Department for Communities and Local Government

Fire Incidents Response Times: England, 2012-13

Fire & Rescue
Statistical Release
22 August 2013

- In England the average response time to fires in dwellings in 2012-13 was 7.4 minutes, nine seconds longer than in 2011-12 and one and a half seconds longer compared to 2009-10.
- The average response time in other building in 2012-13 was 7.9 minutes. This is three seconds shorter than in 2011-12 and four seconds shorter compared to 2009-10.
- Over the ten years from 2002-03 to 2012-13, response time to both dwelling and other building fires increased by one and a half minutes (25%) on average. Meanwhile the average severity of fires decreased due to implementation of fire safety and prevention policy:
- The number of fire fatalities and non-fatal hospital casualties fell by 35% and 54% respectively over the ten years to 2012-13.
- The average area of damage in dwelling fires declined by 28% between 2002-03 and 2012-13.

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Summer 2014

1. Introduction

This publication contains fire incident response times data up to March 2013. It focuses on trends in average response times at England level.

These data are being published in this format as they have been requested regularly. They are presented alongside summary measures of the impact of fires in order to put the trends in response times into context. These other data indicate that response times are far from the only factor affecting numbers of casualties and amounts of damage from fire.

There are eleven annex data tables accompanying this publication. These can be found alongside this publication as downloadable spreadsheets. An index of these tables is at the rear of this publication.

Data for fire and rescue authority areas can be found in these spreadsheet annex tables. If attempting to compare response times between different geographical areas, it is important to bear in mind that there a range of factors that affect average response times, for example population density and fire fighter crewing arrangements.

We welcome feedback. Contact details can be found at the end of this publication.

2. Key points

- In 2012-13, the average response time[1] to fires in dwellings was 7.4 minutes (9 seconds longer than in 2011-12) and 7.9 minutes to fires in other buildings (3 seconds shorter than in 2011-12) (See Table 1).
- Average response times increased steadily from 1998-99 until 2010-11. Compared to 2002-03, response times in 2012-13 were 1.5 minutes (25%) longer for dwelling fires, and 1.6 minutes (25%) longer for fires in other buildings[2] (See Chart 1).
- Although average response times increased over recent years, the average severity of fires has been decreasing. Over the ten years from 2002-03 to 2012-13, numbers of fire non-fatal hospital casualties fell by 54%, and fire fatalities fell by 35% (See Table 2). These decreases correspond with improvements in fire safety and prevention[3] which have, on average, greatly outweighed effects of longer response times.
- The average area of damage fell by 28% in dwellings fires from 2002-03 to 2012-13. For other building fires the average area of fire damage was 3% lower in 2012-13 than in 2009-10[4] (See Table 3 and Chart 2).

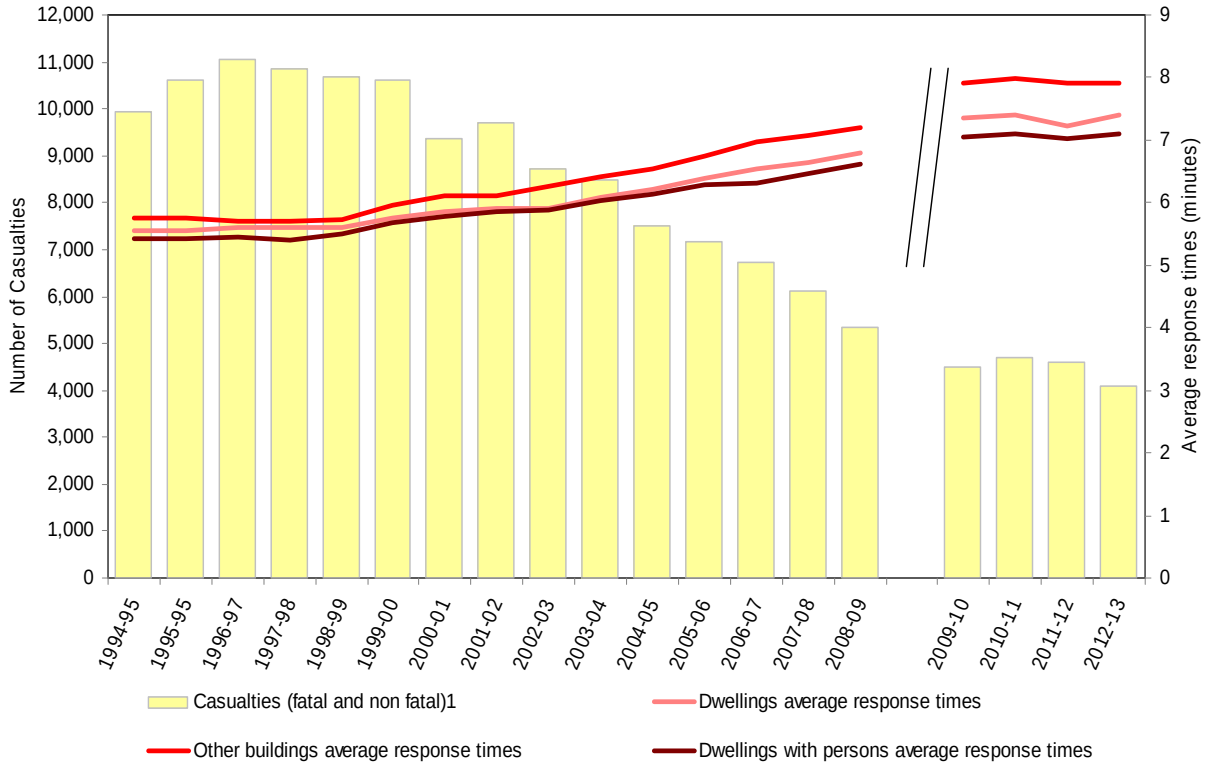
[1] Response times are from the time of call to the arrival of the first pumping appliance. As with data produced previously, average response time calculations exclude fires where: i) there was heat and smoke damage only (i.e. no flame damage), or ii) the fire and rescue authority became aware of the fire only after the fire was known to have been extinguished, or iii) the location of the fire was derelict, or iv) the fire was located in an abandoned road vehicle, or v) the response time calculated is an hour or more, or less than one minute. This is in order to avoid erroneous data or exceptional incidents from skewing the averages. The number of incidents excluded due to these criteria is shown in the section 'Data and data quality'

[2] There is a discontinuity at the point of switch over to the incident recording system (April 2009), so comparisons for periods crossing 2008-09 and 2009-10 may overstate the real increase. This is discussed in the section 'Data and data quality'.

[3] For example: smoke alarms and other building fire safety systems and features, audits and enforcement activity, fire safety campaigns and education and other advice. The 2008 publication 'Safer Houses' gives a chronology of these developments www.communities.gov.uk/documents/fire/pdf/saferhouses.pdf. Ownership of smoke alarms has been a key factor. It increased from 25% in 1989 to 86% of households reported owning a working smoke alarm in 2008 (page 37 Table 2.3 of www.communities.gov.uk/publications/corporate/statistics/firestatsgb201011) An assessment of the effectiveness of the Home Fire Risk Check programme, in which fitting smoke alarms was a key element, can be found at www.communities.gov.uk/documents/fire/pdf/homefireriskcheckgrant.pdf.

[4] There is a measurement discontinuity between 2008-09 and 2009-10 for area of fire damage, as a result of which a longer term comparison is not possible. This particularly affects the measurement of large fires (see Data and data quality section).

Chart 1: Fire response times and casualties[1], England. 1994-95 to 2012-13



1 Excludes first aid and precautionary checks

Table 1. Average Response Times to fire incidents, England

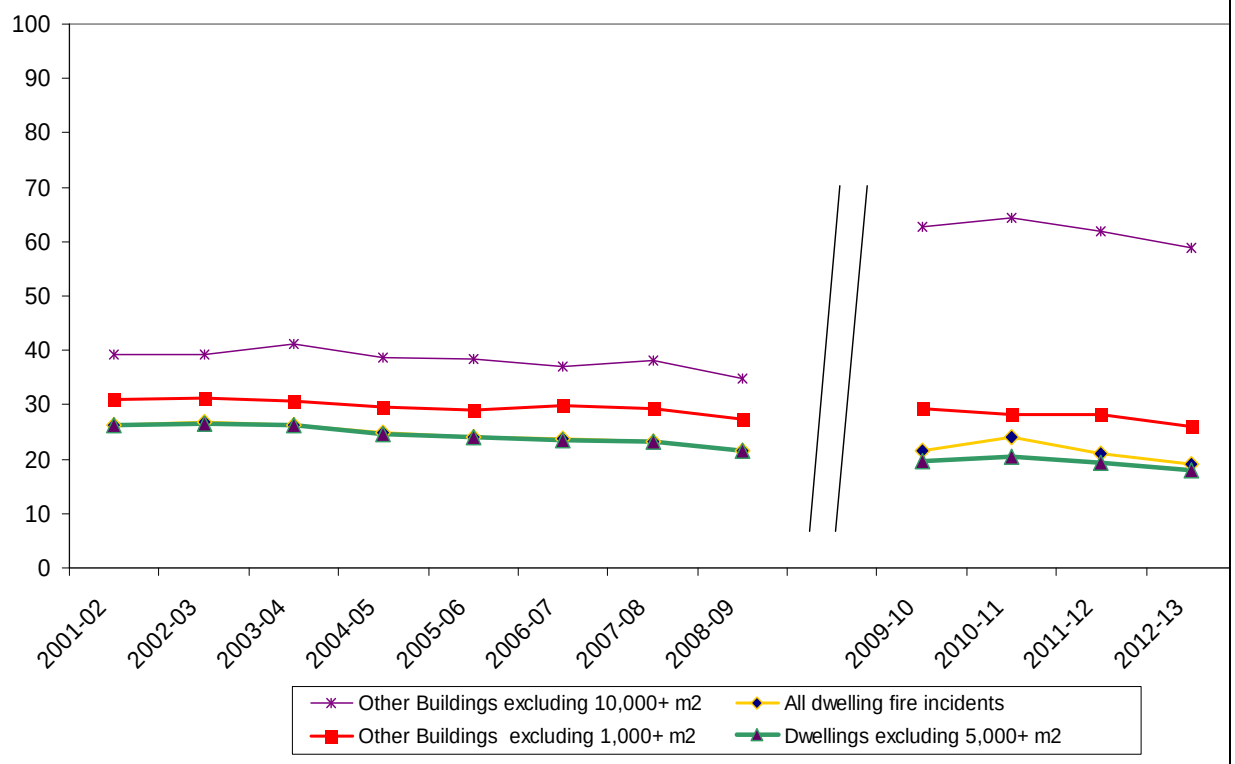
	Average response times (minutes)					Change in average response time (minutes)	
	2002-03	2009-10	2010-11	2011-12	2012-13	2011-12 to 2012-13	2002-03 to 2012-13
Dwellings	5.9	7.4	7.4	7.2	7.4	0.1	1.5
Other Buildings	6.3	7.9	8.0	7.9	7.9	0.0	1.6
Other Residential	-	7.6	7.6	7.5	7.4	-0.1	-
Non-Residential	-	8.0	8.0	7.9	7.9	0.0	-

'-' indicates that data were not available prior to the introduction of the Incident Recording System in April 2009.

Table 2. Fire fatal and non-fatal casualties, England

						% change	
	2002-03	2009-10	2010-11	2011-12	2012-13	2011-12 to 2012-13	2002-03 to 2012-13
Fire fatalities	417	336	331	314	271	-14%	-35%
Fire non-fatal hospital casualties	8,290	4,160	4,370	4,300	3,830	-11%	-54%

Chart 2: Total area of damage in building fires, England, 2001-02 to 2012-13



1. Damage due to smoke, heat, flame and water damage. This provides the most comparable trend data.
2. There is a sizeable discontinuity between 2008-09 and 2009-10 in the area of damage in fires in other buildings. There is also a discontinuity for the series for other building fires excluding fires with damage of more than 1,000m^2, though this discontinuity is less obvious. The stability of the data before and after April 2009 suggests that this is not a real change, but rather results from the introduction of the new Incident Recording System in since April 2009. This is explained at the rear of the publication in part 1b) of the section 'Data and Data quality'.
3. The average size of fires in other buildings (ie buildings that are not dwellings) is presented excluding fires with area of damage over 10,000 square metres. This is to avoid exceptional fires from skewing figures for any individual year. This excludes 19 fires in 2009-10, 22 fires in 2010-11, 16 fires in 2011-12 and 20 fires in 2012-13.
4. The slightly higher value of average area of damage in fires in buildings whose use was as *dwellings* in 2010-11 (all dwelling fires series) is the result of four incidents in 2010-11 with damage over 5,000m^2, compared to one such incident in 2009-10, two such incidents in 2011-12 and one such incident in 2012-13. The trend in average size of dwelling fires *excluding* fires with over 5,000 square metres of damage is also shown to demonstrate this.

Table 3. Total area[1] of damage (m^2) in building fires, England

						% change	
	2002-03	2009-10	2010-11	2011-12	2012-13	2011-12 to 2012-13	2002-03 to 2012-13
Dwellings	26.8	21.5	24.0	21.1	19.4	-8%	-28%
Other buildings	-	82.1	86.3	78.4	79.5	1%	-

1. Damage due to smoke, heat, flame and water damage. This provides the most comparable trend data.
2. Fires with total area of damage of over 10,000 m^2 have been excluded to prevent exceptional fires from skewing the trend.
3. Chart 2 shows that the average area of fire damage in other buildings has been falling. It was 3 per cent lower in 2012-13 compared to 2009-10. An overall change figure over the last 10 years is not available because there is a sizeable discontinuity between 2008-09 and 2009-10 in the recorded average area of total damage in fires in other buildings. See Chart 2 footnote 2, and Data and data quality section 1b) at the rear of this publication.

3. Response times – further detail

- The average response time to fires in dwellings (7.4 minutes in 2012-13) is shorter than for other locations of fire. Fires in dwellings involving one or more casualty and/or rescue had an average response time of 7.1 minutes.
- The average response time to fires in other residential buildings was 7.4 minutes, six seconds shorter than in 2011-12 while for non-residential buildings it remained unchanged at 7.9.
- Fires at outdoor locations are split between 'other outdoor primary'[5] fires, for which response time data exist prior to 2009-10, and 'secondary fires' [6] for which incident timings have been held centrally only since 2009-10. The lower average response time for secondary fires (8.3 minutes, compared to 9.6 minutes for 'other outdoor primary' fires in 2012-13) reflects the types of fires in these categories. For example, secondary fires include many small rubbish or bin fires often in more populated areas, which will tend to be closer to fire stations.

Table 4. Average Response Times to fire incidents, England

	Average response times (minutes)					Change in average response time (minutes)	
	2002-03	2009-10	2010-11	2011-12	2012-13	2011-12 to 2012-13	2002-03 to 2012-13
Primary fires	6.6	8.2	8.3	8.2	8.2	0.0	1.6
Dwellings	5.9	7.4	7.4	7.2	7.4	0.1	1.5
with any casualty or rescue	5.9	7.0	7.1	7.0	7.1	0.1	1.2
without any casualty or rescue	5.9	7.4	7.4	7.3	7.4	0.2	1.5
Other Buildings	6.3	7.9	8.0	7.9	7.9	0.0	1.6
Other Residential	-	7.6	7.6	7.5	7.4	-0.1	-
Non-Residential	-	8.0	8.0	7.9	7.9	0.0	-
Road Vehicles	7.1	8.9	9.0	9.0	9.1	0.1	2.0
Other (Outdoor Primary)	7.6	9.3	9.8	9.8	9.6	-0.3	2.0
Secondary fires	-	8.3	8.6	8.6	8.3	-0.3	-

Note: '-' not available before the Incident Recording system in April 2009

Charts 3a and 3b show that the increase in average response times corresponds with a shift in the highest frequency of response times from between 4 and 5 minutes until 2008-09 to between 5 and 6 minutes subsequently.

[5] Includes grassland, woodland, outdoor land and outdoor structures

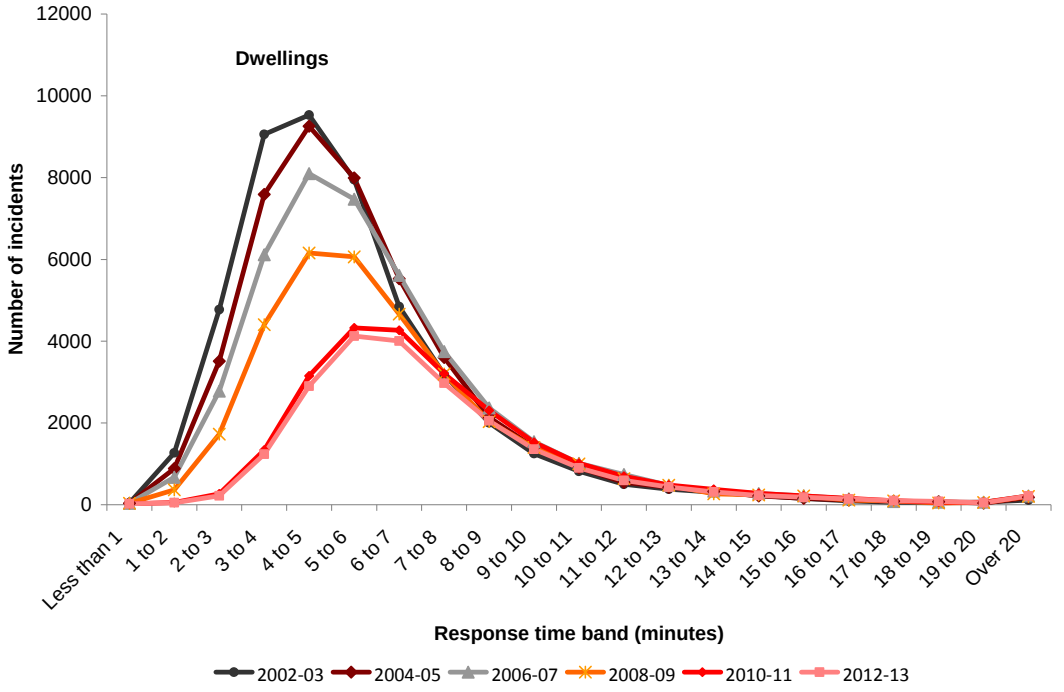
[6] Typically outdoor fires not involving property (See Definitions note 2)

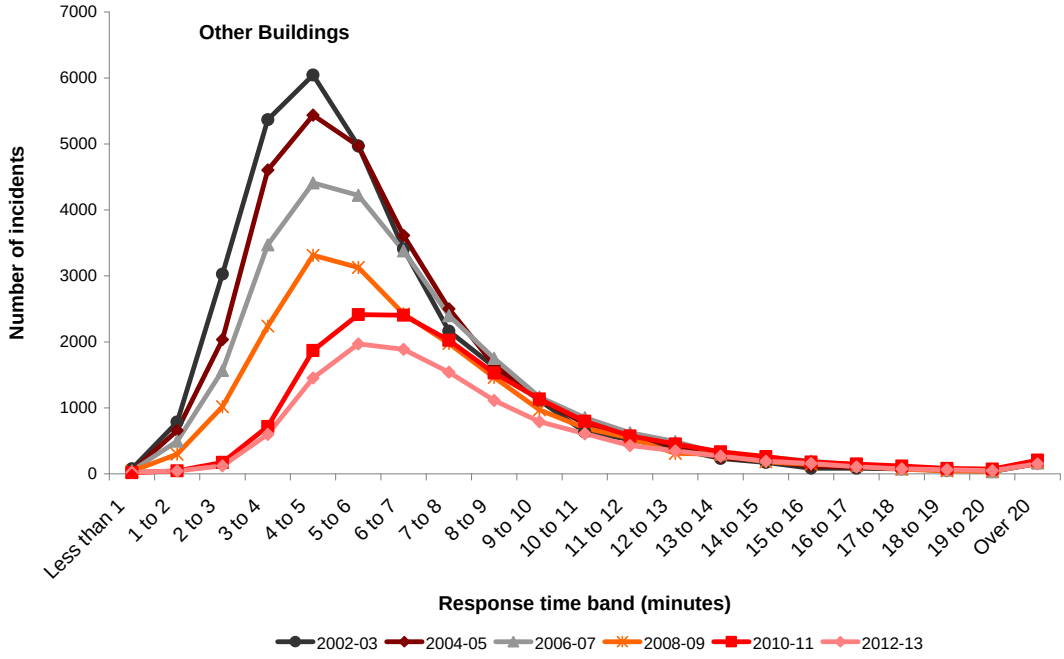
The shape of the curves in both the charts also reflects the substantial reductions in numbers of fires over recent years. Between 2002-03 and 2012-13, the number of dwelling fires fell by 32%, while there were 49% fewer fires in other buildings.

Chapter 3 of the 2011-12 edition of *Fire Incidents Response Times*[7] describes the various factors that are believed to have contributed to the marked shift in the distribution of response times.

[7] Fire Incidents Response Times 2011-12 www.gov.uk/government/publications/fire-incidents-response-times-england-2011-to-2012

Charts 3a and 3b: Number of incidents in one minute response time bands for fires in Dwellings and in Other buildings, 2002-03 to 2012-13, England





Accompanying tables

Eleven further reference tables are available in spreadsheet format and can be downloaded from the Department for Communities and Local Government website from: www.gov.uk/government/organisations/department-for-communities-and-local-government/series/fire-incidents-response-times

Table 1a: Average Response Times by location, 1994-95 to 2012-13, England

Table 1b: Average Response Times by location and casualties or rescues, 1994-95 to 2012-13, England

Table 1c: Average Response Times by predominantly rural, significantly rural and predominantly urban categories of fire and rescue authority area, 1994-95 to 2012-13, England

Table 2a: Number of incidents by five minute response bands, 1994-95 to 2012-13, England

Table 2b: Number of incidents by one minute response bands, 1994-95 to 2012-13, England

Table 3a: Average Response Times for Primary Fires by fire and rescue authority area, 1994-95 to 2012-13, England

Table 3b: Average Response Times for Dwelling fires by fire and rescue authority area, 1994-95 to 2012-13, England

Table 3c: Average Response Times for Other Building fires by fire and rescue authority area, 1994-95 to 2012-13, England

Table 3d: Average Response Times for Road Vehicle fires by fire and rescue authority area, 1994-95 to 2012-13, England

Table 3e: Average Response Times for Other Outdoor fires by fire and rescue authority area, 1994-95 to 2012-13, England

Table 4: Average area of damage in fires in buildings, 1994-95 to 2012-13, England

Tables relating to Casualties can be found in the Fire Statistics Monitor tables located here: https://www.gov.uk/government/organisations/department-for-communities-and-local-government/series/fire-statistics-monitor

Table 3e: Fatal casualties

Table 3g: Non-fatal casualties (excluding precautionary checks and first aid cases)

Definitions

1 Details of the questions and categories used in the recording of incidents under the Incident Recording System (IRS) are available in the document, *IRS Questions and Lists*. This can be downloaded from: www.gov.uk/government/publications/incident-recording-system-for-fire-and-rescue-authorities

Categories of fire incident

2 **Primary** fires are those where one or more of the following apply:
i) all fires in buildings outdoor structures and vehicles that are not derelict,
ii) any fires involving casualties or rescues,
iii) any fire attended by five or more appliances.

Secondary fires are the majority of outdoor fires including grassland, refuse fires and derelict buildings, unless the fire involves any of the following: casualties or rescues, property loss, five or more pumping appliances attending.

Response Times

3 A response time measures the minutes and part minutes taken from time of call to time of arrival at scene of the first vehicle. The following incidents have been excluded from the average response time calculations:

a. Where there was heat and smoke damage only
b. Where road vehicle was abandoned
c. Where the location of fire was derelict
d. Where a fire and rescue authority learned of the fire when it was known to have already been extinguished. Such incidents are known as ‘late calls’.
e. Where the response time for an incident was over an hour or less than one minute.

The last two of these exclusions have been applied to avoid erroneous data or exceptional incidents from skewing the averages.

Fatalities

4 Even if a casualty dies subsequently, any fatality whose cause is attributed to a fire is included. There are also occasional cases where it transpires subsequently that fire was not the cause of death. For both these reasons, fatalities data may therefore be subject to revision.

Non-fatal casualties

5 In order to be able to present a time series that is comparable over time, the non-fatal casualty data in this publication include all non-fatal casualties who went to hospital, but exclude first aid cases and where there was no obvious injury but a precautionary check was recommended.

Technical notes

Data and data quality

1. Discontinuity of before and after April 2009

a) Response Times

There is a noticeable discontinuity in average response times between 2008-09 and 2009-10 of over half a minute for most property types (e.g. dwellings, other buildings – see appendix table 1a). While part of this increase may be genuine (factors are noted in section 3), it appears likely that there is also a measurement discontinuity.

Analysis of the change in average response times from 2008-09 to 2009-10 identified six fire and rescue authorities whose reported average response time increased by 1.2 minutes or more. Discussion with these fire and rescue authorities helped to identify the various factors described in section 3.

There is also the possibility of a further reason for the apparent discontinuity, namely that there may have been some inaccuracy in the largely paper-based Fire Data Report system which was in use until March 2009. Arrival times are now being recorded with more accuracy using a mobile data terminal on board the fire appliance, once the appliance has arrived at the scene. Previously arrival times were transmitted to control via radio when the appliance was in the vicinity of the incident, enabling fire-fighters to then be focussed on preparing to disembark from the vehicle. With on-board data terminals and automatic recording the nearest second under the Incident Recording System (since April 2009), incident response times should now be recorded consistently with high accuracy.

b) Area of fire damage

The data in chart 2 in the Summary section of this publication demonstrates a clear discontinuity between 2008-09 and 2009-10 in the average area of damage reported in fires in Other Buildings (i.e. those whose use is not as dwellings). There is also a discontinuity for the series for Other Buildings excluding fires with damage of more than 1,000m^2, which is less obvious. The stability of the data before and after April 2009 suggests that this is not a real change, but rather results from the introduction of the new Incident Recording System in since April 2009.

A likely cause of the discontinuity is the switch to a different set of categories in the new Incident Recording System. These categories include six new categories above 200 square metres, while there was previously a single category for 200m^2 and above.

Fire Data Report "Total area damaged by fire, heat, smoke etc" (m^2) categories
Under 1
1 to 2
3 to 4
5 to 9
10 to 19
20 to 49
50 to 99
100 to 199
200+ [8]

Incident Recording System "Total horizontal area damaged (by flame and/or heat and/or smoke and/or water etc)" (m^2) categories
None
Up to 5
6 to10
11 to 20
21 to 50
51 to 100
101 to 200
201 to 500
501 to 1,000
1,001 to 2,000
2,001 to 5,000
5,001 to 10,000
Over 10,000 [12]

It is likely that this change of categories, the effect of improved guidance and tips of how to estimate the areas of larger fires, and more explicit labelling that water damage should be included[9] have resulted in fire damage size being recorded more accurately since April 2009.

[8] Under both systems, fires with damage greater than the highest interval (200m^2 and 10,000m^2) respectively, a box required/requires the estimated size of fire to be written/keyed in.

[9] Fire Data Report guidance instructions were to "estimate the total area in square metres damaged, from whatever cause", but this was less explicit on the Fire Data Report form itself which noted "Total area damaged by fire, heat, smoke etc".

2. Comparison to previously published data

Due to the following difference in methodology, there are minor differences in the response times published in this document and response times produced before the introduction of this publication, including those published in the *Review of Fire and Rescue Service response times*[10].

These differences are due to the following:

i) Under the paper-based Fire Data Report system (2008-09 and earlier), a four page form was filled in for all primary fires. While full details of all primary[11] fire incidents were entered for all incidents with any casualty, entry sampling was used for such incidents that had no casualty. This means that full details (including times of call and arrival) were keyed into the data for only a sample of incidents which had no casualty. Weights were then calculated based on the few data fields which were keyed into the database for every incident.

   Scrutiny of previous response times data produced prior to this publication identified that calculations had previously omitted to use weights. This was unlike all other outputs from the Fire Data Report data base (until March 2009), which have always used these weights. The response times calculations in this publication use weights in order to give a more accurate average response time, whereas previous figures under-represented less serious (no casualty) incidents, so now the more accurately calculated response times are slightly higher than previous figures for periods up to March 2009.

ii) The Other Outdoor category within this publication differs from the Outdoor category within the 2009 published report. This is because the 2009 report did not include all outdoor primary[21] fires, but rather only a subset of typical non-urban locations[12].

[10] *Review of Fire and Rescue Service response times*
http://webarchive.nationalarchives.gov.uk/20120919132719/www.communities.gov.uk/publications/fire/frsresponsetimes

[11] Primary fires are those where one or more of the following apply: i) all fires in buildings outdoor structures and vehicles that are not derelict, ii) any fires involving casualties or rescues, iii) any fire attended by five or more appliances

[12] Outdoor fires included in the *Review of Fire and Rescue Service response times* report were defined to be those in the following locations: allotments, gardens, grassland, crops, woods, forest, plantations, orchards, stooked crops, bales, ricks, stacks, straw, stubble and other (including manure and fertiliser). The definition of outdoor fires used in this publication is the standard one, which also includes fires located in caravans, outdoor machinery and equipment, outdoor storage, railway rolling stock, ships and boats.

3. Numbers of fire incidents excluded from calculations

Certain incidents are excluded from the average response time calculation (see definition of response times in the following section). Table 6 shows the number of incidents that have been excluded[13].

Table 6. Number of fire incidents and exclusions from response times, England, 2012-13

	Total number of incidents	Heat smoke damage only incidents	Late call incidents	Incidents where response time was over 60 minutes	Incidents where response time was under 1 minute	Incidents in derelict locations	Incidents at abandoned vehicles	Number of incidents after exclusions
Primary fires	74,474	15,108	1,343	310	134	156	3,184	54,239
Dwellings	33,166	10,381	897	150	39	34	0	21,665
Other Buildings	16,457	4,170	300	61	32	108	0	11,786
Road Vehicles	20,279	418	107	72	53	5	3,184	16,440
Other Outdoor	4,572	139	39	27	10	9	0	4,348
Secondary fires	72,394	0	233	312	406	4,409	0	67,034

[13] Some excluded incidents are shown in Table 6 under more than one heading (for example late calls that were responded to in over 60 minutes). Because of this double counting, the sum of the exclusions will be greater than the difference between total number of incidents before and after exclusions.

Revisions policy

Revisions will be handled as per the Department for Communities and Local Government revisions policy http://www.communities.gov.uk/documents/corporate/pdf/1466387.pdf. This requires explanation of the handling of scheduled revisions due to the receipt of subsequent information in the case of each statistical publication.

It is expected that data should not be subject to revision. However, if any revisions are necessary due to the receipt of subsequent data, revisions will then be made to statistics relating to the period of the one preceding financial year i.e. upon first publication of 2012-13 data, any revisions to statistics for periods during the financial year of 2012-13 would be made. It is also intended that revisions to any statistics relating to any given time period would be made only once, and data would not subsequently be revised further, barring exceptional circumstances.

Uses of this data

Users of response time data should bear in mind that the data may fluctuate as the locations of fires will vary from one period to another.

The spreadsheet tables accompanying the release show the numbers of incidents on which each response time average has been calculated. Averages based on smaller number of incidents will naturally tend to be more prone to fluctuation.

User engagement

Feedback on how these statistics are used, how well they meet user needs, and any comments relating to this publication are welcome. Responses should be addressed to the Public Enquiries Contacts given in the *Enquiries* section below.

The Department's engagement strategy to meet the needs of statistics users is on the Department's web site at:
www.gov.uk/government/publications/engagement-strategy-to-meet-the-needs-of-statistics-users

The department is hosting a user engagement day on Monday 25 November 2013. The aim of the event is to provide information about statistics produced by the Department and to get views and suggestions. For further details about the event please contact gavin.sayer@communities.gsi.gov.uk or nazneen.chowdhury@communities.gsi.gov.uk.

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www.statistics.gov.uk/hub/browse-by-theme/index.html

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www.gov.uk/government/organisations/department-for-communities-and-local-government/about/statistics

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