	4,838
	casualties—nonfatal slight	2,588	2,838
	Total	16,096	16,522
Secondary	Transport system disruption		
	Lost income	2,588	2,638
	Legal costs		
	Total	2,588	2,638
	Grand total	18,683	19,159

An organisation's greatest assets are its people. The fire & rescue service in the UK is made up of highly skilled Firefighters and Firefighters (Control). It is thanks to their commitment, skill, dedication and personal courage that the UK fire & rescue service is widely considered to be the best fire & rescue service in the world. Effective team working in time-critical and high-stakes situations is one of the key factors in the services' ability to limit the effect of potentially disastrous situations. There are however other factors which will ultimately dictate whether the aspirations of these key employees in their core role will be met.

Extremely tight timescales were set for the construction of first-year Integrated Risk Management Plans. These timescales made it difficult, although not impossible, to tap into the talents and insight that can be brought to the IRMP process by employees at the sharp-end of service delivery. In practice these employees have generally been presented with an IRMP to comment on, rather than being invited to contribute to the actual construction of such a plan.

Ignoring the tried, tested and proven process of a joint problem-solving approach as a means to achieving the best solution will limit the effectiveness of any integrated risk management plan. Such an approach will also hamper the development of long term solutions and strategies to address the real problem of the level of deaths, injuries and losses occurring in fire & rescue service areas.

The people in the front-line of any organisation have always been best placed to judge what works and what doesn't work. Successful organisations use this human resource wisely, and in the knowledge that if it is ignored the effectiveness of that organisation will be severely limited, and the morale of its employees will suffer accordingly.

Fortunately for fire & rescue authorities, their front-line employees have not remained silent on the problems and challenges that the service faces with the shift to Integrated Risk Management Planning. These employees have brought their important contributions to their representative body. In addition to the strategy contained in the main body of this National IRMP Document, three specific 'solutions from the front-line' are detailed on pages 97 to 139 as follows:

- Battery-Operated & Mains Powered Multi-Point Wireless Signal Interlinked Domestic Smoke & Heat Detectors/Alarms
- A Risk-Based System for Reducing Unwanted Fire Signals
- Critical Attendance STandard (CAST) Planning Scenarios

In some cases the proposals build on work already undertaken; in other cases they are new solutions to old problems.

The proposals can be measured against the anticipated outcomes of integrated risk management planning, specifically the development of strategies to reduce deaths, injuries and property loss from fire and other emergencies. Most importantly perhaps, they have been developed based on the experience of front-line workers in the fire & rescue service; continuing experience of what would really make a difference. For that reason alone they cannot be dismissed.

"Although the FBU were formally consulted, the timescale for the introduction of the IRMP meant that the local FBU had no opportunity to contribute to the actual construction of the plan. We look forward to being given that opportunity in the future." **Oxfordshire FBU**

BATTERY-OPERATED AND MAINS POWERED MULTI-POINT WIRELESS SIGNAL INTERLINKED DOMESTIC SMOKE & HEAT DETECTORS/ALARMS (SIGNAL DETECTOR/ALARMS)

Published research carried out to inform the recent Review of Standards of Emergency Cover (Pathfinder) established a statistical link between fire & rescue service attendance times at fires and fatality rates at those fires. Put simply it is a statistically proven fact that faster fire & rescue service emergency response times will reduce fire deaths. However as the time from flaring of fires to the time of rescue increases from a few minutes to over 10 minutes, the likelihood of death also increases.

The research indicated that almost half of fire fatalities occur in fires which are estimated to have been burning for more than 30 minutes before the alarm of fire is raised. The research also concluded that there appears to be only a minority of fires where emergency attendance in response to a call will not avert death irrespective of how fast the attendance is. Considering this research and the key factors in the Intervention Window model **(Section 5)**, a person's chance of survival will increase if the time between the start of the fire and the first emergency call to the fire & rescue service is reduced.

Smoke and heat detectors/alarms are critical in reducing this time and so increasing a person's chance of survival. It has long been recognised that the most effective fire detection system is a multi-point system, where detectors in all parts of the building 'communicate' with each other; when a detector in one part of a building discovers a fire situation, all detectors/alarms in the building sound. Such a system reduces the time between the discovery of a fire and the alert of occupants in other parts of the building. It increases their chances of escape before escape routes are cut off, and it reduces the time between the start of the fire and the opportunity to summon help for assisted escape or for firefighting. Escape routes can be compromised where fires start downstairs and existing single-point battery operated smoke detectors fitted at ground floor level operate but are not heard. Alternatively fires become more fully developed on lower floors before the products of combustion reach detectors sited on first (or higher) floors, and by the time these detectors operate occupants can already find themselves trapped by the fire.

In commercial premises Automatic Fire Alarm (AFA) systems have successfully limited fire deaths for many years. However in domestic or residential premises the retro-fitting of interlinked systems has generally been considered both disruptive and cost-prohibitive as they require detectors to be linked by cables to both the mains power supply and to each other.

With the advent of wireless technology such a system can now be developed for domestic use which overcomes the problems associated with hard-wired interlinked smoke and heat detector and alarm systems. These systems are available for commercial use in the UK and have been developed for domestic use in Europe, although currently they remain relatively expensive, and potentially out of the reach of those members of society most at risk of fire and fire death.

For such a system to realise its full potential in reducing fire deaths in the UK further development would be necessary. The system would consist of multi-point radio-frequency wireless signal operated smoke and/or heat detectors with the detectors incorporating interchangeable detector heads to allow for changes in risk within rooms in a building so reducing unwanted signals of fire.

To increase versatility the system should be capable of being operated both by batteries and mains power. The design of the individual smoke/heat detector units should enable system coverage within a property to be increased to match risk. Operation of any one detector unit should trigger the operation and alarm of all other units within the property by a wireless signal. The system should be capable of independent coding so that systems in adjoining premises cannot actuate it or be actuated by it. It should also be shielded from accidental operation by other wireless operated systems such as powered garage door openers and wireless operated dwelling door bells.

For certain high risk occupancies the system should be capable of incorporating an automatic wireless operated auto-dialler system capable of being programmed to contact either a fire call receiving centre, a local authority call centre, or the 999 system on operation of the system by:

- connection to a land line telephone system or
- via a mobile telephone network.

For battery powered systems the battery life in each unit should be a minimum of 5 years, but preferably 10 years. Batteries should be of a non-standard type to discourage removal for use in other battery operated devices. Battery replacement in any unit should be within the capability of a non-industry owner/occupier. The product should meet the requirements of the relevant British Standards.

Unit cost will be a significant factor in the product's uptake within the domestic market, and its 'viability' for fire & rescue authorities/local authorities. From both a retail point of view, and when considering assisted/free fitting in properties where the occupants are assessed as being at highest risk of fire, it is possible that some unit production cost subsidy will be necessary, in a similar manner to the subsidies given, for instance, for home insulation.

A further important factor in saving lives in fires is for occupants to make an emergency call to the fire & rescue service as quickly as possible after being alerted to a fire situation. Home Fire Safety campaigns should actively promote keeping a mobile phone in the bedroom (in addition to a hard-wired phone extension where fitted) to ensure that an early emergency call can be made, particularly at night. This will reduce emergency attendance times and give access to potentially life-saving Fire Survival Guidance by Firefighters (Control).

A RISK-BASED SYSTEM FOR REDUCING UNWANTED FIRE SIGNALS

The issue of Unwanted Fire Signals (UFS) generated by Automatic Fire Alarm (AFA) systems is not new. It is as old as the AFA system itself. Since 1977 this issue has been the subject of at least three separate and substantial reports containing recommendations for dealing with the problem. Two of these reports have received Government support. The third was a Thematic Review by Her Majesty's Chief Inspector of Fire Services. Integrated Risk Management Planning provides the opportunity to look at this issue again; not from the perspective of the effect of any strategy on the former Standards of Fire Cover response standards, but from the perspective of wider risk management.

The AFA system was developed around the late 1970's at the same time as the enabling technology (the transistor) was developed. In the intervening period, the electronic technology used in AFA systems has continued to develop to the extent that these systems are now considered to be relatively inexpensive and theoretically reliable.

From a risk management perspective it is clear that Unwanted Fire Signals generated by AFA systems must be reduced wherever possible, particularly where the fault lies within the design, use, or management of a fire detection and alarm system. It is also clear that UFS reduction must always be achieved without affecting the safety of the people such systems are designed to protect, or the safety of Firefighters who may be called to an alarm of fire at a site or building protected by such a system.

Any new proposal or strategy aimed at reducing the impact of UFS on both the public and fire & rescue service resources must be grounded in an understanding and appreciation of:

- the historical background, measures and initiatives which have been previously used in an attempt to address the issue, and an assessment as to why these have succeeded or failed;
- the standards which apply to the design and installation of AFA systems; and
- the legal framework and responsibilities which fire & rescue authorities bear in relation to their actions and responses to AFA signals.

Only then will it be possible to develop a framework for effective risk management in relation to UFS, and importantly a framework which takes into consideration their root causes. Such a framework will enable the issue of UFS to be addressed in accordance with a fire & rescue authority's legal and moral obligations (**Section 8**).

Unwanted Fire Signals

Historically an Unwanted Fire Signal has been considered as **'any fire alarm signal other than a genuine fire or test signal'.** However in terms of an Unwanted Fire Signal reduction strategy, UFS should primarily be considered as those false alarms of fire, howsoever transmitted, that are:

- caused by the failure of a fire alarm and detection system as a result of a system malfunction due to poor design, poor installation or poor maintenance of that system and its components; and/or
- caused as the result of poor management of the system or its surrounding environment.

False alarms of fire which are classified by the fire & rescue service upon response to them as being either of 'good intent' or 'malicious' intent should not properly be regarded as Unwanted Fire Signals for the following reasons:

- a false alarm which is classified as being of 'good intent' by the fire and rescue service indicates that a situation occurred that whilst not being an actual fire, so simulated one that it led either a person or a fire alarm and detection system to believe that a fire existed. The person or system generating the alarm of fire will have done so in good faith believing a fire to exist and no fault should be attributed unless the situation is repeated in which case it should be investigated and remedied;

"West Sussex Fire & Rescue Authority has opted for the easy but potentially risky option of reducing emergency attendances to Automatic Fire Alarms in their first year IRMP. This is not a true risk-based strategy but a cost saving measure." **West Sussex FBU**

- a false alarm which is classified as being 'malicious' by the fire & rescue service indicates that a person deliberately generated a false alarm of fire, or deliberately caused a fire alarm and detection system to operate, when they knew no fire situation existed. In such a case, the person maliciously generating the false alarm of fire is at fault and not the fire alarm and detection system.

The aim of an AFA system is to provide an early warning of fire and in doing so to save lives and limit property damage by ensuring an early response to the alarm of fire by the fire & rescue service. AFA systems have been very successful in this respect. Their success has fuelled a rapid growth in the number of installed systems, both in public and privately owned premises. Despite improvements in AFA system design and reliability this rapid growth has been accompanied by a corresponding growth in UFS.

The number of UFS recorded in national UK Fire Statistics has remained at between 400,000 and 500,000 incidents per year over the last 10 years (1991-2001). Three categories of incidents are recorded as AFA false alarms, as follows:

1. good intent;
2. malicious activation;
3. due to apparatus.

The published figures indicate that the first two categories have been following a downward trend while the third category (AFA due to apparatus faults) has steadily increased. The 2001 UK Fire Statistics record that false alarms due to apparatus accounted for 27% of all fire-related incidents - approximately 279,800 false alarms, compared to 100,800 in 1991.

In 1984 Suffolk Fire Service and the British Fire Protection Systems Association (BFPSA) published a joint report into Unwanted Fire Signals. The 66 month investigation found that, excluding malicious fire signals;

- **21.6%** of UFS were due to system faults, e.g. suspect detector heads;
- **14.1%** of UFS were due to direct impact and other damage;
- **14%** of UFS were due to mis-operation by maintenance personnel and other engineers working in the premises;
- **12.2%** of UFS were due to extraneous smoke or fumes;
- **6.7%** of UFS were due to signals from other systems linked to the fire alarm and detection system;
- **5.4%** of UFS were due to persons smoking;
- **5.4%** of UFS were due to other causes (including fumes from chemical cleaners and manufacturing processes);
- **4.7%** of UFS were due to dust and insects;
- **4.7%** of UFS were due to false alarms good intent;
- **3%** of UFS were due to faults in the transmission systems;
- **1.4%** of UFS were due to extraneous heat sources;
- **0.7%** of UFS were due to wind or draughts;
- **2%** of UFS the cause could not be identified.

This left a shortfall of 4.1% from a 100% total, presumably representing the percentage of malicious UFS. Many of the factors identified in the report as contributing to the generation of UFS could realistically be attributed to;

- poor system design (detectors sited in the wrong places where extraneous fumes, smoke, winds and draughts affected them);
- poor installation (detectors and call points sited in areas where they were subject to damage);
- poor system integrity (system malfunction caused by the electronic failure of other systems);
- poor maintenance (dirt and insects in detectors);
- poor management (maintenance personnel and outside engineers setting the alarm off, personnel smoking beneath them or in close proximity).

This investigation of Unwanted Fire Signals coupled with energetic follow up action by Suffolk Fire Service and the BFPSA through their member companies was instrumental in driving down the levels of UFS of all types. The Suffolk Fire Service/BFPSA report is the only report on this subject which actually considered the reasons for the levels of UFS being generated.

The report also indicated that a minority of about 10% of installed AFA systems accounted for 80% of UFS attributed to apparatus. This ratio is still quoted today. These defective AFA systems were described in Fire Service Circular 6/1994 as "rogue systems" that must be addressed. The Circular stated that there was a real danger that limited fire brigade resources were being used to respond to UFS and may not therefore be available to respond to other emergencies.

In subsequent years a number of initiatives were introduced in an attempt to address the issue of UFS, with the ultimate aim of reducing their levels to manageable numbers. One initiative was to identify the 20 worst sites in each fire & rescue authority area i.e. those sites that generated the most UFS. Analysis of the results of this initiative in 1999 indicated that the worst offenders fell into the following categories of buildings:

- **56%** were hospitals and related buildings;
- **24%** were education establishments, mainly halls of residence;
- **12%** were sheltered housing and hostels;
- **8%** were industrial premises, mainly major manufacturing facilities.

These figures demonstrated that the worst offenders (accounting for **80%** of all UFS) are in the public sector, which includes health and education buildings.

Any strategy that seeks to reduce UFS from premises whose AFA system is processed via a commercial Alarm Receiving Centre (ARC) will be limited in effect. False alarms which are generated by premises that are linked to an ARC would be caught by the policy; however premises which use some other system to contact the fire & rescue service directly, such as auto diallers or permanently staffed switchboards (as in many NHS Hospital Trusts) will be excluded from the effect of such a strategy. UFS generated by a system which contacts the fire & rescue service through an ARC only represent a portion of the overall total.

Additionally any strategy which bases decisions on emergency attendance to AFAs on a simplistic numerical calculation of number of confirmed false alarms against total number of detector heads (in an attempt to determine unacceptable levels of UFS) could be considered to be no more than an indication of system suitability as opposed to actual risk in a building, and is unlikely to stand scrutiny in a court of law.

British Standards

The British Standard relating to the installation and maintenance of fire alarms (BS5839-1) was revised in October 2002. The aim of the revision was to reflect changes in fire alarm system technology and to address the issue of system maintenance, in particular the issue of managing false alarms.

The main points from BS5839-1:2002, as they relate to UFS, can be summarised as:

Improved Level of Service:
System maintainers should carry out an increased number of checks, with an emphasis on the continued suitability of the system, in line with the building use and the nature of occupancy. There are additional requirements in respect of the testing and recording of system performance, with particular emphasis on the management of false alarms.

Managing False Alarms:
The 2002 Standard makes clear that the responsibility for the implementation of measures to limit the number of false alarms lies not just with the system designer, but also with the occupiers of premises with fire alarm systems, who must ensure that they are serviced and maintained.

Fire Log Books:
Users of AFA systems are required to log when there has been a false alarm and also to categorise the alarm as one of five types:

1. *unwanted alarms* - caused by cooking fumes, steam, dust etc;
2. *equipment false alarms* – alarms due to faults with the AFA equipment;
3. *malicious alarms* – malicious use of manual call points;
4. *false alarms with good intent* – where an individual suspects there is a real fire;
5. *unknown* – where the cause is uncertain.

Service Visits:
BS5839-1:2002 states that the number of service visits should be based on a risk assessment, but should be a minimum of two visits a year.

Fire Alarm Monitoring:
It is recommended that where a building is not continuously occupied there should be some means of automatic transmission of a fire signal to an Alarm Receiving Centre (ARC).

Variations and Non-Compliance:
The person responsible for servicing an AFA system is obliged to inform the occupier of the premises of any variations and non-compliances with the revised Standard (BS5839-1:2002). The owner/occupier of the premises, however, is under no legal obligation to upgrade the AFA system to comply with the new standard. Any new or replacement system would however have to comply with these requirements.

User Responsibilities:
The 2002 Standard provides guidelines on the role of the 'responsible person' who should be appointed to supervise all matters pertaining to the AFA system. These include ensuring that:

- the AFA control panel is checked every 24 hours;
- maintenance is carried out as detailed in section 6 of the Standard;
- the fire log book is kept up to date;
- all relevant persons are instructed in the use of the AFA system;
- appropriate action is taken to limit false alarms e.g. during maintenance work;
- all false alarms are recorded and categorised in the fire log book;
- a clear space, minimum 500mm, is preserved around all automatic fire detectors;
- all manual call points remain unobstructed and visible;
- routine testing is carried out on a weekly basis, with the results recorded in the fire log book;
- following system changes, 'as-built' drawings and instructions are updated.

Options to Reduce the Impact of UFS

Figure 4 shows a preliminary root cause analysis which sets out acceptable options for reducing UFS.

"In Tayside we are already seeing preliminary proposals to reduce PDA's to certain premises. However if risks were competently and appropriately assessed, the expectation would be to increase planned responses to many premises. This would ensure true improvements in community safety." **Tayside FBU**

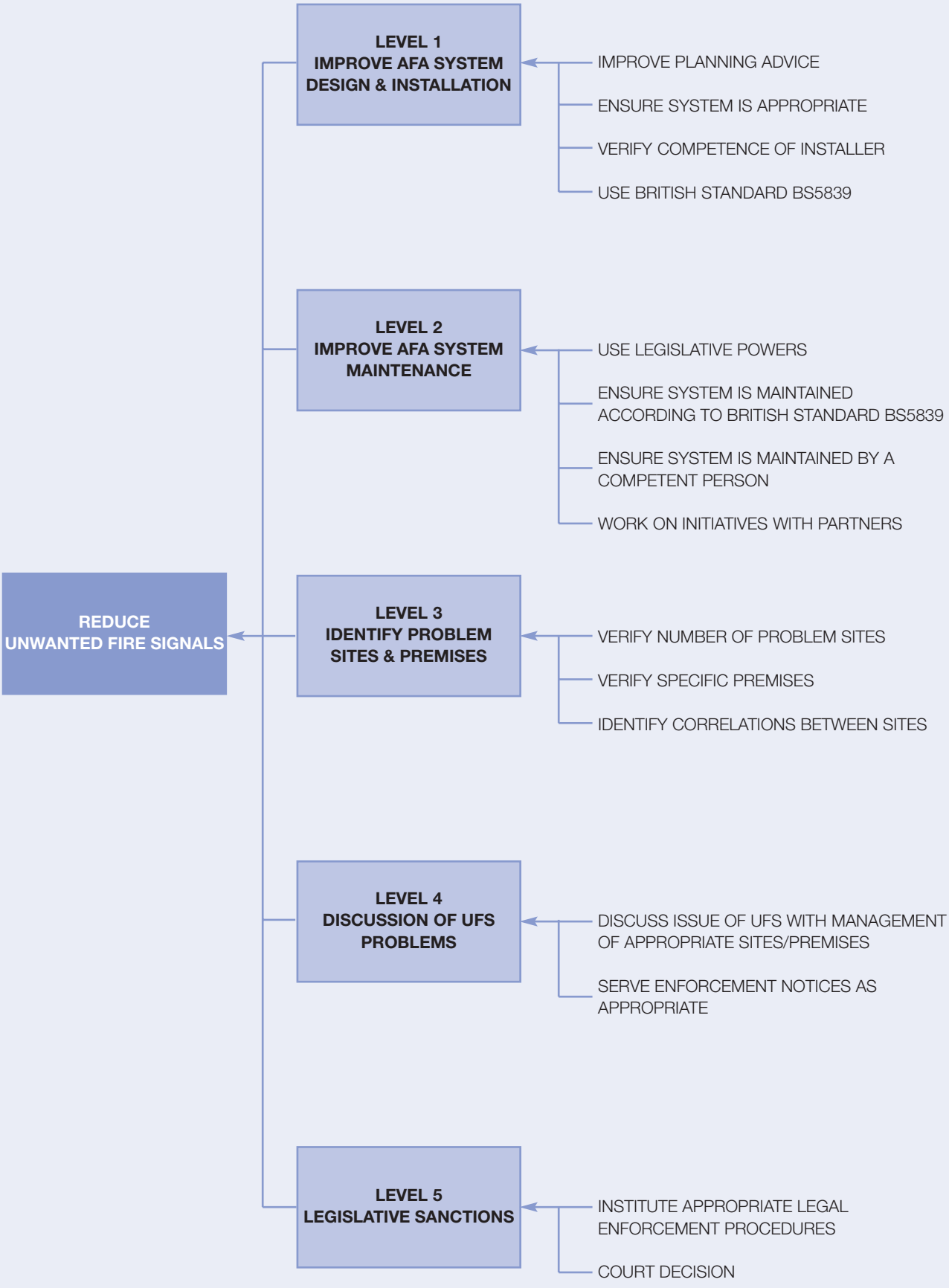


Figure 4 – Reducing UFS signals

The most appropriate measures to be applied to effectively reduce or eliminate UFS can be determined by firstly considering the Level One headings in the root cause analysis (Figure 4) in more detail.

1. Improve AFA System Design & Installation
There are two means to achieving this. Firstly the allocation of additional fire & rescue service resources to provide improved planning advice to potential users of AFA systems. The aim would be to ensure the system is appropriate for its intended use and that the automatic detectors are sited in appropriate locations. Secondly to work with partner organisations to ensure new and replacement AFA systems comply with the requirements of BS5839-1:2002.

2. Improve AFA System Maintenance
All designers, suppliers, installers and users of AFA systems should comply with the requirements set out in BS5839-1:2002. The provisions of the Standard are sufficient to ensure that to be compliant, a system should be reliable in operation provided it is subject to an appropriate maintenance regime. The maintenance of AFA systems is covered in BS5839-1:2002. This includes specified criteria for system resilience. It should also be noted that the Fire Precautions Act 1971 and the Fire Precautions (Workplace) Regulations 1997 (as amended) provide for the fire & rescue authority to specify the testing of AFA systems for premises that require a Fire Certificate or fall under the regulations.

3. Identify Problem Sites & Premises
The results of past initiatives (which sought to identify problem sites and premises) indicate that the majority (80%) fall in two categories; health service and education establishment properties. It is clear that fire & rescue authorities are fully aware of who is creating the largest UFS resource drain, but have failed to persuade the owners / employers / responsible person or system operators to fulfil the requirements defined in BS5839-1:2002.

4. Discussion of UFS Problems
The issue of AFA system maintenance is key to the reduction in UFS at source. Improved maintenance of AFA systems, which effectively reduces the number of UFS at source, negates the need for alternative approaches which primarily aim to reduce impact rather than address root cause.

Despite having appropriate regulations and standards in place, the number of UFS continue to rise year on year. Previous initiatives have demonstrated that lack of AFA system maintenance is related to reluctance on the part of users to allocate sufficient resources to the routine maintenance of AFA systems.

The most far reaching and effective solution to the problem of UFS generation would be to force users to maintain their AFA systems in compliance with BS5839-1:2002. There are provisions within current legislation, The Fire Precautions Act 1971 and the Fire Precautions (Workplace) Regulations 1997 (as amended), which can be utilised to reduce the cause of UFS. Contained within this legislation is the requirement to maintain such equipment *'in an efficient state, in efficient working order and in good repair'*. If the enforcing authority (the fire & rescue authority) judges that the building occupier has failed to comply with the legislation, then an Enforcement Notice should be served.

5. Legislative Sanctions
If the owner, employer, or responsible person, refuses to act or fails to comply with an Enforcement Notice then the fire & rescue authority has no other option but to pursue the issue through the Courts. Clearly, if a fire alarm and detection system is generating repeated UFS it is neither efficient nor effective and therefore it is for a Court of Law to decide what action they wish to take, if any, to remedy the situation.

Reducing Risk and Protecting People

The decision making process described in the HSE publication "Reducing Risks, Protecting People (R2P2)" offers a framework to consider the issues surrounding UFS. This framework can be used to identify measures to reduce the number of UFS in line with effective risk reduction strategies.

The six stages that make up the decision making process described in the HSE R2P2 document are shown in **Figure 5** together with a summary of each stage. These stages can be most effectively used as headings around which to consider the issue of UFS.

> *"There is little risk-based evidence to support decisions not to attend AFA calls. These are simply financial decisions to save money, and are not based on risk and the value of peoples' lives and property."* **Wiltshire FBU**

STAGE 1
Is the Issue one of Health & Safety?

It is normally obvious if the issue is one that concerns the health, safety and welfare of employees or the general public. However, it is important to fully understand the background to the issue.

STAGE 2
Define Characteristics of the Issue

The characteristics of the issue need to be understood in terms of risk (both quantitative and qualitative information) to determine how the risk affects employees and the public. This information is important as it informs decisions on options for risk reduction.

STAGE 3
Examine Options and Merits

In examining the options it is important to ensure that they address the root cause(s) of the problem and do not introduce new risks. It is also useful to consider data from previous initiatives that have attempted risk reduction. The cost of the option needs to be balanced agains the degree of risk reduction that is expected.

STAGE 4
Adopt Decision

Stage 4 is concerned with a review of the informatioin gathered on each of the options with a view to selecting the most appropriate option for managing the risk. It is important that the rationale behind the decision is recorded along with any supporting data.

STAGE 5
Implement the Decision

The responsibility for implementing measures for controlling a risk will usually fall upon the person who creates it, or the person who is in the best position to prevent or minimise it.

STAGE 6
Evaluate Action Taken

It is important to monitor any actions taken to ensure they are having the intended effect in risk reduction terms. It is also useful to gather information and learn lessons that can be used to inform future decisions on risk reduction.

Figure 5 – R2P2 Summary

STAGE 1: Deciding Whether the Issue is one of Health & Safety

The issue of UFS is a health and safety issue (in addition to being a fire safety and property protection issue) in respect of both the general public and Firefighters. These groups are put at risk when the initial emergency response to an AFA is delayed/reduced/not sent at all. The risk to the general public is also increased where UFS take up available fire & rescue service resources which are not then available to respond to other emergency calls. Continued UFS also present a potentially increased risk to building occupiers, as they may become de-sensitised to fire alarms.

STAGE 2: Defining and Characterising the Issue

The causes of UFS are predominantly poor installation and maintenance of AFA systems. The options considered must therefore address this root cause of the problem (installation and maintenance).

STAGE 3: Examining the Options Available and their Merits

The available options fall into two broad categories which aim either to address the root cause or the symptoms related to UFS. It is clearly important to learn from earlier initiatives which have attempted to address the problem, and in particular to understand the reasons behind their success or failure.

A summary of the options that have been considered by fire & rescue authorities (options which attempted to address cause and symptom), and whether they could be viewed as long, medium or short term solutions is shown in **Table 1.**

The primary aim should be to address the root cause of the risk. In relation to the reduction of UFS, Table 1 suggests that the only options that directly address the root cause of the problem are initiatives focused upon improving the design/ planning, installation and maintenance of AFA systems.

In assessing the merits of each option the cost in relation to the probable level of risk reduction must be considered. The normal approach is to conduct a Cost Benefit Analysis (CBA) that compares the cost of the option with any safety risk reduction (also expressed in cost terms). When considering initiatives to reduce the number of UFS, the cost savings associated with a reduction in the number of PDA responses made should be taken into account. The results of the CBA should be used to inform the decision-making process on the selection of the best option. The final decision may also take into account other factors, which cannot be readily costed.

STAGE 4: Adopting Decisions

R2P2 states that

"success lies in adopting decisions, which most accurately reflect the ethical and value preferences of society at large on what risks are unacceptable, tolerable or broadly acceptable."

The Management of Health and Safety at Work Regulations 2003 requires those who introduce measures for managing risks to enlist the co-operation and involvement of those affected and those able to assist. It is also a requirement to introduce procedures that foster a positive working culture.

The option(s) adopted must put in place resources and procedures that address the root cause of UFS - poor installation and maintenance of AFA systems. The responsibility for AFA maintenance lies with the site user. It is important that initiatives to reduce the number of UFS aim to encourage and persuade AFA system users to meet the requirements of BS5839-1:2002.

Table 1 – Option Summary

Option	Cause / Symptom	Short / Medium / Long Term
Improve AFA System Design & Installation	Cause	Long
Improve AFA System Maintenance	Cause	Long
Identify Problem Sites & Premises	Cause	Medium to Long
Discussion of UFS Problems	Cause	Medium to Long
Modify ARC Procedures	Symptom	Short
Alter Emergency Responses to AFAs	Symptom	Short

"The Buckinghamshire Fire & Rescue Authority produced proposals to change fire cover, duty systems and set a budget for the coming year even before the draft Integrated Risk Management Plan had completed its consultation process, and without any validation of its effects on front-line employees." **Buckinghamshire FBU**

Many recent fire & rescue authority proposals focus on managing the impact of UFS on fire & rescue service resources and to a lesser degree on minimising the related risks to fire & rescue service personnel and the general public. The results of pilot schemes indicate that allocation of fire & rescue service resources to work with AFA users has resulted in a short term reduction in the number of UFS. However the numbers of UFS have increased when these resources have been re-deployed on other fire & rescue service work. The reduction in UFS achieved by pilot schemes that target fire & rescue service resources to address root cause has demonstrated the potential self-financing nature of such schemes in line with CBA. The real challenge is to implement initiatives that reduce the numbers of UFS in the longer term by ensuring that these resources remain deployed in this activity.

STAGE 5: Implementing the Decisions

The responsibility for implementing measures for controlling risk usually falls on the person who creates it, or those in a position to prevent or minimise it.

STAGE 6: Evaluating the Effectiveness of the Action Taken

When implementing new procedures and initiatives aimed at risk reduction, it is unusual to get everything right at the first attempt. It is important to monitor the effectiveness of the initiative to ensure the results are as intended. The information gathered can also be used to inform future decisions in the same or related areas.

Conclusions

Many proposals in first year IRMPs focus on managing the impact (symptoms) of Unwanted Fire Signals, without addressing the root cause. However history has shown that this approach has not arrested the growth in UFS. Measures which aim to reduce or graduate the required attendance of fire appliances to an alarm of fire from a specified premises or site as a result of UFS are symptom-orientated, and cannot be considered to be long-term risk management strategies. Whilst Firefighters return from a false alarm of fire, they do not knowingly go to one, and until they have reached the premises or site concerned and have satisfied themselves that no fire situation exists, then and only then have they attended a false alarm of fire.

Lack of maintenance of AFA systems causes an effective increase in the number of UFS. Initiatives aimed at addressing this have so far failed to provide a lasting solution as the number of UFS continues to rise due to fire & rescue service resources being withdrawn from such initiatives, even where they were proving successful. A significant problem remains the failure of AFA users/owners to maintain these systems properly. Addressing this issue is key to reducing UFS and their associated impact.

Options to reduce the number of UFS have generally focused on managing the associated impact rather than allocating fire & rescue service resources to work with AFA system users. These approaches fail to provide any incentive for the user to comply with existing standards. There does not appear to have been any clear initiative to apply a 'carrot and stick' policy i.e. to provide fire & rescue service resources to assist the user, but where they fail to deal with a recurring problem of UFS to then use the enforcement powers available under current legislation.

Development of such a strategy would involve a number of steps which fire & rescue authorities would have to take, as follows:

- drafting a policy document (with legal advice on enforcement measures);
- briefing AFA system owners on the policy document and the need for immediate or phased compliance with the policy;
- feedback from AFA users;
- policy implementation;
- policy review.

It is incumbent upon fire & rescue authorities to investigate both thoroughly and energetically any UFS that they receive and particularly where such signals are repeated. This investigation should always be carried out in conjunction with the owner or responsible person for the premises or site concerned or their appointed representatives. Once the cause of an UFS has been identified then the owner or responsible person should be offered advice on how the fault might be rectified and invited to rectify the fault forthwith.

Where the cause of Unwanted Fire Signals cannot be readily identified, or where an owner, employer or responsible person proves reluctant or refuses to act then the fire & rescue authority should use the powers that Parliament has granted them under either the Fire Precautions Act 1971, the Fire Precautions (Workplace) Regulations 1997 (as amended), or when introduced, the Regulatory Reform (Fire Safety) Order 2004/5. In short, fire & rescue authorities should serve an Enforcement Notice upon the owner, employer, or responsible person requiring them to deal with the problem.

It is not for the fire & rescue authority to decide whether an offence has been committed where repeated UFS are received by them from a certain premises or site. Such a situation is clearly unsafe as it breeds contempt for a safety system by the people it is designed to protect. As such the effect of the system in discharging its design function is gradually devalued.

If the owner, employer, or responsible person, refuses to act or fails to comply with an Enforcement Notice then the fire & rescue authority has no other option but to pursue the issue through the Courts. Clearly, if a fire alarm and detection system is generating repeated Unwanted Fire Signals it is neither efficient nor effective and therefore it is for a Court of Law to decide what action they wish to take, if any, to remedy the situation. However the fire & rescue authority should present the facts of the matter. To seek to reduce emergency attendances to poorly performing premises or sites prior to taking enforcement action under the powers

granted by Parliament to fire & rescue authorities is to effectively jump to the last control measure – a measure which deals with symptoms rather than implementing strategies which deal with cause.

It may not be sufficient for a fire & rescue authority to rely on others to investigate the cause of an Unwanted Fire Signal, particularly if they are then likely to cease to respond to any further alarm of fire from the premises in question. The defence that a fire & rescue authority would presumably mount to a tort of a negligence would in such cases be the fact that they had received a number of apparently UFS from the building that was above a notional figure which they had not investigated, not offered any advice upon and not sought to take any enforcement action over to rectify the problem before refusing to respond to any further alarm of fire from the premises.

When considering relevant 'best practice' in any attempt to determine a policy for reducing the impact of UFS it must be recognised that there is a major difference between security system monitoring and fire alarms system monitoring. Security systems are not a legal requirement, fire alarm systems generally are. The acceptability of security systems is normally based upon insurer's requirements, i.e. they should conform to the NACOSS standard or users will not be eligible for policy discounts. Fire alarm systems are a legal requirement and should therefore conform to the appropriate British or CEN Standard.

Recommendations

Fire & rescue authorities should record and monitor all Unwanted Fire Signals however received and allocate them to a specific building.

It is entirely necessary for fire & rescue authorities to follow a logical pattern in this issue and in doing so they must firstly identify clearly the problem area and building that is generating Unwanted Fire Signals.

Some large hospital and industrial sites or multi-storey multiply-occupied premises might have one name for fire & rescue service mobilising purposes (e.g. the General Hospital, the Iron and Steelworks, the Tower office block) whilst there may be numerous buildings on a site, or individual occupancies in the building. On arrival at the site the fire & rescue crews will normally be met by on-site security personnel or fire marshals and directed to the incident.

This simplification of records creates an imbalance in the figures generated for the building or site experiencing UFS. A site with forty buildings upon it (not unknown in the NHS) or a building with 40 occupiers may appear to generate a disproportionate amount of UFS, however the UFS may be coming from 40 different locations on that site or in that building. If each of the 40 buildings or occupiers generated one UFS per year then they may not be considered to pose a significant UFS problem. However if those totals are aggregated and calculated on a site basis, a very different picture is painted.

More usually however, UFS will come from one or two buildings, or occupiers, which, if they can be identified, should lead to the particular cause of the alarms being identified.

Fire & rescue authorities should investigate and identify the causes of Unwanted Fire Signals from a building which is giving them cause for concern.

It is critical that this task is undertaken wherever possible in conjunction with the responsible person, their electrical or alarm engineers, or the engineers from the installation company if it still exists. The intended outcome is to determine what is causing the system to generate UFS and to determine what can be done to prevent them.

UFS are often caused by a change of use of rooms which affects the detector heads in that area, or detector heads being placed in areas where they will be too sensitive for the processes or activities carried on there. Poor management of staff and the equipment that those staff bring into the workplace is another cause of UFS. Blanket smoking bans lead to illicit and dangerous smoking practices, often with the inevitable result that a fire detector operates. This is a common cause of unwanted fire signals in NHS premises, as is the use by nursing staff of toasters and microwave ovens in inappropriate areas. Once the cause of the problem is identified then remedial action can and should be taken.

Once a system fault has been identified and remedial action recommended then this should be enforced by the fire & rescue authority.

Fire & rescue authorities should not hesitate to use the powers that Parliament has given them to ensure the safety of other workers and the public. There appears to be a remarkable reluctance by authorities to use their statutory powers to deal with these issues. If a responsible person refuses to act then the fire & rescue authority should (before it puts itself at risk of being sued for negligence) use the legal system in an attempt to resolve the issue using the powers granted to it.

A fire alarm system, however designed and constituted, that is producing repeated UFS is not efficient and it is not effective. Any lack of effectiveness or efficiency on the part of a fire alarm system is an offence under both the Fire Precautions Act 1971 and the Fire Precautions (Workplace) Regulations 1997 (as amended).

Where a fire & rescue authority has identified clearly the number of UFS it has received from a building or site, if it has identified clearly the location of them and if it has identified the cause of them along with the remedy for the problem and offered the responsible person advice on what they should do to deal with it, then it is unlikely that a Court would fail to support the fire & rescue authority's actions, provided the authority can demonstrate that it has acted reasonably throughout the process.

"There is little detail in Bedfordshire and Luton Fire Authority's IRMP. The 'big picture' is missing. Constructive progress will only be achieved by meaningful consultation and collaboration with the FBU." **Bedfordshire & Luton FBU**

The support and co-operation of the fire & rescue service, coupled with a clear understanding of the parties' obligations and the consequences of failure, should enable the issue to be managed and the associated risks reduced ALARP within a sensible timescale.

Future AFA Design and Installation

Any risk management strategy for reducing UFS generated by Automatic Fire Alarm systems must deal with the issue of designing potential UFS problems out of buildings that are yet to be built. This raises the issue of mandatory third party certification of fire safety systems and installations, and the accreditation of those individuals or companies who undertake such works and seek to certify them as being completely satisfactory to the enforcing authority, which initially is the building control body.

Fire safety systems and equipment which seek to protect the lives of large numbers of the general public, other workers and Firefighters from the dangers of fire can currently be designed and installed by anyone who claims to be competent to do so. The question of installer competence and satisfactory system design and installation is always important, but particularly so where the building concerned is being designed to fire safety engineering design principles.

In these cases it is critical that the fire safety measures provided are able to perform to their design specification at all times.

The principle of mandatory third party certification and accreditation for both fire safety systems and fire safety installers is not only relevant in this respect, it is central to both safety and UFS reduction. Any such mandatory system of certification and accreditation should ensure that the rights of the purchaser of any fire safety equipment or fire safety system are protected and insured by the governing body of the certification and accreditation scheme. This protection should extend to protecting the purchaser in the event of the refusal of an installer to rectify, replace, or repair any equipment provided or system installed by them. Any such insurance system should also cover the bankruptcy or disappearance of any supplier or installer of fire safety equipment or systems.

Such a mandatory system of third party certification and accreditation would preserve the rights of the purchaser or client whilst ensuring an improvement in overall fire safety by ensuring a far more consistent standard of both provision and installation of fire safety equipment and fire safety systems. Such arrangements are central to long-term planning to reduce Unwanted Fire Signals.

CAST PLANNING SCENARIOS

A fundamental part of planning fire & rescue service emergency cover within an Integrated Risk Management Plan is the determination of the correct initial emergency response required to be sent to incidents. The following CAST Planning Scenarios give detailed risk and task analyses for the more routinely occurring emergency incidents that a fire & rescue authority will have to plan for as part of its IRMP. The CAST risk and task analyses, coupled with CAST attendance LAG maximums (Section 4 page 40) will ensure that the planned emergency intervention response is safe, appropriate and effective in reducing fire deaths and injuries, deaths and injuries from non-fire emergencies, and property loss.

The CAST Planning Scenarios detail the minimum resource requirements for smaller and more routine incidents. CAST Planning Scenarios for larger or more complex incidents will require further development as part of an IRMP. The risk and task analyses for the more routinely occurring emergency incidents will assist in informing CAST planning for these larger scenarios.

The CAST Planning Scenarios assume that all fire & rescue service personnel attending as part of the initial emergency response to an incident have been assessed as being competent to undertake the tasks they are assigned.

Abbreviations Used in CAST Planning Scenarios

BA	Breathing Apparatus
SDBA	Standard Duration Breathing Apparatus
BAECO	BA Entry Control Officer
BAECP	BA Entry Control Point
CPS	Chemical Protection Suit
GTS	Gas Tight Suit
IC	Incident/Sector Commander
FF	Firefighter

"Durham and Darlington Fire and Rescue Authority have employed a process throughout the IRMP consultation that demonstrates a total disregard for what is good for the public, the Service and Firefighter safety. Their plan will undoubtedly move us further from our aim of ZERO fire deaths." **Durham & Darlington FBU**

CAST 1

FDR1 Fires: Dwellings: Multiple Occupancy High Rise

2 to 4 casualties involved rescue via internal staircase

A single flat with one room involved, needing a bridgehead set up. 2 to 4 casualties needing rescue.

Task Sequence and Personnel Requirements		
1	Initial information gathering	**1** x **IC**
2	Forward Control Point command	**1** x **IC**
3	Cause establishment	**1** x **IC**
4	Incident command	**1** x **IC**
5	General fireground liaison	**1** x **IC**
6	Provision of water to dry rising main, twinned supply	**2** x **FF**
7	Establish a bridgehead (Forward Control Point)	**1** x **IC** / **4** x **FF**
8	Check landing valves	**2** x **FF**
9	BA Entry Control	**1** x **FF**
10	Provision of water from pump/tank – low pressure pump	**1** x **FF**
11	Gain and maintain control of firefighting lift	**1** x **FF**
12	Provision of water from hydrant to pump/tank – double standpipe	**2** x **FF**
13	Provision of 45mm jet	**2** x **FF**
14	Provision of 45mm jet	**2** x **FF**
15	Gaining entry to premises with breaking in gear	**1** x **FF**
16	Firefighting/Rescue 2 Firefighters BA – 45mm jet	**2** x **FF**
17	Firefighting/Rescue 2 Firefighters BA – 45mm jet	**2** x **FF**
18	Firefighting/Rescue 2 Firefighters BA as emergency team for BAECP	**2** x **FF**
19	Remove casualty to external opening – 2 x BA	**2** x **FF**
20	Remove casualty to external opening – 2 x BA	**2** x **FF**
21	Remove casualty to place of safety	**2** x **FF**
22	Ventilation of premises – fire compartment – 2 x BA	**2** x **FF**
23	Casualty treatment	**2** x **FF**
24	Ventilation of other areas – 2 x BA	**2** x **FF**
25	Remove casualty to place of safety	**2** x **FF**
26	Damping down – 45mm jet – 2 x BA	**2** x **FF**
27	Casualty treatment	**2** x **FF**
28	Isolation of services	**1** x **FF**
29	Liaison with ambulance	**1** x **FF**
30	Turning over – 2 x BA – thermal imager	**2** x **FF**
31	Salvage	**2** x **FF**
32	Fireground servicing – 4 x BA	**4** x **FF**
33	Cutting away – 2 x BA	**2** x **FF**
34	Debris/water removal – with salvage equipment	**2** x **FF**
35	Fireground servicing – 2 x BA	**2** x **FF**
36	Make up equipment	**5** x **FF**
37	Resource replenishment water	**1** x **FF**
38	Make up equipment	**4** x **FF**
39	Debrief	**1** x **IC**
2 Incident Command Role Firefighters & 11 Firefighters		**13 TOTAL**

EQUIPMENT

45mm hose – 4 , 70mm hose – 6, BA Board Complete – 1, BAECO Tabard – 1, Barriers/ Cones/ /Tape – 1, Branch Pipe – 2 , Breaking in Gear – 2, Breathing Apparatus Standard Duration (SDBA) – 6, First Aid Kit – 1, Hydrant Standpipe (Double) Key & Bar – 1, Pump with Low Pressure Capability – 1, Radio Comms 11, Resuscitator – 2, Salvage Equipment -1, SDBA Spare Cylinder – 6, Set of Hose Ramps – 2, Small Gear – 3, Specialist First Aid Equipment – 1, Thermal Imager – 1, Turning Over Tools – 1, Water Tank 1800 Litres – 1.

CAST 2

FDR1 Fires: Dwellings: Multiple Occupancy Low Rise

2 to 4 casualties involved rescue via 135 ladder

Fire confined to flat of origin. 2 to 4 casualties trapped on top floor and visible on arrival. Rescued via ladder. Initial entry via ground floor, second team via ladder.

Task Sequence and Personnel Requirements		
1	Initial information gathering	**1** x **IC**
2	General fireground liaison	**1** x **IC**
3	Cause establishment	**1** x **IC**
4	Incident command	**1** x **IC**
5	Provision of hose reel branch	**2** x **FF**
6	BA Entry Control	**1** x **FF**
7	Provision of water from pump/tank – high pressure pump	**1** x **FF**
8	Footing ladder	**1** x **FF**
9	Slip and pitch 135 ladder	**4** x **FF**
10	Gaining entry to premises with breaking in gear	**2** x **FF**
11	Firefighting/Rescue 2 Firefighters BA – hose reel branch	**2** x **FF**
12	Provision of hose reel branch	**2** x **FF**
13	Provision of water from hydrant to pump/tank	**2** x **FF**
14	Firefighting/Rescue 2 Firefighters BA – hose reel branch	**2** x **FF**
15	Remove casualty to external opening – 2 x BA	**2** x **FF**
16	Remove casualty to external opening – 2 x BA	**2** x **FF**
17	Isolation of services	**1** x **FF**
18	Remove casualty to place of safety	**2** x **FF**
19	Remove casualty to place of safety	**2** x **FF**
20	Ventilation of other areas – 2 x BA	**2** x **FF**
21	Firefighting/Rescue 2 Firefighters BA – hose reel branch	**2** x **FF**
22	Casualty treatment	**2** x **FF**
23	Cutting away – 2 x BA	**2** x **FF**
24	Liaison with ambulance	**1** x **IC**
25	Ventilation of premises – fire compartment – 2 x BA	**2** x **FF**
26	Fireground servicing – 2 x BA	**2** x **FF**
27	Salvage	**2** x **FF**
28	Turning over – BA – thermal imager	**2** x **FF**
29	Damping down – 2 hose reel – 2 x BA	**2** x **FF**
30	Debris/water removal – with salvage equipment	**2** x **FF**
31	Fireground servicing – 6 x BA	**6** x **FF**
32	Resource replenishment water	**1** x **FF**
33	Make up equipment	**1** x **FF**
34	Make up equipment	**7** x **FF**
35	Debrief	**1** x **IC**
1 Incident Command Role Firefighter & 9 Firefighters		**10 TOTAL**

EQUIPMENT

135 Ladder x 1, 70mm Hose x 3, BA Board – Complete x 1, BAECO Tabard x 1, Barriers/Cones/Tape x 1, Breaking in Gear x 1, Breathing Apparatus – Standard Duration x 6 (SDBA), First Aid Kit x 1, Hose Reel and Branch x 2, Hydrant Standpipe (Single) Key and Bar x 1, Pump with high Pressure Capability x 1, Radio Comms x 9, Resuscitator x 2, Salvage Equipment x 2, SDBA – Spare Cylinder x 8, Set of Hose Ramps x 2, Small Gear x 2, Specialist First Aid Kit Equipment x 1, Thermal Imager x 1, Turning Over Tools x 1, Water Tank – 1800 Litres x 1.

> *"Despite prolonged consultation between the FBU and the brigade, the final IRMP reflected a previously conceived management agenda rather than a true risk management plan. This has been a missed opportunity."* **Norfolk FBU**

CAST 3

FDR1 Fires: Dwellings: Multiple Occupancy Low Rise

2 to 4 casualties involved rescue via 9/105 ladder

Fire confined to flat of origin. 2 to 4 casualties trapped on top floor and visible on arrival. Rescued via ladder. Initial entry via ground floor, second team via ladder.

Task Sequence and Personnel Requirements		
1	Initial information gathering	**1** x **IC**
2	Incident command	**1** x **IC**
3	Cause establishment	**1** x **IC**
4	General fireground liaison	**1** x **IC**
5	Provision of hose reel branch	**2** x **FF**
6	BA Entry Control	**1** x **FF**
7	Provision of water from pump/tank – high pressure pump	**1** x **FF**
8	Slip and pitch 9/105 ladder	**3** x **FF**
9	Gaining entry to premises with breaking in gear	**2** x **FF**
10	Firefighting/Rescue 2 Firefighters BA – hose reel branch	**2** x **FF**
11	Provision of hose reel branch	**2** x **FF**
12	Provision of water from hydrant to pump/tank	**2** x **FF**
13	Footing ladder	**1** x **FF**
14	Firefighting/Rescue 2 Firefighters BA – hose reel branch	**2** x **FF**
15	Remove casualty to external opening – 2 x BA	**2** x **FF**
16	Remove casualty to external opening – 2 x BA	**2** x **FF**
17	Isolation of services	**1** x **FF**
18	Remove casualty to place of safety	**2** x **FF**
19	Remove casualty to place of safety	**2** x **FF**
20	Ventilation of premises – fire compartment – 2 x BA	**2** x **FF**
21	Firefighting/Rescue 2 Firefighters BA – hose reel branch	**2** x **FF**
22	Casualty treatment	**2** x **FF**
23	Cutting away – 2 x BA	**2** x **FF**
24	Liaison with ambulance	**1** x **IC**
25	Ventilation of other areas – 2 x BA	**2** x **FF**
26	Salvage	**2** x **FF**
27	Fireground servicing – 2 x BA	**2** x **FF**
28	Turning over – BA – thermal imager	**2** x **FF**
29	Damping down – 2 hose reel – 2 x BA	**2** x **FF**
30	Debris/water removal – with salvage equipment	**2** x **FF**
31	Resource replenishment water	**1** x **FF**
32	Fireground servicing – 6 x BA	**6** x **FF**
33	Make up equipment	**1** x **FF**
34	Make up equipment	**7** x **FF**
35	Debrief	**1** x **IC**
1 Incident Command Role Firefighter & 9 Firefighters		**10 TOTAL**

EQUIPMENT

70mm Hose x 3, 9/105 Ladder x 1, BA Board – Complete x 1, BAECO Tabard x 1, Barriers/Cones/Tape x 1, Breaking in Gear x 1, Breathing Apparatus – Standard Duration x 6 (SDBA), First Aid Kit x 1, Hose Reel and Branch x 2, Hydrant Standpipe (Single) Key and Bar x 1, Pump with High Pressure Capability x 1, Radio Comms x 9, Resuscitator x 2, Salvage Equipment x 2, SDBA – Spare Cylinder x 8, Set of Hose Ramps x 2, Small Gear x 2, Specialist First Aid Equipment x 1, Thermal Imager x 1, Turning Over Tools x 1, Water Tank – 1800 Litres x 1.

CAST 4

FDR1 Fires: Dwellings: Multiple Occupancy Low Rise

2 to 4 casualties involved rescue via internal staircase

Fire confined to flat of origin. 2 to 4 casualties trapped on top floor and visible on arrival. Initial entry via ground floor, and rescue via stairs.

Task Sequence and Personnel Requirements		
1	Initial information gathering	**1** x **IC**
2	Cause establishment	**1** x **IC**
3	General fireground liaison	**1** x **IC**
4	Incident command	**1** x **IC**
5	Provision of hose reel branch	**2** x **FF**
6	Provision of hose reel branch	**2** x **FF**
7	Provision of water from hydrant to pump/tank	**2** x **FF**
8	BA Entry Control	**1** x **FF**
9	Provision of water from pump/tank – high pressure pump	**1** x **FF**
10	Gaining entry to premises with breaking in gear	**2** x **FF**
11	Firefighting/Rescue 2 Firefighters BA – hose reel branch	**2** x **FF**
12	Firefighting/Rescue 2 Firefighters BA – hose reel branch	**2** x **FF**
13	Remove casualty to external opening – 2 x BA	**2** x **FF**
14	Remove casualty to external opening – 2 x BA	**2** x **FF**
15	Isolation of services	**1** x **FF**
16	Remove casualty to place of safety	**2** x **FF**
17	Remove casualty to place of safety	**2** x **FF**
18	Ventilation of other areas – 2 x BA	**2** x **FF**
19	Firefighting/Rescue 2 Firefighters BA – hose reel branch	**2** x **FF**
20	Casualty treatment	**2** x **FF**
21	Cutting away – 2 x BA	**2** x **FF**
22	Liaison with ambulance	**1** x **IC**
23	Ventilation of premises – fire compartment – 2 x BA	**2** x **FF**
24	Salvage	**2** x **FF**
25	Fireground servicing – 2 x BA	**2** x **FF**
26	Turning over – BA – thermal imager	**2** x **FF**
27	Damping down – 2 hose reel – 2 x BA	**2** x **FF**
28	Debris/water removal – with salvage equipment	**2** x **FF**
29	Resource replenishment water	**1** x **FF**
30	Fireground servicing BA	**6** x **FF**
31	Make up equipment	**1** x **FF**
32	Make up equipment	**6** x **FF**
33	Debrief	**1** x **IC**
1 Incident Command Role Firefighter & 8 Firefighters		**9 TOTAL**

EQUIPMENT

70mm Hose x 3, BA Board – Complete x 1, BAECO Tabard x 1, Barriers/Cones/Tape x 1, Breaking in Gear x 1, Breathing Apparatus – Standard Duration x 6 (SDBA), First Aid Kit x 1, Hose Reel and Branch x 2, Hydrant Standpipe (single) Key and Bar x 1, Pump with High Pressure Capability x 1, Radio Comms x 9, Resuscitator x 2, Salvage Equipment x 2, SDBA – Spare Cylinder x 8, Set of Hose Ramps x 2, Small Gear x 2, Specialist First Aid Kit Equipment x 1, Thermal Imager x 1, Turning Over Tools x 1, Water Tank – 1800 Litres.

"The IRMP process in Dumfries & Galloway is progressing steadily. It offers a real opportunity to plan for a truly modern and effective fire & rescue service. The FBU Brigade Committee will fully support this process, provided it is used to improve the safety of the public and Firefighters alike." **Dumfries & Galloway FBU**

CAST 5

FDR1 Fires: Dwellings: Multiple Occupancy Medium Rise

2 to 4 casualties involved rescue via 135 ladder

Fire confined to flat of origin. 2 to 4 casualties trapped on 2nd floor and visible on arrival. Rescued via ladder. Initial entry via ground floor, second team via ladder.

Task Sequence and Personnel Requirements		
1	Initial information gathering	**1** x **IC**
2	General fireground liaison	**1** x **IC**
3	Incident command	**1** x **IC**
4	Cause establishment	**1** x **IC**
5	Provision of hose reel branch	**2** x **FF**
6	BA Entry Control	**1** x **FF**
7	Provision of water from pump/tank – high pressure pump	**1** x **FF**
8	Footing ladder	**1** x **FF**
9	Slip and pitch 135 Ladder	**4** x **FF**
10	Gaining entry to premises with breaking in gear	**2** x **FF**
11	Firefighting/Rescue 2 Firefighters BA – hose reel branch	**2** x **FF**
12	Provision of hose reel branch	**2** x **FF**
13	Provision of water from hydrant to pump/tank	**2** x **FF**
14	Firefighting/Rescue 2 Firefighters BA – hose reel branch	**2** x **FF**
15	Remove casualty to external opening – 2 x BA	**2** x **FF**
16	Remove casualty to external opening – 2 x BA	**2** x **FF**
17	Isolation of services	**1** x **FF**
18	Remove casualty to place of safety	**2** x **FF**
19	Remove casualty to place of safety	**2** x **FF**
20	Ventilation of other areas – 2 x BA	**2** x **FF**
21	Firefighting/Rescue 2 Firefighters BA – hose reel branch	**2** x **FF**
22	Casualty treatment	**2** x **FF**
23	Cutting away – 2 x BA	**2** x **FF**
24	Liaison with ambulance	**1** x **IC**
25	Ventilation of premises – fire compartment – 2 x BA	**2** x **FF**
26	Fireground servicing – 2 x BA	**2** x **FF**
27	Salvage	**2** x **FF**
28	Turning over – BA – thermal imager	**2** x **FF**
29	Damping down – 2 hose reel – 2 x BA	**2** x **FF**
30	Debris/water removal – with salvage equipment	**2** x **FF**
31	Resource replenishment water	**1** x **FF**
32	Fireground servicing – 6 x BA	**6** x **FF**
33	Make up equipment	**1** x **FF**
34	Make up equipment	**7** x **FF**
35	Debrief	**1** x **IC**
1 Incident Command Role Firefighter & 9 Firefighters		**10 TOTAL**

EQUIPMENT

135 Ladder x 1, 70mm x 3, BA Board – Complete x 1, BAECO Tabard x 1, Barriers/Cones/Tape x 1, Breaking in Gear x 1, Breathing Apparatus – Standard Duration x 6 (SDBA), First Aid Kit x 1, Hose Reel and Branch x 2, Hydrant Standpipe (Single) Key and Bar x 1, Pump with High Pressure Capability x 1, Radio Comms x 9, Resuscitator x 2, Salvage Equipment x 2, SDBA – Spare Cylinder x 8, Set of Hose Ramps x 2, Small Gear x 2, Specialist First Aid Kit Equipment x 1, Thermal Imager x 1, Turning Over Tools x 1, Water Tank – 1800 Litres x 1.

CAST 6

FDR1 Fires: Dwellings: Multiple Occupancy Medium Rise

2 to 4 casualties involved rescue via 9/105 ladder

Fire confined to flat of origin. 2 to 4 casualties trapped on 1st floor and visible on arrival. Rescued via ladder. Initial entry via ground floor, second team via ladder.

Task Sequence and Personnel Requirements		
1	Initial information gathering	**1** x **IC**
2	General fireground liaison	**1** x **IC**
3	Incident command	**1** x **IC**
4	Cause establishment	**1** x **IC**
5	Provision of hose reel branch	**2** x **FF**
6	BA Entry Control	**1** x **FF**
7	Provision of water from pump/tank – high pressure pump	**1** x **FF**
8	Slip and pitch 9/105 ladder	**3** x **FF**
9	Gaining entry to premises with breaking in gear	**2** x **FF**
10	Firefighting/Rescue 2 Firefighters BA – hose reel branch	**2** x **FF**
11	Provision of hose reel branch	**2** x **FF**
12	Provision of water from hydrant to pump/tank	**2** x **FF**
13	Footing ladder	**1** x **FF**
14	Firefighting/Rescue 2 Firefighters BA – hose reel branch	**2** x **FF**
15	Remove casualty to external opening – 2 x BA	**2** x **FF**
16	Remove casualty to external opening – 2 x BA	**2** x **FF**
17	Isolation of services	**1** x **FF**
18	Remove casualty to place of safety	**2** x **FF**
19	Remove casualty to place of safety	**2** x **FF**
20	Ventilation of premises – fire compartment – 2 x BA	**2** x **FF**
21	Firefighting/Rescue 2 Firefighters BA – hose reel branch	**2** x **FF**
22	Casualty treatment	**2** x **FF**
23	Cutting away – 2 x BA	**2** x **FF**
24	Liaison with ambulance	**1** x **IC**
25	Ventilation of other areas – 2 x BA	**2** x **FF**
26	Salvage	**2** x **FF**
27	Fireground servicing – 2 x BA	**2** x **FF**
28	Turning over – BA – thermal imager	**2** x **FF**
29	Damping down – 2 hose reel – 2 x BA	**2** x **FF**
30	Debris/water removal – with salvage equipment	**2** x **FF**
31	Fireground servicing – 6 x BA	**6** x **FF**
32	Resource replenishment water	**1** x **FF**
33	Make up equipment	**1** x **FF**
34	Make up equipment	**7** x **FF**
35	Debrief	**1** x **IC**
1 Incident Command Role Firefighter & 9 Firefighters		**10 TOTAL**

EQUIPMENT

70mm Hose x 3, 9/105 Ladder x 1, BA Board – Complete x 1, BAECO Tabard x 1, Barriers/Cones/Tape x 1, Breaking in Gear x 1, Breathing Apparatus – Standard Duration x 6 (SDBA), First Aid Kit x 1, Hose Reel and Branch x 2, Hydrant Standpipe (Single) Key and Bar x 1, Pump with high Pressure Capability x 1, Radio Comms x 9, Resuscitator x 2, Salvage Equipment x 2, SDBA – Spare Cylinder x 8, Set of Hose Ramps x 2, Small Gear x 2, Specialist First Aid Equipment x 1, Thermal Imager x 1, Turning Over Tools x 1, Water Tank – 1800 Litres x 1.

"A number of proposals in the Warwickshire FIre & Rescue Authority's IRMP appear to actually increase the level of risk to the community and to FIrefighters and other employees." **Warwickshire FBU**

CAST 7

FDR1 Fires: Dwellings: Multiple Occupancy Medium Rise

2 to 4 casualties involved rescue via aerial appliance

Fire confined to flat of origin. 2 to 4 casualties trapped on 6th floor and visible on arrival. Rescued via aerial. Entry for both firefighting teams via ground floor.

Task Sequence and Personnel Requirements		
1	Initial information gathering	**1** x **IC**
2	General fireground liaison	**1** x **IC**
3	Incident command	**1** x **IC**
4	Sector command	**1** x **IC**
5	Cause establishment	**1** x **IC**
6	Provision of water to dry rising main, twinned supply	**2** x **FF**
7	Establish a bridgehead	**1** x **IC / 4** x **FF**
8	Pitch hydraulic platform	**2** x **FF**
9	BA Entry Control	**1** x **FF**
10	Provision of water from pump/tank – low pressure pump	**1** x **FF**
11	Gain and maintain control of Firefighting lift	**1** x **FF**
12	Provision of water from hydrant to pump/tank – double standpipe	**2** x **FF**
13	Provision of 45 mm Jet	**2** x **FF**
14	Provision of 45 mm Jet	**2** x **FF**
15	Gaining entry to premises with breaking in gear	**1** x **FF**
16	Firefighting/Rescue 2 Firefighter BA – 45 mm Jet	**2** x **FF**
17	Firefighting/Rescue 2 Firefighter BA – 45 mm Jet	**2** x **FF**
18	Remove casualty to external opening – 2 x BA	**2** x **FF**
19	Remove casualty to external opening – 2 x BA	**2** x **FF**
20	Remove casualty to place of safety	**2** x **FF**
21	Ventilation of premises – fire compartment – 2 x BA	**2** x **FF**
22	Ventilation of other area – 2 x BA	**2** x **FF**
23	Casualty treatment	**2** x **FF**
24	Remove casualty to place of safety	**2** x **FF**
25	Damping down – 45 mm jet – 2 x BA	**2** x **FF**
26	Isolation of services	**1** x **FF**
27	Casualty treatment	**2** x **FF**
28	Turning over – 2 x BA – thermal imager	**2** x **FF**
29	Cutting away – 2 x BA	**2** x **FF**
30	Liaison with ambulance	**1** x **FF**
31	Fireground servicing – 4 x BA	**4** x **FF**
32	Salvage	**2** x **FF**
33	Fireground servicing – 2 x BA	**2** x **FF**
34	Make up equipment	**5** x **FF**
35	Debris/water removal – with salvage equipment	**2** x **FF**
36	Resource replenishment water	**1** x **FF**
37	Make up equipment	**4** x **FF**
38	Debrief	**1** x **IC**
2 Incident Command Role Firefighters & 11 Firefighters		**13 TOTAL**

EQUIPMENT

45mm Hose x 4, 70mm Hose x 6, BA Board – Complete x 1, BAECO Tabard x 1, Barriers/Cones/Tape x 1, Branch Pipe x 2, Breaking in Gear x 2, Breathing Apparatus – Standard Duration x 6 (SDBA), First Aid Kit x 2, Hydrant Standpipe (Double) Key and Bar x 1, Hydraulic Platform x 1, Pump with Low Pressure Capability x 1, Radio Comms x 11, Resuscitator x 2, Salvage Equipment x 1, SDBA – Spare Cylinder x 6, Set of Hose Ramps x 2, Small Gear x 3, Specialist First Aid Kit Equipment x 1, Thermal Imager x 2, Turning Over Tools x 1, Water Tank – 1800 Litres x 1.

CAST 8

FDR1 Fires: Dwellings: Multiple Occupancy Medium Rise

2 to 4 casualties involved rescue via internal staircase

Fire confined to flat of origin. 2 to 4 casualties trapped on 6th floor and visible on arrival. Initial entry via ground floor, and rescue via stairs.

Task Sequence and Personnel Requirements		
1	Initial information gathering	**1** x **IC**
2	Cause establishment	**1** x **IC**
3	Incident command	**1** x **IC**
4	General fireground liaison	**1** x **IC**
5	Provision of hose reel branch	**2** x **FF**
6	Provision of hose reel branch	**2** x **FF**
7	Provision of water from hydrant to pump/tank	**2** x **FF**
8	BA Entry Control	**1** x **FF**
9	Provision of water from pump/tank – high pressure pump	**1** x **FF**
10	Gaining entry to premises with breaking in gear	**2** x **FF**
11	Firefighting/Rescue 2 Firefighters BA – hose reel branch	**2** x **FF**
12	Firefighting/Rescue 2 Firefighters BA – hose reel branch	**2** x **FF**
13	Remove casualty to external opening – 2 x BA	**2** x **FF**
14	Remove casualty to external opening – 2 x BA	**2** x **FF**
15	Isolation of services	**1** x **FF**
16	Remove casualty to place of safety	**2** x **FF**
17	Remove casualty to place of safety	**2** x **FF**
18	Ventilation of other areas – 2 x BA	**2** x **FF**
19	Firefighting/Rescue 2 Firefighters BA – hose reel branch	**2** x **FF**
20	Casualty treatment	**2** x **FF**
21	Cutting away – 2 x BA	**2** x **FF**
22	Liaison with ambulance	**1** x **IC**
23	Ventilation of premises- fire compartment – 2 x BA	**2** x **FF**
24	Salvage	**2** x **FF**
25	Fireground servicing – 2 x BA	**2** x **FF**
26	Turning over – BA - thermal imager	**2** x **FF**
27	Damping down – 2 hose reel – 2 x BA	**2** x **FF**
28	Debris/water removal – with salvage equipment	**2** x **FF**
29	Resource replenishment water	**1** x **FF**
30	Fireground servicing – 6 x BA	**6** x **FF**
31	Make up equipment	**1** x **FF**
32	Make up equipment	**6** x **FF**
33	Debrief	**1** x **IC**
1 Incident Command Role Firefighter & 8 Firefighters		**9 TOTAL**

EQUIPMENT

70mm Hose x 3, BA Board – Complete x 1, BAECO Tabard x 1, Barriers/Cones/Tape x 1, Breaking in Gear x 1, Breathing Apparatus – Standard Duration x 6 (SDBA), First Aid Kit x 1, Hose Reel and Branch x 2, Hydrant Standpipe (Single) Key and Bar x 1, Pump with High Pressure Capability x 1, Radio Comms x 9, Resuscitator x 2, Salvage Equipment x 2, SDBA – Spare Cylinder x 8. Set of Hose Ramps x 2, Small Gear x 2, Specialist First Aid Kit Equipment x 1, Thermal Imager x 1, Turning Over Tools x 1, Water Tank – 1800 Litres x 1.

"Having seen a meaningful consultation process in Shropshire, we hope that the Authority continues to implement this open and transparent methodology in future years. Provided that decisions continue to be based on robust evidence, the FBU in Shropshire are happy to continue to negotiate improvements for the service." **Shropshire FBU**

CAST 9

FDR1 Fires: Dwellings: Multiple Occupancy Single Basement

2 to 4 casualties involved rescue via internal staircase

Fire in basement, extended ventilation time required. Two BA teams re-enter to carry out completion tasks due to extended smoke-logging. 2 to 4 casualties rescued.

Task Sequence and Personnel Requirements		
1	Initial information gathering	**1** x **IC**
2	Incident command	**1** x **IC**
3	General fireground liaison	**1** x **IC**
4	Provision of hose reel branch	**2** x **FF**
5	BA Entry Control	**1** x **FF**
6	Provision of water from pump/tank – high pressure pump	**1** x **FF**
7	Gaining entry to premises with breaking in gear	**2** x **FF**
8	Firefighting/Rescue 2 Firefighters BA – thermal imager	**2** x **FF**
9	Firefighting/Rescue 2 Firefighters BA – hose reel branch	**2** x **FF**
10	Provision of water from hydrant to pump/tank	**2** x **FF**
11	Firefighting/Rescue 2 Firefighters BA	**2** x **FF**
12	Remove casualty to external opening – 2 x BA	**2** x **FF**
13	Remove casualty to external opening – 2 x BA	**2** x **FF**
14	Remove casualty to place of safety	**2** x **FF**
15	Ventilation of premises – fire compartment – 2 x BA	**2** x **FF**
16	Remove casualty to place of safety	**2** x **FF**
17	Isolation of service – 2 x BA	**2** x **FF**
18	Casualty treatment	**2** x **FF**
19	Casualty treatment	**2** x **FF**
20	Fireground servicing – 4 x BA	**4** x **FF**
21	Liaison with ambulance	**1** x **IC**
22	Ventilation of other areas – 2 x BA	**2** x **FF**
23	Cutting away – 2 x BA	**2** x **FF**
24	Damping down – 1 hose reel	**2** x **FF**
25	Turning over – 2 x BA – thermal imager	**2** x **FF**
26	Fireground servicing – 2 x BA	**2** x **FF**
27	Cause establishment	**1** x **IC**
28	Fireground servicing – 4 x BA	**4** x **FF**
29	Salvage	**2** x **FF**
30	Debris/water removal – with salvage equipment	**2** x **FF**
31	Make up equipment	**1** x **FF**
32	Make up equipment	**4** x **FF**
33	Resource replenishing water	**1** x **FF**
34	Make up equipment	**2** x **FF**
35	Debrief	**1** x **IC**
1 Incident Command Role Firefighter & 8 Firefighters		**9 TOTAL**

EQUIPMENT

70mm Hose x 3, BA Board – Complete x 1, BAECO Tabard x 1, Barriers/Cones/Tape x 1. Breaking in Gear x 1, Breathing Apparatus – Standard Duration x 6 (SDBA), First Aid Kit x 1, Hose Reel Branch x 1, Hydrant Standpipe (Single) Key and Bar x 1, Pump with High Pressure Capability x 1, Radio Comms x 7, Resuscitator x 2, Salvage Equipment x 1, SDBA – Spare Cylinder x 10, Set of Hose Ramps x 2, Small Gear x 2, Specialist First Aid Kit Equipment x 1, Thermal Imager x 1, Turning Over Tools x 1, Water Tank – 1800 Litres x 1.

CAST 10

FDR1 Fires: Dwellings: Single Occupancy

2 to 4 casualties involved rescue via 135 ladder

Firefighting on ground floor. 2 to 4 casualties trapped on upper floor and visible on arrival. Rescued via ladder. Initial entry via ground floor, second team via ladder.

Task Sequence and Personnel Requirements		
1	Initial information gathering	**1** x **IC**
2	Incident command	**1** x **IC**
3	Cause establishment	**1** x **IC**
4	General fireground liaison	**1** x **IC**
5	Provision of hose reel branch	**2** x **FF**
6	BA Entry Control	**1** x **FF**
7	Provision of water from pump/tank – high pressure pump	**1** x **FF**
8	Footing ladder	**1** x **FF**
9	Slip and pitch 135 ladder	**4** x **FF**
10	Gaining entry to premises with breaking in gear	**2** x **FF**
11	Firefighting/Rescue 2 Firefighters BA – Hose reel branch	**2** x **FF**
12	Provision of hose reel branch	**2** x **FF**
13	Provision of water from hydrant to pump/tank	**2** x **FF**
14	Firefighting/Rescue 2 Firefighters BA – hose reel branch	**2** x **FF**
15	Remove casualty to external opening – 2 x BA	**2** x **FF**
16	Remove casualty to external opening – 2 x BA	**2** x **FF**
17	Isolation of services	**1** x **FF**
18	Remove casualty to place of safety	**2** x **FF**
19	Remove casualty to place of safety	**2** x **FF**
20	Ventilation of other areas – 2 x BA	**2** x **FF**
21	Firefighting/Rescue 2 Firefighters BA – hose reel branch	**2** x **FF**
22	Casualty treatment	**2** x **FF**
23	Cutting away – 2 x BA	**2** x **FF**
24	Liaison with ambulance	**1** x **IC**
25	Ventilation of premises – fire compartment – 2 x BA	**2** x **FF**
26	Fireground servicing – 2 x BA	**2** x **FF**
27	Salvage	**2** x **FF**
28	Turning over – 2 x BA – thermal imager	**2** x **FF**
29	Damping down – 2 hose reel – 2 x BA	**2** x **FF**
30	Debris/water removal – with salvage equipment	**2** x **FF**
31	Fireground servicing – 6 x BA	**6** x **FF**
32	Resource replenishment water	**1** x **FF**
33	Make up equipment	**1** x **FF**
34	Make up equipment	**7** x **FF**
35	Debrief	**1** x **IC**
1 Incident Command Role Firefighter & 9 Firefighters		**10 TOTAL**

EQUIPMENT

135 Ladder x 1, 70mm Hose x 3, BA Board – Complete x 1, BAECO Tabard x 1, Barriers/Cones/Tape x 1, Breaking in Gear x 1, Breathing Apparatus – Standard Duration x 6 (SDBA), First Aid Kit x 1, Hose Reel Branch x 2, Hydrant Standpipe (Single) Key and Bar x 1, Pump with High Pressure Capability x 1, Radio Comms x 9, Resuscitator x 2, Salvage Equipment x 2, SDBA – Spare Cylinder x 8, Set of Hose Ramps x 2, Small Gear x 2, Specialist First Aid Kit Equipment x 1, Thermal Imager x 1, Turning Over Tools x 1, Water Tank – 1800 Litres x 1.

CAST 11

FDR1 Fires: Dwellings: Single Occupancy

2 to 4 casualties involved rescue via 9/105 ladder

Firefighting on ground floor. 2 to 4 casualties trapped on upper floor and visible on arrival. Rescued via ladder. Initial entry via ground floor, second team via ladder.

Task Sequence and Personnel Requirements		
1	Initial information gathering	**1** x **IC**
2	General fireground liaison	**1** x **IC**
3	Cause establishment	**1** x **IC**
4	Incident command	**1** x **IC**
5	Provision of hose reel branch	**2** x **FF**
6	BA Entry Control	**1** x **FF**
7	Provision of water from pump/tank high pressure pump	**1** x **FF**
8	Slip and pitch 9/105 ladder	**3** x **FF**
9	Gaining entry to premises with breaking in gear	**2** x **FF**
10	Firefighting/Rescue 2 Firefighters BA – hose reel branch	**2** x **FF**
11	Provision of hose reel branch	**2** x **FF**
12	Provision of water from hydrant to pump/tank	**2** x **FF**
13	Footing ladder	**1** x **FF**
14	Firefighting/Rescue 2 Firefighters BA – hose reel branch	**2** x **FF**
15	Remove casualty to external opening – 2 x BA	**2** x **FF**
16	Remove casualty to external opening – 2 x BA	**2** x **FF**
17	Isolation of services	**1** x **FF**
18	Remove casualty to place of safety	**2** x **FF**
19	Remove casualty to place of safety	**2** x **FF**
20	Ventilation of premises – fire compartment – 2 x BA	**2** x **FF**
21	Firefighting/Rescue 2 Firefighters BA – hose reel branch	**2** x **FF**
22	Casualty treatment	**2** x **FF**
23	Cutting away – 2 x BA	**2** x **FF**
24	Liaison with ambulance	**1** x **IC**
25	Ventilation of other areas – 2 x BA	**2** x **FF**
26	Salvage	**2** x **FF**
27	Fireground servicing – 2 x BA	**2** x **FF**
28	Turning over – BA – thermal imager	**2** x **FF**
29	Damping down – 2 hose reel – 2 x BA	**2** x **FF**
30	Debris/water removal – with salvage equipment	**2** x **FF**
31	Resource replenishment water	**1** x **FF**
32	Fireground servicing – 6 x BA	**6** x **FF**
33	Make up equipment	**1** x **FF**
34	Make up equipment	**7** x **FF**
35	Debrief	**1** x **IC**
1 Incident Command Role Firefighter & 9 Firefighters		**10 TOTAL**

EQUIPMENT

70mm Hose x 3, 9/105 Ladder x 1, BA Board – Complete x 1, BAECO Tabard x 1, Barriers/Cones/Tape x 1, Breaking in Gear x 1, Breathing Apparatus – Standard Division x 6 (SDBA), First Aid Kit x 1, Hose Reel and Branch x 2, Hydrant Standpipe (Single) Key and Bar x 1, Pump with High Pressure Capability x 1, Radio Comms x 9, Resuscitator x 2, Salvage Equipment x 2, SDBA – Spare Cylinder x 8, Set of Hose Ramps x 2, Small Gear x 2, Specialist First Aid Equipment x 1, Thermal Imager x 1, Turning Over Tools x 1, Water Tank – 1800 Litres.

CAST 12

FDR1 Fires: Dwellings: Single Occupancy

2 to 4 casualties involved rescue via internal staircase

Firefighting on ground floor. 2 to 4 casualties trapped on upper floor and visible on arrival. Initial entry via ground floor, and rescue via stairs.

Task Sequence and Personnel Requirements		
1	Initial information gathering	**1** x **IC**
2	General fire ground liaison	**1** x **IC**
3	Incident command	**1** x **IC**
4	Cause establishment	**1** x **IC**
5	Provision of hose reel branch	**2** x **FF**
6	Provision of hose reel branch	**2** x **FF**
7	Provision of water from hydrant to pump/tank	**2** x **FF**
8	BA Entry Control	**1** x **FF**
9	Provision of water from pump/tank – high pressure pump	**1** x **FF**
10	Gaining entry to premises with breaking in gear	**2** x **FF**
11	Firefighting/Rescue 2 Firefighters BA – hose reel branch	**2** x **FF**
12	Firefighting/Rescue 2 Firefighters BA – hose reel branch	**2** x **FF**
13	Remove casualty to external opening – 2 x BA	**2** x **FF**
14	Remove casualty to external opening – 2 x BA	**2** x **FF**
15	Isolation of services	**1** x **FF**
16	Remove casualty to place of safety	**2** x **FF**
17	Remove casualty to place of safety	**2** x **FF**
18	Ventilation of other areas – 2 x BA	**2** x **FF**
19	Firefighting/Rescue 2 Firefighters BA – hose reel branch	**2** x **FF**
20	Casualty treatment	**2** x **FF**
21	Cutting away – 2 x BA	**2** x **FF**
22	Liaison with ambulance	**1** x **IC**
23	Ventilation of premises – fire compartment – 2 x BA	**2** x **FF**
24	Salvage	**2** x **FF**
25	Fireground servicing – 2 x BA	**2** x **FF**
26	Turning over – BA – thermal imager	**2** x **FF**
27	Damping down – 2 hose reel – 2 x BA	**2** x **FF**
28	Debris/water removal – with salvage equipment	**2** x **FF**
29	Fireground servicing – 6 x BA	**6** x **FF**
30	Resource replenishment water	**1** x **FF**
31	Make up equipment	**1** x **FF**
32	Make up equipment	**6** x **FF**
33	Debrief	**1** x **IC**
1 Incident Command Role Firefighter & 8 Firefighters		**9 TOTAL**

EQUIPMENT

70mm Hose x 3, BA Board – Complete x 1, BAECO Tabard x 1, Barriers/Cones/Tape x 1, Breaking in Gear x 1, Breathing Apparatus – Standard Duration x 6 (SDBA), First Aid Kit x 1, Hose Reel and Branch x 2, Hydrant Standpipe (Single) Key and Bar x 1, Pump with High Pressure Capability x 1, Radio Comms x 9, Resuscitator x 2, Salvage Equipment x 2, SDBA – Spare Cylinder x 8, Set of Hose Ramps x 2, Small Gear x 2, Specialist First Aid Equipment x 1, Thermal Imager x 1, Turning Over Tools x 1, Water Tank – 1800 Litres x 1.

CAST 13

FDR1 Fires: Dwellings: Underground Complex

2 to 4 casualties involved rescue via firefighting lift

Fire confined to room of origin in an underground complex. 2 to 4 casualties rescued.

Task Sequence and Personnel Requirements		
1	Initial information gathering	**1** x **IC**
2	Incident command	**1** x **IC**
3	General fireground liaison	**1** x **IC**
4	Cause establishment	**1** x **IC**
5	Forward Control Point command	**1** x **IC**
6	Provision of water to dry rising main, twinned supply	**2** x **FF**
7	Establish safe working area	**1** x **FF**
8	Isolation of services	**1** x **FF**
9	Provision of 45mm Jet	**2** x **FF**
10	BA Entry Control	**1** x **FF**
11	Provision of water from pump/tank low pressure pump	**1** x **FF**
12	Messages/communication with control	**1** x **FF**
13	Gain and maintain control of Firefighting lift	**1** x **FF**
14	Provision of water from hydrant to pump/tank – double standpipe	**2** x **FF**
15	Provision of smoke extraction unit – 2 x BA	**2** x **FF**
16	Provision of 45mm Jet	**2** x **FF**
17	Gaining entry to premises with breaking in gear	**1** x **FF**
18	Firefighting/Rescue 2 Firefighters BA – laying BA guideline	**2** x **FF**
19	Firefighting/Rescue 2 Firefighters BA – 45mm Jet	**2** x **FF**
20	Firefighting/Rescue 2 Firefighters BA – 45mm Jet	**2** x **FF**
21	Ventilation of other areas – 2 x BA	**2** x **FF**
22	Remove casualty to external opening – 2 x BA	**2** x **FF**
23	Ventilation of premises – fire compartment – 2 x BA	**2** x **FF**
24	Remove casualty to place of safety	**2** x **FF**
25	Remove casualty to external opening – 2 x BA	**2** x **FF**
26	Casualty treatment	**2** x **FF**
27	Fireground servicing – 2 x BA	**2** x **FF**
28	Remove casualty to place of safety	**2** x **FF**
29	Fireground servicing – 2 x BA	**2** x **FF**
30	Casualty treatment	**2** x **FF**
31	Fireground servicing – 2 x BA	**2** x **FF**
32	Liaison with ambulance	**1** x **FF**
33	Turning over – 2 x BA – thermal imager	**2** x **FF**
34	Cutting away – 2 x BA	**2** x **FF**
35	Damping down – 45mm jet – 2 x BA	**2** x **FF**
36	Salvage	**2** x **FF**
37	Resource replenishment water	**1** x **FF**
38	Debris/water – removal – with salvage equipment	**2** x **FF**
39	Fireground servicing – 8 x BA	**8** x **FF**
40	Make up equipment	**1** x **FF**
41	Make up equipment	**9** x **FF**
42	Debrief	**1** x **IC**
2 Incident Command Role Firefighters & 12 Firefighters		**14 TOTAL**

EQUIPMENT

45mm Hose x 4, 70mm Hose x 6, BA Board – Complete x 1, BA Guideline x 1, BAECO Tabard x 1, Barriers/Cones/Tape x 2, Branch Pipe x 2, Breaking in Gear x 2, Breathing Apparatus – Standard Duration x 8 (SDBA), First Aid Kit x 2, Hydrant Standpipe (Double) Key and Bar x 1, Lighting Equipment x 1, Pump with Low Pressure Capability x 1, Radio Comms x 12, Resuscitator x 2, Salvage Equipment x 2, SDBA – Spare Cylinder x 12, Set of Hose Ramps x 2, Signs x 1, Small Gear x 3, Smoke Extrication Unit x 1, Specialist First Aid Equipment x 1, Thermal Imager x 2, Turning over Tools x 1, Water Tank – 1800 Litres x 1.

CAST 14

Casualty retrieval from Hazardous Material Incident

Generic incident – BA CPS with HRJ – 1 casualty retrieved

Generic provision of chemical protection suits and decontamination capability.

Task Sequence and Personnel Requirements		
1	Provision of HAZMAT advice	**1** x **IC**
2	Initial information gathering	**1** x **IC**
3	Liaison with Environmental Agency	**1** x **IC**
4	Liaison with expert giving advice to brigade	**1** x **IC**
5	Incident command	**1** x **IC**
6	General fireground liaison	**1** x **IC**
7	Provision of hose reel branch	**2** x **FF**
8	Provision of hose reel branch	**2** x **FF**
9	Establish safe working area	**2** x **FF**
10	Assistance with dressing/undressing – 2 x CPS	**2** x **FF**
11	Assistance with dressing/undressing – 2 x CPS	**2** x **FF**
12	BA Entry Control	**1** x **FF**
13	Provision of water from pump/tank – high pressure pump	**1** x **FF**
14	Provision of water from hydrant to pump/tank	**2** x **FF**
15	Firefighting/Rescue 2 Firefighters BA CPS – hose reel branch	**2** x **FF**
16	Firefighting/Rescue 2 Firefighters BA CPS as emergency team	**2** x **FF**
17	Provision of water from hydrant to pump/tank	**2** x **FF**
18	Environmental control – 2 x CPS	**2** x **FF**
19	Provision and operation of decontamination – 4 x CPS	**4** x **FF** / **1** x **IC**
20	Provision of water from pump/tank – high pressure pump	**1** x **FF**
21	Remove casualty to place of safety – 2 x CPS	**2** x **FF**
22	Casualty treatment	**2** x **FF**
23	Firefighting/Rescue 2 Firefighters BA CPS – hose reel branch	**2** x **FF**
24	Assistance with dressing/undressing CPS	**2** x **FF**
25	Assistance with dressing/undressing CPS	**2** x **FF**
26	Cause establishment	**1** x **IC**
27	Resource replenishment water	**1** x **FF**
28	Resource replenishment water	**1** x **FF**
29	Fireground servicing – 8 x BA	**8** x **FF**
30	Make up equipment	**13** x **FF**
31	Liaison with police	**1** x **IC**
32	Debrief	**1** x **IC**
3 Incident Command Role Firefighter & 15 Firefighters		**18 TOTAL**

EQUIPMENT

70mm Hose x 3, BA Board – Complete x 1, BAECO Tabard x 1, Barriers/Cones/Tape x 2, Breathing Apparatus – Standard Duration x 8 (SDBA), Chemical Protection Suit x 8, Decontamination Equipment x 1, Environmental Control Equipment x 1, First Aid Kit x 1, High Visibility Jacket x 1, Hose Reel and Branch x 2, Hydrant Standpipe (Single) Key and Bar x 1, Lighting Equipment x 1, Pump with High Pressure Capability x 2, Radio Comms x 14, Resuscitator x 1, SDBA – Spare Cylinder x 8, Set of Hose Ramps x 1, Signs x 1, Specialist First Aid Equipment x 1, Water Tank – 1800 Litres x 2.

CAST 15

Casualty retrieval from Hazardous Material Incident

Generic incident – BA GTS with HRJ – 1 casualty retrieved

Generic provision of gas tight suits and decontamination capability.

Task Sequence and Personnel Requirements		
1	Liaison with Ambulance	**1** x **IC**
2	Initial information gathering	**1** x **IC**
3	Provision of HAZMAT advice	**1** x **IC**
4	Liaison with Environmental Agency	**1** x **IC**
5	Liaison with expert giving advice to brigade	**1** x **IC**
6	General fireground liaison	**1** x **IC**
7	Incident command	**1** x **IC**
8	Provision of hose reel branch	**2** x **FF**
9	Provision of hose reel branch	**2** x **FF**
10	Establish safe working area	**2** x **FF**
11	Assistance with dressing/undressing – 2 x GTS	**2** x **FF**
12	Assistance with dressing/undressing – 2 x GTS	**2** x **FF**
13	Provision of water from pump/tank – high pressure pump	**1** x **FF**
14	BA Entry Control	**1** x **FF**
15	Provision of water from hydrant to pump/tank	**2** x **FF**
16	Firefighting/Rescue 2 Firefighters BA GTS – hose reel branch	**2** x **FF**
17	Firefighting/Rescue 2 Firefighters BA GTS as emergency team	**2** x **FF**
18	Provision of water from hydrant to pump/tank	**2** x **FF**
19	Environmental control – 2 x GTS	**2** x **FF**
20	Provision and operation of decontamination – 4 x GTS	**4** x **FF** / **1** x **IC**
21	Provision of water from pump/tank – high pressure pump	**1** x **FF**
22	Remove casualty to place of safety – 2 x GTS	**2** x **FF**
23	Casualty treatment	**2** x **FF**
24	Firefighting/Rescue 2 Firefighters BA GTS – hose reel branch	**2** x **FF**
25	Assistance with dressing/undressing – 2 x GTS	**2** x **FF**
26	Assistance with dressing/undressing – 2 x GTS	**2** x **FF**
27	Cause establishment	**1** x **IC**
28	Resource replenishment water	**1** x **FF**
29	Resource replenishment water	**1** x **FF**
30	Fireground servicing – 8 x BA	**8** x **FF**
31	Make up equipment	**13** x **FF**
32	Liaison with police	**1** x **IC**
33	Debrief	**1** x **IC**
3 Incident Command Role Firefighters & 15 Firefighters		**18 TOTAL**

EQUIPMENT

70mm Hose x 3, BA Board – Complete x 1, BAECO Tabard x 1, Barriers/Cones/Tape x 2, Breathing Apparatus – Standard Duration x 8 (SDBA), Decontamination Equipment x 1, Environmental Control Equipment x 1, First Aid Kit x 1, Gas Tight Suit x 8, High Visibility Jacket x 1, Hose Reel and Branch x 2, Hydrant Standpipe (Single) Key and Bar x 1, Lighting Equipment x 1, Pump with High Pressure Capability x 2, Radio Comms x 14, Resuscitator x 1, SDBA – Spare Cylinder x 8, Set of Hose Ramps x 1, Signs x 1, Specialist First Aid Equipment x 1, Water Tank – 1800 Litres x 2.

CAST 16

Casualty retrieval from Height

Rope rescue equipment – 1 casualty retrieved

Rope rescue involving 2 line system for each rescuer. Casualty lowered to a place of safety.

Task Sequence and Personnel Requirements		
1	Initial information gathering	**1** x **IC**
2	Liaison with ambulance	**1** x **IC**
3	Incident command	**1** x **IC**
4	Establish and maintain safe working area	**1** x **IC**
5	General fireground liaison	**1** x **IC**
6	Provision of rope rescue equipment	**4** x **FF**
7	Supervise vehicle(s)	**1** x **FF**
8	Rope rescue – 2 Firefighters Non BA	**2** x **FF**
9	Stabilisation of casualty(ies) – rope rescue	**2** x **FF**
10	Rope rescue – 2 Firefighters Non BA	**2** x **FF**
11	Remove casualty to place of safety – rope rescue	**4** x **FF**
12	Make up equipment	**6** x **FF**
13	Debrief	**1** x **IC**
2 Incident Command Role Firefighters & 7 Firefighters		**9 TOTAL**

EQUIPMENT
Barriers/Cones/Tape x 1, First Aid Kit x 1, Lighting Equipment x 1, Radio Comms x 9, Rope Rescue Equipment x 2, Stretcher x 1.

CAST 17

Casualty retrieval from Height

With 135 extension ladder – 1 casualty retrieved

Casualty trapped at height. Casualty carried down 135 ladder.

Task Sequence and Personnel Requirements		
1	Initial information gathering	**1** x **IC**
2	Liaison with ambulance	**1** x **IC**
3	Incident command	**1** x **IC**
4	General fireground liaison	**1** x **IC**
5	Slip and pitch 135 Ladder	**4** x **FF**
6	Footing ladder	**1** x **FF**
7	Firefighting/Rescue 1 Firefighter Non BA	**1** x **FF**
8	Supervise vehicle(s)	**1** x **FF**
9	Casualty treatment	**2** x **FF**
10	Make up equipment	**4** x **FF**
11	Debrief	**1** x **IC**
1 Incident Command Role Firefighter & 4 Firefighters		**5 TOTAL**

EQUIPMENT
135 Ladder x 1, First Aid Kit x 1, Radio Comms x 4, Resuscitator x 1, Specialist First Aid Equipment x 1.

CAST 18

Casualty retrieval from Height

With 9/105 extension ladder – 1 casualty retrieved

Casualty trapped at height. Casualty carried down 9/105 ladder.

Task Sequence and Personnel Requirements		
1	Initial information gathering	**1** x **IC**
2	Liaison with ambulance	**1** x **IC**
3	General fireground liaison	**1** x **IC**
4	Incident command	**1** x **IC**
5	Slip and pitch 9/105 ladder	**3** x **FF**
6	Footing ladder	**1** x **FF**
7	Firefighting/Rescue 1 Firefighter Non BA	**1** x **FF**
8	Supervise vehicle(s)	**1** x **FF**
9	Casualty treatment	**2** x **FF**
10	Make up equipment	**3** x **FF**
11	Debrief	**1** x **IC**
1 Incident Command Role Firefighter & 3 Firefighters		**4 TOTAL**

EQUIPMENT
9/105 Ladder x 1, First Aid Kit x 1, Radio Comms x 4, Resuscitator x 1, Specialist First Aid Equipment x 1.

CAST 19

Casualty retrieval from Height

With aerial appliance – 1 casualty retrieved

Casualty trapped at height. Casualty brought down via hydraulic platform/aerial ladder platform.

Task Sequence and Personnel Requirements		
1	Initial information gathering	**1** x **IC**
2	Liaison with ambulance	**1** x **IC**
3	Incident command	**1** x **IC**
4	General fireground liaison	**1** x **IC**
5	Pitch hydraulic platform/aerial ladder platform	**2** x **FF**
6	Firefighting/Rescue 1 Firefighter Non BA	**1** x **FF**
7	Firefighting/Rescue 1 Firefighter Non BA	**1** x **FF**
8	Hydraulic platform/aerial ladder platform – Firefighter at standby at ground level	**1** x **FF**
9	Casualty treatment	**2** x **FF**
10	Make up equipment	**3** x **FF**
11	Debrief	**1** x **IC**
1 Incident Command Role Firefighter & 3 Firefighters		**4 TOTAL**

EQUIPMENT
First Aid kit x 1, Hydraulic Platform/Aerial ladder platform *x 1, Radio Comms x 4, Resuscitator x 1, Specialist First Aid Equipment x 1.*

CAST 20

Casualty retrieval from Lift

Lift – 1 casualty retrieved

1 casualty stuck in lift (not trapped by mechanism).

Task Sequence and Personnel Requirements		
1	Initial information gathering	**1** x **IC**
2	Liaison with ambulance	**1** x **IC**
3	Incident command	**1** x **IC**
4	General fireground liaison	**1** x **IC**
5	Firefighting/Rescue 1 Firefighter Non BA	**1** x **FF**
6	Stabilisation of scene – lift gear	**2** x **FF**
7	Supervise vehicle(s)	**1** x **FF**
8	Casualty treatment	**2** x **FF**
9	Remove casualty to external opening	**2** x **FF**
10	Make up equipment	**3** x **FF**
11	Debrief	**1** x **IC**
1 Incident Command Role Firefighter & 4 Firefighters		**5 TOTAL**

EQUIPMENT
Breaking in Gear x 1, First Aid Kit x 1, Lift Gear x 1, Radio Comms x 6, Resuscitator x 1, Small Gear x 1, Specialist First Aid Equipment x 1.

CAST 21

Casualty retrieval from Lock-in

Conventional – 1 casualty retrieved

Casualty locked in building. Break in through door of building.

Task Sequence and Personnel Requirements		
1	Initial information gathering	**1** x **IC**
2	Liaison with ambulance	**1** x **IC**
3	Incident command	**1** x **IC**
4	General fireground liaison	**1** x **IC**
5	Provision of breaking in gear	**1** x **FF**
6	Supervise vehicle(s)	**1** x **FF**
7	Gaining entry to premises with breaking in gear	**1** x **FF**
8	Casualty treatment	**1** x **FF** / **1** x **IC**
9	Make up equipment	**1** x **FF**
10	Debrief	**1** x **IC**
1 Incident Command Role Firefighter & 2 Firefighters		**3 TOTAL**

EQUIPMENT
Breaking in Gear x 1, First Aid Kit x 1, Radio Comms x 5, Resuscitator x 1, Specialist First Aid Equipment x 1.

CAST 22

Casualty retrieval from Lock-in

With 135 extension ladder – 1 casualty retrieved

Casualty locked in building. Break-in via 2nd floor window. Casualty carried down ladder.

Task Sequence and Personnel Requirements		
1	Initial information gathering	**1** x **IC**
2	Liaison with ambulance	**1** x **IC**
3	Incident command	**1** x **IC**
4	General fireground liaison	**1** x **IC**
5	Slip and Pitch 135 Ladder	**4** x **FF**
6	Provision of breaking in gear	**1** x **FF**
7	Footing Ladder	**1** x **FF**
8	Supervise vehicle(s)	**1** x **FF**
9	Gaining entry to premises with breaking in gear	**1** x **FF**
10	Firefighting/Rescue 1 Firefighter Non BA	**1** x **FF**
11	Casualty treatment	**2** x **FF**
12	Make up equipment	**4** x **FF**
13	Debrief	**1** x **IC**
1 Incident Command Role Firefighter & 4 Firefighters		**5 TOTAL**

EQUIPMENT
135 Ladder x 1, Breaking in Gear x 1, First Aid Kit x 1, Radio Comms x 4, Resuscitator x 1, Specialist First Aid Equipment x 1.

CAST 23

Casualty retrieval from Lock-in

With 9/105 extension ladder – 1 casualty retrieved

Casualty locked in building. Break-in via 1st floor window. Casualty carried down via ladder.

Task Sequence and Personnel Requirements		
1	Initial information gathering	**1** x **IC**
2	Liaison with ambulance	**1** x **IC**
3	General fireground liaison	**1** x **IC**
4	Incident command	**1** x **IC**
5	Slip and pitch 9/105 ladder	**3** x **FF**
6	Provision of breaking in gear	**1** x **FF**
7	Footing ladder	**1** x **FF**
8	Supervise vehicle(s)	**1** x **FF**
9	Gaining entry to premises with breaking in gear	**1** x **FF**
10	Firefighting/Rescue 1 Firefighter Non BA	**1** x **FF**
11	Casualty treatment	**2** x **FF**
12	Make up equipment	**3** x **FF**
13	Debrief	**1** x **IC**
1 Incident Command Role Firefighter & 3 Firefighters		**4 TOTAL**

EQUIPMENT
9/105 Ladder x 1, Breaking in Gear x 1, First Aid Kit x 1, Radio Comms x 4, Resuscitator x 1, Specialist First Aid Equipment x 1.

CAST 24

Casualty retrieval from Lock-in

With aerial appliance – 1 casualty retrieved

Casualty locked in building. Break-in via 6th floor window. Casualty brought down via hydraulic platform.

Task Sequence and Personnel Requirements		
1	Initial information gathering	**1** x **IC**
2	Liaison with ambulance	**1** x **IC**
3	General fireground liaison	**1** x **IC**
4	Incident command	**1** x **IC**
5	Pitch Hydraulic platform	**2** x **FF**
6	Provision of breaking in gear	**1** x **FF**
7	Hydraulic Platform – Firefighter at standby at ground level	**1** x **FF**
8	Gaining entry to premises with breaking in gear	**1** x **FF**
9	Firefighting/Rescue 1 Firefighter Non BA	**1** x **FF**
10	Firefighting/Rescue 1 Firefighter Non BA	**1** x **FF**
11	Casualty treatment	**2** x **FF**
12	Make up equipment	**3** x **FF**
13	Debrief	**1** x **IC**
1 Incident Command Role Firefighter & 3 Firefighters		**4 TOTAL**

EQUIPMENT
Breaking in Gear x 1, First Aid Kit x 1, Hydraulic Platform x 1, Radio Comms x 4, Resuscitator x 1, specialist First Aid Kit Equipment x 1.

CAST 25

Casualty retrieval from Lock-in

With short extension ladder – 1 casualty retrieved

Casualty locked in building. Break-in via 1st floor window, casualty carried down via internal staircase.

Task Sequence and Personnel Requirements		
1	Initial information gathering	**1** x **IC**
2	Liaison with ambulance	**1** x **IC**
3	Incident command	**1** x **IC**
4	General fireground liaison	**1** x **IC**
5	Slip and Pitch short extension ladder	**2** x **FF**
6	Provision of breaking in gear	**1** x **FF**
7	Footing ladder	**1** x **FF**
8	Gaining entry to premises with breaking in gear	**1** x **FF**
9	Firefighting/Rescue 1 Firefighter Non BA	**1** x **FF**
10	Casualty treatment	**2** x **FF**
11	Make up equipment	**2** x **FF**
12	Debrief	**1** x **IC**
1 Incident Command Role Firefighter & 2 Firefighters		**3 TOTAL**

EQUIPMENT
Breaking in Gear x 1, First Aid Kit x 1, Radio Comms x 4, Resuscitator x 1, Short extension Ladder x 1, Specialist Aid Equipment x 1.

CAST 26

Casualty retrieval from Water

1 casualty retrieved

One casualty rescued by a Firefighter entering the water assisted by other crew members. 1 or possibly 2 rescuers will require treatment due to water immersion.

Task Sequence and Personnel Requirements		
1	Initial information gathering – water rescue	**1** x **IC**
2	Liaison with ambulance	**1** x **IC**
3	Liaison with police	**1** x **IC**
4	Incident command	**1** x **IC**
5	General fireground liaison	**1** x **IC**
6	Provision of safety equipment – water rescue	**2** x **FF**
7	Stabilisation of scene – water rescue – Officer (Safety)	**1** x **FF**
8	Supervise vehicle(s)	**1** x **FF**
9	Firefighting/Rescue 2 Firefighters Non BA	**2** x **FF**
10	Firefighting/Rescue 2 Firefighters Non BA	**2** x **FF**
11	Retrieval of person(s)	**2** x **FF**
12	Retrieval of person(s)	**2** x **FF**
13	Treatment and recovery of rescue crew – water rescue	**1** x **FF**
14	Casualty treatment – with radio	**2** x **FF**
15	Treatment and recovery of rescue crew – water rescue	**1** x **FF**
16	Make up equipment	**2** x **FF**
17	Debrief	**1** x **IC**
2 Incident Command Role Firefighters & 5 Firefighters		**7 TOTAL**

EQUIPMENT
Binoculars x 1, life jacket/buoyancy aid x 7, First Aid Kit x 3, Lines x 2, Radio Comms x 10, Resuscitator x 1, Safety Officer Tabard x 1, Specialist First Aid Equipment x 1, Thermal Imager x 1.

NO CALCULATION HAS BEEN INCLUDED FOR FIRE & RESCUE SERVICE RESCUE BOAT PROVISION WITHIN THIS CAST PLANNING SCENARIO.

CAST 27

Casualty trapped: Extrication from Machinery / Structures

1 casualty trapped

One casualty trapped, located at some distance from the fire appliance.

Task Sequence and Personnel Requirements		
1	Initial information gathering	**1** x **IC**
2	Supplementary portable fire extinguisher	**1** x **IC**
3	Incident command	**1** x **IC**
4	Establish and maintain safe working area	**1** x **IC**
5	Liaison with police	**1** x **IC**
6	General fireground liaison	**1** x **IC**
7	Provision of rescue and stabilisation equipment	**4** x **FF**
8	Establish safe working area	**1** x **FF**
9	Supervise vehicle(s)	**1** x **FF**
10	Stabilisation of structure/vehicle	**2** x **FF**
11	Liaison with ambulance	**1** x **IC**
12	Extrication of person(s)	**4** x **FF**
13	Stabilisation of casualty(ies)	**1** x **FF**
14	Casualty treatment	**2** x **FF**
15	Make up equipment	**3** x **FF**
16	Debrief	**1** x **IC**
2 Incident Command Role Firefighters & 6 Firefighters		**8 TOTAL**

EQUIPMENT
Barriers/Cones/Tape x 2, Casualty Shield x 1, Ear Defenders x 6, Eye Protection x 6, First Aid Kit x 1, Hydraulic Cutting and Spreading Gear x 1, Hydraulic Cutting Gear x 1, Hydraulic Lifting Gear x 2, Hydraulic Spreading Gear x 1, Lighting Equipment x 2, Lines x 2, Mechanical Lifting/Spreading/Pulling Equipment x 1, Pneumatic Lifting Gear x 1, Portable Fire Extinguisher x 1, Radio Comms x 6, Resuscitator x 1, Salvage Sheet x 1, Signs x 1, Specialist First Aid Equipment x 1, Stabilising Equipment (Blocks and Chocks) x 1, Stretcher x 1.

CAST 28

Casualty trapped: Rail transport – above ground accident

2 carriages – 1 casualty trapped in each carriage

No access to trackway until power isolated and confirmed stoppage on the railway line. Two casualties in separate carriages.

Task Sequence and Personnel Requirements		
1	Initial information gathering	**1** x **IC**
2	Isolation of power and stoppage on railway line	**1** x **IC**
3	Supplementary portable fire extinguisher	**1** x **IC**
4	Liaison with ambulance	**1** x **IC**
5	Stabilisation of scene – radio only – Officer (Safety)	**1** x **IC**
6	Liaison with railway company	**1** x **IC**
7	Liaison with police	**1** x **IC**
8	General fireground liaison	**1** x **IC**
9	Incident Command	**1** x **IC**
10	Establish safe working area	**1** x **FF**
11	Provision of rescue and stabilisation equipment	**4** x **FF**
12	Provision of water from pump/tank – high pressure pump	**1** x **FF**
13	Establish and maintain safe working area – rail incident	**2** x **FF**
14	Provision of hose reel branch	**1** x **FF**
15	Provision of rescue and stabilisation equipment	**4** x **FF**
16	Slip and pitch short extension ladder	**2** x **FF**
17	Slip and pitch short extension ladder	**2** x **FF**
18	Isolation of services	**1** x **FF**
19	Stabilisation of casualty(ies)	**1** x **FF**
20	Stabilisation of casualty(ies)	**1** x **FF**
21	Stabilisation of structure/vehicle	**2** x **FF**
22	Extrication of person(s)	**4** x **FF**
23	Casualty treatment	**2** x **FF**
24	Remove casualty to place of safety	**2** x **FF**
25	Remove casualty to place of safety	**2** x **FF**
26	Make up equipment	**8** x **FF**
27	Debrief	**1** x **IC**
2 Incident Command Role Firefighters & 11 Firefighters		**13 TOTAL**

EQUIPMENT

Barriers/Cones/Tape x 1, Casualty Shield x 2, Ear Defenders x 8, Eye Protection x 8, First Aid Kit x 2, High Visibility Jacket x 2, Hose Reel and Branch x 1, Hydraulic Cutting and Spreading Gear x 1, Hydraulic Cutting Gear x 1, Hydraulic Lifting Gear x 2, Hydraulic Spreading Gear x 1, Lighting Equipment x 1, Lines x 2, Mechanical Lifting/Spreading/Pulling Equipment x 1, Pneumatic Lifting Gear x 1, Portable Fire Extinguisher x 1, Pump with High Pressure Capability x 1, Radio Comms x 11, Resuscitator x 2, Safety Officer Tabard x 1, Salvage Sheet x 1, Short Extension Ladder x 2, Signs x 1, Specialist First Aid Equipment x 2, Stabilising Equipment (Blocks and Chocks) x 1, Stretcher x 2, Torch x 2, Water Tank – 1800 Litres x 1.

CAST 29

Casualty trapped: RTA

Generic incident – 2 vehicles – 1 casualty trapped in each vehicle

Two casualties in separate vehicles

Task Sequence and Personnel Requirements		
1	Initial information gathering	**1** x **IC**
2	Supplementary portable fire extinguisher	**1** x **IC**
3	Liaison with police	**1** x **IC**
4	General fireground liaison	**1** x **IC**
5	Incident Command	**1** x **IC**
6	Provision of hose reel branch	**1** x **FF**
7	Establish safe working area	**1** x **FF**
8	Provision of rescue and stabilisation equipment	**4** x **FF**
9	Stabilisation of casualty(ies)	**1** x **FF**
10	Stabilisation of casualty(ies)	**1** x **FF**
11	Provision of water from pump/tank – high pressure pump	**1** x **FF**
12	Stabilisation of structure/vehicle	**2** x **FF**
13	Liaison with ambulance	**1** x **IC**
14	Extrication of person(s)	**4** x **FF**
15	Firefighting/Rescue 1 Firefighter Non BA – hose reel branch	**1** x **FF**
16	Maintain safe working area	**1** x **FF**
17	Casualty treatment	**2** x **FF**
18	Casualty treatment	**2** x **FF**
19	Debris/water removal	**2** x **FF**
20	Make up equipment	**7** x **FF**
21	Resource replenishment	**1** x **FF**
22	Debrief	**1** x **IC**
1 Incident Command Role Firefighter & 9 Firefighters		**10 TOTAL**

EQUIPMENT

Barriers/Cones/Tape x 1, Casualty Shield x 1, Ear Defenders x 10, Eye Protection x 10, First Aid Kit x 2, Hose Reel and Branch x 1, Hydraulic Cutting and Spreading Gear x 1, Hydraulic Cutting Gear x 1, Hydraulic Lifting Gear x 3, Hydraulic Spreading Gear x 1, Lighting Equipment x 1, Lines x 3, Mechanical Lifting/Spreading/Pulling Equipment x 2, Pneumatic Lifting Gear x 2, Portable Fire Extinguisher x 1, Pump with High Pressure Capability x 1, Radio Comms x 6, Resuscitator x 2, Salvage Sheet x 1, Signs x 1, Small Gear x 1, Specialist First Aid Equipment x 2, Stabilising Equipment (Blocks and Chocks) x 2, Stretcher x 2, Water Tank – 1800 Litres x 1.

CAST 30

Casualty trapped: Ship Accident

1 ship – 2 casualties trapped

Ship in harbour under re-fit. Two workers trapped following structural collapse. No ingress of water.

Task Sequence and Personnel Requirements		
1	Initial information gathering	**1** x **IC**
2	Liaison with ambulance	**1** x **IC**
3	Supplementary portable fire extinguisher	**1** x **IC**
4	General fireground liaison	**1** x **IC**
5	Forward Control Point Command	**1** x **IC**
6	Liaison with Port Authority	**1** x **IC**
7	Incident command	**1** x **IC**
8	Stabilisation of casualty(ies)	**1** x **FF**
9	Stabilisation of casualty(ies)	**1** x **FF**
10	Provision of hose reel branch	**1** x **FF**
11	Provision of rescue equipment	**4** x **FF**
12	Provision of water from pump/tank – high pressure pump	**1** x **FF**
13	Casualty treatment	**2** x **FF**
14	Provision of rescue equipment	**4** x **FF**
15	Extrication of person(s)	**2** x **FF**
16	Extrication of person(s)	**2** x **FF**
17	Remove casualty to place of safety	**2** x **FF**
18	Remove casualty to place of safety	**2** x **FF**
19	Liaison with police	**1** x **IC**
20	Remove casualty to place of safety	**2** x **FF**
21	Remove casualty to place of safety	**2** x **FF**
22	Make up equipment	**8** x **FF**
23	Debrief	**1** x **IC**
2 Incident Command Role Firefighters & 9 Firefighters		**11 TOTAL**

EQUIPMENT

Casualty Shield x 2, Ear Defenders x 8, Eye Protection x 8, First Aid Kit x 2, Hose Reel and Branch x 1, Hydraulic Cutting and Spreading Gear x 2, Hydraulic Cutting Gear x 2, Hydraulic Lifting Gear x 2, Hydraulic Spreading Gear x 2, Lines x 2, Portable Fire Extinguisher x 1, Pump with High Pressure Capability x 1, Radio Comms x 7, Resuscitator x 2, Salvage Sheet x 1, Specialist First Aid Equipment x 2, Stretcher x 2, Water Tank – 1800 Litres x 1.

NO CALCULATION HAS BEEN INCLUDED FOR FIRE & RESCUE SERVICE RESCUE BOAT PROVISION WITHIN THIS CAST PLANNING SCENARIO.

CAST 31

Casualty trapped: Small Aircraft Accident

1 Aircraft – 2 casualties trapped – with LX foam branch

No fire, but fuel leaking. Foam provided for emergency cover only. Access to light aircraft as soon as the foam system set up.

Task Sequence and Personnel Requirements		
1	Initial information gathering	**1** x **IC**
2	Liaison with ambulance	**1** x **IC**
3	Supplementary portable fire extinguisher	**1** x **IC**
4	Liaison with police	**1** x **IC**
5	Incident command	**1** x **IC**
6	Sector Command	**1** x **IC**
7	General fireground liaison	**1** x **IC**
8	Provision of foam making equipment	**2** x **FF**
9	Provision of water from hydrant to pump/tank	**2** x **FF**
10	Provision of water from pump/tank – low pressure pump	**1** x **FF**
11	Establish and maintain safe working area, Officer (Safety)	**1** x **IC** / **1** x **FF**
12	Firefighting/Rescue 2 Firefighters Non BA – foam making equipment	**2** x **FF**
13	Liaison with ambulance	**1** x **IC**
14	Provision of rescue and stabilisation equipment	**4** x **FF**
15	Stabilisation of structure/vehicle	**2** x **FF**
16	Stabilisation of structure/vehicle	**2** x **FF**
17	Stabilisation of casualty(ies)	**1** x **FF**
18	Stabilisation of casualty(ies)	**1** x **FF**
19	Extrication of person(s)	**4** x **FF**
20	Casualty treatment	**2** x **FF**
21	Casualty treatment	**2** x **FF**
22	Resource replenishment water	**1** x **FF**
23	Make up equipment	**6** x **FF**
24	Debrief	**1** x **IC**
3 Incident Command Role Firefighters & 8 Firefighters		**11 TOTAL**

EQUIPMENT

70mm Hose x 5, Barriers/Cones/Tape x 2, Casualty Shield x 2, Ear Defenders x 6, Eye Protection x 6, First Aid Kit x 2, Foam Concentrate x 1, Hydrant Standpipe (Single) Key and Bar x 1, Hydraulic Cutting and Spreading Gear x 1, Hydraulic Cutting Gear x 1, Hydraulic Lifting Gear x 2, Hydraulic Spreading Gear x 1, Inductor x 1, Lighting Equipment x 1, Lines x 2, LX Foam Branch x 1, Mechanical Lifting/Spreading/Pulling Equipment x 2, Pneumatic Lifting Gear x 2, Portable Fire Extinguisher x 1, Pump with Low Pressure Capability x 1, Radio Comms x 9, Resuscitator x 2, Salvage Sheet x 1, Set of Hose Ramps x 1, Signs x 1, Specialist First Aid Equipment x 2, Stabilising Equipment (Blocks and Chocks) x 2, Stretcher x 2, Water Tank – 1800 Litres x 1.

CAST 32

Casualty trapped: Small Boat Accident

1 Small boat – 1 casualty trapped

A small boat in a harbour.

Task Sequence and Personnel Requirements		
1	Initial information gathering	**1** x **IC**
2	Supplementary portable fire extinguisher	**1** x **IC**
3	Liaison with ambulance	**1** x **IC**
4	General fireground liaison	**1** x **IC**
5	Incident command	**1** x **IC**
6	Provision of hose reel branch	**1** x **FF**
7	Provision of rescue and stabilisation equipment	**4** x **FF**
8	Provision of water from pump/tank – high pressure pump	**1** x **FF**
9	Stabilisation of casualty(ies)	**1** x **FF**
10	Extrication of person(s)	**2** x **FF**
11	Stabilisation of structure/vehicle	**2** x **FF**
12	Remove casualty to place of safety	**2** x **FF**
13	Casualty treatment	**2** x **FF**
14	Make up equipment	**5** x **FF**
15	Debrief	**1** x **IC**
1 Incident Command Role Firefighter & 6 Firefighters		**7 TOTAL**

EQUIPMENT
Casualty Shield x 1, Ear Defenders x 7, Eye Protection x 7, First Aid Kit x 1, Hose Reel and Branch x 1, Hydraulic Cutting and Spreading Gear x 1, Hydraulic Cutting Gear x 1, Hydraulic Lifting Gear x 2, Hydraulic Spreading Gear x 1, Lines x 2, Mechanical Lifting/Spreading/Pulling Equipment x 1, Pneumatic Lifting Gear x 1, Portable Fire Extinguisher x 1, Pump with High Pressure Capability x 1, Radio Comms x 5, Resuscitator x 1, Salvage Sheet x 1, Specialist First Aid Equipment x 1, Stabilising Equipment (Blocks and Chocks) x 1, Stretcher x 1, Water Tank – 1800 Litres x 1.

NO CALCULATION HAS BEEN INCLUDED FOR FIRE & RESCUE SERVICE RESCUE BOAT PROVISION WITHIN THIS CAST PLANNING SCENARIO.

CAST 33

Property other than buildings: Generic small fire

Typically an FDR1 fire such as a car fire away from buildings. Provision is made for the use of breathing apparatus, although it may not be required in some circumstances.

Task Sequence and Personnel Requirements		
1	Initial information gathering	**1** x **IC**
2	Incident command	**1** x **IC**
3	General fireground liaison	**1** x **IC**
4	Cause establishment	**1** x **IC**
5	Establish safe working area	**1** x **FF**
6	Provision of hose reel branch	**1** x **FF**
7	Provision of water from pump/tank – high pressure pump	**1** x **FF**
8	Firefighting/Rescue 2 Firefighters BA – hose reel branch	**2** x **FF**
9	Damping down – 1 hose reel – 2 x BA	**2** x **FF**
10	Cutting away – 2 x BA	**2** x **FF**
11	Turning over – 2 x BA – thermal imager	**2** x **FF**
12	Provision of water from hydrant to pump/tank	**1** x **FF**
13	Fireground servicing – 2 x BA	**2** x **FF**
14	Resource replenishment water	**1** x **FF**
15	Make up equipment	**2** x **FF**
16	Debrief	**1** x **IC**
1 Incident Command Role Firefighter & 3 Firefighters		**4 TOTAL**

EQUIPMENT

70mm Hose x 3, Barriers/Cones/Tape x 1, Breathing Apparatus – Standard Duration x 2 (SDBA), Hose Reel and Branch x 1, Hydrant Standpipe (Single) Key and Bar x 1, Lighting Equipment x 1, Pump with High Pressure Capability x 1, Radio Comms x 6, SDBA – Spare Cylinder x 2, Set of Hose Ramps x 1, Signs x 1, Small Gear x 1, Thermal Imager x 1, Turning Over Tools x 1, Water Tank – 1800 Litres x 1.

CAST 34

Chimney

Generic small fire

Typically a domestic chimney fire using specialist chimney firefighting equipment from inside the building, and access to the roof for observation/firefighting. Breathing apparatus is available although it may not be required in some circumstances.

Task Sequence and Personnel Requirements		
1	Cause establishment	**1** x **IC**
2	Initial information gathering	**1** x **IC**
3	Incident command	**1** x **IC**
4	General fireground liaison	**1** x **IC**
5	Provision of hose reel branch	**2** x **FF**
6	BA Entry Control	**1** x **FF**
7	Provision of water from pump/tank – high pressure pump	**1** x **FF**
8	Provision of chimney fire equipment	**1** x **FF**
9	Firefighting/Rescue 2 Firefighters BA – chimney equipment/hose reel	**2** x **FF**
10	Slip and pitch 9/105 ladder	**3** x **FF**
11	Slip and pitch roof ladder	**2** x **FF**
12	Footing ladder	**1** x **FF**
13	Firefighting/Rescue 1 Firefighter Non BA – hose reel branch	**1** x **FF**
14	Fireground servicing – 2 x BA	**2** x **FF**
15	Debris/water removal	**2** x **FF**
16	Make up equipment	**4** x **FF**
17	Debrief	**1** x **IC**
1 Incident Command Role Firefighter & 4 Firefighters		**5 TOTAL**

EQUIPMENT
9/105 Ladder x 1, BA Board – Complete x 1, BAECO Tabard x 1, Breathing Apparatus – Standard Duration (SDBA) x 2, Chimney Fire Equipment x 1, Hose Reel and Branch x 1, Lines x 2, Pump with High Pressure Capability x 1, Radio Comms x 6, Roof Ladder x 1, SDBA – Spare Cylinder x 2, Small Gear x 1, Water Tank – 1800 Litres x 1.

CAST 35

Secondary

Generic small fire

Typically an FDR3 fire such as a small heathland or skip fire. Provision is made for the use of hosereel or beaters as appropriate. Provision is also made for the use of breathing apparatus, although it may not be required in some circumstances.

Task Sequence and Personnel Requirements		
1	Initial information gathering	**1** x **IC**
2	Supplementary beaters	**1** x **IC**
3	Cause establishment	**1** x **IC**
4	General fireground liaison	**1** x **IC**
5	Incident command	**1** x **IC**
6	Establish safe working area	**1** x **FF**
7	Provision of hose reel branch	**1** x **FF**
8	Provision of water from pump/tank – high pressure pump	**1** x **FF**
9	Firefighting/Rescue 2 Firefighters BA – hose reel branch	**2** x **FF**
10	Damping down – 1 hose reel – 2 x BA	**2** x **FF**
11	Cutting away – 2 x BA	**2** x **FF**
12	Turning over – 2 x BA – thermal imager	**2** x **FF**
13	Provision of water from hydrant to pump/tank	**1** x **FF**
14	Fireground servicing – 2 x BA	**2** x **FF**
15	Resource replenishment water	**1** x **FF**
16	Make up equipment	**2** x **FF**
17	Debrief	**1** x **IC**
1 Incident Command Role Firefighter & 3 Firefighters		**4 TOTAL**

EQUIPMENT
70mm Hose x 3, Barriers/Cones/Tape x 1, Beaters x 2, Breathing Apparatus – Standard Duration (SDBA) x 2, Hose Reel and Branch x 1, Hydrant Standpipe (Single) Key and Bar x 1, Lighting Equipment x 1, Pump with High Pressure Capability x 1, Radio Comms x 6, SDBA – Spare Cylinder x 2, Set of Hose Ramps x 1, Signs x 1, Small Gear x 1, Thermal Imager x 1, Turning Over Tools x 1, Water Tank – 1800 Litres x 1.

CAST Planning Scenarios – Summary

CAST 1	FDR1 Fires: Dwellings: Multiple Occupancy High Rise	*2 to 4 casualties involved rescue via internal staircase*
CAST 2	FDR1 Fires: Dwellings: Multiple Occupancy Low Rise	*2 to 4 casualties involved rescue via 135 ladder*
CAST 3	FDR1 Fires: Dwellings: Multiple Occupancy Low Rise	*2 to 4 casualties involved rescue via 9/105 ladder*
CAST 4	FDR1 Fires: Dwellings: Multiple Occupancy Low Rise	*2 to 4 casualties involved rescue via internal staircase*
CAST 5	FDR1 Fires: Dwellings: Multiple Occupancy Medium Rise	*2 to 4 casualties involved rescue via 135 ladder*
CAST 6	FDR1 Fires: Dwellings: Multiple Occupancy Medium Rise	*2 to 4 casualties involved rescue via 9/105 ladder*
CAST 7	FDR1 Fires: Dwellings: Multiple Occupancy Medium Rise	*2 to 4 casualties involved rescue via aerial appliance*
CAST 8	FDR1 Fires: Dwellings: Multiple Occupancy Medium Rise	*2 to 4 casualties involved rescue via internal staircase*
CAST 9	FDR1 Fires: Dwellings: Multiple Occupancy Single Basement	*2 to 4 casualties involved rescue via internal staircase*
CAST 10	FDR1 Fires: Dwellings: Single Occupancy	*2 to 4 casualties involved rescue via 135 ladder*
CAST 11	FDR1 Fires: Dwellings: Single Occupancy	*2 to 4 casualties involved rescue via 9/105 ladder*
CAST 12	FDR1 Fires: Dwellings: Single Occupancy	*2 to 4 casualties involved rescue via internal staircase*
CAST 13	FDR1 Fires: Dwellings: Underground Complex	*2 to 4 casualties involved – using firefighting lift*
CAST 14	Casualty retrieval from Hazardous Material Incident	*Generic incident – BA CPS with HRJ – 1 casualty retrieved*
CAST 15	Casualty retrieval from Hazardous Material Incident	*Generic incident – BA GTS with HRJ – 1 casualty retrieved*
CAST 16	Casualty retrieval from Height	*Rope rescue equipment – 1 casualty retrieved*
CAST 17	Casualty retrieval from Height	*With 135 extension ladder – 1 casualty retrieved*
CAST 18	Casualty retrieval from Height	*With 9/105 extension ladder – 1 casualty retrieved*
CAST 19	Casualty retrieval from Height	*With aerial appliance – 1 casualty retrieved*
CAST 20	Casualty retrieval from Lift	*Lift – 1 casualty retrieved*
CAST 21	Casualty retrieval from Lock-in	*Conventional – 1 casualty retrieved*
CAST 22	Casualty retrieval from Lock-in	*With 135 extension ladder – 1 casualty retrieved*
CAST 23	Casualty retrieval from Lock-in	*With 9/105 extension ladder – 1 casualty retrieved*
CAST 24	Casualty retrieval from Lock-in	*With aerial appliance – 1 casualty retrieved*
CAST 25	Casualty retrieval from Lock-in	*With short extension ladder – 1 casualty retrieved*
CAST 26	Casualty retrieval from Water	*1 casualty retrieved*
CAST 27	Casualty trapped: Extrication from Machinery/Structures	*1 casualty trapped*
CAST 28	Casualty trapped: Rail Transport Above Ground Accident	*2 carriages – 1 casualty trapped in each carriage*
CAST 29	Casualty trapped: RTA	*Generic incident – 2 vehicles – 1 casualty trapped in each vehicle*
CAST 30	Casualty trapped: Ship Accident	*1 ship – 2 casualties trapped*
CAST 31	Casualty trapped: Small Aircraft Accident	*1 aircraft – 2 casualties trapped – with LX branch*
CAST 32	Casualty trapped: Small Boat Accident	*1 small boat – 1 casualty trapped*
CAST 33	FDR1 Fires: Property other than buildings: Generic small fire	*Generic small fire*
CAST 34	FDR3 Fires: Chimney	*Generic small fire*
CAST 35	FDR3 Fires: Secondary	*Generic small fire*

The Fire Brigades Union and CACFOA have agreed a JOINT PROTOCOL for Fire & Rescue Authority Community Fire Safety (CFS) strategies. The recent shift to Integrated Risk Management Planning has given this Protocol even greater relevance.

The CACFOA/FBU Joint Protocol on CFS

CACFOA and the FBU recognise the value of CFS and jointly support efforts by fire brigades to reduce the numbers of fires, fatalities and injuries from fires through CFS programmes and activities. It is also recognised that fire brigades cannot resolve all the fire safety problems of their communities on their own and will have to both liaise and work closely with other diverse groups and organisations, to ensure the efficient and effective delivery of fire safety programmes.

To these ends, it is jointly recommended therefore that the following principles be adopted when developing CFS strategies and programmes:

1. **Brigades should develop with the FBU, on a partnership basis, local agreements (that remain within the overall terms of the National Joint Council – Conditions of Service) regarding CFS programmes and associated activities.**

2. **CFS programmes should be strategically planned, in conjunction with other agencies and bodies where necessary, and should also be meaningful and relevant to the fire safety problem identified. The proposed outcomes should be realistic and achievable by all those concerned in delivering the programme of activities.**

3. **Brigades should fully involve the FBU at Brigade Committee level within the brigade in both the strategic and the tactical planning for the delivery of CFS programmes and their associated activities.**

4. **CFS activities should form part of normal station work routines.**

5. **All Fire Service personnel involved in CFS activities should be adequately trained and properly equipped to ensure that they are proficient and confident in performing such tasks.**

6. **Wherever appropriate CFS activities should be risk assessed and adequate safeguards for all concerned in them enforced at all times.**

7. **Specific safeguards and arrangements must be made locally for CFS activities which particularly involve children, young persons and the older, or less able members of the community.**

8. **There should be a reporting and assistance mechanism created within all CFS programmes whereby any serious or potentially life threatening fire safety defects discovered by Fire Service personnel as a result of their CFS activities can be dealt with quickly and efficiently at any time.**

9. **Working within the overall brigade CFS strategy, local CFS activities on fire stations that are developed by Fire Service personnel on those stations should be encouraged and supported by brigades.**

Community Fire Safety is a major element in overall fire & rescue authority preventative strategies (CFS, Consumer Safety, Statutory Fire Safety & Fire Law Enforcement, Building Regulations & Standards, and Arson Control – **Section 2 page 15**). CFS has the potential to increase the rate of early detection of fires in domestic/residential premises which do not generally fall within the remit of statutory fire safety inspection and enforcement programmes. As such it can inform emergency intervention response planning. There can be little doubt that effectively planned and delivered Community Fire Safety will save lives by both preventing fires occurring in the first instance, and by preparing people and the fire & rescue service for the fires that will still occur.

Thematic Review of Community Fire Safety

The Thematic Review of Community Fire Safety stated:

"The Chief and Assistant Chief Fire Officers Associations (CACFOA) and the Fire Brigades Union (FBU) are to be congratulated for agreeing the details of a model CFS protocol for brigades and trade unions to use as a process for implementing change."

Action Point 8 of that report stated:

All brigades should assess their arrangements for internal consultation on CFS matters against the CACFOA/FBU protocol in order to achieve a partnership approach.

The CACFOA/FBU Joint Protocol recognises, as did the authors of the Thematic Review of Community Fire Safety, that a partnership approach is necessary if Community Fire Safety is to recognise its true potential. As stated in the Foreword, the success of wider Integrated Risk Management Planning will also be heavily dependent on recognition of the value of adopting a true partnership approach.

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In 2010 the FBU National IRMP Department will be publishing details of the progress of local fire & rescue authorities against the risk management principles, systems and targets set out in this document.

NO2 Fire Deaths










The National IRMP Document

Planning to make a REAL difference

FBU National IRMP Department