

Review of the National Fire and Rescue Incident Statistics Collection

Final Report

Prepared by:
Katalysis Limited
in association with Donachie Associates

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Authors R Donachie, H Neffendorf

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Review of the National Fire and Rescue Incident Statistics Collection

Executive Summary

Background

Since the last Statistical Review in 1998 there have been significant policy changes, in particular the introduction of more preventative measures and the recent “Independent Review of the Fire Service” and the Fire and Rescue Service White Paper. All these changes have potential information requirements and therefore data implications. Some of these implications relate to scope and some to timeliness of information. There are also impacts on fire related data for better definition of casualties and improved geo-spatial information.

Another driver for change is the success of the Fire Statistics and Research Branch of ODPM (FSR) in obtaining funds from the HMT Invest to Save Budget to upgrade the fire incident data collection system through electronic capture of data. The ISB project is aimed at using electronic means to speed up the flow of fire statistics data from Brigades to ODPM. This current review is a first step of that project, designed to:

- Check whether current data meets existing and future needs;
- Review whether the current complexity of forms and codes is necessary or can be made more simple so that local data input becomes more robust;
- Support the aim of electronic capture and transfer of data.

More recently the situation within the fire service has moved on. In particular, this includes the introduction of Integrated Risk Management Plans (IRMP) and a greater emphasis on fire reduction through Community Fire Safety (CFS). These developments:

- Lead to demands for new and better managed data;
- Require more information on resources used;
- Also need to cover non-fire incidents;
- Imply greater need for geo-coded data that requires better location referencing than at present; either accurate grid references, full correct addresses or postcodes.

Review Process

In order to gather as much information as quickly as possible, this review has been conducted through a number of mechanisms:

- **Discussions** with key stakeholders;
- **Visits** to a small number of fire brigades;
- **Visit** to Fire Statistics and Research FSR data centre (Garston);
- **Workshops**
 - 1st Selected central users (mainly ODPM)
 - 2nd Data providers and other stakeholders (mainly brigades);
- **Consultation document** sent to all interested stakeholders not otherwise seen;
- **Steering Group** – advice from selected representatives.



Summary of Main Conclusions

The principal findings of this review are as follows:

1. The current FDR1 and FDR3 data collection process needs a major overhaul. The FDR1 form is too complex and tries to cope with too many different types of fire, often leading to confusion.
2. It quickly became apparent that the changing needs for information would be met more appropriately by including ALL incidents in the same data system.
3. The new incident returns should be initiated from the brigades' command and control systems.
4. All the data items to be included in the new system should have a clearly stated justification, backed up by expert review of the content and the required definitions and validation.
5. The complexity of the FDR1 form would be compounded by the addition of FDR3 fires and Special Services, so the new system has to be based on electronic screens. The proposed electronic collection, validation of data items at source and a hierarchical approach to data screens will not only make this possible, but also simplify data collection for the majority of incidents.
6. The new system will use electronic data transfer and feedback between brigades and ODPM. These proposals will improve timeliness, quality and usefulness of the data.
7. The new system of electronic forms will make it easier to alter or add more data items if circumstances change. It is therefore important to keep information requirements under review.
8. The ISB project, while still highly relevant, will need a revised plan to support the development.

It should be recognised that this report has been produced at a point in time, during a period of considerable change. It is important to keep the findings and recommendations under review and to ensure their continuing relevance. Implementation of the new systems proposed in this report will require an intensified level of management and supervision of the process, coupled with continuation of the consultation that has been a feature of this review.



1 Introduction

1.1 Background

The Fire Statistics and Research Branch is part of the Fire, Health & Safety Directorate (FHSD). One of its functions is to collect, analyse and publish statistics on fires and fire related casualties in incidents attended by local authority fire brigades in the United Kingdom. The branch has recently taken on responsibility for the production of statistics on non-fire related activities of fire brigades, for example, details of special services and personnel information. Some of these are used in Local Authority Best Value Performance Indicators. The branch is also responsible for a major programme of social research in relation to arson and community fire safety.

Both the statistical and research programmes are there to support, develop, target, implement and evaluate the government's fire safety policy and to measure performance against national and local objectives and targets. In both its statistics and research functions, the Branch works closely with the National Community Fire Safety Centre, the Arson Control Forum and policy colleagues in FHSD.

The last review of the Fire Incidents Statistics collection took place in 1998 – this was done internally (at the Home Office) and was limited in scope. Since that 1998 Review there have been significant policy changes, in particular the introduction of more preventative policies in terms of Community Fire Safety and Arson Reduction, and more recently the publication of the “Independent Review of the Fire Service” (by Professor George Bain – December 2002). There are also implications for data collection arising from the Fire and Rescue Service White Paper and the production of the National Framework:

1.2 IRMP

One of the most significant changes in terms of data requirements is the removal of national standards for the deployment of resources to tackle incidents. In future, Brigades are charged with producing Integrated Risk Management Plans (IRMP) to determine the local priorities for the deployment of such resources. While there is a significant body of detailed information available on Primary Fires (i.e. those attended by Brigades that involved property or casualties), information on other fires is generally limited to the monthly aggregate return. Information on other incidents is limited to aggregates on the (former) HMFSI annual return; with some incident types being ill defined so that reporting may not be uniform across the country.

All these changes have potential information and, therefore, data implications. Some of these implications relate to scope and some to timeliness of information. The significant information changes from these revisions are more likely to relate to increased non-fire related data. However, there might be impacts on fire related data for better definition of casualties and geo-spatial information.

1.3 ISB

A related driver for change is the success of FSR in obtaining funds from the HMT Invest to Save Budget (ISB) to upgrade the fire incident data collection system through electronic capture of data. The purpose of the ISB project is to upgrade the fire incident data collection process by electronically capturing information directly from fire brigades, replacing the largely manual processing of paper records currently undertaken. Before such a project can get underway, it is



essential that the existing data collection be reviewed to ensure that customers' information needs are still being met.

Accordingly, an initial task of the ISB project was a review of customer needs ('Fire Statistics Review'). That requirement led to this current study.

1.4 The Objectives & Aims

The basic requirement was for the provision of a formal review of the National Fire Incident Statistics collection as defined by the two forms FDR1 and FDR3. This review was to address the following issues:

- Establish what fire incident data items customers need in order to deliver effective policies, with particular reference to meeting the recommendations of the Independent Review of the Fire Service and the Fire and Rescue Service White Paper;
- Itemise the various customer requirements with a detailed discussion of why such data are needed, including an assessment of prioritisation amongst competing customer needs. Requirements should include better casualty and geo-coded data;
- Establish which fire incident data items currently collected are no longer used or infrequently used by customers, and the impact of ceasing to collect these items;
- Take account of the need to retain the quality and comparability with the existing collection to maintain robust time series information, but at the same time delivering the information that the customer requires;
- Assess whether the FDR1 and FDR3 forms are the correct mechanism for collecting any new fire and rescue incident data items;
- Assess the implications for resources of any new fire and rescue incident statistics collection, paying particular attention to the move to fully electronic data transmission through the plans for the Invest to Save Budget project;
- Ensure that any new fire and rescue incident data items collected are compatible with commitments to ongoing projects, such as Neighbourhood Statistics (which involves geo-coding the FDR1 database), Best Value Performance Indicators, SDA targets, Comprehensive Performance Assessments, Integrated Risk Management Plans and the National Framework;
- Include a consideration of the recent work of the severity of injury project.

1.5 Scope of Project

Following an initial discussion with senior stakeholders in ODPM, the scope of the review was agreed. Since then, discussion with other stakeholders has led to an extension of the scope to include data on ALL incidents. The majority of the investigation and development was based on fire incidents but it became increasingly obvious that the proposed vision was readily adaptable to all incidents. This would better meet the future information needs of the majority of the stakeholders.

Agreed elements of the scope were:

- **Geographic:** England primarily, with UK consultation, since the data needs of devolved administrations are also met by the same data collection unit. However, data provision from Brigades probably dictates a UK view.
- **ISB:** The review is the first stage of the ISB project, but it was to be designed with other stages in mind.



- **Current Operations:** The review was to look at current operations, from the fire through data capture to data use. Following some discussion, the review has been extended to include the collection of data that relate to all incidents attended by Fire and Rescue Brigades.
- **Data Needs:** The review was to look at the current and future data needs of stakeholders both within ODPM and outside and, taking account of priorities, test how well they are met by the current system.
- **National Statistics:** An assessment was to be made of the position of this data in a National Statistics context; in particular any new collection must comply with requirements for data collection under the National Statistics Code of Practice. Annex 6 contains a summary of how this project fits in that context.
- **Report:** The report should comment not only on the findings of a review of forms FDR1 & FDR3 but would also include proposals for improvements, the inclusion of non-fire incidents and the next steps of the ISB project.

1.6 Process of the Review

This review has been relatively brief, and consisted of the following steps:

- 1 Initial meetings and fact finding to establish the scope of the review
- 2 Assessment of current operations through meetings/visits to the Garston data unit in ODPM and to a small selection of data providers in Brigades
- 3 Assessment of current and future data needs through consultation with stakeholders in ODPM and outside. This was done through:
 - meetings with key stakeholders
 - workshops
 - consultation document for other stakeholders (see below)
- 4 Preparation of stimulation material for workshops so that the discussions could be focussed and achieve the maximum of input to the review. This material indicated initial findings and was designed to:
 - Comment on current practice
 - Comment on data items
 - Propose options for new techniques
 - Review initial findings
- 5 Construct a future vision based on results of the investigation of fire incidents
- 6 Test the appropriateness of the vision to cover all incidents and make any necessary amendments
- 7 Review findings with Steering Group (see Annex 9)
- 8 Draft Report
- 9 Presentation to Steering Group
- 10 Revise Report in light of comments
- 11 Produce Final Report

The consultation document mentioned in step 3 was sent to all brigades and to a variety of other users of fire statistics. The results have been analysed and documented by ODPM, and are summarised in Annex 4.



2 Current System

2.1 Data Forms

The national fire incident statistics database contains information on around a million fire-related incidents per year attended by the UK Fire Service (59 brigades). The main collection relates to fires involving property, casualties and/or rescues (termed ‘primary fires’) - some 230,000 incidents a year. However, UK fire brigades keep records of all fire-related incidents that they attend. The data are collected on two forms, FDR1 and FDR3. Amendments to FDR1 are made using form FDR2.

More specifically, data is collected on Fires and False alarms attended by the UK Fire Service with the fires split between:

Primary fires – collected individually on FDR1 – these are the more serious fires, and involve property and/or casualties;

Secondary fires – collected in aggregate form on FDR3 each month for each brigade – these are the less serious fires, often outdoors and do not involve property or a casualty;

Chimney fires – FDR3 fire in an occupied building but confined to the chimney and with no associated casualties;

False alarms – malicious or good intent or due to apparatus (FDR3).

While there are about 230,000 primary fire incidents reported in a year, there are many more secondary fires, etc. reported on the monthly FDR3 returns from each of the 59 brigades. These 708 forms (i.e. 59 x 12) report aggregate information on:

- 300,000 secondary fires
- 16,000 chimney fires
- 480,000 false alarms

For the FDR1 returns, the data is now supplied to the FSR data centre at Garston, mainly on paper forms. However, electronic data interchange (EDI) has developed over the past 6 years with varying results and many implementation problems. Currently about 25% of the FDR1 data is returned electronically using various software packages developed by or for brigades.

2.2 Types of Information Collected

There is very little information collected on the secondary fires, chimney fires and false alarms on the FDR3 other than the number in a small set of categories. However, form FDR1 is much more complex and information is collected for each incident under the following sections:

Section 1 - Brigade information (brigade and call numbers)

Section 2 - Incident information (geo-codes, risk category, times and dates, etc.)

Section 3 - Location of fire (type of property, location, occupancy, vehicles)

Section 4 - Extinction of fire (fire-fighting equipment, appliances, etc.)

Section 5 - Supposed cause, damage and other fire details

Section 6 - Life risk (persons involved, fatal, non-fatal, rescues, names, etc.)

Section 7 - Additional information (free text -often a useful part of the form)

Within these sections there is some very complex coding. In particular, the coding guide for Type of Property covers eleven pages – with many of these codes used infrequently. It is this



complexity of coding, plus the fact that the form tries to accommodate a wide variety of fires, with not all sections being relevant to all fires, that makes the accurate coding and entry of data very difficult. This complexity has led to a requirement for careful and experienced staff to perform these operations. Typically this requires 6 to 12 months of training for the appropriate staff at ODPM's fire data unit at Garston. Brigades wishing to undertake EDI need to seek accreditation from ODPM to ensure that reliable data quality is maintained. This generally involves using accredited software and coding staff that meet ODPM's standards. This process is time consuming and, from some brigades' view point, is largely unproductive. It is therefore not surprising that only three brigades have so far received accreditation, although several more are in the process.

As previously noted some 25% of FDR1 data arrives electronically but much of this is from brigades that have not received accreditation and, in many cases, are not preparing to. Many brigades make use of fire incident information as part of their management process. They enter the data into their Management Information Systems either through software from a software firm or through systems developed in-house. Some of these brigades still make paper returns, which means that there is some redundant effort within the brigade, with the FDR1 data being entered on paper for ODPM and electronically for internal use. Of more concern for the national dataset is the information from these non-accredited brigades that arrives at Garston in coded form. There is nothing that Garston can do to correct any items that appear to be invalid. This is likely to lead to possible different standards in the coded data quality between different brigades.

2.3 Current Technical Infrastructure

A large amount of data is collected about individual fires on statistical form FDR1 and input manually into a database. For some years now resources at Garston have not allowed for sufficient qualified coders to cope with all of the FDR1 forms received. In order to bring the publication of results within a reasonable timescale, a decision was made to sample some of the forms. This has resulted in the data being input to one of several databases depending on the type of incident, resulting in four ways of recording the data, as follows:

1. All fires involving a casualty (i.e. death or injury), some 10,000, are input to the Advanced Revelation database (AREV) – (this also includes some miscellaneous categories of fire);
2. Of the remaining non-casualty fires, a random sample of 1 in 5 records, some 35,000, are fully input to the Advanced Revelation database (AREV);
3. The remaining 4 in 5 records (non-casualty fires), some 140,000, are partially input (12 key data items only) to a SAS database (Statistical Analysis Software);
4. Approximately 25% of the total records, some 56,000, are fully input to the AREV database, regardless of type of incident, as they are provided in an electronic format directly from the fire brigades (EDI).

The sampled fire records (category 2 above) are then grossed up using weighting factors derived from the key variables from the non-sampled fires stored in the SAS database. Thus, for the key variables, all fires are represented in the final database but with grossed up estimates of the non-key variables. While this procedure reduces the workload for coding and data input at Garston, it does pose problems:

- There is a delay in processing forms from a small number of brigades as forms for any particular month are held in the paper store awaiting late arrivals for that month;
- There will be some small loss in accuracy because of the sampling process;
- Perhaps most importantly, there is a perception in some brigades that not all the data they provide is used (which to some extent is correct) and therefore the whole exercise is perceived



to be less important, with possible consequences for the thoroughness in which data is collected (this is not correct – still need all data to be collected carefully).

2.4 Critique and Issues

General Comments – (FDR1)

A couple of issues about the current system have already been raised:

- Sampling reduces accuracy and raises suspicions in some brigades about usefulness of the exercise.
- Accreditation or rather the lack of it from some EDI brigades could result in coding quality problems and differing classifications of some fires. In the short term, until a new system is available, ODPM needs to continue to take this non-accredited data, notwithstanding the concerns about data quality.

During the review process the following more general issues came to light:

- Firefighters do not always know why the data is needed and some of the data seems illogical or out of touch with current practise. This lack of ‘buy in’ can lead to data quality problems as data providers are likely to record the easiest option rather than the true option if they do not always understand or appreciate what they are doing.
- The legal status of the FDR1 form and its title as a Fire Data Report has led some outsiders (and possibly brigades) to consider it as a report on the fire with some legal status. This has consequences for some of the more judgemental parts of the return where it has been stated that some fire fighters are reluctant to record anything that might be subject to question. ODPM should consider issuing a statement that the form is a statistical return and not an official fire report, also recommending that this is made clear to those filling in the forms.
- There is sometimes confusion between the classification of a fire as primary or secondary. This problem could disappear with the proposed solution for the future.
- The complexity of the form and some of the long and complex field codes also lead to possibilities of misinterpretation and incorrect recording of facts. The problem largely arises because form FDR1 tries to force a consistent collection framework on information for a variety of types of fires that have different characteristics. Examples of these include:
 - fires in domestic properties where the emphasis might be on potentially faulty household products or domestic accidents;
 - fires in industrial buildings which might be accidental, deliberate (arson) or due to faulty industrial equipment;
 - fires in motor vehicles; either:
 - accidental due to vehicle problems or involvement in an road traffic accident
 - deliberate; stolen vehicle or disposal of old vehicle;
 - fires in ships.
- Each of these might have been better dealt with by having a separate section of the form that considers the data requirements of this particular type of fire. However, this would have been difficult to implement in a paper-based system but is relatively easy to implement in an electronic system. As importantly, an electronic system would also be easy to maintain or amend as circumstances or policy interests change.
- There are some brigades that are still returning paper forms and are entering data into their own MIS. This appears to be a duplication of effort, but needs to continue, in the interest of data quality, until a replacement system is available.



- Some fields on the FDR1 appear to be little used or not actually coded, and could be dispensed with in a detailed review of the data required. It is essential that the new system has an agreed set of core fields and that they are amended across the UK when necessary. A move to an electronic-based system will make the maintenance of these core data sets easier than the current paper-based system.
- The timeliness of data flows from brigades to ODPM varies but, typically, fire reports arrive at Garston several months after the relevant month. Data coding, input, validation and waiting for brigades to respond to queries can add further delay. It is not until all data for all brigades is input can the tables for publication be produced, which results in about a ten month delay for the simpler quarterly monitor (2002 Q4 published Oct 2003) and over 12 months for the annual publication (Fire Statistics 2002 not yet available but 2001 edition published in April 2003).
- Considerable efforts are made by ODPM staff at Garston to ensure accurate coding of FDR1 data but this does rely on that data being an accurate reflection of the fire circumstances. This may not always be so. The number of brigades now sending in electronic data when they have not gone through the Garston accreditation process, further affects the accuracy, or at least consistency, of the coding.

Specific Comments (parts of form FDR1)

The following comments consider separate parts of the form, by Section number:

Section 2 Incident Information

- Addresses/location – need to identify accurate addresses and/or grid references and post codes as much of the future value of data relies on ability to cross match with other data sources, including small area demographic data, such as ethnicity. Improved address coding is already being studied in other projects.
- In particular, good geo-coding will help to identify information about the structure and fire safety of commercial and public buildings and to identify buildings of particular interest.

Section 3 Location of Fire

- Type of property – need to split form to deal with buildings (and possibly dwellings), ships and motor vehicles in different ways rather than fit different types into the same form.
- Property codes – need to make the long list of property codes easier to understand and use, and perhaps reduce it.
- Motor vehicles – possibly needs simplifying, first to check uses of such data then best ways of obtaining it. If vehicle registration mark is available (and appropriate to the vehicle!), ODPM might be able to interchange information with Department for Transport.

Section 4 Extinction of Fire

- Systems and methods of fire fighting need reviewing to ensure they are still relevant.
- Number of appliances not necessarily useful as it does not reflect resources used at an incident – better information could be obtained by linking to mobilising system.

Section 5 Supposed Cause, Damage & Other Fire Details

- “Most likely cause” – too judgmental and sometimes has led to fire fighters view being tested in court. Where possible, need to supplement this section with information from fire investigators.



- Section 5.2 “Source of ignition” through to Section 5.5 “Dangerous substances” needs reviewing to ensure that current codes are still relevant and easy to determine. Possibly aligning Section 5.5 with United Nations classification for Dangerous Substances.
- Section 5.8 “Damage caused to” and Section 5.9 “Area damaged” – a confusing section that may not be supplying the required information. Need to identify precise uses of this information then determine best way of obtaining it.

Section 6 Life Risk

- To test the effectiveness of fire safety strategies, the number of non-casualties involved in fires (or other incidents) might be valuable but how easy is it to determine? This would be particularly so in public buildings when the number of people present might be large.
- Similarly, more information about the injuries caused to casualties and their severity might be valuable. Again this is difficult to assess at the scene of the incident and any follow up at the hospital depends on the cooperation of the hospital and the resources available in the brigade. However, it might be possible to categorise casualties at the scene into approximate severities. As an example, for road accident statistics, police officers using standard definitions classify non-fatal casualties as Slight or Serious. There is some confusion about the boundary, but it does provide some insight into the benefits of safety strategies. Work has been undertaken by Sheffield University on a possible system for fire casualties. This is dealt with later in the report.
- Names of casualties may not be a central requirement but may still be a local requirement.
- Ethnicity determination is a requirement for Community Fire Safety purposes but can be difficult to determine; need to consider use of external data related to location.

Section 7 More Detailed Description of Fire/Further Information

- Text box for more information may still be required at local level but is it a national requirement?
- Link to further investigations may be related back to “Most likely cause” (Section 5.1).

General Comments (FDR3)

The secondary data collection covers minor fires not involving property or casualties (i.e. secondary fires), chimney fires and false fire alarms. Only limited information is collected for these types of fire-related incidents (amounting to 750,000 per year) via a monthly aggregate statistical return (FDR3 -Fire Data Report 3).

Several brigades reported that monitoring the occurrence of these small fires often has a significant effect in indicating future more serious arson incidents. It is therefore important to at least record the date, time and location of such incidents. This implies a move away from the current simple aggregate return and can easily be accommodated within the proposed system.

General Comments (Special Services)

The move outlined in the White Paper, away from National Standards for fire attendance to the use of Integrated Risk Management Plans, reduces the need to distinguish between types of fire and encourages the collection of data for all fires but with different levels of data dependent on the circumstances of the fire. Even more important is the need to record information on non-fire incidents as they consume significant quantities of fire-fighting resource and they impact on IRMP, but little is known about them centrally. It is also important for brigades to have common definitions of such incidents so that they can compare their performance with their peers.



Following the Bain Report and the White Paper, this review has identified that there is a demand for improved statistics on non-fire related activities such as Special Service incidents (e.g. road traffic accidents, lift rescues, etc.). Many brigades are developing their own systems to use in IRMPs but feedback has suggested that there would be value in having agreed definitions so that peer-to-peer comparisons could be made.

In terms of resource management and IRMPs, it is necessary to record each incident whether it is a primary fire, secondary fire, other incident or special service incident, so that the use of resources is monitored.

These are currently returned to ODPM as part of the annual return to HM Fire Service Inspectorate; more recently the data collation has moved with the other statistical returns to FSR. As for incidents reported on FDR3, there is very little information provided other than a simple count. In fact, FDR3 returns are made monthly so there is a view of variation within the year. The Inspectorate returns, being annual, do not even have this breakdown. The proposal to bring these incidents into the overall scheme for the future will at least provide accurate geo-coded data, date, time and resources used for each incident. This is made easier as FSR has already taken on responsibility for this data in its annual paper form.

A further issue is that the current system only allows an incident to be recorded once and so it is allocated to the most appropriate type, generally the one with greatest resource use. During the Review it was noted that, in terms of resource use, some of these categories might need redefining. In particular, Pumping Water could be draining a small cellar following a pipe burst in a house or a major flood prevention measure. Also there are significant incident types missing which are, presumably, currently reported under one of the above headings. Such incidents include flooding, terrorism and major emergencies. Some of this is illustrated in the guidance for completing the annual returns OPS4 (road traffic incidents) and OPS5 (other incidents) – see Annex 8.



3 Uses and Needs for Data

3.1 Collection and Analysis of Fire Data – The Current Position

Currently, fire data is collected or used by a variety of organisations with scope and complexity depending on the expertise of the collector and the uses of the data. This variety is illustrated in the table below, where the hierarchy reflects the relative increase in expertise in compiling the data, i.e. from relatively simple counts to detailed fire investigations. Not all items in the table are collected for all fires and some do not provide data for general use. The hierarchy is not strictly linear and does not necessarily reflect importance, but hopefully demonstrates the increasing need for the data to be defensible, i.e. moving from publication and planning to the legal process.

Hierarchy of Reports	Normally Completed by	Typically Used by	Purpose	Additional or Subsequent use
FDR3	Fire and Rescue Service	ODPM	To compile National Statistics	To inform research and policy
		F&RS	To inform IRMPs and Community Safety Plans	
Local Proforma	Fire and Rescue Service	Police, Local Safety Partnerships, Crime & Disorder Partnerships	Usually to identify local fire-raising activity and patterns	
FDR1	Fire and Rescue Service	ODPM	To compile National Statistics	To inform research and policy
		F&RS	To inform IRMPs and Community Safety Plans	
		Insurers	To inform response to policy claims	To inform insurance risk assessment
		Coroners	To inform the Court	To make recommendations
		Criminal Justice System	To inform the Court	
FDR2	Fire and Rescue Service	As FDR1	Amends FDR1	As FDR1
Fire Investigation Report	Fire and Rescue Service	As FDR1	As required by F&RS	As FDR1
Fire of Special Interest	Fire and Rescue Service	HM Fire Service Inspectorate	To monitor events which may have national implications for public or fire-fighter safety	To provide briefing for ministers
Scientific Investigation	Scenes of Crime Officer	Criminal Justice System	To inform the Court	
	Forensic Scientist	Criminal Justice System	To inform the Court	
		Insurers	To inform response to policy claims	To inform insurance risk assessment
	Building Research Establishment	ODPM	To inform building regulation	



3.2 Commentary on Collection

FDR1

The current form attempts to do too much for too many disparate groups - the result is an unsatisfactory compromise. If it were planned to continue with a paper form, it would benefit from redesign to concentrate on, and provide better quality information about, matters common to the majority of Primary fires. Lesser-used parts of the form (e.g. information about casualties) could then move to an expanded update process, which could also capture the higher quality information normally found only in the Fire Investigation Report (but currently not presented in a format suitable for analysis). However, it is proposed later that the FDR1 should be replaced with an electronic process, which would be quite different in style and content.

FDR2

There would be scope to expand the FDR2 in a continuing paper process. See comments for FDR1 and for Fire Investigation Report. However, it is most unlikely that a paper process will continue. There is scope within the proposed electronic system to provide an update process. This would have two principal roles:

- To amend standard records already submitted by brigades. This will entail a facility to ensure that this is an update to reduce the possibility of duplicate records.
- To allow augmentation of incident records with information from further investigations undertaken after the incident or from alternative data sources.

Fire Investigation Report

This usually captures high quality information, but not generally in a format that can be easily compared and analysed (London Fire Database is a notable exception). There is potential to standardise some of the report and incorporate in an expanded update process that might replace the current FDR2. See comments for FDR1.

Fire of Special Interest

Current reporting procedures are not meeting current needs and have partially fallen into disuse. A review is under way, and revised guidance is to be issued to Fire and Rescue Service as soon as possible.

Scientific Investigation

There is a call-off contract to investigate certain Fires of Special Interest.

General Points from Consultation

A fairly extensive consultation exercise has been undertaken (see Annex 4), partly to determine the uses of the current data and the changes that would be required to meet future requirements. In particular, the exercise hoped to uncover any of the current data that no longer had a customer and any gaps in the data to meet current needs. As the project evolved it fairly quickly became apparent that, to meet the needs of both brigades and central government, there would have to be a fairly radical review of the new data requirements and that the process would be more wide-ranging than originally planned. This was largely because events had moved on significantly, with recent policy changes substantially affecting both the direction of brigade activities and the way that they deploy resources. In particular, there is now a greater emphasis on prevention rather than just responding to fires. Also the former National Standards for responding to fires have



been set aside and brigades are now responsible for determining their own strategies for attending incidents through the development of Integrated Risk Management Plans.

The investigation has highlighted areas where particular customers have an interest in the information that would be available from the new system. This information will broadly cover the range of data as currently contained in FDR1 (for primary fires), FDR3 (for secondary fires and false alarms) and the HMFSI Annual return (only for Special Services). However, the precise information to be obtained and the details of its coding and how it fits into the proposed hierarchical intelligent coding system are still to be determined. This area is addressed later in the report. The rest of this section describes some of the uses for the data that various customers have highlighted.

3.3 Commentary on Applications of the Data

The introduction of the new fire safety legislation, such as the Fire Service White Paper, and, in particular, the sweeping changes to the Fire Precautions Act via the Regulatory Reform Order, will result in wide changes in fire safety in the UK. It is essential that the fire statistics enable the government to continue to monitor the effectiveness of this new legislation.

ODPM

ODPM has the major interest in central government in fire statistics and associated information. This is principally concentrated in the Fire Health and Safety Directorate and in the central parts of HMFSI.

Fire Health and Safety Directorate – With the central responsibility for the policy related to the reformation of the Fire and Rescue Brigades, this directorate has an interest in all of the data collected by Fire Statistics and Research branch. Although ODPM is only formally responsible for policy work relating to England and Wales, policy divisions in Scotland and Northern Ireland tend to follow the lead but possibly with some adaptation to meet local circumstances. In particular, the Directorate's interests cover any information that relates to:

- Best Value performance Indicators (BVPI); this interest is shared with the Audit Commission;
- Briefing of ministers responsible for Fire and Safety and associated policy colleagues; this also includes responding to relevant Parliamentary Questions (PQs);
- Setting targets and monitoring the brigades in their management of resources;
- Providing background information to support safety campaigns;
- Statistical publications:
 - Principally those National Statistics publications that ODPM is responsible either for producing or contributing to;
 - Also responsible for supplying relevant information on fires, etc. to Scottish Executive, National Assembly for Wales and the Department of Environment (NI).
- Fire Research Division has developed the Fire Safety Emergency Cover software for use in risk assessment in constructing IRMPs.

There are a number of areas where good and reliable fire statistics have a major role in the development of fire safety in the UK through research (such as that for ODPM via the Framework). These include:

- General trend spotting;
- Cost-Benefit analysis (by providing probability data for CBAs);



- Quantified Risk Assessments (as part of fire safety engineering – also by providing probability data);
- The development of Fire Safety Engineering, via the opportunity to examine the successes and failures of alternative strategies.

The nature of Fire and Rescue research makes it almost impossible to anticipate all the issues that will need study and it is not possible for any FDR1 (or similar) to encompass all of their needs. Researchers are, however, keen to see almost all of the existing data elements retained, although a ‘cascaded’ system, as is being proposed, would appear to be the best way forward.

ODPM also has a responsibility to supply the Office for National Statistics (ONS) with suitably coded data for the ONS based Neighbourhood Statistics Service (NeSS). This requires data to have accurate small area descriptors e.g. full address or full postcode or 12-digit grid reference. This then enables the data to be brought together with data from other similar sources so that they can be analysed at any spatial level; using the basic building block of the accurate geo-code.

Within the Fire Health and Safety Directorate, Her Majesty’s Fire Service Inspectorate (HMFSI) has been re-organised over the past year with some of its monitoring activities passing to the Audit Commission and its annual data returns passing to Fire Statistics and Research branch (FSR). However it remains the key body in central government that provides advice to the Deputy Prime Minister on the professional and technical aspects of fire related matters. It therefore is a significant customer of the data collected on fires by FSR and has particular interest in some of the more technical parts of the FDR1 form. Its technical interests cover a wide range and include:

- Operations management;
- Community fire safety;
- Integrated Risk Management Plans;
- Building safety including liaising with Planning Directorate over Building Regulations. In this area it is particularly interested in questions of fire spread and effectiveness of fire prevention precautions.

Other Organisations

Fire and Rescue Service Without exception, the message coming from brigades was that this review should not be seen to be just tinkering with FDR1 and FDR3 to allow them to become capable of electronic transfer to the centre. Given the changes required from brigades that had flowed from the new policy initiatives, they wanted a fundamental review of the information needs and that this should not be confined to fires but should encompass all their activities including special services and fire prevention.

Fire and Rescue Brigades probably have the greatest interest in this data. It provides the absolutely essential information that is required for efficiently monitoring and managing the use of their resources. Not only does it provide the basis for the policy decisions that they have to take in formulating Integrated Risk Management Plans, but it also contributes to the BVPIs by which they are judged by others. While the data required at the centre may not be so detailed as that required for brigade purposes, there is a strong case for the low level detailed data following nationally agreed data definitions and quality standards. In practise, the centre will want access to the detailed data both for research purposes and, particularly in the early years, for monitoring brigade performance.



Building Research Establishment Fire Research Station FRS has a long history of using the Fire Statistics in support of its research, either as stand-alone investigations or as part of bigger research projects. The Statistics were used to assess the likely number of road vehicle fires in the Channel Tunnel and underpinned The Channel Tunnel Safety Authority's assessment of Eurotunnel's fire safety strategy. Similarly the statistics were a significant part of the research carried out by FRS for Home Office (now ODPM) on buildings using sandwich panels. Presently, the statistics are playing a critical role in developing ODPM's strategy on the high-profile issue of residential and domestic sprinklers.

Audit Commission The Audit Commission has an interest in these statistics in as much as they make significant contributions to the information used in constructing the Best Value Performance Indicators for the Fire Service. They also have an interest in monitoring the progress of brigades in meeting a CFS target and an Arson target. The Audit Commission also expressed an interest in health inequality and whether certain classes of people were more likely to suffer death or serious injury in a fire.

In summary, the Audit Commission would like well-respected performance indicators based on good quality data that reflected the performance of brigades. This should, for operational matters, reflect ALL incidents but, importantly, they are interested in the effect of CFS and would like some agreed measures that could be obtained from all brigades.

Department for Transport (DfT) DfT's main interest in fire statistics is from a viewpoint of vehicle safety. In particular, it is interested in accidental fires that take place in cars where they may be able to do something through vehicle design to reduce the possibility of future incidents. In these cases the vehicle registration mark (VRM) would be useful, as it would enable DfT to trace the vehicle details through DVLC. In deliberate vehicle fires, fire fighters see little point in trying to record the VRM, as the chances are the vehicle has either false plates or no plates, because it has been involved in some criminal act. However there is a case for trying to get VRM details if the fire is thought to be accidental.

DfT also has responsibility for collecting statistics on road accidents. At the moment it does not record the attendance of other emergency services at a road traffic accident. There would appear to be some advantage in the two sets of data having some common linkage. This would not only provide a mutual improvement in data quality, but also demonstrate a useful collaboration.

Other Users There are a wide variety of other users of fire statistics. Some of these are represented on the Fire Statistics Users Group. Earlier this year the group undertook a survey of user needs from FDR1 and FDR3. However, as this review appeared on the horizon, the response to the survey was very limited. There were some comments from a few outside bodies including the treatment of heritage buildings. Other users were also represented at the second workshop of this review.

In general, requests from outside bodies are met as and when information is available. The major stakeholders determine the majority of the detailed data collected.



4 Vision for the Future

4.1 Scope

As noted in the previous section, the changing position in the fire and rescue service in the UK over the past few years requires a fundamental change to the collection of data. Any future system should bring together all of the information that stakeholders require for local and central policy initiatives, principally IRMP, BVPI and CFS. The system should allow quick, easy and accurate entry of all relevant data with immediate validation and feedback. However, there are a couple of steps that need to be taken before building the new system, in particular agreement on the core data to be collected and the associated definitions of that data. In arriving at the definitions it is important that the opportunity is taken to ensure that, as far as possible, any definitions are harmonised with other data definitions in associated areas.

Core Data to be Gathered

It became apparent during the review that almost all of the areas covered by the FDR1 form were wanted for some fires but that the complexity of the current form led to problems in trying to fit some fires into the structure. It is proposed that a Data Development Working Group should be set up to agree the data requirements and definitions for each of the sections of the current form. Whilst this working group would retain overall control, it might be appropriate to use particular experts or task forces to tackle some data areas.

This working group should bring together people from ODPM and brigades with particular expertise in the appropriate technical area along with someone from the data management area. The latter could be from FSR (Garston or London) and/or the central data unit of a brigade. Where possible, reviews of different data areas should run in parallel and report back to the full Working Group within an agreed, fairly short, timescale. The data areas to be discussed include:

- Mobilising and geo-coded data (section 2)
- Fire alarms (section 2)
- Type of property, etc. including motor vehicles (section 3)
- Firefighting methods, etc. (section 4)
- Supposed cause, etc. (sections 5.1 to 5.6)
- Damage, etc. (sections 5.7 to 5.9)
- Casualties, including review of University of Sheffield proposals (section 6)

There should also be two more work areas to consider the extent of data recording for the previous 'secondary fires' and 'special services'. In the past both of these areas were covered by aggregated returns, which did little more than count the number of incidents by type. In future, each incident should have the basic mobilising information common to all incidents but the working group should consider whether there is a business case for extending the data collected for each of the incident types in both of these previous categories. The 'special services' work area should also consider whether the sub-classifications of incidents in this area are still appropriate or whether there should be some regrouping. An illustration of a possible grouping of special services appears in Annex 7.

In reaching conclusions on these work areas, it is important to pay particular attention to what is feasible without significantly increasing the burden on data recording. The latter should not be a



major problem as generally the driver for more data will be the business needs of brigades. It is for ODPM to then consider how much of this extra data is required at the centre.

Harmonisation of Definitions

One task for the working group should be to consider harmonisation of data definitions. It will be the responsibility of the group to check whether similar data is defined in other areas and where possible to standardise definitions. In general, it is likely that the definition should be that used by the most significant stakeholder in a topic area as long as this is understandable within the fire and rescue service, in particular it should not use any local jargon or technicalities. During the review a number of areas where different definitions were used were highlighted; these were:

- within FHSD
- within ODPM
- with Government
- within Europe
- for non-fire between emergency services (that may be relevant to fire as well)

As an example of the principle of harmonisation, there exist several separate sets of definitions for property types. In addition to reviewing whether the current large number of types is needed, it will be useful to consider other sets used within ODPM, and outside. The list used by the Valuation Office Agency (as a significant stakeholder in property definitions) would be a candidate for a standard.

4.2 Technical Approach

The first and overriding point to come from the review is that the new system would accommodate ALL incidents that Fire and Rescue appliances are mobilised to deal with. This includes not only all the fires (and false alarms) previously returned on forms FDR1 and FDR3 but also all the special services on the former HMFSI annual return.

In order to accommodate this increase in the types of incidents (and for other reasons) it will be essential to move away from a paper based return. FDR1 already suffers severely from trying to fit all primary fires onto one form. To extend this to all incidents would be impractical. It therefore appears to be logical to adopt a hierarchical, or cascaded, approach to the system design. All incidents start from a request to a brigade command and control system (C&CS) to deal with an incident. Based on the criteria that the brigade has established in its IRMP, then a number of appliances are dispatched to the scene of the incident. During the incident the number and type of appliances in attendance might vary but all will be controlled by the C&CS. It therefore follows that the initial data capture screen for each incident will be similar and will contain the basic call out information, which will be updated as the incident progresses towards completion. Subsequent screens will depend on the type of incident and subsequent actions. This allows the possibility of collecting different data for fires in different types of property, which overcomes some of the complexity of the current FDR1 paper return. This hierarchical approach is known as intelligent routing through the screens – since the future system will be electronically based, this report will refer to screens and not forms for the remainder of this chapter.

Incident Initiation

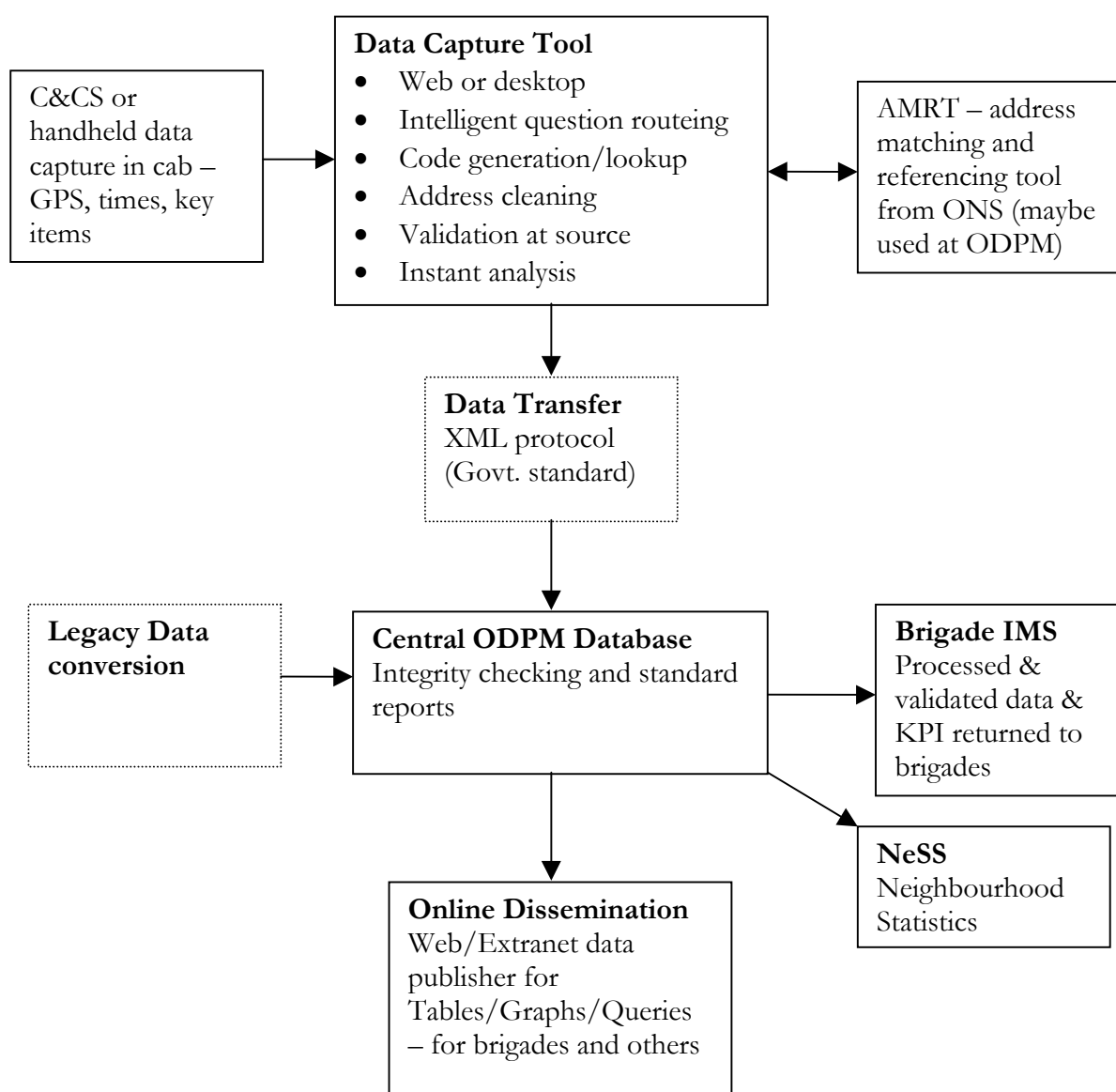
The core data for each incident should come from the C&CS and should be transmitted to the appropriate fire station incident workstation (usually a networked personal computer). Since



there is a need to monitor the use of resources, particularly appliances, then there should be data collected for each appliance dispatched to the incident. This would allow recording of its times of dispatch, arrival, attendance and return to be monitored along with the use of any special equipment on that appliance. There would be some value in taking advantage of the developing technologies in appliance cabs to record some further basic incident that could also be transmitted back to the workstation, most likely via the C&CS. These in-cab devices, where available, are likely to provide good geo-coded data from GPS and possibly other basic data through electronic data input. It should be possible to keep the system flexible so that, as these in-cab devices develop, further screens can be added without disrupting the overall system.

The overall flow of data is shown in Figure 1 below, and is described in the following sections.

Figure 1 – Fire Service Statistics - an Electronic Vision



Data Input



On return to the station, the incident would already be established on the station PC through downloads from the C&CS. Using any notes taken at the fire-ground, the leading fire fighter would then proceed to input the remaining data as soon as possible after the incident. Clearly, for retained fire fighters, that might not be the same day, as they may have to return to their job. In such circumstances it would then become a priority activity on the next available period, such as the next training night. It has been suggested that some fire fighters might want to complete the input activity from home on their own PCs. This would not be a requirement for the system and would have to remain a local decision whether a brigade would allow access from home.

The use of intelligent routing through the screens along with immediate on-line validation would enable accurate and timely input to be completed with a limited amount of training. There would also be provision for context sensitive Help messages to appear on the screens if anything appeared to be going wrong, probably detected by the validation, or if the fire fighter wanted assistance with a particular data item. In only a few areas will there be a requirement to type input text; the set up data will be transferred from the C&CS and most of the other input will be by selection from pre-determined lists. There will, however, be opportunities in a few areas for the fire fighter to enter free text. Since all core data will be selected from lists, there will be no external need for coding, as this will be an automatic function of the system.

None of this technology is new; it has been used in many data collection systems and elements of it are already included in some of the electronic systems being used by some brigades. What is new is that there should be a nationally agreed set of core data, with associated intelligent routing, automatic coding and on-line validation.

While the initial address, and possibly grid reference, will come from the C&CS, these are only as accurate as the information made available to the Control Centre by the person or device raising the alarm. There should, therefore, be built in support to get the correct address and accurate grid reference from addressing software. There will also be an opportunity for some quality control at the station, at a minimum to ensure that every incident is completed in a reasonable timescale. In some circumstances, further information may come to light that would require the record to be amended.

Transfer to Brigade Headquarters

The incident information will then be transferred electronically to Brigade HQ, possibly with the headlines also going to ODPM so that it has advance notice of the number and type of incidents within a very short time of occurrence. At HQ, there will be opportunities for further validation and quality control – possibly using information from the recorded radio messages from the C&CS. It may also be necessary to ensure that an incident has not been reported more than once.

At this stage, there will be opportunities for brigades to link in other information that will be valuable to them in monitoring the effectiveness of their policies. However, this extra data does not form part of the national core data set for onward transmission to ODPM, unless a decision is made in the future to include some of it. Additional sources of information might include:

- Fire investigation reports
- Casualty classification from hospital/GP
- Socio-economic data from Census or Local Authority source, matched by geo-code
- Special buildings/heritage matched by geo-code from building regulations or other LA source

Transfer to ODPM



The incident information will then be transferred electronically to ODPM, using the government agreed transfer standard of XML (eXtensible Markup Language) which carries data description information as well as the data. For the sake of consistency, the electronic transfer from station to brigade HQ should also use XML format. There will be no need for brigades to batch incidents into months as they do for the current system. The most likely scenario is that incidents will be transferred to ODPM on a daily basis. At ODPM there will be further opportunities for validation and quality control, although errors at this stage should be minimal. Brigades will have an opportunity to re-submit the information about an incident either because an error was found in the original or because new information has become available. This would probably be done as a replacement rather than as a change update. New information will commonly occur as a result of a fire investigation but could also include better casualty information as a result of contact with the medical profession. While the system will check for re-submissions, it may still be necessary to ensure that an incident has not been reported more than once.

At this stage there will be opportunities for FSR to link in other information that will be valuable to them in monitoring the effectiveness of their policies. Some of these linkages could take place a considerable time after the incident. This extra data does not form part of the national core data set but it may be possible for ODPM to transfer this back to the brigade if they would find it useful. Additional sources of information might include:

- Vehicle data from DfT via the VRM
- Road accident data from DfT; data is available but at the moment there is no common linkage. This is something that ODPM and DfT might consider.
- Hospital data from DoH/NHS. Again data linkages to hospital data would need to be improved. This is part of on-going discussions between DoH and other interested departments.
- Fatality data from Coroners.

Dissemination of Data

One of the new requirements on ODPM is to make data on incidents available at a very local level to the Office for National Statistics. ONS is responsible for putting together local information from many departments and local authorities in the Neighbourhood Statistics Service database (NeSS). NeSS uses address referencing and consistent area codes to bring together data from different sources to present a complete local picture. ODPM will have to transfer to ONS an agreed subset of the incident data with accurate geo-codes on a regular basis.

The final year database should be made available on the Web in some form or other to provide:

- General information for public consumption – possibly just publications or tabular form
- More detailed information for the Brigades to compare and contrast performance through an Extranet or private ‘club’.

There are several software tools that provide suitable, modern techniques for such dissemination.

Through the use of electronic data capture and transfer as described above, information on fires and other incidents should be available for dissemination in a much shorter time frame (and to a higher quality) than with the current system. In theory, headline information on fires could be available within days of the end of a reporting period, with more detailed information and tables to follow several weeks later, perhaps on a monthly or quarterly reporting cycle. The latter will depend on the speed of the slowest data provider and the degree of analysis undertaken in producing the reports and tables.



5 Key Findings and Recommendations

5.1 Key Findings

The review of fire statistics as defined by returns FDR1 and FDR3 has been transformed into a more extensive review of the data requirements of the Fire and Rescue Service and ODPM. This was brought about because of the changed information requirements of brigades and ODPM following the “Independent Review of the Fire Service” and the implementation of IRMPs. With the concentration now on all the activities of brigades, there is a need to extend the data collection to include:

- Former FDR1 primary fires;
- Former FDR3 secondary fires, chimney fires and false alarms;
- Other incidents as notified on the HMFSI annual return of Special Services.

An important aspect of the review, as reported by some policy stakeholders in ODPM and brigades, was a requirement to bring together all the data required by brigades to produce their BVPIs. This is largely met by considering all incidents, rather than only fires. The non-incident data is now collected by FRS but could be brought together with relevant incident information to facilitate the calculation of BVPIs. However, in future reviews of BVPIs, the data requirements need to be fed back into the data collection system. An advantage of the proposed electronic screen approach is that it is relatively simple to add extra screens to collect different data.

For all incidents there is a need to review how much information is required and how this information is defined. For each incident there will be some common information such as date, call out times and location of incident. This information should ideally come from command and control systems (C&CS).

To avoid the complexity of the current FDR1, which tried to fit all types of primary fire into one form, the new system should have different forms (screens) for parts of incidents and only those parts relevant to a particular incident need to be completed. This can only be accomplished by using electronic input based on intelligent routing through a hierarchy of screens.

As was illustrated in the previous chapter, incidents should be input as soon as possible after the event with transmission to brigade headquarters where further checking could take place before forwarding to ODPM. Central skills will still be required at ODPM, and to some extent at brigade HQ, for monitoring, validation, support, guidance, training, help scripts and documentation. The electronic transfer between station and brigade, then between brigade and ODPM, should be done in a standard formatted way using the e-government data transfer standard of XML.

ODPM would still need to validate the data sent to them, particularly in the early days, to trap mistakes and provide feedback to brigades. The central validation routines should repeat those checks that might have been made at the brigades, but should add others that can be done with more than one incident, like consistency or logic checks that can trace systematic errors. This should be done by FRS who would also maintain systems and provide expert help to brigades.

ODPM might add any nationally available data but, most importantly, they would now be able to process 100% of the data. They will also be able to publish data much closer to the end of the reporting period. This dissemination could make use of the Web, so that tables, graphs or maps



were available to the general public and more disaggregated data available to brigades, using an Extranet, to enable them to carry out peer comparisons.

5.2 Implementation Issues

While considering details of the new system, there are important steps that should be taken.

The first step is for ODPM and brigades to agree the national core data set and appropriate definitions as soon as possible so that system development can take place. This would be best done through a data development working group, supported by specialists and project task forces, as described in the previous chapter. In agreeing this core data, Fire Statistics and Research branch needs to check the data requirements and potential harmonisation with other central initiatives, in particular the review of BVPIs for 2005/6 and whether any of this data collection impacts on the specification for regional control centres.

Having agreed the data requirements, ODPM and the brigades need to consider the hierarchical approach to the screens and the implied intelligent routing through these screens. This Review recommends that a prototype approach be taken to the system design. This will allow ODPM and brigades to understand and influence the design of the system and also get them committed to the new system as soon as possible. This approach is quite common and is more efficient than the conventional system specification and development approach, as it does not imply that all decisions are made at the beginning and allows some degree of flexibility and iteration. During this process it will become apparent where the inclusion of context sensitive Help information would be useful. Further Help documentation can also be added later on during the use of the system if it improves certainty in completing the return. The system design will include intelligent routing, on line validation and such context sensitive Help, along with all coding being done inside the system. This all means that the training requirement will be relatively small, providing users have some basic PC capability.

Having designed a system, there are a number of ways that it could be implemented. Some brigades are currently using a commercial product, generally related to their C&CS, for the recording of fire data. These commercial products will already be using many of the concepts of the proposed new system and so should be relatively easy to adapt. In order to maintain data quality across the UK it will be important to ensure that commercial products do follow the basic system design, definitions and validation rules as agreed by ODPM and brigades. Similarly, other brigades are currently using in-house systems; they too will have to ensure that any re-development of their systems follows the agreed guidelines.

There may not be one national incident recording system, as brigades will want the freedom to adapt their systems to include local data. However, there might be some advantage in some brigades forming consortia, either to develop their in-house system or to negotiate with a commercial provider.

During the review another option was mentioned for future development. Brigades could out-source data collation to a call centre. Fire fighters would telephone on return to the station and trained call centre staff would then lead them through the incident using much the same intelligent routing as suggested above. This would be similar to the current practice in some EDI brigades where, for some fires, the fire fighter calls a data unit at HQ, which then leads them through the incident over the telephone, recording the data on a central system. This is a possible option that could be explored in the next stage of the ISB project.



Brigades will develop solutions at different speeds depending on where they are starting from and the resources available to them in the next few years. The ISB project will be able to use the Consultation returns from brigades to determine a base position, as they were asked the current technology position in each brigade. It is important that all brigades start using the new system to record at the same time, to avoid problems of comparability. It is possible that a start date for the new system would be during 2005. Many brigades will be ready, so will have no problems. However, some brigades will not be ready for a variety of reasons, including no immediate budget for development, the in house system is not ready or there is a need for IT equipment and associated training at station level.

Given the possible difference in development speeds highlighted above, it is important that an interim solution is available if the start is not to be delayed until the slowest brigade has implemented its solution. ODPM should develop a Web based data capture system to be usable from Start Day so that those brigades that are not ready can input their data to ODPM until their own system is prepared. For some brigades, this Web approach can remain as their permanent system. Given the use made by brigades of incident data, it will be important for this Web solution to be able to transmit data back to brigades so that they can load it into their MIS. While this data return could be immediate, it may be more convenient for both parties if it was done as a monthly batch process. Brigades will have to make their own arrangements for local input of data that is outside the national core data.

Comparability with legacy data is an issue. Some of the data series will continue, but it is likely that definitions will change. Certain items may be dropped or added, and some might be changed in detail (e.g. type of property) although higher levels of the hierarchy (e.g. domestic property) may be retained. While backward compatibility should not drive the design of the new system, it is important to retain consistency of the time series where possible. This should be among the design principles for the new process.

Communication between parties is also a key element of a successful data gathering and dissemination service. The process of this review project has seen a substantial level of contact among stakeholders, which has been welcomed. This will naturally continue through the design stages, but it is vital that it should be maintained as a component of the ongoing practice. There are many elements of communication, consultation and feedback that will make for a more successful system, and a communications strategy should form part of the planning.

5.3 Recommendations for Implementation

It is recommended that ODPM should:

1. Determine a core set of data that represents central needs
2. Agree with brigades a minimal set of data to interchange with other brigades for 'cross the border' incidents. This is likely to be a subset of the national core data.
3. Agree with brigades and others the definitions of core data and the associated coding systems.
4. Determine standard validation routines for all fields in the national core data set.
5. Determine a standard format and layout for transferred data so that providers and users can design their own systems knowing what inputs and outputs are required. This electronic data format and layout should be based on XML.
6. Establish a permanent group:
 - Possibly based on the Steering Group
 - To oversee and manage data development and collection
 - To agree periodic changes to core data and/or definitions
 - To participate in the ISB project



- To appoint task forces for specific issues
- To ensure effective ongoing communication

5.4 ISB Project Revision

The ISB project objectives are still consistent with the findings of this review, although the current project plan outline is not consistent with the extent of change required to meet the demands for information now placed on brigades and ODPM. The stated ISB Project objectives were:

- To improve timeliness, quality & coverage
- To reduce costs
- To provide validated national data to brigades

To achieve these objectives the current plan is:

- To review data needs (this project)
- To scope IT solutions
- To implement the preferred national solution

The current plan also envisaged the need for the following additional staff - Project Manager (with PRINCE2 support), IT skill and Training skill.

However, this Review has identified that the need and scope of data has changed significantly since the ISB project was first formulated and that adjustment of the project is justified as a result of this Review of Needs. The adjustment should not imply any need for an increased budget even though the scope of data has increased. The project should be re-scheduled to run alongside the proposed detailed data review process. Given the changing nature of the project it is suggested that the extra staffing needs should also be amended to now be a requirement for a Project Manager, System Designer and Web skills.

It is recommended that the work plan should now become:

- Define system contents and XML schema
- Use a prototype approach to demonstrate concepts and gain buy in.
- Develop a Web tool to represent the standard processes and for use by brigades that want it
- Allow a flexible rollout with brigades deciding on their own software approach providing it follows the national guidelines.
- Define work flows and central resource

Most importantly, there should be a Steering Group to keep all parties involved and to ensure that it all moves ahead as an integrated project.

Next Steps

This report is not the end of the project but just the beginning of a more significant advance in the interchange of data between ODPM and the Fire and Rescue services. It is recommended that this report and the development programme should be supplemented with an ongoing programme of consultation perhaps also including a series of roadshows. These roadshows would take place in the regions allowing a greater number of Fire and Rescue staff to participate, hopefully with representatives of both the data providers and data users within brigades. The



most appropriate timing of roadshows and other communications should be considered within the new programme for the ISB project.

It will be important to establish an ongoing Steering Group so that the tasks of the data working group and the system prototyping and development proceed with agreement and to time. Other important steps for this Steering Group to oversee are:

- To assess detailed data needs
- To agree new data content and definitions
- To refine and monitor the ISB project plan
- To draft new data and system specifications
- To ensure effective two way communication



Annexes

Annex 1: Meetings with Central Users

Annex 2: Meetings with Brigades

Annex 3: Workshops – Stimulus Paper

Annex 4: Consultation Document

Annex 5: Classifying Fire Casualties

Annex 6: Fire Statistics in the National Statistics Context

Annex 7: Suggestions for a Hierarchy of Special Services Data

Annex 8: Guidance for Completing Special Service Returns

Annex 9: Project Steering Group



Annex 1: Meetings with Central Users

Data Unit Garston – 6 October 2003

Heidi Jones – overview of Garston and how data collection fitted into work of branch

Ray Tomey – background to data collection, in particular problems in completing forms correctly. Overview of the data reception and coding processes. In particular the difficulties in coding some parts of FDR1. Overview of the accreditation process.

Various members of data reception team took me through process of receiving forms from brigades and administrative work necessary to ensure all fires are reported and sent to Garston. Need for paper store both for assembling “months” for those brigades that do not send them complete – necessary before sampling can take place; and for storing returns until file is closed.

Various data inputs

- EDI,
- paper where fire involves injury or serious damage when all fields entered
- paper where less serious fire when all fields entered for a sample of fires
- paper where less serious fire when only key (BVPI) fields entered for remaining fires

Jon Gamble – overview of how various databases are reassembled to provide a data source for analysis. Also overview of typical analyses including supplying data for branch publications and analyses for other customers

Fire Research Establishment – 6 October 2003

While at Garston I took the opportunity to have a preliminary meeting with Martin Shipp about the needs and uses for fire data in research.

Senior Stakeholders – 8 October 2003

Clive Norris, Marie Winckler, Diana Kahn, David Peace & David Lawrence.

Discussion with senior stakeholders in ODPM to agree the scope of the review

Agreed elements of the scope were:

- Geographic: England primarily, with UK consultation, since the data needs of devolved administrations are also met by the same data collection unit.
- ISB: The review is the first stage of the ISB project, but it was to be designed with other stages in mind.
- Current Operations: the review was to look at current operations, from the fire through data capture to data use.
- Data Needs: the review was to look at the current and future data needs of stakeholders both within ODPM and outside and, taking account of priorities, test how well they are met by the current system.
- National Statistics: an assessment was to be made of the position of this data in a National Statistics context.
- Report: the report should comment not only on the findings of a review of forms FDR1 & FDR3 but would also include proposals for improvements, the inclusion of non-fire incidents and the next steps of the ISB project.

Since then, discussion with other stakeholders has led to an extension of the scope to include data on ALL incidents.



Paul Quinn & Mary Bartlett – 15 October 2003 [HERE](#)

Main interests were in the areas of best value and the production of BVPIs where he worked with Audit Commission. Keen to see data collection rationalised and streamlined with non-fire data included along with other data necessary for BVPIs. Mentioned that some pilot exercises were being developed for late 2003 probably in the North West. White Paper published in June 2003 passed monitoring responsibilities of HMFSI to Audit Commission. The National framework was now out which contained expectations of how Brigades were to be run. Suggested I talk to Mollie Bickerstaff at Audit Commission.

In a later conversation with Mary, who had been seconded from Devon Fire and Rescue Service, she again raised the subject of BVPIs and whether HMFSI returns were to be included in the review.

Martin Jones (HMFSI) – 15 October 2003

Martin stressed importance of considering all the data sources and ensuring where possible that they were compatible and capable of linkage. Was keen to see a hierarchy of data with all of current sources capable of being brought together e.g. FDR1, fire investigation and fires of special interests etc. He raised the question of what was needed to get the right information to provide an effective Fire and Rescue service. Among other areas covered were;

- Car fires are required but only if better data is available.
- Arson Control Forum is working on definitions and a first report should be available by late 2003/early 2004.
- Dangerous substances were important but there was a need for harmonisation of definitions.
- Information on degree and spread of fire was important to HMFSI and Building Regulations but needed to be collected in a more robust way. It was probably better to have slightly less but more consistent data.

Georgina Ford (FSR) – 15 October 2003

Discussion about the needs of data to meet publication and other briefing needs

Mollie Bickerstaff (AC) – 11 November 2003

No suitable date for a meeting but discussed over telephone Audit Commission requirements. Their main interest in these statistics is the significant contribution they make to the information used in constructing the Best Value Performance Indicators for the Fire Service. They also have an interest in monitoring the progress of brigades in meeting a CFS target and an Arson target. Mollie also expressed an interest in health inequality and whether certain classes of people were more likely to suffer death or serious injury in a fire.

In summary, the Audit Commission would like well-respected performance indicators based on good quality data that reflected the performance of brigades. This should, for operational matters, reflect ALL incidents but, importantly, they are interested in the effect of CFS and would like some agreed measures that could be obtained from all brigades.

David Peace (mobile data)

No suitable date for a meeting but information on the Mobile Data project obtained from Internet.



Annex 2: Meetings with Brigades

Wiltshire Fire Brigade – 16 October 2003

DCFO Appleby arranged the meeting but on the day he was unavailable and Andy Wright hosted the visit. This meeting was held at the joint emergency services Control Centre in Devizes. Nick Smith (Information Systems Officer) and three serving fire officers, Bob Wallbridge, John Aldridge and Andy Wright attended. They explained their current system and the way that fire appliances are mobilised to an incident. They then explained the actions taken to record the fire incident for use both in the brigade and for sending on to ODPM. At the time they were close to implementing a computer based FDR1 system from one of the commercial companies.

Whilst their new computer system would speed up the collection of data and make it more readily available for their own use they did not see it resolving the problems associated with the FDR1 form. They raised the issue of the legal nature of the FDR1 and the perception by fire fighters that this was a legal document to be used in cases of litigation. This caused them to take a cautious approach to completing some parts of the form.

They would also welcome some simplification of the data on fire damage and fire spread in the hope that more consistent data would be more useful.

Among the information gaps they would like to see addressed were:

- more information on age and type of building,
- better identification of electrical appliances in domestic fires and sharing of information between brigades to more readily identify suspect appliances
- ethnicity of people involved in fires

Kent Fire & Rescue Service – 21 October 2003

Graham Price provided an overview of the data collection system in Kent. They use a data system that was developed in house to support their Management Information System. They have not sought accreditation as development of the final phase, mainly coding of type of property, etc. was suspended in 2002 when they were informed that a new national system was to be developed. However, the system they have collects more information than that required just for FDR1 and is used in earnest each month as reports and performance monitoring is cascaded down from the top with each relevant officer being accountable for his unit's performance.

While Kent, like other brigades, have arrangements with neighbouring brigades to cover 'over the border' fires they always send an officer to attend each fire that occurs within Kent's area of responsibility. This officer is responsible for collecting the relevant incident information.

Graham demonstrated the Kent system, which was very impressive and certainly provided timely data for monthly reports. They record radio messages between appliances and Control and use these to help validate the data.

Among other issues raised were:

- Complexity of some of the coding
- Sheffield University work on casualty coding (see Annex 5)
- Use of names to help trace fire setters



- Effectiveness of CFS
- Accuracy of location coding
- BVPI and how relevant information is obtained

Others who contributed to the discussions were Kelly Blacklaws, a senior analyst responsible for much of the monthly reporting, and Sue McDermott who is line manager for the FRD1 function. Although Kent has an almost fully functioning IT system they still require FDR1 forms to be completed at the Station.

Hampshire Fire & Rescue Service – 24 October 2003

The meeting was hosted by Alan House and Matthew Stokes who provided an overview of the position in Hampshire. Then followed a discussion with three Sub Officers with practical experience of collecting and collating the information required for FDR1. Their input was useful as they represented different types of fire fighter:

- John Hurlle, retained
- Paul Moss, fulltime day – evening retained
- Ian Hussey, full time shift worker

In particular they expressed concerns about the apparent legal nature of the FDR1 form and the inclination of some fire fighters to err on the cautious side in completing the form rather than be found wanting if cross-examined.

Matthew Stokes then took us to the Statistics section where we saw the Hampshire system used to record data for their internal management reporting. Again this was an impressive system that went a long way towards meeting Hampshire's needs both to monitor performance and provide input to IRMPs. Incident initiation was obtained from C&C and radio messages were used as validation of some of the data. Matthew is in the position of being both the GIS & Statistics Manager and a retained fire fighter. He is thus a valuable contact with experience of the problems of collecting and using data as well as being a data provider.

The visit finished with a roundup meeting with Alan and Matthew where various aspects of both Hampshire's experience and the Review project were discussed.

Greater Manchester Fire Service – 28 October 2003

Alan Stoker and Dave Lewis provided an overview of the position in Greater Manchester and the plan for the day. There then followed a general discussion with a number of Staff where I highlighted the scope of the Review and what I wanted to get from the day. There then followed a series of meetings to discuss various aspects of data collection and use in Manchester.

Greater Manchester is one of the few accredited brigades so it was not surprising that at the meeting with Keith Atkinson and Tricia Farrow from the statistics section they endorsed the need for fully trained coders as the only way of getting reliable data. Greater Manchester already populates parts of Page 1 of FDR1 from the C&C mobilising system. There is then a variety of ways in which data is collated:

- some stations complete electronic FDR1
- others complete paper forms and send them to statistics for coding
- others are contacted by Statistics section that then complete the data entry by interrogating the fire fighter over the telephone.



Greater Manchester has a checking procedure for each fire however it was entered into the system. All incidents for a day are allocated to a coder in Statistics section to check. This is generally done by comparison with the radio message database although little is done about checking their own input.

I was then shown the Control centre where Paula Craig demonstrated the mobilising of appliances. For non-FDR1 incidents (i.e. FDR3 and Special service incidents) all the information is entered by control room staff directly into the brigade database. For FDR1 incidents the mobilising information is sent to the station for entry either electronically or on paper. They would prefer to treat every incident in the same way.

I then had a further meeting with Dave Lewis and Alan Stoker to discuss the use of data and any issues that arose. Greater Manchester goes to significant lengths to follow up all casualties so that it can get better information on the 'damage' caused. This entails hospital follow up on a daily basis by statistics staff. This took nine months of negotiations to arrange with all the relevant hospitals. It takes up a significant amount of resource but Greater Manchester attaches some importance to understanding what has happened to the casualties.

The data is used for planning and monthly performance management and great importance is attached to having robust data. Fire investigations are currently kept separately but they would like to see them integrated into a single information system.

One area of particular concern is Fire Cause (Section 5.1 of FDR1). Greater Manchester only uses values of Accidental or Deliberate. If the incident officer records Don't Know then it is referred to the Station Officer, then to the Divisional Fire Investigator then to the Brigade Fire Investigator until an answer is given.

Tyne & Wear Fire Brigade - 4 November 2003

While in Newcastle on other business, it was convenient to call in on T&WFB. Graham Shiel had mentioned that they were testing some on-board equipment in three fire engines that had some relevance to our investigations. He arranged for me to be collected and taken to Gosforth fire station.

The equipment was a ruggedised flat screen PC with colour mapping and touch screen control. It is used to find addresses on the map and to search for other information that might be relevant at a fireground. It included communication with the C&CS, although they still normally use radio. The men were pleased with its effectiveness for locating sites and giving context information. It costs about £6000 per unit, including an on-board printer.

The system did not have GPS, although the map is another valid way to get a grid reference. It was not being used to collect information about the incident, although one could see how it could be adapted. In general, it seems very effective, if a rather heavyweight solution.

They also showed me their on-screen FDR1 data entry system, provided by the same software firm that did the in-cab display. This already handles many of the things we are looking for, including pre-filling of much data from C&C, intelligent routing and drop down code lists. It is based on the current form, of course, but is effective for that style. It can be simplified further. The only flaw seemed to be an agonisingly slow server link – such systems should have data capture local on the client machine.



Merseyside Fire Brigade - 27 November 2003

Telephoned Tony McGuirk to discuss his ideas for collecting fire data. Merseyside currently uses a contracted call centre to handle many of their calls related to fire safety initiatives. He raised the possibility of extending this idea to his fire stations so that they could call in on return from a fire and have someone at the call centre extract the required information from them. If applied to a number of brigades he thought this could be very cost effective. This is not dissimilar to one of the approaches currently used by Greater Manchester, but it does require the 'call centre' to have fully fire data trained staff.

He also raised the issue of data harmonisation with European initiatives. At the moment he is serving on a European group that is trying to bring together common definitions, etc. in fires related to hotels. This might be extended to other fires.



Annex 3: Workshops – Stimulus Paper

This paper was prepared and distributed in advance of the Workshops

BACKGROUND

Workshops

It is usual in a review to consult with key stakeholders, both data providers and data users, through a variety of methods including interviews, survey questionnaires and consultation documents. The latter are often advertised on websites thus opening them to the widest form of consultation. However these methods can be quite time consuming particularly where there significant numbers of stakeholders, many with common or similar views. When timeliness is a factor, as it is with this review, some of this consultation can be significantly truncated by bringing together key representatives of stakeholders and gathering the information through a workshop.

In this review it is proposed to run 2 workshops. The first limited to ODPM policy colleagues will establish the central requirement. The second will bring together other data users along with representatives of data providers. To focus these workshops this “stimulus” document has been circulated in advance. The purpose of this document is to encourage discussion in particular areas by providing some background and by putting up “reasonable” proposals to stimulate debate.

Review Requirements

Since the last Statistical Review in 1998 there have been significant policy changes in particular the introduction of more preventative measures and the recent Independent Review of the Fire Service and the Fire and Rescue Service White Paper. All these changes have potential information and therefore data implications. Some of these implications relate to scope and some to timeliness of information. The significant information changes from these reviews are more likely to relate to increased non-fire related data. However there might be impacts on fire related data for better definition of casualties and geo-spatial information.

The basic requirement is to review National Fire Incident Statistics collection as defined by the two forms FDR1 and FDR3. The review should address the following issues:

- Establish what fire incident data items customers need in order to deliver effective policies, with particular reference to meeting the recommendations of the Independent Review of the Fire Service and the Fire and Rescue Service White Paper;
- Itemise the various customer requirements with a detailed discussion of why such data are needed, including an assessment of prioritisation amongst competing customer needs. Requirements should include better casualty and geo-coded data.
- Establish which fire incident data items currently collected are no longer used or infrequently used by customers, and the impact of ceasing to collect these items;
- Taking account of the need to retain the quality and comparability with the existing collection to maintain robust time series information, but at the same time deliver the information that the customer requires;
- Consider whether the FDR1 and FDR3 forms are the correct mechanism for collecting any new fire and rescue incident data items.



- Consider the implications for resources of any new fire and rescue incident statistics collection, paying particular attention to the move to fully electronic data transmission through the plans for the Invest To Save project.
- Ensure that any new fire and rescue incident data items collected are compatible with commitments to ongoing projects, such as Neighbourhood Statistics (which involves geo-coding the FDR1 database), Best Value Performance Indicators, SDA targets, Comprehensive Performance Assessments, Integrated Risk Management Plans and the National Framework;

THE ISSUES

Relevance of data:

Research and review the needs for information on fire incident statistics, particularly in light of the Bain Review and the White Paper

- What is needed for Policy purposes?
- What is needed by fire and other agencies for operational targeting?
- What is needed for research purposes?
- Any other uses?

Consider the existing information sources and review who the users are, and what their needs are in terms of the output. The review should also question whether the outputs meet user needs and are of adequate quality.

- Is all relevant information collected?
- Is there any duplication?
- Not all fire incident information is included in the main database. Why not? And is it important?

Accuracy:

Taking into account the work of other bodies make recommendations for a single definition of each data item used in statistical systems. For example, the Health service and ODPM definitions of a casualty are different.

- Recent research will help with casualty definitions. Is it practical for Firemen to make casualty assessments at the scene? If not how can the data be collected?
- Is there a better way of defining location, i.e. through geo-coding, so that more reliable analysis can be carried out for different user's area definitions?
- Can anything be done to ensure that a fireman recognises the value of the information on the forms and try to ensure it is as reliable as possible?

Accessibility:

The issue of User accessibility of fire data should be examined.

- Fire Incident Statistics are published in hard copy, available on the ODPM website, and on request, available electronically. For requests that are not covered in the annual publication the section carries out ad-hoc analysis. Do improvements in data accessibility need to be made?
- Is there a better way of defining location so that analysis can be carried out for different user's area definitions?
- At the moment fire and other incident data are collected separately. Should they be brought together to allow overall monitoring of resources?

**Burden:**

The issue of increases or decrease in number of data items per incident needs to consider the burden on fire brigades and on the HQ data systems.

- The outcome of the review should consider the implications for the data suppliers (Brigades), and ideally the burden on brigades should not be increased as a result of the review's recommendations.
- Items of data that are considered no longer relevant can be removed and this would speed up processing time and reduce effort on behalf of brigades (who complete the forms) and the Fire Statistics & Research Branch (who validate the data).

The issue of the ISB project is relevant in terms of burden of form completion

- Electronic transmission will ease burden of data input but does not affect the burden of collection by fire officers attending incidents. However the electronic transfer implies 100% input to HQ databases and therefore greater value from data collected.
- Electronic transfer is likely to lead to fewer differences between data held at fire brigades and at ODPM or local authorities as same levels of validation can apply.

Timeliness:

The issue of timeliness is likely to be a key requirement sought by customers

- Although the ISB project will deliver some improvements in timeliness it is important that any new collection is not so big that these timeliness improvements are eroded.

Additional Data:

The issue of additional data is likely to be a key requirement sought by Brigade customers and possibly by ODMP

- IRMP raises new demands for data particularly on the use of individual resources i.e. when each appliance left the station and returned (and the equipment it carried) rather than the current information, which relates more to the duration of the incident. Brigades will have to collect them to formulate their new resource management plans. With no central steer these data, whilst ostensibly similar, could be quite incomparable. Does ODPM require such data to monitor Brigade IRMPs?
- Besides more detailed information on the use of resources to tackle fires Brigades will also be concerned with the use of resources in tackling other activities such as road accidents and rescue. Often many of the resources are the same. Should these be collected in a standard and uniform way? Does ODPM require such data to monitor Brigade IRMPs?

Roger Donachie
20 October 2003



Annex 4: Consultation Document

Following the two Workshops (Annex 3), a larger scale consultation took place targeting the Fire and Rescue Service (FRS) and other significant users of the data. The consultation document (below) was in two parts, part 1 seeking comments on the FDR1 and FDR3 forms and issues identified in the initial phase of the review, including a 'vision' for a future data collection system. Part 2 was designed to assess the IT capabilities of the FRS.

Review of Fire Incident Statistics - Consultation Document

The Office of the Deputy Prime Minister (ODPM) has appointed consultants to review the two forms currently used to collect fire statistics (FDR1 & FDR3).

This review has a very tight timetable so you are asked to return any comments, preferably electronically, by **Wednesday 19 November 2003** to:

FSRBGarston@odpm.gsi.gov.uk

or David Champion
Head of Fire Statistics & Research
Office of the Deputy Prime Minister
C/18
Portland House
Stag Place
London SW1E 5LP

Background

This review of the FDR1 and FDR3 forms is part of a larger project, which has attracted funds from HM Treasury's Invest to Save Budget (ISB). This ISB project is aimed at using electronic means to speed up the flow of fire statistics data from brigades to ODPM. This review:

- Needs to check whether current data meets current and future needs;
- With the aim of greater use of Electronic Data Interchange (EDI), needs to review whether the current complexity of form & codes can be made simpler so that local data input becomes more robust;
- Aims to improve relevance and quality of fire data.

More recently the situation within the fire service has moved on. In particular the introduction of Integrated Risk Management Planning (IRMP) and a greater emphasis on fire reduction through Community Fire Safety:

- Leads to demands for new and better managed data;
- Requires more information on resources used;
- Possibly needs to cover non-fire incidents;
- Implies greater need for geo-coded data that requires better location referencing than present; either accurate grid references, full correct addresses or postcodes.



Review process:

In order to gather as much information as quickly as possible the review has been conducted through a number of mechanisms:

- **Discussions** with key stake holders to establish the current and future needs for data to enable the development of central policy and research;
- **Visits** to a small number of fire brigades to get practical background of data collection and local use of information;
- **Visit** to Fire Statistics and Research Branch in Garston to get practical background of data reception, input, validation and database management;
- **Workshops;**
 - Selected central users (mainly ODPM)
 - Data providers and other stakeholders (mainly brigades);
- **Consultation document** to all interested stakeholders.

The outcome of the project will be a report and a presentation to the Steering Group. The report will make recommendations about the scope of future data collection and identify areas where further development is necessary to ensure that data can be supplied in a simple, robust way by brigades. The report will also recommend a structure for the data that will make it easier to implement an electronic data collection and dissemination system.

Issues identified

The following are some thoughts about the current system that the consultants have arrived at after the early stages of consultation. They are provided to encourage comment. They mainly relate to the FDR1 as the FDR3 is only a monthly aggregate return but see General section below.

General

- Possible use of current REPORT as legal document has led some fire fighters to be cautious about the way FDR1 is completed.
- Possible confusion over some fires as to FDR1 or FDR3.
- Distinction between types of fire and need to record non-fire.

Section 2 Incident Information

- Addresses/location – need to identify accurate addresses and/or grid references and post codes as much of the future value of data relies on ability to cross match with other data sources.
- In particular it should be possible to identify information about the structure and fire safety of commercial and public buildings and to identify buildings of particular interest.

Section 3 Location of Fire

- Type of property – need to split form to deal with buildings (and possibly dwellings), ships and motor vehicles in different ways rather than fit different types into the same form.
- Property codes – need to make the long list of property codes easier to understand and use.
- Motor vehicles – possibly needs simplifying, first to check uses of such data then best ways of obtaining it. If vehicle registration mark is available (and



appropriate to vehicle!) ODPM might be able to interchange information with Department for Transport.

Section 4 Extinction of Fire

- Systems and methods of fire fighting need reviewing to ensure they are still relevant.
- Number of appliances not necessarily useful as it does not reflect resources used at an incident – better information could be obtained by linking to mobilising system.

Section 5 Supposed Cause, Damage & Other Fire Details

- Most likely cause – too judgmental and sometimes has led to fire fighters view being tested in court. Where possible need to supplement this section with information from fire investigators.
- Sect 5.2 Source of Ignition through to Sect 5.5 Dangerous Substances needs reviewing to ensure that current codes are still relevant and easy to determine. Possibly aligning with United Nations classification for Dangerous Substances.
- Sect 5.8 Damage caused to & Sect 5.9 Area damaged – a confusing section that may not be supplying the required information. Need to identify precise uses of this information then determine best way of obtaining it.

Section 6 Life Risk

- To test the effectiveness of fire safety strategies the number of non-casualties involved in fires (or other incidents) might be valuable but how easy is it to determine?
- Names of casualties may not be a central requirement but may still be a local requirement.
- Ethnicity determination is a requirement for Community Fire Safety purposes but can be difficult to determine; need to consider how.

Section 7 More Detailed Description of Fire/Further Information

- Text box for more information may still be required at local level but is it a national requirement?
- Link to further investigations may be related back to Most Likely Cause (sect 5.1)

Possible Vision – preliminary observations

Having carried out some of the consultations the consultants are beginning to see a possible vision for a future system. Some of the key points are illustrated below.

- **All incidents** – the most important step may be to first remove the distinction between Primary & Secondary fires i.e. whether a fire is reported in detail (FDR1) or is included on an aggregate return (FDR3). This not only avoids any possible confusion over the classification of a fire but also treats all fires in the same way as they are in practice when dealing with them. Also the occurrence of many small fires is often a good predictor of more serious arson. The next logical step is to extend the recording system to ALL incidents, which is a natural follow up to IRMP.
- **Hierarchical approach** to information requirements. If all incidents are to be recorded it would be a mistake to devise a single form, whether paper or electronic, to deal with this. The current FDR1 already illustrates the problems



that can arise when one form tries to accommodate a range of fires. It is proposed that all incidents start with a basic form containing items such as the time, date and location and probably populated by the mobilising system. Then, dependent on the type of incident and the answer to subsequent sections, different forms will be required to be completed. This can clearly be done in an electronic system but would be impossible to achieve satisfactorily in a paper-based system.

- **Simplification of codes.** There needs to be a significant amount of development to ensure that the codes in the new system are providing the required information but can be input in an unambiguous way. Move to an electronic system would make it easier to maintain and update these code lists.
- Completion as **close as possible** to both the time and location of fire so that the facts are still clear in the firefighter's mind.
- Possible support from new equipment in Cabs, including GPS, as well as gathering data in Command & Control messages.
- Provision of **on-line validation, help and intelligent routing** through the forms.
- The proposed system needs to be capable of use by the incident commander with a **minimum of training**.
- **Electronic transfer** of information first to brigade HQ, where further validation can take place, then onto ODPM. It is possible that at both brigade and ODPM levels further information can be added, particularly through matching different sources with accurate geo-coded data.
- Much **quicker publication** of results and feedback to brigades possibly making greater use of the internet.



Response Format (please expand spaces if necessary)

Name: _____

Organisation: _____

Contact Details: _____

Your comments are sought on the current system, including any data items that you would prefer to be removed and any that you would like added. You are also invited to comment on any difficulties in working with the current system and what changes you would like to see to meet future requirements.

Comments on the FDR1 collection

General

Section 2 Incident Information

Section 3 Location of Fire

Section 4 Extinction of Fire

Section 5 Supposed Cause, Damage & Other Fire Details

Section 6 Life Risk

Section 7 More Detailed Description of Fire/Further Information

Comments on the FDR3 collection

Any comments on the Possible Vision



For Brigades ONLY to answer:

Q1. (tick one box only)

How do you supply FDR1 data to ODPM currently?

- Paper only
- Paper but with parallel input to brigade MIS
- Paper produced from brigade MIS
- EDI

Q2. (tick one box only)

How do you supply FDR3 data to ODPM currently?

- Paper
- Email
- Fax
- Other – specify _____

Q3. (tick one box only)

Is brigade MIS created from?

- A commercial product related to C&C system
- A separate commercial product
- Produced in house

Q4. Do you have plans to change your method in next 12 months?

- Yes
- No

Q5. Do you have a system that could be shared with others?

- Yes
- No

Q6. Do you have PCs in all fire stations?

- Yes
- No, then complete box below

What is the status of PC and network equipping in your brigade?

Q7. Do the PCs in stations have internet capability?

- Yes
- No



Results of Consultation (Summary Written by ODPM)

Forty-eight of the 59 FRS brigades responded to the consultation document. In addition, there were 17 responses from other interested parties. The results of the consultation will form a significant element in the process of agreeing content and definitions for the revised data collection.

The main points made are summarised below:

General comments

Need to maintain time series (this has implications for maintaining a primary/secondary split)

Need to have individual incident numbers

Need simple reporting for non-fires

Need clear guidance on why information is needed

Definitions are important, especially with regard to what constitutes a derelict car.

Need to retain ability to generate a 'form' to pass on to other agencies.

FDR1

Section 2, incident information

Need for more fire safety information, perhaps by cross-referencing addresses with a fire safety database held at brigade level.

Detail on building structure, including type of construction

Whether property is listed (heritage) or in a special risk category - again from a linked data base (see fire safety above)

Number of crew attending

Details of any building collapse

Remove risk categories A-D

Add question on presence of alarm (irrespective of whether in area affected by fire)

Age of building

Keep address in case postcode not known

Record if smoke alarm issued by brigade (link to brigade CFS database)

Query usefulness of recording late calls and their definition

Section 3, location

Simplify property codes, e.g. use Building Regulations purpose group codes

Use statutory definition of HMOs

Vehicles, record crime number if known

Basic information on vehicles; registration, make, model and year

Detail of other vehicles, e.g. size of ship



In 3.5, remove derelict (not FDR1), but add 'under refurbishment'

Remove 3.12 - turbo charge

Property code, use Building Regulations fire safety groups

Record dwelling tenure

Rationalise 3.6 and 3.7

Is 3.1b same as 2.1 (address)?

Section 4, extinction

Information on personnel, skills and equipment used

Update fire-fighting methods

Reflect resources actually used

More on sprinklers

Appliances, number mobilised and number actually used

Section 5, cause, damage, detail

Generally, too complex, especially, 5.8

Make cause, accidental/non accidental ('unable to establish an accidental cause').

Size of fire when brigade arrived

Review dangerous substance codes

Information on influence of drugs/alcohol

Clarify source of ignition and material first ignited

Distinguish between adult and OAP, record disability

Include Fire Investigation information and any link to police crime number

Combine fire, heat and smoke in 5.8

Section 6, casualties

Need better injury definitions, consider using police/DfT definitions

Collect ethnicity

Do we need names for those rescued (non-casualties)?

Access NHS records for casualties

Link to coroners' reports for deaths

Review need for/way of recording items 6.4-6.6

Section 7, additional information

Mainly for local use

Could move the investigation section (including fires of special interest) to Section 5.



FDR3

Question 1, more Automatic Fire Alarm codes, for type of premises and reason for alarm (DCOL 4/02 refers)

Question 3, need location definitions and source of ignition.

Question 3, extent of grassland fires

Question 3, need for information on moorland and woodland/forest fires?

Clarify definition of secondary fire.

Comments on 'Vision'

All validation at brigade

No imposed IT solution

Need to take account of other major initiatives: Firelink and Regional Control Rooms

System should maintain ability to enter information to be used locally.



Annex 5: Classifying Fire Casualties

The following is a brief extract from the scoping study undertaken by Sheffield University¹. The full text is available on the ODPM website http://www.odpm.gov.uk/stellent/groups/odpm_fire/documents/page/odpm_fire_609278.pdf

The algorithm has been designed to aid and improve the collection and recording of data at the incident scene. This can then be interpreted and recorded for fire service records and statistical returns. Currently only one injury code is recorded for each casualty. Our revised model allows different injuries within specified groups to be recorded and from this we have proposed a simple method for assessing severity. This is based on the four broad categories identified in the algorithm, which we have given the term **ISTO** (**I**nhalation injury, **S**kin injury, other **T**rauma, **O**ther risk factors). Previous research has shown that, as a broad rule, combinations of different types of injuries are more severe, that is increase morbidity and mortality, than single injuries. We have applied this concept and suggest a simple numerical scoring system as follows:

Number of categories ISTO	Score
No recorded injuries or risk factors	0
No obvious injury but 1 or more risk factors (O)	1
Injury in 1 IST area	2
Injury in 2 IST and 1 O areas	3
Injury in 3 IST and 1 O areas	4
Fatality	5

A separate study would need to be conducted to validate this method and, perhaps further refine it to provide scores for different combinations of injuries. However, even on this 0-5 scale a distinction of severity could be made that would allow identification of the relative proportions of these different patient groups. It is, of course, possible that a single very serious injury in only one IST area is of greater severity than minor injuries in two areas. However this distinction could only be made if more detailed injury descriptions were obtained at the scene. The ISTO scheme is based on the risk of severity of injury and as a general rule risk of severe injury is higher for combinations of injuries. So, although this scheme does not measure severity in absolute terms it would begin to provide information which allows the relationship between, for example, incident type and injury severity to be examined and potential areas for prevention to be identified.

This scoring system would be included in the casualty information recorded on the FDR1 form. We suggest the following additional information to that currently recorded for casualties is included on the FDR1 form. This is based on the assumption that, eventually, all FDR1 data will be recorded electronically and therefore suitable data entry fields could be easily constructed and the additional information incorporated into an electronic record.

1. "A scoping study to inform the development of a data collection system to measure the severity of fire-related injuries" Medical Care Research Unit, School of Health and Related Research, University of Sheffield



Annex 6: Fire Statistics in the National Statistics Context

One of the aims of the review was to ensure as far as possible compliance with the principles of the National Statistics Code of Practice. The National Statistician has established the following eight principles for National Statistics. These principles will be supported by more detailed protocols, which are still being completed. Although this review was not conducted as an official National Statistics Review it did take account of the principles, and many of the recommendations for change are in line with these principles. Some examples of this compliance are listed under each heading.

1. Relevance

National Statistics will inform significant decisions in government, business and the wider community, and in so doing contribute to the quality of national life.

The change from Fire Statistics to All Incidents to support IRMP and CSF.

2. Integrity

National Statistics will gain public trust through being produced using objective and transparent methods.

See Quality, below.

3. Quality

National Statistics will be fit for purpose and of high quality.

The hierarchical structuring of the data collection using intelligent routing and online validation help with both the Integrity and Quality principles.

4. Accessibility

Access to National Statistics will be fair and open.

Proposals to make statistics available on the Web in a number of forms in a timelier manner.

5. Protecting Confidentiality

Where data are collected or used for statistical purposes, we guarantee to protect confidentiality.

Review of the need to transfer names of those involved in incidents and casualties will consider Confidentiality.

6. Balancing the needs of users against the burden on providers

Costs of compliance will be kept to an acceptable level and data collected only when the benefits of a statistical survey exceed the cost to providers.

Involvement of brigades in determining core and local data sets.

7. Enhancement through integration, accumulation and innovation

National Statistics will emphasise coherence and common standards to maximise the value of available statistical and administrative sources.

The revised information structure encourages data from other sources to be integrated with data collected by firefighters. Wherever possible the data should come from the most appropriate source rather than expecting a firefighter to make an opinion. The proposals support Neighbourhood Statistics.

8. Efficiency in costs, fairness in prices

National Statistics will strive to be efficient and to provide value for money in both its costs and its prices.

The ISB project is intended to make the overall system more efficient.



Annex 7: Suggestions for a Hierarchy of Special Services Data

At the moment, Special Services are reported to FRS on a paper return. This return is in the form of a long list that would go against some of the philosophy adopted in the proposed hierarchal structuring of screens with relatively short lists of options. The guideline is that in general no more ten options should be offered and that they must all be capable of being displayed at once. The alternative of having to scroll through lists leaves open the possibility that some choices are overlooked. Below is illustrated a possible hierarchical structure for Special Service incidents. This structure is based on the incidents recorded on the current list but the structure is purely illustrative and is not based on any consultation. There would, of course, be a further structure of screens below these, depending upon the degree of detail required for any incident type.

Special Service Incident	Road Traffic Accident	Person rescued
		Assistance given
		No assistance needed
	Accident	Aircraft
		Farming
		Industrial
		Railway
	Rescue	People
		Animal
		Lift
	People	Removal of object from
		Suicide
		First aid only
		Sports activity
	Provision of advice	Appliance or equipment
		Officer only
	Miscellaneous	Assistance to Police
		Recovery/retrieval of object
		Pumping water
		Leaks or spills
		Making safe
Effecting entry		
Standby in potentially dangerous situation		
Other		
No service rendered	Good intent	
	Hoax call	

During the Review it was noted that in terms of resource use some of these categories might need redefining. In particular, Pumping Water could be draining a small cellar following a pipe burst in a house or a major flood prevention measure. Also there are significant incident types missing which are, presumably, currently reported under one of the above headings. Such incidents include flooding, terrorism and major emergencies. These should be identified separately as the resource use could be significantly different and are likely to feature in IRMPs with a higher priority than some of the smaller incidents. Again this is for the Data Working Group to review.



Annex 8: Guidance for Completing Special Service Returns

OPS4

This section is self-explanatory and relates solely to statistics concerning Road Traffic Accidents. All that is required to be entered is the number of incidents attended under each category. An incident is only to be recorded once. This return applies only to incidents within the brigade area.

OPS5

1. This section refers to all Special Service calls, other than Road Traffic Accidents, that are attended within the brigade area. It would be helpful if brigades could break down their Special Service calls into one of the descriptions listed.

2. Please note that each incident should only be recorded once. Where more than one activity is carried out, the incident should be recorded under what was the most resource intensive part or what was the more appropriate, e.g. a railway accident with persons trapped is likely to be recorded under 'Railway Accident', even though the brigade may be involved in 'First Aid', 'Other Rescue', and possibly 'Making safe'.

3. In the case of appliances standing by at an airport/airfield whilst an aeroplane reporting a technical problem lands, if the aeroplane lands safely with no damage and the appliances return to base having done no more than stand by in case of accidents, then this should be recorded as 'Standby/precautionary action' and not under 'Aircraft incident (no fire)'

4. Do not record in this section any calls handled by Fire Control which are part of a call handling system for other organisations, such as receiving calls to mobilize GP doctors or answering medic alert calls from elderly or infirm people in their homes. (The criteria should be whether a fire officer or appliance is mobilized to the incident).

5. Further clarification on special service incidents:

(a) 'Spills and leaks' includes standing by or assisting at spillages or leakages of any substance, including radioactive or hazardous substances, gas leaks and in domestic situations.

(b) 'Water - removal and provision' includes pumping of drinking water (e.g. reservoirs, tanks); pumping from flooded premises or areas; other pumping or supply of water (e.g. cooling water at power stations; washing concrete mixers or other non-emergency supply of water), also clearing away of water and isolating water.

(c) 'Effecting entry' to any locked property, safes, cars etc. (includes assistance to persons locked in or out).

(d) 'Lift release' includes both cases where persons are trapped and where persons are shut in.

(e) 'Animal rescue' of live animals.

(f) 'Other rescue/release of people' includes the rescue of live people including from trees, rocks, water etc. but excludes industrial, railway, farming and sports accidents, effecting entry and lift release, and suicide [see (n)-(r)].

(g) 'Removal of objects from people' includes rings from fingers etc.

(h) 'First aid', if not included elsewhere.

(i) 'Making safe' includes the removal of dangerous brickwork, chimney pots, or TV aerials.



- (j) 'Recovery/retrieval of objects' includes the recovery/retrieval of bodies (other than live people, etc.)
- (k) 'Standby/precautionary action' is for attendance at a potentially hazardous situation and includes, for example, standing by when explosives are unloaded, or during an aircraft landing or an electrical power failure, but excludes standing by at spillages or leakages (which is included in (a) above) and at road traffic accidents (which is included in OPS7).
- (l) 'Aircraft incident (no fire)' includes where aircraft have crash landed but no fire has occurred (however, see 3 above).
- (m) 'Assistance to Police and Ambulance' excludes assistance at road accidents but includes any other form of assistance e.g. crime, assisting ambulance crews in collecting/removing patients in unusual or difficult situations. Also record here attendances made as part of a co-responder/first responder scheme.
- (n) 'Industrial accident' includes persons reported trapped or injured e.g. by machinery.
- (o) 'Sports activity' includes persons trapped or injured during caving, pot holing, rock climbing, gliding, air ballooning, ultra light aircraft, marine, motor racing, other sports etc.
- (p) 'Farming accident' includes persons reported trapped or injured e.g. by machinery or farm vehicles.
- (q) 'Suicide/attempted suicide' includes attempts and threats but excludes the recovery of bodies [see (j)].
- (r) 'Railway accident' above and below ground, non-fire situations.
- (s) 'Provision of advice'. This is broken down into three further categories and is when, following a call for special services, an appliance, equipment, or an officer is used in an advisory capacity e.g. advising that a structure is dangerous but not for fire brigade to make safe, advising a person that they can clear away water without fire brigade assistance.
- (t) 'Services not required' includes any events for which no action was necessary This is broken down into four further categories and includes, non-fire false alarms (either with malicious or good intent) involving attendance. It includes any special service call (regardless of type) where no action was required. If advice was given use code (s) should be used.
- (u) 'Any other special service' includes any incident that does not fit in the above categories.



Annex 9: Project Steering Group

Marie Winckler	ODPM/FSED	Head of FSED (Chair)
David Champion	ODPM/FSRB	Head of FSRB
Georgina Ford	ODPM/FSRB	Assistant Statistician
Heidi Jones	ODPM/FSRB	Business Manager
Samantha Wright	ODPM/FSRB	Data Quality Manager
Rebecca Pearse	ODPM/FSIT	Performance Assessment
Paul Quinn	ODPM/FSIT	Performance Assessment
Ian Evans	ODPM/HMFSI	NCFSC
Mick Robinson	ODPM/HMFSI	Management Support
David Peace	ODPM/FRD	Head of FRD
Mike Haslam	ODPM/PLUS	Statistician
Terry Pretious	ODPM/ACF	Secretary of Arson Control Forum
Graham Shiel	Tyne and Wear F&RS	Manager Community Safety
John Henry	Gtr Manchester Fire Service	Assistant Divisional Officer
Julian Grieff	Gtr Manchester Fire Service	Divisional Officer - Comms & Data
Matthew Stokes	Hampshire Fire and Rescue	GIS and Statistics Manager
Alan House	Hampshire Fire and Rescue	Deputy Chief Fire Officer + CACFOA rep
Roger Donachie	Donachie Associates	Consultant
Hugh Neffendorf	Katalysis	Consultant