Royal Berkshire Fire & Rescue Service

Model Revalidation & Annual Performance Report

Final Report

15th December 2014
ORH/BF/17

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Accreditations

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1 INTRODUCTION

1.1 ORH Ltd was commissioned to undertake an annual service review and model revalidation study by Royal Berkshire Fire & Rescue Service (RBFRS).

1.2 The broad aim of this study was to refresh ORH's optimisation and simulation models of RBFRS with up-to-date data, so as to take account of recent incident workload and appliance availability trends.

1.3 The models held by ORH for RBFRS were refreshed with the 2012/13 incident and performance data in September 2013 (ORH/BF/10). Subsequent studies have assessed the impacts of proposed deployment changes in East Berkshire and assessed temporary deployments for periods of Industrial Action.

1.4 RBFRS supplied data for the latest financial year (2013/14), which was combined with previous years' data. ORH holds data for RBFRS encompassing an eleven-year period (April 2003 to March 2014). This database contains details of all incidents and responses across Berkshire, as well as all incidents attended by an RBFRS appliance. Analysis for a ten-year sample and the most recent two years are provided within this report.

1.5 Incidents reported on within the analyses of this report consider all incidents within Berkshire that received at least one pumping appliance at the scene of the incident.

1.6 In addition to the incident data, information was collected to identify the availability of retained duty (RDS) pumping appliances and crewing of all pumping appliances. During the financial year 2013/14, the second Newbury appliance was upgraded from RDS to Wholetime.

1.7 Analysis was undertaken focusing on appliance availability, demand volumes, resource use and the response profiles for the incidents within Berkshire. The outcomes of the analysis are discussed in Section 2.

1.8 The outcomes of the data analysis were used to form the modelling inputs when setting up ORH's simulation model for RBFRS.

1.9 As part of the revalidation of the models, the travel time matrix for Berkshire and the surrounding area was updated with the latest Navteq Streets data. This matrix was used alongside the outcomes of the data analysis to produce modelling inputs, calibrate the travel times and produce a modelled base position (see Section 3).

1.10 This is a Final Report which outlines the key findings of the data analysis and presents the results of the model validation process.

Figure 1: Stations By Crew Type

Legend:

Geography
- Motorways
- A Roads
- Primary Roads
- B Roads
- RBFRS Boundary
- Surrounding Services

Stations by CT
- WT
- RDS
- RDS to WT Crewing

Stations labelled: Langley, Slough, Windsor, Ascot, Maidenhead, Bracknell, Crowthorne, Wokingham, Wargrave, Wokingham Road, Caversham Road, Whitley Wood, Dee Road, Pangbourne, Mortimer, Newbury, Lambourn, Hungerford

Counties labelled: Buckinghamshire, Oxfordshire, Surrey, Hampshire

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2 CURRENT SERVICE PROFILE

2.1 Introduction

2.1.1 The purpose of the data analysis undertaken was to gain a quantitative understanding of the emergency cover provided by RBFRS, as well as to develop appropriate model input parameters.

2.1.2 RBFRS supplied incident data for the period 1st April 2013 to 31st March 2014, from the Incident Recording System (IRS) database, and this was processed alongside previously held data to give a ten-year database for analysis. A two-year sample of demand and performance data provides a suitably robust position for modelling.

2.1.3 The majority of the analyses presented in this report concerns the demand, workload and performance of pumping appliances.

2.2 Resource Profile

2.2.1 A map of the station locations and crewing at each is presented in Appendix **A1** and Figure **1** opposite. This illustrates the change in crewing of the second pumping appliance at Newbury (from RDS to Wholetime), which occurred during the two-year sample, in October 2013.

2.2.2 Data for retained appliance availability was collected for each RDS pumping appliance, and a sample from Firewatch was provided to ORH (April 2013 to March 2014). This data was combined with the RDS appliance availability data from 2012/13 to provide a two-year sample, from which it was possible to calculate the unavailability of each callsign by month.

2.2.3 The monthly profile of appliance unavailability is shown in Appendix **A2**. The overall average appliance unavailability for 2013/14 is 45%, which is an increase on the 2012/13 average (40%). Over the most recent two financial years (2012/13 to 2013/14), Hungerford has the most available retained appliance (7% unavailability). The least available appliance is Ascot, with the appliance being over 90% unavailable since August 2013. The change in crewing of the Newbury appliance is shown from October 2013.

2.2.4 The analysis in Appendix **A3** provides the hourly unavailability of each RDS pumping appliance for the two most recent financial years. Over the course of the 24-hour period, the average level of unavailability is at its highest between 07:00 and 18:00 hours. For all days of the week, Ascot is the most unavailable appliance (Appendix **A3a**).

2.2.5 Variation in hourly RDS unavailability for weekdays and weekends is illustrated in Appendix **A3b** and **A3c**, respectively. Generally, the unavailability for appliances on weekdays is highest between 07:00 and 18:00 hours, apart from the Ascot appliance, which has its highest unavailability between 17:00 and 08:00 hours (Appendix **A3b**). The overall unavailability at the weekend is slightly higher than on weekdays (Appendix **A3c**), but varies less by time of day.

Figure 2: Annual Average Daily Incident Demand Summary

FY	Response Type	False Alarm	Fire	Special Service	Total
2004/05	1 Appliance	8.6	7.3	6.0	21.9
	2+ Appliance	6.0	2.8	1.7	10.5
	Total	**14.6**	**10.2**	**7.7**	**32.4**
2005/06	1 Appliance	7.8	7.2	5.9	21.0
	2+ Appliance	6.8	2.8	1.2	10.8
	Total	**14.6**	**10.0**	**7.2**	**31.8**
2006/07	1 Appliance	7.8	6.7	6.3	20.7
	2+ Appliance	6.4	2.7	1.3	10.3
	Total	**14.1**	**9.4**	**7.6**	**31.1**
2007/08	1 Appliance	9.1	5.8	4.1	18.9
	2+ Appliance	6.2	2.6	0.9	9.7
	Total	**15.3**	**8.4**	**5.0**	**28.7**
2008/09	1 Appliance	12.3	5.3	4.3	21.9
	2+ Appliance	2.1	2.2	0.7	5.0
	Total	**14.3**	**7.5**	**5.0**	**26.9**
2009/10	1 Appliance	10.2	5.5	3.9	19.5
	2+ Appliance	1.7	2.1	0.7	4.5
	Total	**11.9**	**7.6**	**4.6**	**24.1**
2010/11	1 Appliance	8.5	5.8	2.5	16.9
	2+ Appliance	1.4	2.2	0.7	4.3
	Total	**9.9**	**8.0**	**3.3**	**21.2**
2011/12	1 Appliance	6.8	5.6	2.2	14.6
	2+ Appliance	1.6	2.1	0.7	4.4
	Total	**8.4**	**7.7**	**2.9**	**19.0**
2012/13	1 Appliance	5.9	3.8	2.3	12.0
	2+ Appliance	1.7	1.8	0.9	4.3
	Total	**7.6**	**5.5**	**3.2**	**16.3**
2013/14	1 Appliance	6.9	3.7	2.5	13.1
	2+ Appliance	0.9	1.6	1.1	3.6
	Total	**7.8**	**5.3**	**3.6**	**16.7**
10-Year Average	1 Appliance	8.4	5.7	4.0	18.1
	2+ Appliance	3.5	2.3	1.0	6.8
	Total	**11.9**	**8.0**	**5.0**	**24.8**
2-Year Average	1 Appliance	6.4	3.7	2.4	12.5
	2+ Appliance	1.3	1.7	1.0	4.0
	Total	**7.7**	**5.4**	**3.4**	**16.5**

Note:

Demand on days of Industrial Action have been removed

2.2.6   The variation in RDS unavailability by time of day for weekdays and weekends is important in the process of selecting modelling periods (see sub-section 3.2).

2.3   Demand Profile

2.3.1   The majority of the demand analysis presented in this report considers incidents within Berkshire that are attended by at least one RBFRS pumping appliance.

2.3.2   The sample of incident data analysed covers the period April 2004 to March 2014 and the data analysis is presented by financial year. Two sampling periods have been used in the data analysis; a ten-year sample (April 2004 to March 2014) to establish trends and incident locations, and a two-year sample (April 2012 to March 2014) for performance analysis.

2.3.3   An analysis of the daily average number of incidents by year, by type and the number of pumping appliances in attendance is presented in Appendix **B1** and summarised in Figure **2** opposite. These are sub-divided in the following Appendices:

- All Incidents   Appendix **B1a**

- Fires   Appendix **B1b**

- Special Service   Appendix **B1c**

- False Alarms   Appendix **B1d**

2.3.4   There has been a significant decline in the number of incidents in Berkshire over the ten-year sample. Over the ten-year sample period, the daily average number of incidents within Berkshire has fallen from 32.4 in 2004/05 to 16.7 in 2013/14.

2.3.5   Over the last two years (2012/13 and 2013/14), there has been an average of 16.5 incidents per day, significantly below the ten-year average of 24.8 incidents per day.

2.3.6   The graph in Appendix **B1a** shows a large increase in the percentage of 1-Appliance incidents in 2008/09, which can be attributed to the increase in the proportion of 1-Appliance False Alarm incidents, relative to 2+ Appliance False Alarm incidents.

2.3.7   The number of Fire incidents has fallen significantly across the ten-year sample. Over the two most recent financial years, Fire incidents have accounted for 33% of total incident demand. There has been a slight increase in the proportion of Primary Fires in the two most recent financial years, with the two-year average of 56% compared to the ten-year average of 51% of Fire incidents.

2.3.8   There has been a decrease in Special Service incidents over the sample period. These incidents account for 21% of total incident demand over the most recent two financial years. Since 2009/10, there has been an increase in the proportion of 2+ Appliance Special Service incidents, which

is largely a result of an increase in the proportion of 2+ Appliance Road Traffic Collision (RTC) incidents.

2.3.9   False Alarms account for 47% of total incident demand for the two most recent financial years. The number of False Alarm incidents has reduced considerably over the sample period, with a two-year average of 7.7 incidents per day significantly less than the ten-year average of 11.9 incidents per day. As identified in the All incident demand profile, there is a pronounced decrease in 2+ Appliance incidents in 2008/09, due to a change in AFA mobilisation policy. The two-year average proportion of 2+ Appliance False Alarm incidents is 7% significantly below the ten-year average proportion of 18%.

2.3.10   The seasonality of incident demand across the ten-year sample period is illustrated in Appendix **B2**. The seasonality of Fire incidents is demonstrated with peaks in most years during the summer months, in particular July. For Special Service incidents, there was a significant increase in demand for winter 2013/14 compared to the previous two winters (2011/12 and 2012/13), likely to be as a result of the flooding in the area.

2.3.11   Demand by month for the two-year sample, by incident type and the number of responding pumping appliances, is presented in Appendix **B3**. The graph of incident demand shows a large increase in the number of incidents in July 2013 (Appendix **B3a**). In this month, all incident types increased, with the proportion of 1-Appliance Fire incidents increasing by the largest proportion (Appendix **B3b**). This increase in Fire incidents in July 2013 is a likely result of a sustained period of hot weather. Also of note, is the increase in the number and proportion of 1-Appliance Special Service incidents in February 2014, likely as a result of attending flooding related incidents in this period.

2.3.12   The hourly demand profile for All incidents is presented in Appendix **B4a**. The peak hours of demand are between 16:00 and 21:00 hours, in the evening, and the quietest period is between 00:00 and 08:00 hours, in the early hours of the morning. Hourly demand patterns vary by incident type, as shown in Appendices **B4b** to **B4d**. Special Service incidents are more evenly distributed throughout the day period compared to Fire and False Alarm incidents, which have more pronounced peaks in the evening.

2.3.13   RBFRS measures performance against two specific incident types: Primary Dwelling Fires (PDFs) and Road Traffic Collisions (RTCs). RBFRS supplied a list of RTC incidents, and the methods used to identify both of these incident types. Analysis of these Priority incident types are provided in Appendix **B5**.

2.3.14   The number of Priority incidents has decreased across the sample period (Appendix **B5a**). Whilst the proportion of 1 and 2+ Appliance incidents has remained relatively stable for PDFs, there has been a significant increase in the proportion of 2+ Appliance RTCs, with this alteration occurring since 2010/11.

2.3.15   Appendix **B5b** presents the hourly demand profile of Priority incidents. The profile for PDFs is similar to the Fire incident hourly profile, although there are noticeable peaks at 13:00 hours and between 17:00 and 20:00, which

Figure 3: Annual Station Responses

Station	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	Total	10-Year Average	2-Year Average
Ascot	425	389	378	292	199	139	88	20	26	18	1,974	198	22
Bracknell	1,842	1,845	1,908	1,724	1,300	1,140	1,049	987	763	612	13,170	1,319	688
Caversham Road	1,563	1,644	1,442	1,371	1,079	1,030	949	827	721	727	11,353	1,136	724
Cookham	116	129	110	66	40	-	-	-	-	-	461	46	-
Crowthorne	412	438	416	362	326	276	202	157	97	96	2,782	279	97
Dee Road	1,290	1,406	1,294	1,271	995	959	847	759	639	643	10,103	1,011	641
Hungerford	249	295	220	197	189	187	148	150	157	157	1,949	195	157
Lambourn	118	137	135	145	101	68	35	21	22	35	817	82	28
Langley	972	893	881	747	709	620	592	531	422	476	6,843	685	449
Maidenhead	1,337	1,403	1,368	1,356	1,014	866	791	772	712	550	10,169	1,018	632
Mortimer	180	230	215	173	146	132	134	85	85	93	1,473	147	89
Newbury	1,167	1,376	1,360	1,214	1,121	963	814	758	738	774	10,285	1,029	756
Pangbourne	144	165	112	67	67	30	31	27	23	29	695	70	26
Slough	2,700	2,437	2,516	2,442	1,800	1,587	1,531	1,422	1,183	1,167	18,785	1,880	1,175
Sonning	116	144	117	58	-	-	-	-	-	-	435	44	0
Wargrave	130	119	111	80	87	86	67	25	17	29	751	75	23
Whitley Wood	1,282	1,261	1,224	1,110	788	726	643	626	550	501	8,711	872	526
Windsor	670	636	690	634	595	540	476	475	374	437	5,527	553	405
Wokingham	203	102	232	262	302	293	257	359	459	417	2,886	288	438
Wokingham Road	1,655	1,724	1,569	1,481	1,128	1,085	907	827	753	728	11,857	1,187	741

| Total | 16,571 | 16,773 | 16,298 | 15,052 | 11,986 | 10,727 | 9,561 | 8,828 | 7,741 | 7,489 | 121,026 | 12,114 | 7,617 |

Note:

Denotes stations closed in this financial year

Responses on days of Industrial Action have been removed

would reflect peak time periods of kitchen use. The hourly profile for RTCs is different to that of Special Services, due to notable peaks during rush hour periods on the roads (06:00 to 10:00 hours and 15:00 to 20:00 hours).

2.4 Geographical Location Profile

2.4.1 Analyses of the locations of incidents and responding callsigns are given in Appendix **C**.

2.4.2 Maps presenting the locations of incidents over the ten-year sample (April 2004 to March 2014) are shown in Appendix **C1**, broken down by response type and incident category.

2.4.3 For All incident categories, a high concentration of incidents is observed around the main urban areas. Similar to the All incident geographical demand profile, the distribution of Fire incidents is concentrated in more urban areas. The distribution of Special Service RTC incidents shows concentrations along the major roads, particularly along the M4, A34 and A4 (Appendix **C1e**). The large concentrations of False Alarm Apparatus incidents generally illustrate major business locations, for example the concentration to the north of Ascot is Ascot Racecourse. The large concentration to the north-east of Slough, is Wexham Park Hospital (Appendix **C1f**).

2.4.4 The location of Priority incidents are presented in Appendix **C1g**. The locations of Primary Dwelling Fires are concentrated in and around the largest urban areas, and the RTC incidents are distributed along the road network.

2.4.5 Appendix **C2** considers the similarity of incident locations year-on-year, for each incident category. The proportion of incidents within each District is given in Appendix **C2a**. The distribution of incidents by District does not vary significantly across the ten-year sample period. For example, the proportion of All incidents attended by RBFRS that occur in Reading ranges between 21.6% and 23.2% over the ten-year sample.

2.4.6 For the most recent five financial years, maps of the annual incident distributions are presented in Appendix **C2b**. These maps further support the analysis that the year-on-year distribution of incidents remains fairly similar.

2.4.7 Analysis of responses by station is provided in Appendix **C3**. The number of responses by year is presented in Appendix **C3a** and is summarised in Figure **3** opposite. During the ten-year sample period, two stations have closed, Sonning in 2008/09 and Cookham in 2009/10. The station with the highest workload over the last two years is Slough, with an average of 1,175 attendances per year. The pumping appliance at Pangbourne has attended the fewest incidents, for all of the stations that are currently operational, across the ten-year sample period (695 in total). However, the appliances with the lowest two-year average number of responses are the RDS appliances with the highest unavailability (Ascot, Lambourn, Pangbourne and Wargrave).

2.4.8   The breakdown of station responses by incident type for the ten-year sample is provided in Appendix **C3b**. For all incident types, Slough has the largest number of responses. The station with the fewest responses varies for each incident type, with Lambourn attending the least False Alarms, Wargrave the least Fires and Pangbourne the least Special Service incidents.

2.4.9   The geographical distributions of attendances by each station and callsign, during the ten-year sample, are illustrated in Appendix **C4**; there are separate maps for Wholetime and RDS callsigns. Appendix **C4a** provides a geographic overview of the responding callsign to All incidents. Wholetime-crewed appliances generally attend a greater number of incidents. The geographic range of Wholetime-crewed appliances extends closer to neighbouring stations, due to their higher availability, for example Bracknell into Ascot. The two pumping appliances at Newbury cover a wide geographic area across most of West Berkshire. The majority of RDS appliance responses are close to their home station, with the RDS appliances in West Berkshire covering a larger area than those in the East (Appendix **C4b**).

2.4.10   The demand by incident type by District for each financial year of the ten-year sample is presented in Appendix **C5**. Part of South Buckinghamshire is covered by RBFRS, but as this is only a small geographical area of the service, the discussion of the demand by District just focuses on Berkshire Districts. Overall, Reading District has the largest number of incidents, whilst Bracknell Forest has the fewest, as illustrated in the maps in Appendix **C1**.

2.4.11   Analysis considering over-the-border incidents and pumping appliances has been undertaken. Appendix **C6a** presents responses made by RBFRS pumping appliances outside of Berkshire. There are clusters of incidents in Hampshire to the south of Newbury and in South Oxfordshire, with the largest cluster in South Buckinghamshire and London.

2.4.12   Appendix **C6b** presents responses made by over-the-border pumping appliances into Berkshire. These incidents are generally clustered around the fire service border, for example around Henley, Crowthorne and the border sections of the M4 in Berkshire. There are slightly further incursions of over-the-border pumping appliances into Berkshire along the A34 from Oxfordshire. The completeness of this data is unknown as neighbouring services' CAD data has not been supplied.

Figure 4: Call Components
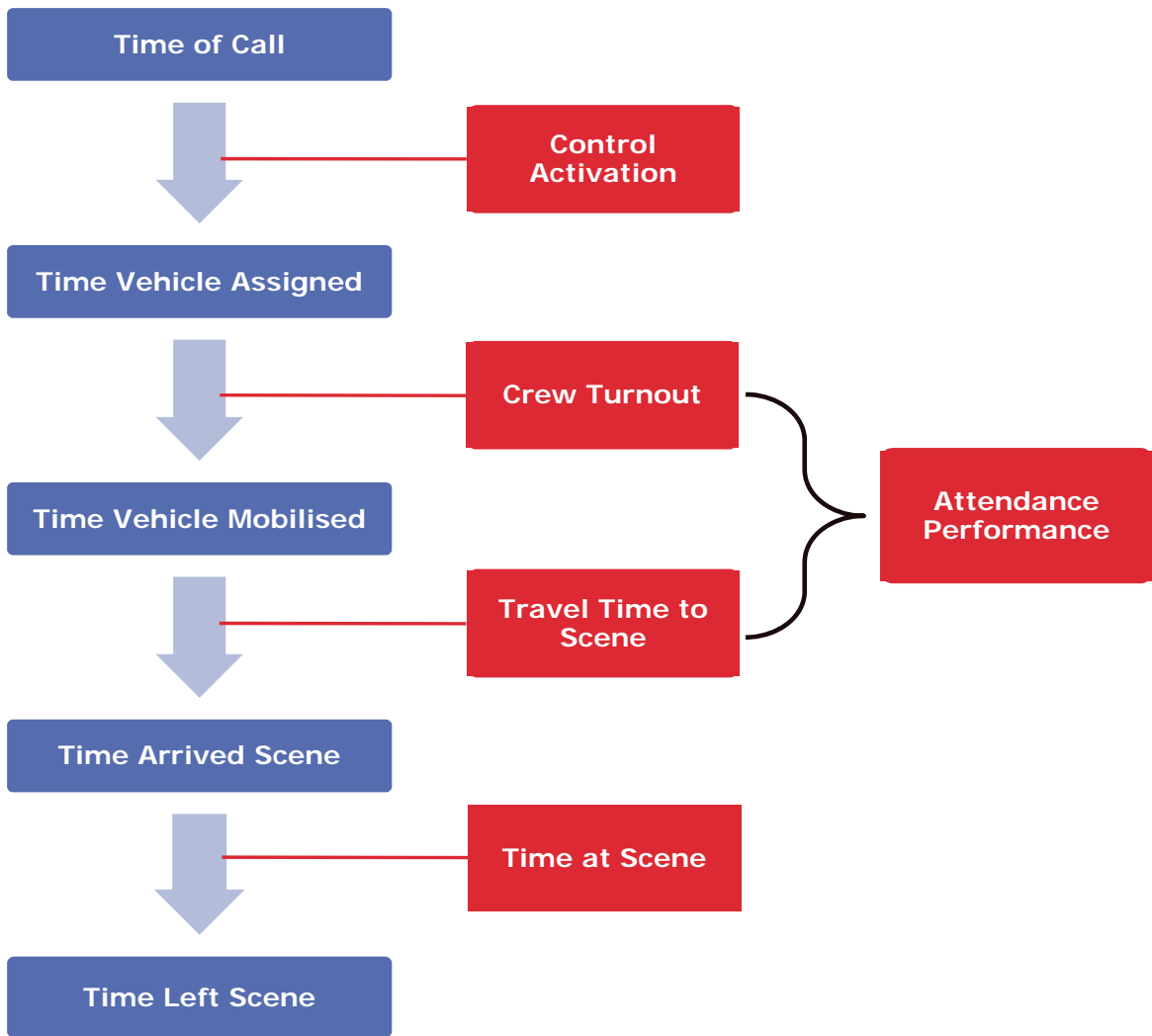
2.5   Response Profile

2.5.1   Analysis presented in this report makes use of the time fields within the CAD associated with pumping appliances responding to incidents. Figure **4** opposite provides an overview of the structure of the call components referred to in this report.

2.5.2   Appendix **D** provides detailed analyses of how the various call components vary by response type, time of day and appliance type. For each call component, an analysis of the historical trends (over ten years) is presented alongside the hourly variation (based upon the two most recent financial years).

2.5.3   Control Activation time (Appendix **D1a**) has increased over the ten-year sample. Between 2007/08 and 2008/09, there was a large increase in 2nd Appliance Control Activation time, which corresponds with a change in the proportion of 2+ Appliance incident demand (section 2.3). Control Activation times for the 2nd appliance are at the highest level in 2013/14, with 1st appliance control times slightly lower than the highest in 2011/12. The Control Activation time varies by hour, however this is due to the low number of incidents analysed, especially for the second appliance (Appendix **D1b**).

2.5.4   It should be noted that the simulation model does not incorporate Control Activation times. These are independent of the operational response times and do not form part of the attendance standards to be reported against.

2.5.5   Crew Turnout times (Appendix **D2a**) are shown to have decreased over the ten-year period, most notably for RDS pumping appliances. The Wholetime-crewed pumping appliances' Crew Turnout time has been relatively stable since 2008/09.

2.5.6   The hourly profile of Crew Turnout times by crew type is presented in Appendix **D2b**. Crew Turnout times are longest at night, between 00:00 and 07:00 hours, and for Wholetime crews remain relatively stable throughout the rest of the day. For RDS appliances, the Crew Turnout times are shortest between the hours of 11:00 and 19:00.

2.5.7   The average Travel Time to Scene (Appendix **D3a**) has increased over the ten-year sample period for all incident types. This is expected to be an outcome of a reduced number of False Alarm Apparatus incidents (these typically occur close to towns and therefore attract short response times, due to the proximity of fire stations). In addition, this increase can also be attributed to changes in the road infrastructure and volume of vehicles using the road network. The hourly profile of travel times shows a small increase during the day for Fire and False Alarm incidents (Appendix **D3b**). This is most likely the result of a result of a response attending from a neighbouring station, rather than the closest, due to higher RDS appliance unavailability in the day period.

2.5.8   Average Crew Response Performance (Appendix **D4**) is a combination of Crew Turnout and Travel Time to Scene, and the historical and hourly profiles therefore reflect these two measures. For 1st Appliance responses, there has been a very small increase in the Crew Response Performance across the ten-year sample (Appendix **D4a**). However, there has been

Figure 5: Average Crew Response Performance by District

District	Responder	Financial Year										10-Year Average	2-Year Average
		2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14		
Bracknell Forest	1st Appliance	06:05	06:26	06:34	06:32	06:24	06:47	06:33	06:47	06:15	06:33	06:28	06:23
	2nd Appliance	09:52	10:55	11:33	10:45	09:24	09:55	10:37	10:40	10:16	10:28	10:34	10:21
Reading	1st Appliance	04:50	05:05	05:11	05:16	05:09	05:33	05:38	05:42	05:41	05:45	05:19	05:43
	2nd Appliance	06:43	06:56	06:59	07:18	07:20	08:03	07:43	07:41	07:48	08:20	07:16	08:03
Slough	1st Appliance	05:32	05:56	06:06	05:56	05:47	05:57	06:14	06:11	06:01	06:06	05:57	06:04
	2nd Appliance	06:13	07:08	06:56	06:54	06:41	07:11	07:13	06:53	07:05	07:47	06:55	07:25
West Berkshire	1st Appliance	08:21	08:43	09:05	09:17	08:50	09:06	09:08	09:16	09:16	09:40	09:02	09:29
	2nd Appliance	11:53	12:54	13:20	14:17	13:47	13:18	12:53	13:09	14:00	12:57	13:09	13:25
Windsor and Maidenhead	1st Appliance	06:44	07:12	07:16	07:13	06:48	07:08	07:10	07:04	06:56	07:28	07:06	07:13
	2nd Appliance	09:22	10:15	10:06	10:14	10:26	10:14	09:51	10:17	09:23	09:56	10:01	09:38
Wokingham	1st Appliance	07:57	08:09	08:14	08:09	07:28	07:56	08:25	08:03	07:41	07:59	08:01	07:50
	2nd Appliance	10:10	10:47	10:56	10:31	10:43	10:43	11:04	10:14	10:18	11:14	10:39	10:42
South Buckinghamshire	1st Appliance	09:33	09:54	10:12	08:56	08:08	09:48	10:15	11:19	10:35	09:19	09:50	09:53
	2nd Appliance	09:15	19:32	13:10	10:17	09:31	10:53	10:08	12:01	11:22	11:55	12:07	11:38
Berkshire-wide	**1st Appliance**	**06:25**	**06:49**	**06:59**	**06:54**	**06:37**	**06:56**	**07:04**	**07:04**	**06:57**	**07:16**	**06:52**	**07:07**
	2nd Appliance	**08:32**	**09:19**	**09:22**	**09:21**	**09:31**	**09:37**	**09:35**	**09:29**	**09:31**	**10:01**	**09:20**	**09:45**

Note:
Demand on days of Industrial Action have been removed

more variation in the Crew Response Performance for the 2nd Appliance, across the ten-year sample. A large reduction in 2nd Appliance Crew Response Performance to Special Services and Fires occurred in 2008/09, whilst an increase to those in False Alarms occurred. This reflects the changes in response type to certain incident categories (see sub-section 2.3). In 2013/14, there was a decrease in Crew Response Performance for Special Service and False Alarm 2nd Appliance responses, but an increase of 55 seconds for Fire 2nd Appliance Crew Response, compared to 2012/13.

2.5.9　Crew Response Performance is relatively stable across the 24-hour period, as the impacts of increased Crew Turnout time at night are reduced by longer Travel Time to Scene in the day (Appendix **D4b**). There are significant variations in 2nd Appliance Crew Response Performance across the hours of the day, as a result of the low demand levels.

2.5.10　The historical profile of average Time at Scene shows a gradual increase for all incident types across the sample period, however there is a large decrease observed in 2013/14 (Appendix **D5a**).

2.5.11　Graphs showing the cumulative response profiles are provided in Appendix **D6**. These are shown separately for All incidents and the different incident categories (Fire, Special Service and False Alarm) in Appendices **D6a** to **D6d**. For All incident types, the average response performance for the 1st appliance to 2+ appliance incidents was 84% within 10 minutes, whilst the 2nd appliance attended within 12 minutes 76% of the time (Appendix **D6a**).

2.5.12　Appendix **D7** and Figure **5** opposite present the average response performance by District. The two-year average Berkshire-wide response performance to All incidents was 07:07 for the 1st appliance and 09:45 for the 2nd appliance. For both the ten-year and two-year average, Reading had the fastest 1st appliance response and Slough District had the fastest 2nd appliance response.

2.5.13　The maps presented in Appendix **D8** show the locations of incidents that were responded to within a threshold (green) and outside of the threshold (purple) for 1st and 2nd response. For each set of maps, more incidents are met within the threshold than are outside it.

- All Incidents

    - 1st Response within 10 minutes　　**D8a**

    - 2nd Response within 12 minutes　　**D8b**

- Primary Dwelling Fires

    - 1st Response within 10 minutes　　**D8c**

    - 2nd Response within 12 minutes　　**D8d**

- RTCs

    - 1st Response within 11 minutes　　**D8e**

3 MODEL VALIDATION

3.1 Introduction

3.1.1 Model validation is the process whereby the model is calibrated against known performance. Once this process is completed satisfactorily, there can be confidence that the model outputs will accurately reflect changes in model inputs (eg. changes in station locations or appliance deployments).

3.1.2 There are a number of stages involved in preparing a validated model, and these require a detailed level of understanding around the manner in which the Service functions (gained through data analysis and consultation), and sophisticated operational research techniques.

3.1.3 The process of validation is outlined and the results of this process are presented below.

3.2 Modelling Period Selection

3.2.1 Modelling periods were identified to represent the fluctuations in demand, performance and appliance unavailability that occur across the day, so as to ensure that the validation approach is robust. A two-year sample period of analysis was used to select these modelling periods. The modelling periods should result in blocks of time with similar operational and demand characteristics.

3.2.2 Appendix **E1** presents the modelling periods that have been selected by day and hour of the week. Four modelling periods have been selected ensuring that demand levels and Crew Turnout times are reasonably consistent across the individual periods, and reflect current shift operation patterns. The modelling periods are as follows:

- 'Day – Weekday' = 08:00 to 18:00 Monday to Friday

- 'Day – Weekend' = 08:00 to 18:00 Saturday and Sunday

- 'Evening' = 18:00 to 00:00

- 'Night' = 00:00 to 08:00

3.2.3 The profile of RDS unavailability by hour of the day for weekdays and weekends is given in Appendix **E2**. There is significant variation across the 24-hour period (and also by callsign – see Appendix **A3**), which supports the need for reflective modelling periods. A clear difference can be seen in the unavailability of RDS appliances across the day, and between weekdays and weekends. The weekend RDS appliance unavailability follows a different pattern to that of weekdays, thus justifying the division of the day period.

3.2.4 Appendix **E2b** presents a summary of unavailability by callsign for the four modelling periods. In general, the RDS appliance unavailability is lower in the evening and night modelling periods. The graphs in Appendix **E2b-ii** illustrate the higher RDS appliance unavailability in the day period, in the

Figure 6: Modelling Period Summary

Performance Measure		Modelling Period				Overall
		1 - Weekday Day 08:00-18:00	2 - Weekend Day 08:00-18:00	3 - Evening 18:00-00:00	4 - Night 00:00-08:00	
Crew Turnout	Wholetime	01:20	01:19	01:20	01:44	01:24
	Retained	03:54	04:02	03:52	05:11	04:09
Hourly Demand	False Alarm	0.358	0.422	0.413	0.177	0.319
	Fire	0.239	0.277	0.331	0.116	0.225
	Special Service	0.200	0.199	0.153	0.062	0.142
	Total	0.797	0.898	0.897	0.355	0.687
RDS Unavailbility	Ascot 14P1	63.5%	92.8%	91.3%	95.2%	84.5%
	Bracknell 16P2	76.8%	75.0%	59.3%	58.2%	66.0%
	Crowthorne 15P1	38.5%	26.8%	8.0%	4.8%	18.2%
	Hungerford 05P1	4.3%	36.3%	3.1%	1.5%	6.9%
	Lambourn 06P1	70.4%	66.5%	39.4%	28.7%	48.3%
	Maidenhead 19P2	50.1%	19.4%	9.3%	13.0%	23.8%
	Mortimer 11P1	27.9%	34.4%	18.2%	17.1%	22.7%
	Newbury 04P2	54.8%	84.1%	65.9%	51.3%	59.9%
	Pangbourne 07P1	81.9%	53.1%	33.5%	22.9%	46.7%
	Wargrave 09P1	92.2%	51.9%	32.0%	27.7%	50.8%
Crew Response Performance	1st Appliance	07:23	07:02	06:49	07:15	07:07
	2nd Appliance	10:16	09:32	09:14	09:51	09:45

Note:
Two-year sample period (April 2012 to March 2014)
Newbury appliance was upgraded from RDS to Wholetime in October 2013

Day-Weekday period for six of the ten RDS appliances, and in the Day-Weekend period for three of the appliances.

3.2.5   The analysis in Appendix **E3a** presents demand by hour. Demand during the night time hours is significantly lower than the other periods.

3.2.6   A summary of the demand by modelling period is given in Appendix **E3b**. This summary highlights the significantly higher average hourly call rate for the day and evening periods compared to the night period.

3.2.7   Crew Turnout time by hour and duty system is given in Appendix **E4a**. For both duty systems, the Crew Turnout time is higher during the night period. The Wholetime Crew Turnout time remains relatively consistent throughout the day and evening periods, whilst the RDS Crew Turnout time increases during the evening period compared to the day.

3.2.8   A summary of the Crew Turnout time by callsign and modelling period is provided in Appendix **E4b**. This highlights the similar Crew Turnout times during the day and evening periods for Wholetime callsigns. The table also illustrates the large decrease in Crew Turnout time for the second Newbury appliance, following its crewing change from RDS to Wholetime in October 2013.

3.2.9   Appendix **E5** illustrates the variation in Crew Response Performance by incident type. Crew Response Performance is shortest in the evening period, but there is a large amount of variation across the 24-hour period and between incident types (Appendix **E5a**). This variation in the average Crew Response Performance is highlighted by incident type and modelling period in Appendix **E5b**. This table shows that overall Crew Response Performance is shortest in the evening period.

3.2.10   A summary of the level of RDS unavailability, hourly demand, Crew Turnout time and Crew Response Performance by modelling period is given in Appendix **E6** and in Figure **6** opposite. These analyses form direct inputs for the simulation model.

3.3   Modelling Assumptions

3.3.1   In order to produce a validated travel time model for RBFRS, a number of assumptions were made, and are discussed below.

3.3.2   A six-year sample of incident data was chosen, due to the changes in operational response in 2008/09. The geographical distribution of incidents is well correlated between the different modelling periods. The same geographical distribution based on a six-year sample was used across all modelling periods. This provides a robust number of incidents for the geographical distribution, particularly important for the incident categories with lower demand levels.

3.3.3   The Crew Turnout times used within the model were based on the actual measured times by appliance.

3.3.4   In order to generate appropriate travel times, it was assumed that journeys undertaken by RBFRS appliances take the quickest route.

3.4 Modelled Incident Types

3.4.1 The analysis presented in this report has concentrated on Fire, Special Service and False Alarm incidents. For modelling purposes, it is important to select appropriate incident types, taking into consideration the profile of demand and response as well as particular incidents of interest (e.g. Priority incidents). The following four types of incident were therefore used in the modelling:

- Primary Fires

- RTCs

- False Alarms

- Other

3.4.2 Priority incidents consist of Primary Dwelling Fires and RTCs. Primary Dwelling Fires are a subset of Primary Fires. For the purposes of modelling, Primary Fire locations were used as a proxy for Primary Dwelling Fire locations, so that a larger and more robust sample of incidents was used. Appendix **F1** presents the breakdown of incident types modelled.

3.5 Travel Time Calibration

3.5.1 In order to develop a travel time matrix for the study area, nodes were placed at key points, including the current RBFRS stations (as presented in Appendix **A1**), stations of surrounding Fire & Rescue Services and South Central Ambulance Service deployment locations. Also included in these nodes are centroids for each Output Area in Berkshire from the 2011 Census, locations of incidents across the County (snapped to locations on the road network), and additional nodes to reflect the road network in the county. In total, there are 8,173 nodes used for the modelling.

3.5.2 Travel times between nodes on the road network are a key input to the model. These times are assigned initially based on road types that differentiate achievable speeds in 'average' traffic conditions. ORH uses sophisticated Navteq travel time data and RouteFinder routing software for analysing travel times. This provides a comprehensive and customisable resource for determining journey times and distances, which can then be validated against travel times actually achieved by appliances responding to incidents.

3.5.3 The distributions of modelled travel times and actual travel times, analysed from the CAD database were then compared. As the road speeds used in Navteq are for achievable car journey times, calibration was required to represent the conditions under which pumping appliances are responding. This results in the incorporation of the ability to travel under lights and sirens.

Figure 7: Average Response Time Comparison

All Periods Combined

Incident Type		1st Response to 1-Appliance Incidents	1st Response to 2+ Appliance Incidents	1st Response to All Incidents	2nd Response to All Incidents
False Alarms	Actual	07:05	06:26	06:58	09:00
	Model	07:06	06:26	06:59	09:01
	Difference	00:01	-00:01	00:01	00:01
Primary Fires	Actual	07:49	06:42	07:14	09:34
	Model	07:48	06:43	07:14	09:34
	Difference	-00:01	00:00	-00:00	00:00
RTCs	Actual	08:00	07:50	07:53	10:49
	Model	08:00	07:51	07:54	10:49
	Difference	-00:00	00:01	00:01	00:00
Other	Actual	07:02	08:04	07:09	10:53
	Model	07:02	08:03	07:08	10:56
	Difference	-00:00	-00:02	-00:01	00:02
All Incidents	Actual	07:10	06:59	07:07	09:45
	Model	07:10	06:59	07:08	09:46
	Difference	00:00	-00:00	00:00	00:01

By Modelling Period - All Incident Types

Response Type		1 - Weekday Day Mon - Fri 08:00-18:00	2 - Weekend Day Sat - Sun 08:00-18:00	3 - Evening 18:00-00:00	4 - Night 00:00-08:00
1st Response to 1-Appliance Incidents	Actual	07:25	07:05	06:53	07:18
	Model	07:26	07:06	06:53	07:17
	Difference	00:01	00:01	00:00	-00:01
1st Response to 2+ Appliance Incidents	Actual	07:17	06:50	06:38	07:08
	Model	07:17	06:50	06:38	07:07
	Difference	00:00	00:00	00:00	-00:02
1st Response to All Incidents	Actual	07:23	07:02	06:49	07:15
	Model	07:24	07:03	06:49	07:14
	Difference	00:00	00:00	00:00	-00:01
2nd Response to All Incidents	Actual	10:16	09:32	09:14	09:51
	Model	10:16	09:32	09:15	09:53
	Difference	00:00	-00:00	00:00	00:02

3.5.4   The process of calibrating travel times was undertaken for each modelling period separately. In addition, for each incident category the calibration was conducted for three response types:

- first appliance to one pumping appliance incidents (1/1);

- first appliance to all 2 or more pumping appliance incidents (1/2+); and

- second appliance to all 2 or more pumping appliance incidents (2/2+).

3.5.5   In total, there were 48 categories of response to calibrate (4 incident categories, 3 response types and 4 modelling periods). Every incident response journey in the two-year performance sample made by an RBFRS pumping appliance was used to adjust the Navteq times ORH holds. Additionally, the travel times were also calibrated by district, to ensure that the geographical variations in travel times were also captured.

3.6   Model Setup and Validation

3.6.1   Following the calibration of travel times, the next stage in the process was to implement this data into ORH's fire simulation model, FireSim. In addition to the calibrated travel times, model inputs are derived from the analysis presented in this report.

3.6.2   The appliance based model inputs are generated for each callsign and consist of the analysed Crew Turnout time and appliance unavailability. The appliance unavailability takes into account RDS unavailability and time occupied on over-the-border incidents. The model inputs also contain the demand rates, incident locations and time spent at scene. As with the travel time calibration, the model is setup for the four modelling periods (as discussed in sub-section 3.2).

3.6.3   The model validation process was then undertaken for each modelling period separately, considering both first and second appliance responses to incidents. The actual versus modelled performance distributions, by response type for All incidents, are shown in Appendix **F2** (for all modelling periods combined). The comparison of actual against modelled performance distributions by modelling period are given in Appendix **F3**. Appendix **F4** provides model validation graphs for first and second responses to the four incident types used within the modelling: False Alarms, Primary Fires, RTCs and Other incidents.

3.6.4   The attendance distribution curves show that modelled performance aligns very closely to the actual analysed performance for all incident and response types. This is particularly the case for first response, which represents the majority of attendances for RBFRS.

3.6.5   A comparison of actual and modelled average response times is given in Appendix **F5** and in Figure **7** opposite. Whilst the model validation is concerned with matching the entire distribution of responses, it is a good indication that the average response times are well aligned.

Figure 8: Modelled Base Position

Validated Position

District	All Incidents				Dwelling Fires		RTCs
	Average 1st	1st Within 10 Mins	Average 2nd	2nd Within 12 Mins	1st Within 10 Mins	2nd Within 12 Mins	1st Within 11 Mins
Bracknell Forest	06:26	88.9%	10:18	78.3%	91.6%	81.4%	91.5%
Reading	05:44	93.7%	08:00	91.5%	96.4%	93.1%	97.5%
Slough	06:04	92.3%	07:30	92.3%	97.4%	94.1%	87.1%
West Berkshire	09:30	62.3%	13:32	41.7%	57.1%	50.6%	54.5%
Windsor and Maidenhead	07:14	81.2%	09:41	75.9%	81.3%	80.8%	83.4%
Wokingham	07:52	77.0%	10:50	72.2%	84.9%	83.6%	81.7%
South Buckinghamshire	10:10	63.4%	11:19	59.3%	64.3%	75.0%	72.2%
Service-Wide	07:10	82.3%	09:50	75.7%	84.4%	82.7%	78.1%

Modelled Base

District	All Incidents				Dwelling Fires		RTCs
	Average 1st	1st Within 10 Mins	Average 2nd	2nd Within 12 Mins	1st Within 10 Mins	2nd Within 12 Mins	1st Within 11 Mins
Bracknell Forest	06:26	88.8%	10:19	78.1%	91.3%	81.3%	90.5%
Reading	05:43	93.7%	08:00	91.5%	96.4%	93.1%	97.5%
Slough	06:04	92.1%	07:32	92.0%	97.2%	93.8%	87.0%
West Berkshire	09:20	63.2%	12:36	48.4%	57.8%	57.4%	54.9%
Windsor and Maidenhead	07:35	77.9%	09:36	77.5%	79.4%	82.7%	83.8%
Wokingham	07:52	77.1%	10:49	72.2%	84.9%	83.6%	81.8%
South Buckinghamshire	10:08	63.5%	11:14	59.4%	64.3%	75.0%	72.2%
Service-Wide	07:12	81.9%	09:40	76.9%	84.2%	83.9%	78.2%

Impact

District	All Incidents				Dwelling Fires		RTCs
	Average 1st	1st Within 10 Mins	Average 2nd	2nd Within 12 Mins	1st Within 10 Mins	2nd Within 12 Mins	1st Within 11 Mins
Bracknell Forest	00:00	-0.1%	00:01	-0.2%	-0.3%	-0.1%	-1.0%
Reading	-00:01	0.0%	00:00	0.0%	0.0%	0.0%	0.0%
Slough	00:00	-0.2%	00:02	-0.3%	-0.2%	-0.3%	-0.1%
West Berkshire	-00:10	0.9%	-00:56	6.7%	0.7%	6.8%	0.4%
Windsor and Maidenhead	00:21	-3.3%	-00:05	1.6%	-1.9%	1.9%	0.4%
Wokingham	00:00	0.1%	-00:01	0.0%	0.0%	0.0%	0.1%
South Buckinghamshire	-00:02	0.1%	-00:05	0.1%	0.0%	0.0%	0.0%
Service-Wide	00:02	-0.4%	-00:10	1.2%	-0.2%	1.2%	0.1%

3.6.6   Given the complexity and inherent variability of the responses modelled, the close correspondence between modelled and actual response times is very good. The model can therefore be used with confidence to explore the effects of change in controllable and uncontrollable factors, and specifically changes in the station and appliance configuration.

3.7   Establishing a Modelled Base

3.7.1   A two-year sample period (1st April 2012 to 31st March 2014) was used to calculate model inputs for appliance availability, turnout times, demand rates and the analysed performance against which to validate.

3.7.2   Whilst the validation ensures that the model accurately replicates the operational regime of the Service over the two-year sample, it was necessary to establish a modelled based position that is reflective of the current position of RBFRS, and any changes that have been planned to occur in the near future.

3.7.3   During the two-year sample period, the second pumping appliance at Newbury was upgraded from RDS to Wholetime in October 2013. This change in deployment needed to be taken into account in the modelled base position, so that it is taken into account for any future modelling scenarios.

3.7.4   As part of RBFRS' Action Plan for 2014/15, Windsor station is planned to move from St Mark's Road to Tinkers Lane. As this planned change should occur within the next financial year, this also needed to be taken account of in the modelled base position. The Crew Turnout time was assumed to be the same for this appliance.

3.7.5   The modelled base position is summarised in Appendix **F6** and Figure **8** opposite. As a result of the changes in crewing arrangements in the modelled base position, Service-wide performance deteriorates slightly for 1st response (average 1st appliance is 2 seconds slower to All incidents), but improves by 10 seconds for average 2nd response to All incidents, compared to the validated position.

3.7.6   The largest changes in the modelled base position, compared to the validated position, are observed in West Berkshire and Windsor and Maidenhead districts, where the changes in deployments occurred. In West Berkshire District, there is a 10-second improvement in average 1st appliance response time to All incidents and a 56-second improvement for average 2nd appliance response time to All incidents, due to the second Newbury appliance becoming Wholetime. The change in the location of Windsor station, results in a 21-second deterioration in average 1st appliance response time, but a 5-second improvement in average second appliance response time, in Windsor and Maidenhead district compared to the validated position.

4   SUMMARY

4.1   This is a Draft Report for an annual performance review and model revalidation study for RBFRS.

4.2   The objective of this study has been to analyse the latest demand and performance data from RBFRS and to refresh ORH's optimisation and simulation models of RBFRS with up-to-date data, so as to take account of more recent incident workload and appliance availability trends.

4.3   Data collection and analysis were undertaken and a comprehensive description of service delivery has been presented (see Section 2). The data analysis focused on a ten-year sample, to identify historical trends in the demand and operational profile. A two-year sample has also been analysed to identify current performance trends for RBFRS.

4.4   Over the past ten years, there has been a decrease in the demand in Berkshire as well as changes in the operational response to incidents, most notably to False Alarms (2008/09) and RTCs (2010/11). The hourly patterns of demand vary by incident type, and are thus reflected in the modelling periods selected.

4.5   The response profile of RBFRS pumping appliances has seen a decrease in Crew Turnout time over the ten-year sample period. As a result of changing incident demand profiles, changes in road infrastructure and traffic volumes, Travel Time to Scene has increased in the past ten years. The Crew Response Performance varies by incident and response type.

4.6   Model preparation and calibration of travel times has also been completed, and evidence to support this process is presented in Section 3. There is a close correspondence between actual and modelled travel times, which demonstrates that the model accurately emulates the speeds of pumping appliance response across Berkshire.

4.7   A modelled base position has been set up to take into account current crewing arrangements (Newbury as two wholetime appliances) and planned changes in operational arrangements. The modelled base position therefore takes into account Windsor station being located at Tinkers Lane, which became operationally active on 17th November 2014.

4.8   The model is therefore considered robust and appropriate for use in appraising changes to operational procedures in RBFRS.

Appendices

A	Stations and Pumping Appliance Unavailability
B	Current Service Demand
C	Geographical Location Analysis
D	Response Profile Analysis
E	Modelling Period Selection
F	Model Validation

PLAN. PREPARE. PERFORM.

A   Stations and Pumping Appliance Unavailability

A1   Stations by Crew Type

A2   Unavailability by Callsign and Month

A3   Unavailability by Callsign and Hour

A3a   All Days

A3b   Weekdays

A3b   Weekends

RBFRS - Model Revalidation & Annual Performance Report (2014)

Stations By Crew Type
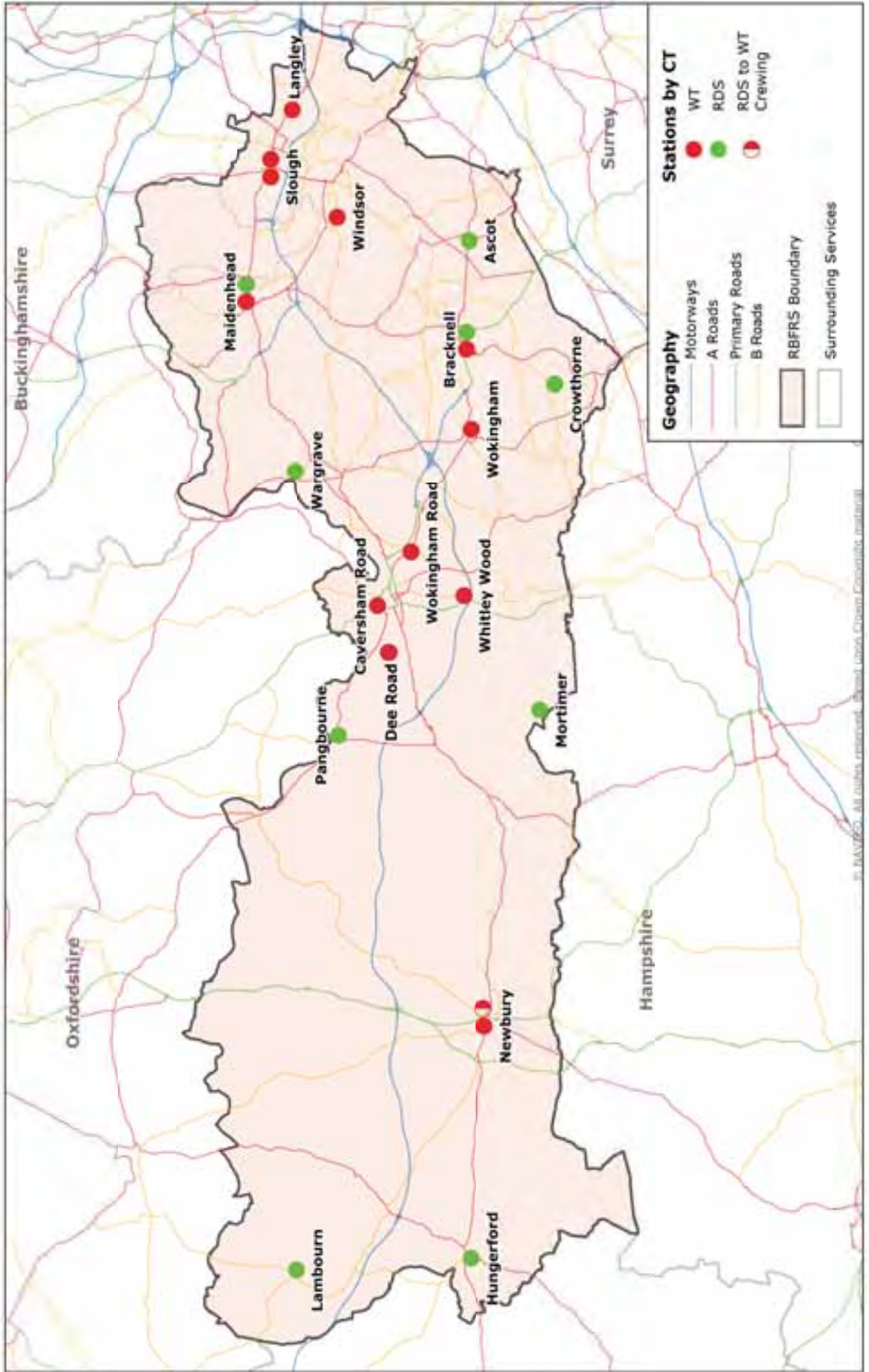
A1

Stations by CT

WT	●	
RDS	●	
RDS to WT Crewing	◐	

Geography

- Motorways
- A Roads
- Primary Roads
- B Roads
- RBFRS Boundary
- Surrounding Services

Stations: Langley, Slough, Windsor, Ascot, Maidenhead, Bracknell, Crowthorne, Wokingham, Wargrave, Wokingham Road, Caversham Road, Whitley Wood, Dee Road, Pangbourne, Mortimer, Newbury, Lambourn, Hungerford

Counties: Buckinghamshire, Oxfordshire, Surrey, Hampshire

RBFRS - Model Revalidation & Annual Performance Report (2014)
Appliance Unavailability by Month
2 Year Sample Period (01/04/2012 to 31/03/2014)

Percentage Unavailable

Stn Code	Station	Apr 2012	May 2012	Jun 2012	Jul 2012	Aug 2012	Sep 2012	Oct 2012	Nov 2012	Dec 2012	Jan 2013	Feb 2013	Mar 2013	Apr 2013	May 2013	Jun 2013	Jul 2013	Aug 2013	Sep 2013	Oct 2013	Nov 2013	Dec 2013	Jan 2014	Feb 2014	Mar 2014	2-Year Average	2012/13 Average	2013/14 Average
04	Newbury	54%	54%	46%	52%	62%	68%	61%	62%	67%	54%	42%	52%	56%	54%	66%	63%	85%	61%	-	-	-	-	-	-	59%	56%	64%
05	Hungerford	11%	8%	7%	13%	9%	6%	7%	2%	9%	1%	7%	3%	3%	10%	11%	10%	8%	7%	5%	8%	7%	6%	3%	7%	7%	7%	7%
06	Lambourn	61%	80%	50%	54%	77%	64%	71%	48%	50%	26%	29%	35%	31%	26%	45%	29%	38%	40%	37%	41%	69%	55%	43%	55%	48%	54%	42%
07	Pangbourne	51%	51%	56%	38%	49%	45%	45%	43%	56%	38%	50%	38%	39%	49%	40%	57%	57%	43%	46%	44%	54%	37%	40%	51%	47%	47%	47%
09	Wargrave	29%	43%	59%	40%	37%	41%	48%	55%	71%	48%	46%	53%	44%	59%	46%	51%	67%	77%	51%	45%	75%	41%	44%	47%	51%	47%	54%
11	Mortimer	31%	26%	22%	25%	20%	10%	8%	5%	18%	1%	4%	39%	15%	24%	44%	27%	33%	27%	20%	24%	38%	21%	31%	28%	23%	17%	28%
14	Ascot	59%	83%	88%	71%	76%	77%	84%	83%	76%	64%	70%	80%	75%	84%	83%	86%	91%	94%	100%	100%	100%	100%	100%	100%	84%	76%	93%
15	Crowthorne	12%	5%	14%	21%	20%	14%	17%	12%	17%	13%	17%	17%	23%	24%	17%	24%	20%	19%	19%	24%	38%	22%	8%	19%	18%	15%	21%
16	Bracknell	50%	49%	32%	55%	63%	37%	50%	63%	82%	58%	66%	70%	75%	90%	60%	87%	90%	83%	89%	75%	81%	61%	67%	44%	66%	56%	75%
19	Maidenhead	28%	25%	15%	15%	13%	23%	34%	18%	31%	15%	21%	30%	22%	35%	15%	18%	14%	12%	34%	37%	35%	31%	23%	29%	24%	22%	25%
	Overall	39%	42%	39%	38%	43%	39%	43%	39%	48%	32%	35%	42%	38%	45%	43%	45%	50%	46%	45%	44%	55%	42%	40%	42%	42%	40%	45%

Note: Newbury 04P2 changed from RDS to Wholetime

RBFRS - Model Revalidation & Annual Performance Report (2014)
Appliance Unavailability by Hour
All Days: 2 Year Sample Period (01/04/12 to 31/03/14)

Percentage Unavailable

Stn Code	Station	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Overall
04	Newbury	45%	44%	44%	44%	44%	45%	68%	78%	81%	60%	55%	53%	58%	59%	60%	60%	62%	84%	76%	72%	66%	63%	61%	57%	60%
05	Hungerford	0%	0%	0%	0%	0%	1%	3%	7%	7%	10%	13%	13%	17%	18%	18%	16%	14%	8%	6%	4%	3%	2%	2%	2%	7%
06	Lambourn	18%	17%	16%	16%	18%	26%	45%	74%	79%	72%	72%	74%	74%	72%	63%	61%	59%	66%	42%	44%	44%	41%	39%	25%	48%
07	Pangbourne	10%	9%	9%	9%	9%	10%	54%	72%	77%	72%	69%	69%	71%	71%	73%	75%	79%	81%	63%	37%	36%	27%	20%	18%	47%
09	Wargrave	17%	17%	17%	18%	20%	28%	31%	73%	79%	81%	81%	82%	82%	82%	82%	81%	80%	77%	42%	35%	30%	31%	29%	25%	51%
11	Mortimer	11%	10%	10%	12%	16%	21%	24%	33%	38%	30%	30%	27%	31%	30%	30%	29%	27%	25%	21%	22%	20%	19%	16%	13%	23%
14	Ascot	95%	95%	95%	95%	95%	96%	96%	95%	94%	68%	67%	66%	66%	65%	65%	66%	68%	93%	91%	89%	89%	91%	94%	93%	85%
15	Crowthorne	6%	5%	5%	4%	2%	2%	5%	9%	38%	44%	51%	50%	46%	42%	33%	22%	15%	10%	6%	7%	11%	10%	7%	6%	18%
16	Bracknell	49%	49%	49%	49%	59%	59%	74%	78%	79%	75%	74%	74%	78%	78%	78%	77%	76%	73%	67%	65%	63%	57%	53%	51%	66%
19	Maidenhead	8%	7%	7%	7%	8%	7%	13%	47%	46%	46%	44%	43%	43%	40%	39%	37%	37%	39%	10%	8%	9%	9%	9%	10%	24%
	Overall	26%	25%	25%	25%	27%	29%	41%	57%	62%	56%	56%	55%	57%	56%	54%	53%	52%	56%	42%	38%	37%	35%	33%	30%	43%

Note: Newbury O4P2 changed from RDS to Wholetime

RBFRS - Model Revalidation & Annual Performance Report (2014)
Appliance Unavailability by Hour
Weekdays: 2 Year Sample Period (01/04/12 to 31/03/14)

Percentage Unavailable

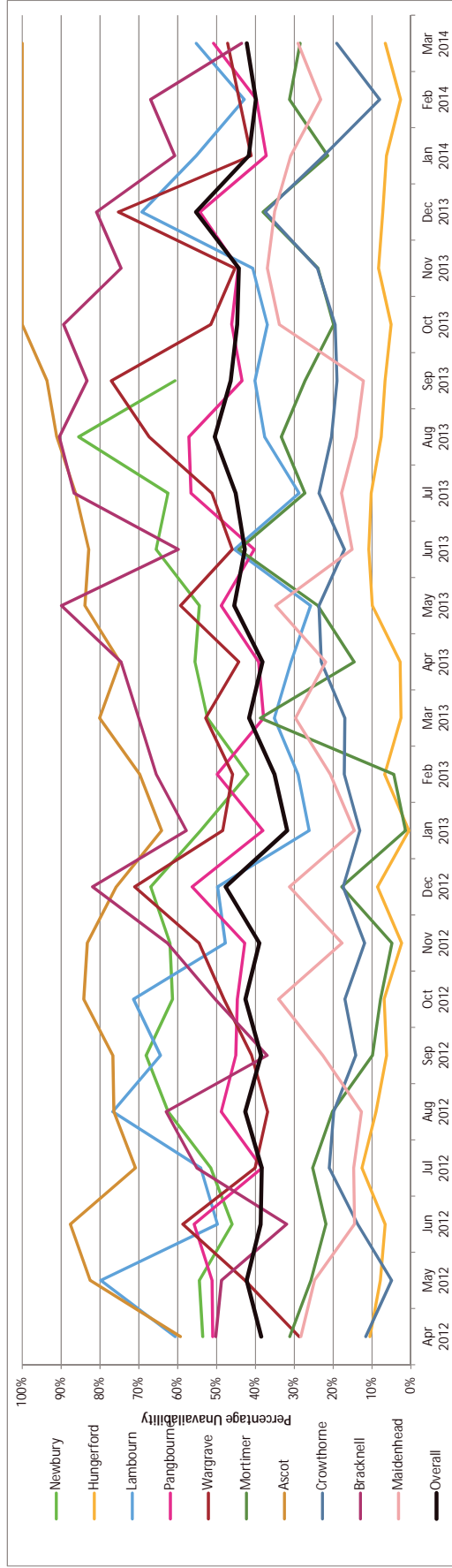| Stn Code	Station	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Overall
04	Newbury	41%	41%	40%	40%	41%	42%	73%	81%	80%	50%	43%	42%	48%	48%	49%	50%	54%	83%	75%	71%	64%	61%	60%	55%	55%
05	Hungerford	0%	0%	0%	0%	0%	1%	4%	7%	6%	4%	4%	4%	4%	5%	5%	4%	4%	2%	1%	1%	1%	0%	1%	0%	2%
06	Lambourn	16%	15%	15%	15%	17%	28%	54%	86%	85%	72%	70%	68%	69%	69%	67%	65%	64%	75%	44%	42%	39%	37%	36%	25%	49%
07	Pangbourne	7%	7%	7%	7%	7%	8%	67%	89%	92%	82%	76%	76%	77%	76%	78%	82%	88%	93%	72%	38%	36%	27%	18%	16%	51%
09	Wargrave	11%	11%	11%	13%	16%	26%	29%	87%	92%	92%	93%	93%	93%	93%	93%	93%	92%	88%	39%	30%	24%	25%	23%	19%	54%
11	Mortimer	5%	5%	5%	6%	12%	17%	20%	32%	39%	29%	28%	24%	27%	27%	27%	26%	27%	24%	21%	23%	19%	19%	16%	12%	20%
14	Ascot	95%	95%	95%	95%	95%	98%	97%	96%	94%	58%	56%	55%	55%	54%	55%	56%	58%	93%	90%	87%	87%	90%	93%	93%	81%
15	Crowthorne	2%	2%	1%	1%	1%	1%	6%	11%	48%	52%	56%	53%	50%	46%	36%	23%	14%	7%	5%	6%	8%	8%	5%	3%	19%
16	Bracknell	44%	43%	43%	44%	56%	56%	74%	79%	81%	76%	74%	74%	77%	77%	77%	79%	79%	76%	67%	63%	60%	53%	48%	45%	64%
19	Maidenhead	4%	3%	4%	3%	6%	6%	15%	62%	60%	56%	53%	52%	51%	48%	46%	44%	43%	48%	8%	5%	5%	5%	5%	5%	27%
	Overall	22%	22%	22%	22%	25%	28%	44%	63%	68%	57%	55%	54%	55%	54%	53%	52%	52%	59%	42%	37%	35%	33%	30%	27%	42%

Note: Newbury 04P2 changed from RDS to Wholetime

RBFRS - Model Revalidation & Annual Performance Report (2014)
Appliance Unavailability by Hour
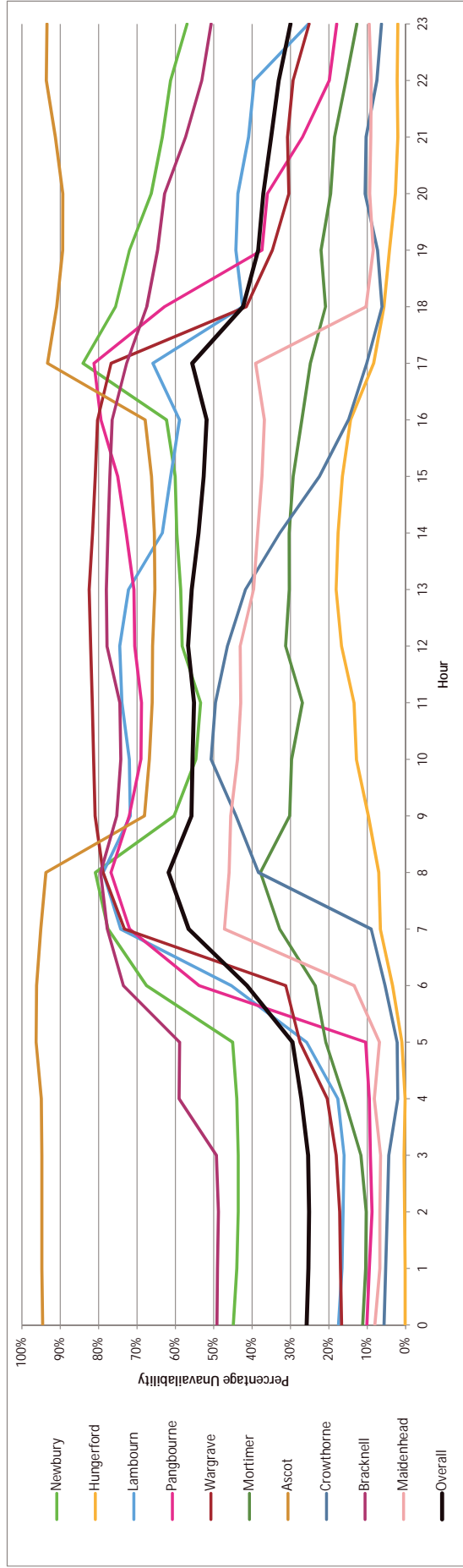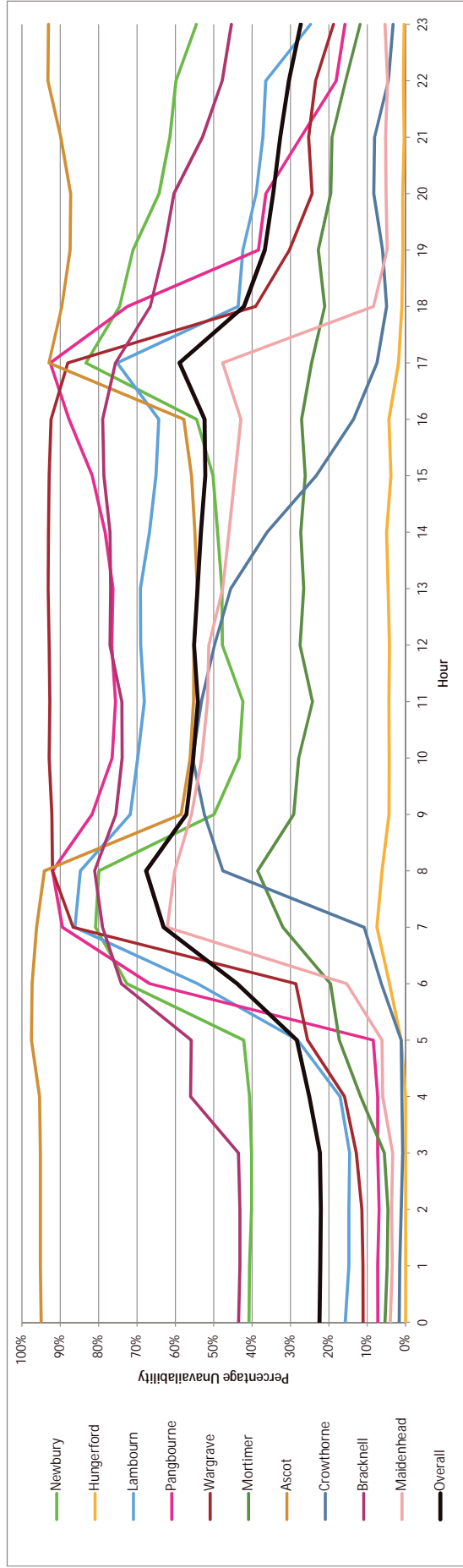Weekends: 2 Year Sample Period (01/04/12 to 31/03/14)

Percentage Unavailable

Stn Code	Station	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Overall
04	Newbury	55%	52%	52%	52%	52%	52%	55%	69%	83%	86%	83%	81%	84%	85%	86%	85%	82%	86%	78%	74%	71%	68%	65%	63%	71%
05	Hungerford	0%	0%	1%	1%	0%	0%	1%	4%	9%	23%	34%	36%	48%	52%	49%	48%	39%	24%	17%	13%	7%	6%	6%	6%	18%
06	Lambourn	22%	21%	20%	20%	19%	20%	23%	44%	64%	72%	78%	89%	88%	80%	55%	52%	45%	43%	40%	49%	56%	50%	47%	27%	47%
07	Pangbourne	17%	15%	13%	14%	15%	15%	22%	28%	39%	48%	50%	52%	56%	57%	59%	58%	59%	53%	39%	35%	35%	26%	24%	23%	36%
09	Wargrave	31%	32%	32%	31%	32%	33%	38%	40%	46%	53%	52%	54%	55%	56%	53%	51%	50%	49%	48%	46%	46%	44%	44%	41%	44%
11	Mortimer	26%	24%	24%	27%	27%	30%	33%	35%	36%	33%	34%	34%	41%	40%	38%	37%	27%	26%	20%	20%	20%	17%	15%	15%	28%
14	Ascot	94%	94%	94%	94%	94%	93%	93%	92%	93%	92%	93%	93%	93%	93%	92%	92%	93%	94%	94%	94%	94%	95%	95%	94%	93%
15	Crowthorne	15%	14%	14%	13%	5%	5%	3%	4%	15%	24%	39%	40%	38%	32%	25%	20%	18%	17%	9%	11%	16%	16%	15%	14%	18%
16	Bracknell	63%	64%	63%	64%	67%	67%	72%	75%	76%	75%	75%	76%	80%	81%	79%	73%	70%	66%	70%	69%	69%	68%	66%	64%	70%
19	Maidenhead	18%	15%	14%	14%	14%	9%	9%	10%	11%	20%	21%	21%	23%	20%	20%	20%	22%	18%	15%	18%	20%	19%	20%	20%	17%
	Overall	34%	33%	33%	33%	32%	32%	35%	40%	47%	52%	56%	58%	60%	60%	56%	54%	50%	47%	43%	43%	43%	41%	40%	37%	44%

Note: Newbury 04P2 changed from RDS to Wholetime

B   Current Service Demand

RBFRS - Model Revalidation and Annual Performance Review (2014)
Average Daily Incident Demand by Financial Year - All Incidents
10-Year Sample (2004/05 to 2013/14)
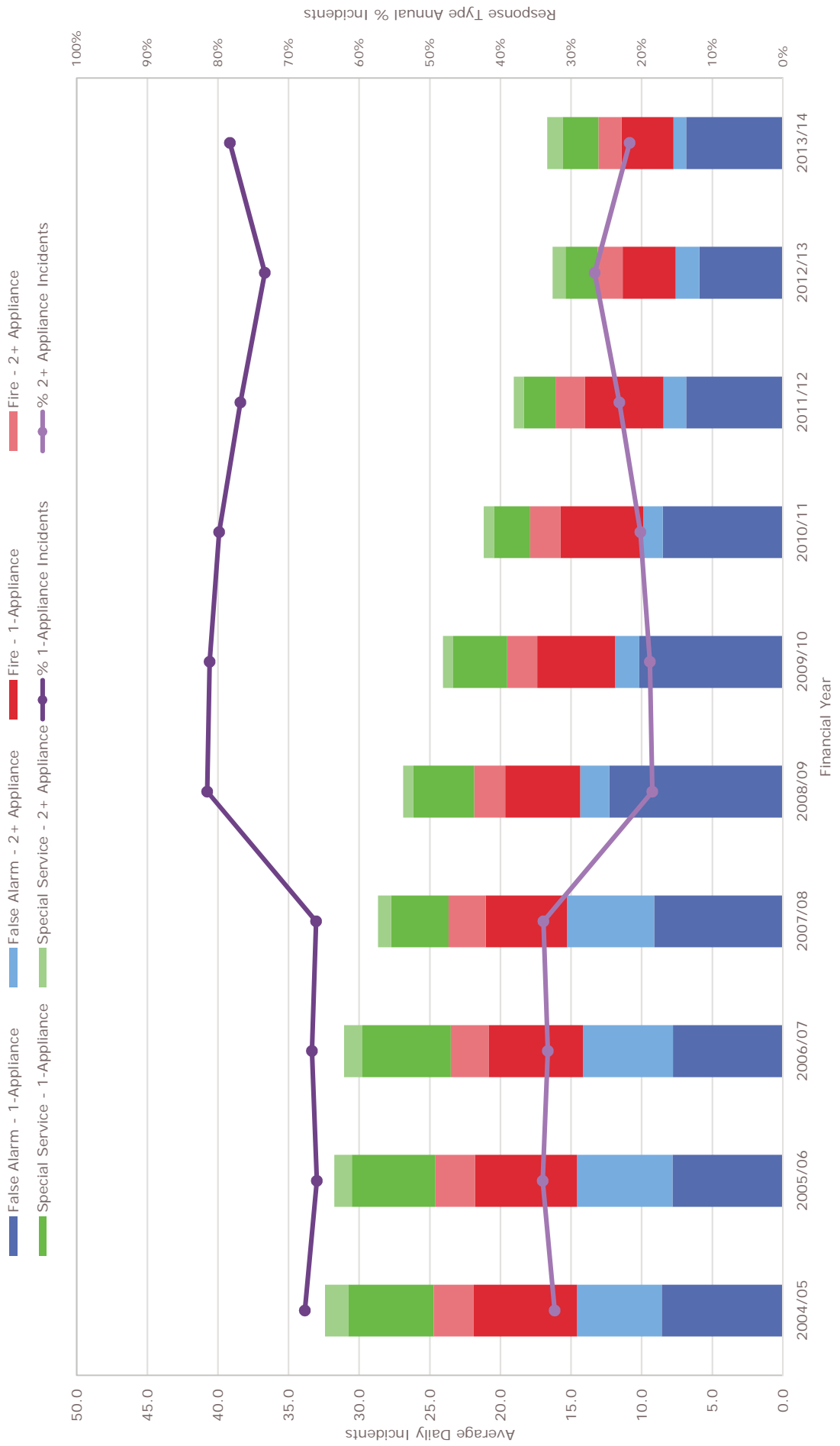
RBFRS - Model Revalidation & Annual Performance Review (2014)
Incident Category Demand Profile - All Incidents
10 Year Sample Period (01/04/2004 to 31/03/2014)

Average Daily Incidents

Incident Category	Response Type	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	Overall	10-Year Average	2-Year Average
False Alarm	1-Appliance	8.6	7.8	7.8	9.1	12.3	10.2	8.5	6.8	5.9	6.9	8.4	8.4	6.4
	2+ Appliance	6.0	6.8	6.4	6.2	2.1	1.7	1.4	1.6	1.7	0.9	3.5	3.5	1.3
	Total	**14.6**	**14.6**	**14.1**	**15.3**	**14.3**	**11.9**	**9.9**	**8.4**	**7.6**	**7.8**	**11.9**	**11.9**	**7.7**
Fire	1-Appliance	7.3	7.2	6.7	5.8	5.3	5.5	5.8	5.6	3.8	3.7	5.7	5.7	3.7
	2+ Appliance	2.8	2.8	2.7	2.6	2.2	2.1	2.2	2.1	1.8	1.6	2.3	2.3	1.7
	Total	**10.2**	**10.0**	**9.4**	**8.4**	**7.5**	**7.6**	**8.0**	**7.7**	**5.5**	**5.3**	**8.0**	**8.0**	**5.4**
Special Service	1-Appliance	6.0	5.9	6.3	4.1	4.3	3.9	2.5	2.2	2.3	2.5	4.0	4.0	2.4
	2+ Appliance	1.7	1.2	1.3	0.9	0.7	0.7	0.7	0.7	0.9	1.1	1.0	1.0	1.0
	Total	**7.7**	**7.2**	**7.6**	**5.0**	**5.0**	**4.6**	**3.3**	**2.9**	**3.2**	**3.6**	**5.0**	**5.0**	**3.4**
All Incidents	1-Appliance	21.9	21.0	20.7	18.9	21.9	19.5	16.9	14.6	12.0	13.1	18.1	18.1	12.5
	2+ Appliance	10.5	10.8	10.3	9.7	5.0	4.5	4.3	4.4	4.3	3.6	6.8	6.8	4.0
	Total	**32.4**	**31.8**	**31.1**	**28.7**	**26.9**	**24.1**	**21.2**	**19.0**	**16.3**	**16.7**	**24.8**	**24.8**	**16.5**

Annual Incidents

Incident Category	Response Type	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	Overall	10-Year Average	2-Year Average
False Alarm	1-Appliance	3,130	2,852	2,838	3,333	4,485	3,709	3,106	2,504	2,156	2,439	30,552	3,057	2,296
	2+ Appliance	2,185	2,465	2,326	2,257	749	626	501	587	611	320	12,627	1,265	467
	Total	**5,315**	**5,317**	**5,164**	**5,590**	**5,234**	**4,335**	**3,607**	**3,091**	**2,767**	**2,759**	**43,179**	**4,322**	**2,763**
Fire	1-Appliance	2,673	2,638	2,436	2,110	1,937	2,014	2,135	2,032	1,374	1,307	20,656	2,067	1,341
	2+ Appliance	1,033	1,022	978	960	801	771	790	769	640	582	8,346	835	611
	Total	**3,706**	**3,660**	**3,414**	**3,070**	**2,738**	**2,785**	**2,925**	**2,801**	**2,014**	**1,889**	**29,002**	**2,903**	**1,952**
Special Service	1-Appliance	2,206	2,159	2,288	1,489	1,572	1,407	928	819	832	904	14,604	1,462	868
	2+ Appliance	605	456	472	341	264	257	269	259	334	387	3,644	364	360
	Total	**2,811**	**2,615**	**2,760**	**1,830**	**1,836**	**1,664**	**1,197**	**1,078**	**1,166**	**1,291**	**18,248**	**1,826**	**1,228**
All Incidents	1-Appliance	8,009	7,649	7,562	6,932	7,994	7,130	6,169	5,355	4,362	4,650	65,812	6,586	4,504
	2+ Appliance	3,823	3,943	3,776	3,558	1,814	1,654	1,560	1,615	1,585	1,289	24,617	2,465	1,439
	Total	**11,832**	**11,592**	**11,338**	**10,490**	**9,808**	**8,784**	**7,729**	**6,970**	**5,947**	**5,939**	**90,429**	**9,050**	**5,943**

Annual % Incidents

Incident Category	Response Type	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	Overall	10-Year Average	2-Year Average
False Alarm	1-Appliance	26.5%	24.6%	25.0%	31.8%	45.7%	42.2%	40.2%	35.9%	36.3%	41.1%	33.8%	34.9%	38.6%
	2+ Appliance	18.5%	21.3%	20.5%	21.5%	7.6%	7.1%	6.5%	8.4%	10.3%	5.4%	14.0%	12.7%	7.9%
	Total	**44.9%**	**45.9%**	**45.5%**	**53.3%**	**53.4%**	**49.4%**	**46.7%**	**44.3%**	**46.5%**	**46.5%**	**47.7%**	**47.6%**	**46.5%**
Fire	1-Appliance	22.6%	22.8%	21.5%	20.1%	19.7%	22.9%	27.6%	29.2%	23.1%	22.0%	22.8%	23.2%	22.6%
	2+ Appliance	8.7%	8.8%	8.6%	9.2%	8.2%	8.8%	10.2%	11.0%	10.8%	9.8%	9.2%	9.4%	10.3%
	Total	**31.3%**	**31.6%**	**30.1%**	**29.3%**	**27.9%**	**31.7%**	**37.8%**	**40.2%**	**33.9%**	**31.8%**	**32.1%**	**32.6%**	**32.8%**
Special Service	1-Appliance	18.6%	18.6%	20.2%	14.2%	16.0%	16.0%	12.0%	11.8%	14.0%	15.2%	16.1%	15.7%	14.6%
	2+ Appliance	5.1%	3.9%	4.2%	3.3%	2.7%	2.9%	3.5%	3.7%	5.6%	6.5%	4.0%	4.1%	6.1%
	Total	**23.8%**	**22.6%**	**24.3%**	**17.4%**	**18.7%**	**18.9%**	**15.5%**	**15.5%**	**19.6%**	**21.7%**	**20.2%**	**19.8%**	**20.7%**
All Incidents	1-Appliance	67.7%	66.0%	66.7%	66.1%	81.5%	81.2%	79.8%	76.8%	73.3%	78.3%	72.8%	73.7%	75.8%
	2+ Appliance	32.3%	34.0%	33.3%	33.9%	18.5%	18.8%	20.2%	23.2%	26.7%	21.7%	27.2%	26.3%	24.2%
	Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Note:
Demand on days of Industrial Action have been removed

RBFRS - Model Revalidation and Annual Performance Review (2014)
Average Daily Incident Demand by Financial Year - Fire Incidents
10-Year Sample (2004/05 to 2013/14)

B1b

RBFRS - Model Revalidation & Annual Performance Review (2014)
Incident Category Demand Profile - Fire Incidents
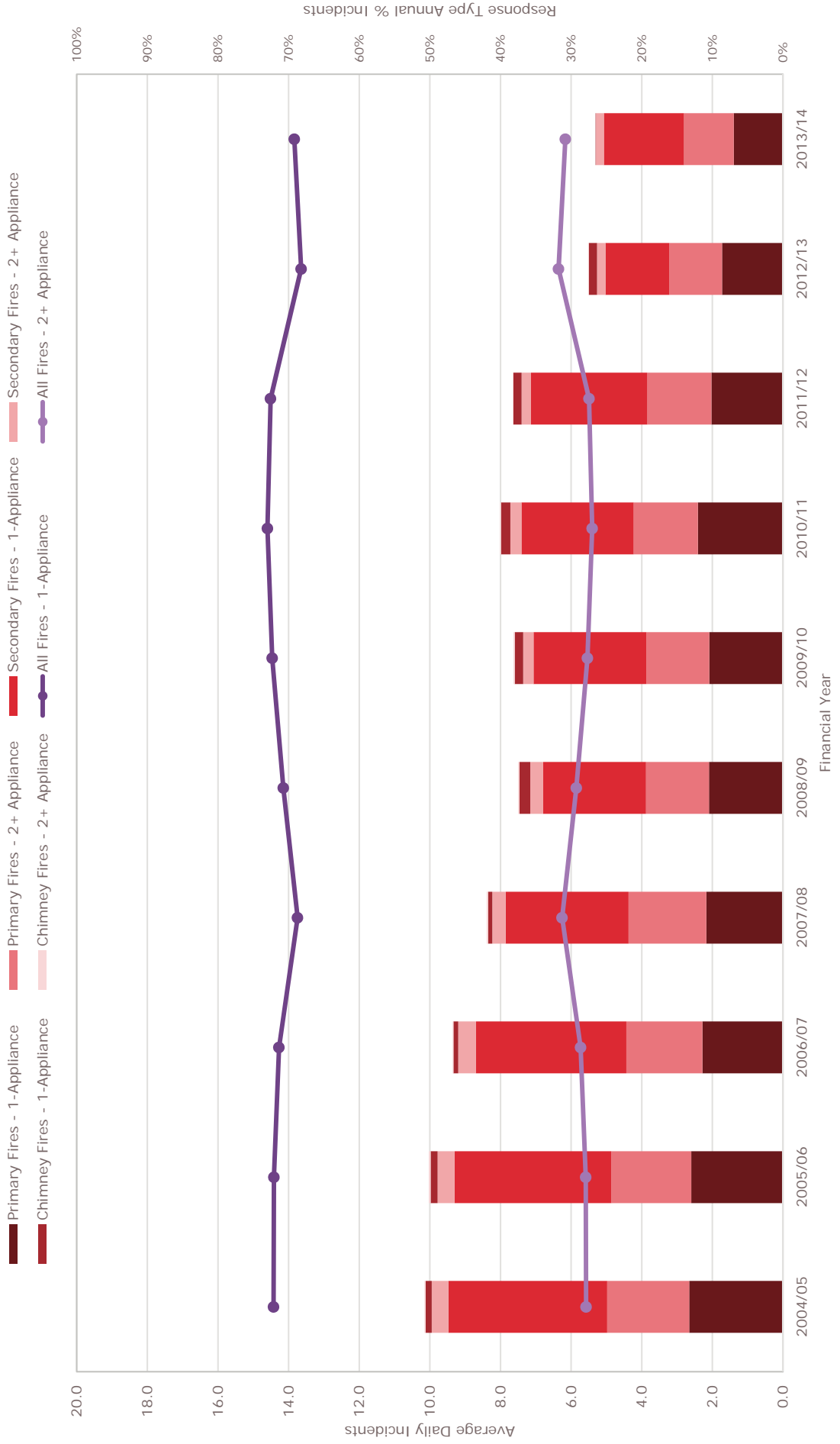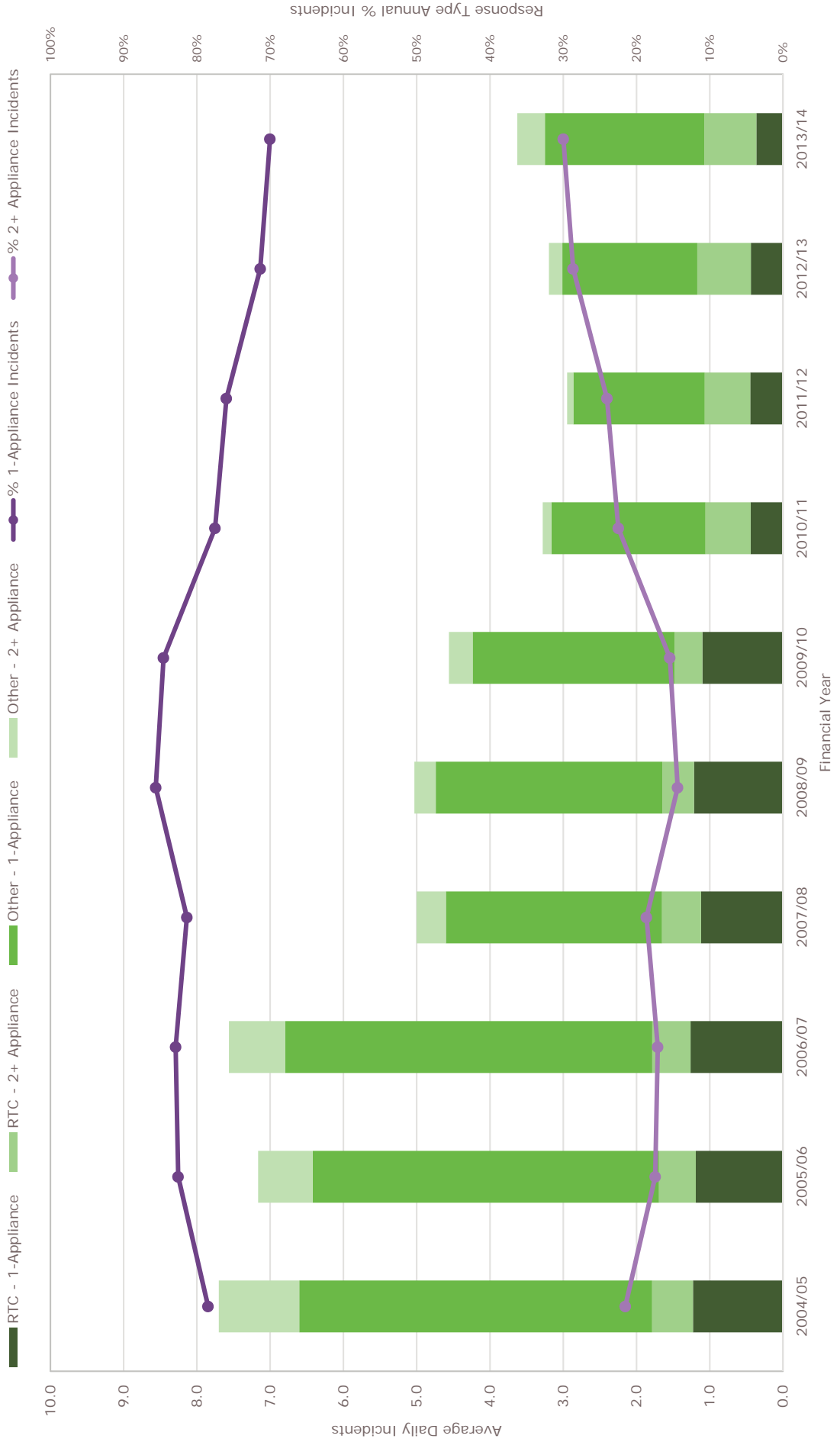10 Year Sample Period (01/04/2004 to 31/03/2014)

Average Daily Incidents

Incident Category	Response Type	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	Overall	10-Year Average	2-Year Average
Primary Fires	1-Appliance	2.7	2.6	2.3	2.2	2.1	2.1	2.4	2.0	1.7	1.4	2.1	2.1	1.6
	2+ Appliance	2.3	2.3	2.2	2.2	1.8	1.8	1.8	1.8	1.5	1.4	1.9	1.9	1.5
	Total	**5.0**	**4.9**	**4.4**	**4.4**	**3.9**	**3.9**	**4.2**	**3.8**	**3.2**	**2.8**	**4.1**	**4.1**	**3.0**
Secondary Fires	1-Appliance	4.5	4.4	4.3	3.5	2.9	3.2	3.2	3.3	1.8	2.3	3.3	3.3	2.0
	2+ Appliance	0.5	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.4	0.4	0.2
	Total	**5.0**	**4.9**	**4.8**	**3.9**	**3.3**	**3.5**	**3.5**	**3.6**	**2.0**	**2.5**	**3.7**	**3.7**	**2.3**
Chimney Fires	1-Appliance	0.2	0.2	0.1	0.1	0.3	0.2	0.3	0.2	0.2	0.0	0.2	0.2	0.1
	2+ Appliance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	**0.2**	**0.2**	**0.2**	**0.2**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.0**	**0.2**	**0.2**	**0.1**
All Fires	1-Appliance	7.3	7.2	6.7	5.8	5.3	5.5	5.8	5.6	3.8	3.7	5.7	5.7	3.7
	2+ Appliance	2.8	2.8	2.7	2.6	2.2	2.1	2.2	2.1	1.8	1.6	2.3	2.3	1.7
	Total	**10.2**	**10.0**	**9.4**	**8.4**	**7.5**	**7.6**	**8.0**	**7.7**	**5.5**	**5.3**	**8.0**	**8.0**	**5.4**

Annual Incidents

Incident Category	Response Type	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	Overall	10-Year Average	2-Year Average
Primary Fires	1-Appliance	969	947	832	794	764	762	879	741	629	496	7,813	782	563
	2+ Appliance	848	827	786	806	652	650	664	664	546	502	6,945	695	524
	Total	**1,817**	**1,774**	**1,618**	**1,600**	**1,416**	**1,412**	**1,543**	**1,405**	**1,175**	**998**	**14,758**	**1,477**	**1,088**
Secondary Fires	1-Appliance	1,641	1,619	1,554	1,273	1,062	1,165	1,160	1,206	660	807	12,147	1,216	733
	2+ Appliance	172	177	184	140	134	108	114	98	86	80	1,293	129	83
	Total	**1,813**	**1,796**	**1,738**	**1,413**	**1,196**	**1,273**	**1,274**	**1,304**	**746**	**887**	**13,440**	**1,345**	**816**
Chimney Fires	1-Appliance	63	72	50	43	111	87	96	85	85	4	696	70	45
	2+ Appliance	13	18	8	14	15	13	12	7	8	0	108	11	4
	Total	**76**	**90**	**58**	**57**	**126**	**100**	**108**	**92**	**93**	**4**	**804**	**81**	**49**
All Fires	1-Appliance	2,673	2,638	2,436	2,110	1,937	2,014	2,135	2,032	1,374	1,307	20,656	2,067	1,341
	2+ Appliance	1,033	1,022	978	960	801	771	790	769	640	582	8,346	835	611
	Total	**3,706**	**3,660**	**3,414**	**3,070**	**2,738**	**2,785**	**2,925**	**2,801**	**2,014**	**1,889**	**29,002**	**2,903**	**1,952**

Annual % Incidents

Incident Category	Response Type	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	Overall	10-Year Average	2-Year Average
Primary Fires	1-Appliance	26.1%	25.9%	24.4%	25.9%	27.9%	27.4%	30.1%	26.5%	31.2%	26.3%	26.9%	27.2%	28.8%
	2+ Appliance	22.9%	22.6%	23.0%	26.3%	23.8%	23.3%	22.7%	23.7%	27.1%	26.6%	23.9%	24.2%	26.8%
	Total	**49.0%**	**48.5%**	**47.4%**	**52.1%**	**51.7%**	**50.7%**	**52.8%**	**50.2%**	**58.3%**	**52.8%**	**50.9%**	**51.3%**	**55.6%**
Secondary Fires	1-Appliance	44.3%	44.2%	45.5%	41.5%	38.8%	41.8%	39.7%	43.1%	32.8%	42.7%	41.9%	41.4%	37.7%
	2+ Appliance	4.6%	4.8%	5.4%	4.6%	4.9%	3.9%	3.9%	3.5%	4.3%	4.2%	4.5%	4.4%	4.3%
	Total	**48.9%**	**49.1%**	**50.9%**	**46.0%**	**43.7%**	**45.7%**	**43.6%**	**46.6%**	**37.0%**	**47.0%**	**46.3%**	**45.8%**	**41.9%**
Chimney Fires	1-Appliance	1.7%	2.0%	1.5%	1.4%	4.1%	3.1%	3.3%	3.0%	4.2%	0.2%	2.4%	2.5%	2.2%
	2+ Appliance	0.4%	0.5%	0.2%	0.5%	0.5%	0.5%	0.4%	0.2%	0.4%	0.0%	0.4%	0.4%	0.2%
	Total	**2.1%**	**2.5%**	**1.7%**	**1.9%**	**4.6%**	**3.6%**	**3.7%**	**3.3%**	**4.6%**	**0.2%**	**2.8%**	**2.8%**	**2.4%**
All Fires	1-Appliance	72.1%	72.1%	71.4%	68.7%	70.7%	72.3%	73.0%	72.5%	68.2%	69.2%	71.2%	71.0%	68.7%
	2+ Appliance	27.9%	27.9%	28.6%	31.3%	29.3%	27.7%	27.0%	27.5%	31.8%	30.8%	28.8%	29.0%	31.3%
	Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Note:
Demand on days of Industrial Action have been removed

RBFRS - Model Revalidation and Annual Performance Review (2014)
Average Daily Incident Demand by Financial Year - Special Service Incidents
10-Year Sample (2004/05 to 2013/14)

Legend: RTC - 1-Appliance | RTC - 2+ Appliance | Other - 1-Appliance | Other - 2+ Appliance | % 1-Appliance Incidents | % 2+ Appliance Incidents

RBFRS - Model Revalidation & Annual Performance Review (2014)
Incident Category Demand Profile - Special Service Incidents
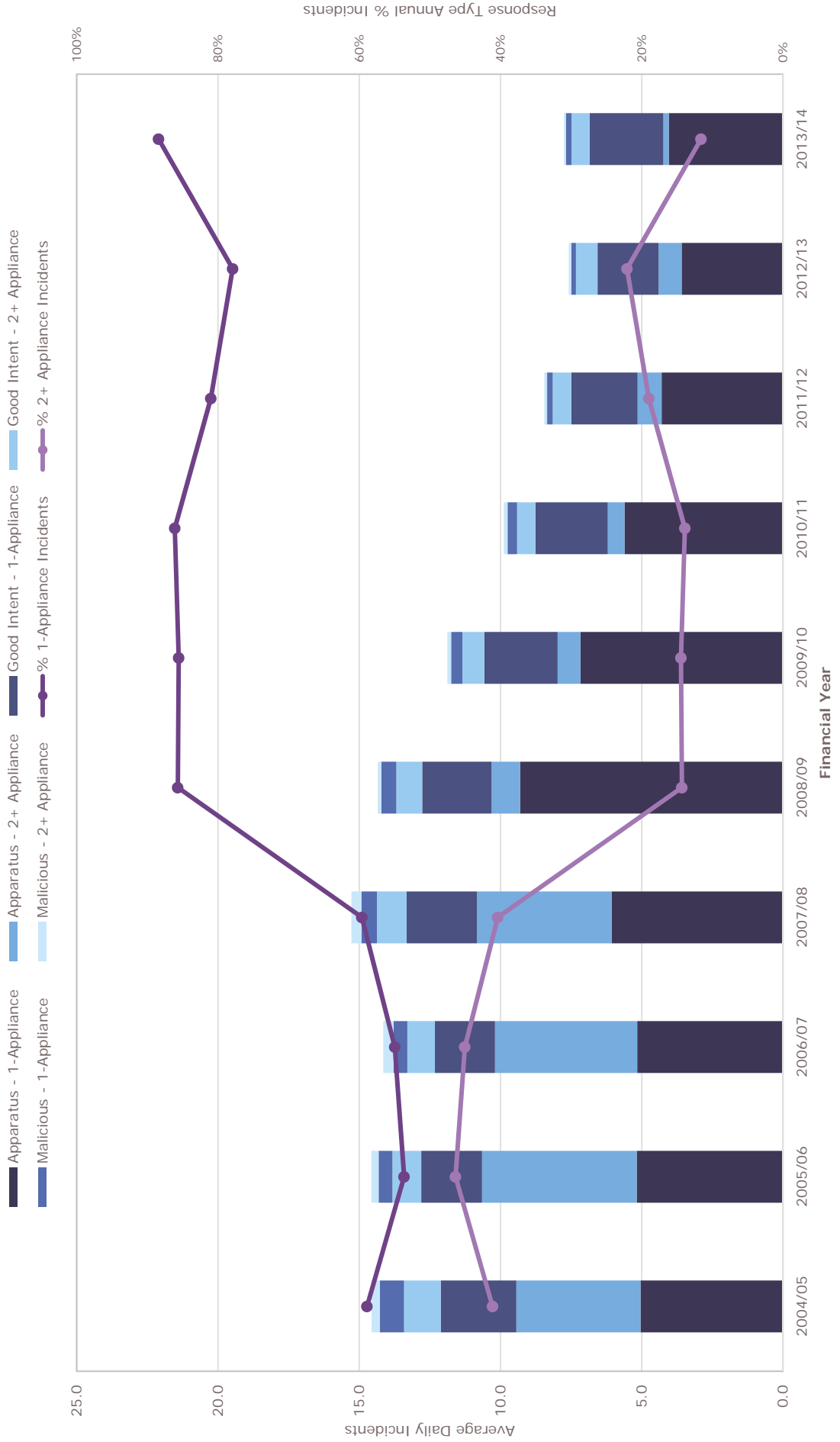10 Year Sample Period (01/04/2004 to 31/03/2014)

Average Daily Incidents

Incident Category	Response Type	Financial Year										Overall	10-Year Average	2-Year Average
		2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14			
RTC	1-Appliance	1.2	1.2	1.3	1.1	1.2	1.1	0.4	0.4	0.4	0.4	0.9	0.9	0.4
	2+ Appliance	0.6	0.5	0.5	0.5	0.4	0.4	0.6	0.6	0.7	0.7	0.6	0.6	0.7
	Total	1.8	1.7	1.8	1.7	1.6	1.5	1.1	1.1	1.2	1.1	1.4	1.4	1.1
Other	1-Appliance	4.8	4.7	5.0	3.0	3.1	2.8	2.1	1.8	1.8	2.2	3.1	3.1	2.0
	2+ Appliance	1.1	0.7	0.8	0.4	0.3	0.3	0.1	0.1	0.2	0.4	0.4	0.4	0.3
	Total	5.9	5.5	5.8	3.3	3.4	3.1	2.2	1.9	2.0	2.6	3.6	3.6	2.3
All Special Service Incidents	1-Appliance	6.0	5.9	6.3	4.1	4.3	3.9	2.5	2.2	2.3	2.5	4.0	4.0	2.4
	2+ Appliance	1.7	1.2	1.3	0.9	0.7	0.7	0.7	0.7	0.9	1.1	1.0	1.0	1.0
	Total	7.7	7.2	7.6	5.0	5.0	4.6	3.3	2.9	3.2	3.6	5.0	5.0	3.4

Annual Incidents

Incident Category	Response Type	Financial Year										Overall	10-Year Average	2-Year Average
		2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14			
RTC	1-Appliance	448	434	460	409	443	401	161	163	160	129	3,208	321	145
	2+ Appliance	204	184	191	195	158	139	225	228	267	253	2,044	204	260
	Total	652	618	651	604	601	540	386	391	427	382	5,252	526	405
Other	1-Appliance	1,758	1,725	1,828	1,080	1,129	1,006	767	656	672	775	11,396	1,140	723
	2+ Appliance	401	272	281	146	106	118	44	31	67	134	1,600	160	100
	Total	2,159	1,997	2,109	1,226	1,235	1,124	811	687	739	909	12,996	1,300	823
All Special Service Incidents	1-Appliance	2,206	2,159	2,288	1,489	1,572	1,407	928	819	832	904	14,604	1,462	868
	2+ Appliance	605	456	472	341	264	257	269	259	334	387	3,644	364	360
	Total	2,811	2,615	2,760	1,830	1,836	1,664	1,197	1,078	1,166	1,291	18,248	1,826	1,228

Annual %

Incident Category	Response Type	Financial Year										Overall	10-Year Average	2-Year Average
		2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14			
RTC	1-Appliance	15.9%	16.6%	16.7%	22.3%	24.1%	24.1%	13.5%	15.1%	13.7%	10.0%	17.6%	17.2%	11.9%
	2+ Appliance	7.3%	7.0%	6.9%	10.7%	8.6%	8.4%	18.8%	21.2%	22.9%	19.6%	11.2%	13.1%	21.3%
	Total	23.2%	23.6%	23.6%	33.0%	32.7%	32.5%	32.2%	36.3%	36.6%	29.6%	28.8%	30.3%	33.1%
Other	1-Appliance	62.5%	66.0%	66.2%	59.0%	61.5%	60.5%	64.1%	60.9%	57.6%	60.0%	62.5%	61.8%	58.8%
	2+ Appliance	14.3%	10.4%	10.2%	8.0%	5.8%	7.1%	3.7%	2.9%	5.7%	10.4%	8.8%	8.0%	8.0%
	Total	76.8%	76.4%	76.4%	67.0%	67.3%	67.5%	67.8%	63.7%	63.4%	70.4%	71.2%	69.7%	66.9%
All Special Service Incidents	1-Appliance	78.5%	82.6%	82.9%	81.4%	85.6%	84.6%	77.5%	76.0%	71.4%	70.0%	80.0%	79.1%	70.7%
	2+ Appliance	21.5%	17.4%	17.1%	18.6%	14.4%	15.4%	22.5%	24.0%	28.6%	30.0%	20.0%	20.9%	29.3%
	Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Note:
Demand on days of Industrial Action have been removed

RBFRS - Model Revalidation and Annual Performance Review (2014)

Average Daily Incident Demand by Financial Year - False Alarm Incidents

10-Year Sample (2004/05 to 2013/14)

B1d

Legend:
- Apparatus - 1-Appliance
- Malicious - 1-Appliance
- Apparatus - 2+ Appliance
- Malicious - 2+ Appliance
- Good Intent - 1-Appliance
- % 1-Appliance Incidents
- Good Intent - 2+ Appliance
- % 2+ Appliance Incidents

Response Type Annual % Incidents

Financial Year: 2004/05, 2005/06, 2006/07, 2007/08, 2008/09, 2009/10, 2010/11, 2011/12, 2012/13, 2013/14

Average Daily Incidents

RBFRS - Model Revalidation & Annual Performance Review (2014)
Incident Category Demand Profile - False Alarm Incidents
10 Year Sample Period (01/04/2004 to 31/03/2014)

Average Daily Incidents

Incident Category	Response Type	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	Overall	10-Year Average	2-Year Average
Apparatus	1-Appliance	5.0	5.2	5.2	6.1	9.3	7.2	5.6	4.3	3.6	4.0	5.5	5.5	3.8
	2+ Appliance	4.4	5.5	5.0	4.8	1.0	0.8	0.6	0.9	0.8	0.2	2.4	2.4	0.5
	Total	**9.4**	**10.7**	**10.2**	**10.8**	**10.3**	**8.0**	**6.2**	**5.1**	**4.4**	**4.2**	**7.9**	**7.9**	**4.3**
Good Intent	1-Appliance	2.7	2.2	2.1	2.5	2.5	2.6	2.6	2.3	2.2	2.6	2.4	2.4	2.4
	2+ Appliance	1.3	1.0	1.0	1.0	0.9	0.8	0.6	0.7	0.8	0.6	0.9	0.9	0.7
	Total	**4.0**	**3.2**	**3.1**	**3.5**	**3.4**	**3.4**	**3.2**	**3.0**	**2.9**	**3.3**	**3.3**	**3.3**	**3.1**
Malicious	1-Appliance	0.9	0.5	0.5	0.5	0.5	0.4	0.3	0.2	0.2	0.2	0.4	0.4	0.2
	2+ Appliance	0.3	0.3	0.4	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1
	Total	**1.1**	**0.7**	**0.9**	**0.9**	**0.7**	**0.5**	**0.5**	**0.3**	**0.3**	**0.3**	**0.6**	**0.6**	**0.3**
All False Alarms	1-Appliance	8.6	7.8	7.8	9.1	12.3	10.2	8.5	6.8	5.9	6.9	8.4	8.4	6.4
	2+ Appliance	6.0	6.8	6.4	6.2	2.1	1.7	1.4	1.6	1.7	0.9	3.5	3.5	1.3
	Total	**14.6**	**14.6**	**14.1**	**15.3**	**14.3**	**11.9**	**9.9**	**8.4**	**7.6**	**7.8**	**11.9**	**11.9**	**7.7**

Annual Incidents

Incident Category	Response Type	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	Overall	10-Year Average	2-Year Average
Apparatus	1-Appliance	1,841	1,889	1,883	2,220	3,395	2,616	2,047	1,571	1,308	1,438	20,208	2,022	1,372
	2+ Appliance	1,603	1,999	1,837	1,744	369	295	216	312	299	69	8,743	876	185
	Total	**3,444**	**3,888**	**3,720**	**3,964**	**3,764**	**2,911**	**2,263**	**1,883**	**1,607**	**1,507**	**28,951**	**2,899**	**1,558**
Good Intent	1-Appliance	977	785	777	912	896	948	936	859	789	930	8,809	881	859
	2+ Appliance	475	372	356	384	335	283	236	240	278	227	3,186	319	253
	Total	**1,452**	**1,157**	**1,133**	**1,296**	**1,231**	**1,231**	**1,172**	**1,099**	**1,067**	**1,157**	**11,995**	**1,200**	**1,111**
Malicious	1-Appliance	312	178	178	201	194	145	123	74	59	71	1,535	154	65
	2+ Appliance	107	94	133	129	45	48	49	35	34	24	698	70	29
	Total	**419**	**272**	**311**	**330**	**239**	**193**	**172**	**109**	**93**	**95**	**2,233**	**224**	**94**
All False Alarms	1-Appliance	3,130	2,852	2,838	3,333	4,485	3,709	3,106	2,504	2,156	2,439	30,552	3,057	2,296
	2+ Appliance	2,185	2,465	2,326	2,257	749	626	501	587	611	320	12,627	1,265	467
	Total	**5,315**	**5,317**	**5,164**	**5,590**	**5,234**	**4,335**	**3,607**	**3,091**	**2,767**	**2,759**	**43,179**	**4,322**	**2,763**

Annual % Incidents

Incident Category	Response Type	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	Overall	10-Year Average	2-Year Average
Apparatus	1-Appliance	34.6%	35.5%	36.5%	39.7%	64.9%	60.3%	56.8%	50.8%	47.3%	52.1%	46.8%	47.8%	49.7%
	2+ Appliance	30.2%	37.6%	35.6%	31.2%	7.1%	6.8%	6.0%	10.1%	10.8%	2.5%	20.2%	17.8%	6.7%
	Total	**64.8%**	**73.1%**	**72.0%**	**70.9%**	**71.9%**	**67.2%**	**62.7%**	**60.9%**	**58.1%**	**54.6%**	**67.0%**	**65.7%**	**56.4%**
Good Intent	1-Appliance	18.4%	14.8%	15.0%	16.3%	17.1%	21.9%	25.9%	27.8%	28.5%	33.7%	20.4%	21.9%	31.1%
	2+ Appliance	8.9%	7.0%	6.9%	6.9%	6.4%	6.5%	6.5%	7.8%	10.0%	8.2%	7.4%	7.5%	9.1%
	Total	**27.3%**	**21.8%**	**21.9%**	**23.2%**	**23.5%**	**28.4%**	**32.5%**	**35.6%**	**38.6%**	**41.9%**	**27.8%**	**29.4%**	**40.2%**
Malicious	1-Appliance	5.9%	3.3%	3.4%	3.6%	3.7%	3.3%	3.4%	2.4%	2.1%	2.6%	3.6%	3.4%	2.4%
	2+ Appliance	2.0%	1.8%	2.6%	2.3%	0.9%	1.1%	1.4%	1.1%	1.2%	0.9%	1.6%	1.5%	1.1%
	Total	**7.9%**	**5.1%**	**6.0%**	**5.9%**	**4.6%**	**4.5%**	**4.8%**	**3.5%**	**3.4%**	**3.4%**	**5.2%**	**4.9%**	**3.4%**
All False Alarms	1-Appliance	58.9%	53.6%	55.0%	59.6%	85.7%	85.6%	86.1%	81.0%	77.9%	88.4%	70.8%	73.1%	83.1%
	2+ Appliance	41.1%	46.4%	45.0%	40.4%	14.3%	14.4%	13.9%	19.0%	22.1%	11.6%	29.2%	26.9%	16.9%
	Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Note:
Demand on days of Industrial Action have been removed

RBFRS - Model Revalidation & Annual Performance Report (2014)
Incident Demand by Financial Year and Month
10-Year Sample (2004/05 to 2013/14)

Legend: False Alarm — Fire — Special Service

Y-axis: Number of Incidents (0 to 700)
X-axis: Financial Year & Month (2004/05 to 2013/14)

RBFRS - Model Revalidation & Annual Performance Report (2014)
Incident Demand by Financial Year and Month
2-Year Sample (2012/13 to 2013/14)

Legend:
- False Alarm - 1-Appliance
- False Alarm - 2+ Appliance
- Fire - 1-Appliance
- Fire - 2+ Appliance
- Special Service - 1-Appliance
- Special Service - 2+ Appliance

Y-axis: Number of Incidents
X-axis: Financial Year & Month

2012/13: Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec, Jan, Feb, Mar
2013/14: Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec, Jan, Feb, Mar
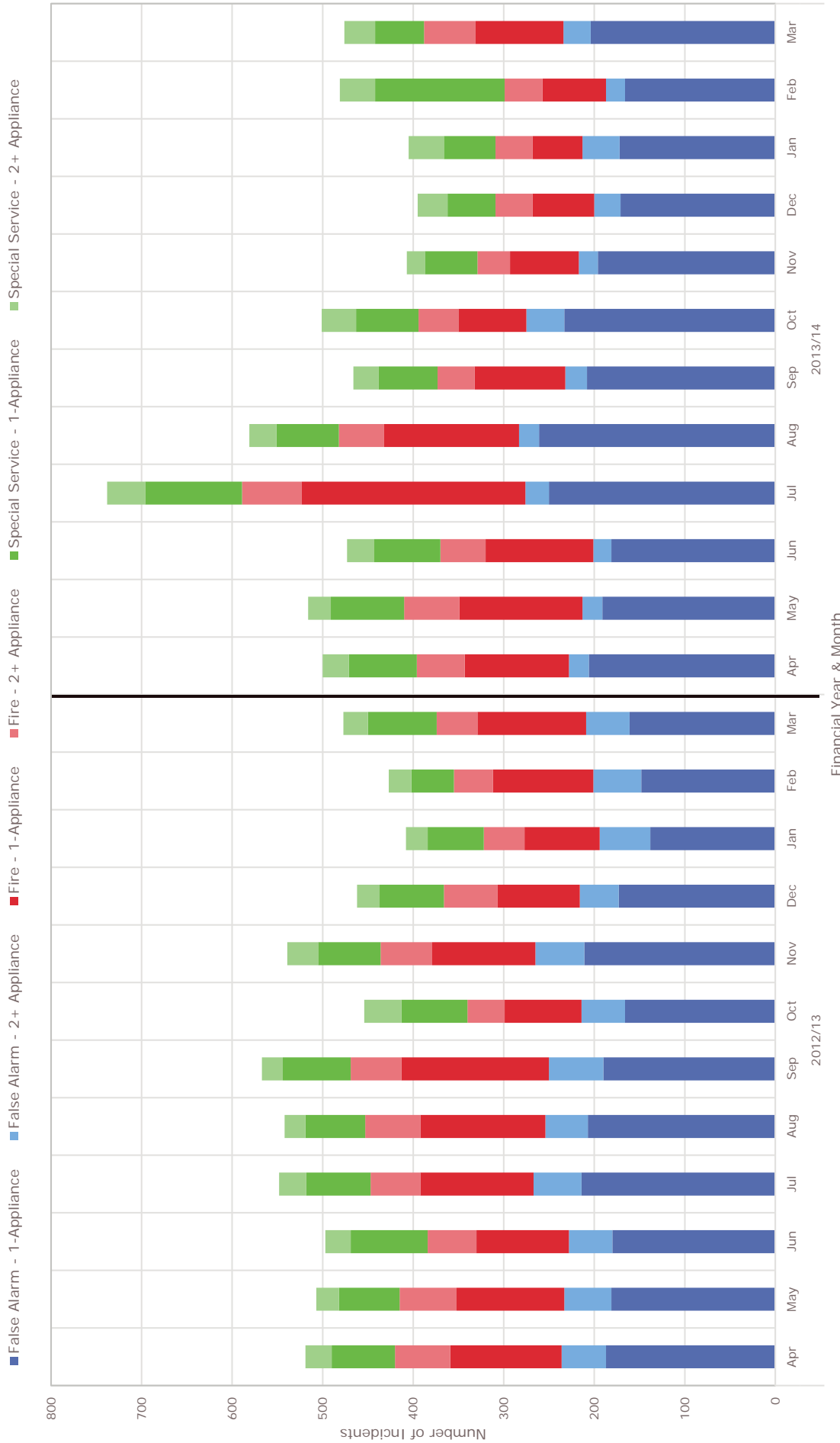
RBFRS - Model Revalidation & Annual Performance Report (2014)
Proportion of Demand by Incident Type by Financial Year and Month
2-Year Sample (2012/13 to 2013/14)
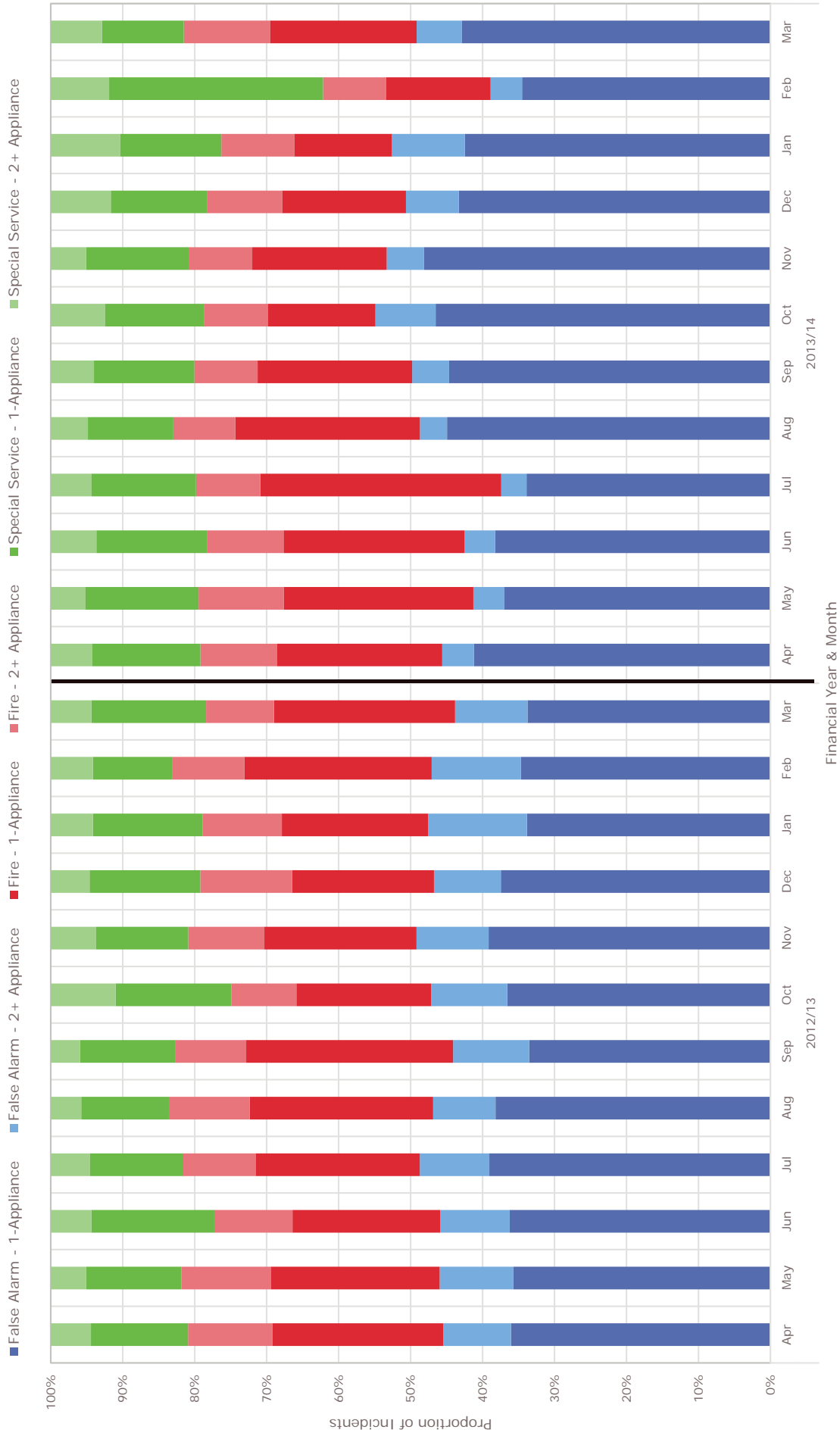
Legend: False Alarm - 1-Appliance, False Alarm - 2+ Appliance, Fire - 1-Appliance, Fire - 2+ Appliance, Special Service - 1-Appliance, Special Service - 2+ Appliance

RBFRS - Model Revalidation and Annual Performance Report (2014)
Incident Demand by Hour - All Incidents
2-Year Sample (2012/13 to 2013/14)

RBFRS - Model Revalidation and Annual Performance Report (2014)
Incident Demand by Hour - Fire Incidents
2-Year Sample (2012/13 to 2013/14)

B4b

B4c
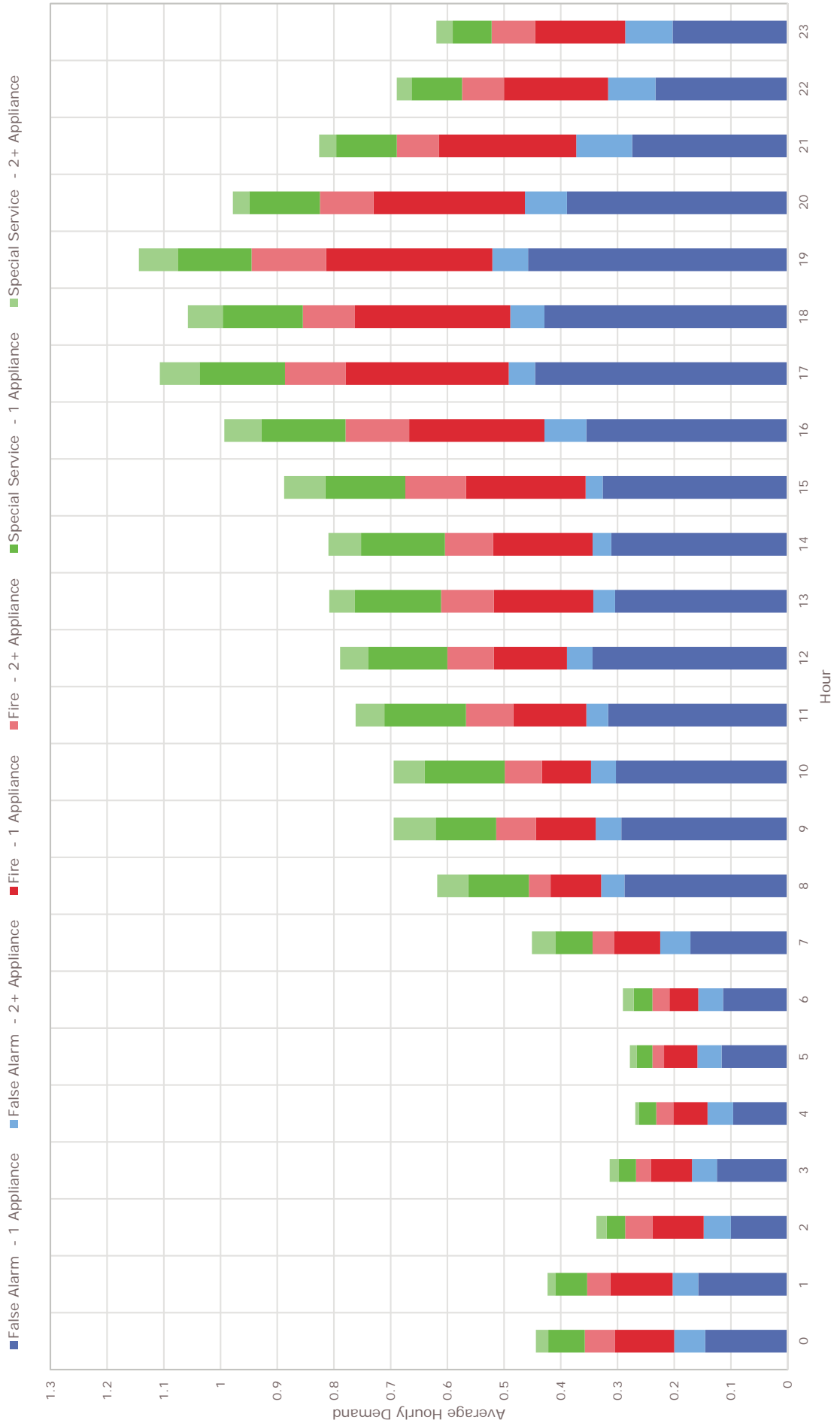
RBFRS - Model Revalidation and Annual Performance Report (2014)
Incident Demand by Hour - Special Service Incidents
2-Year Sample (2012/13 to 2013/14)

Legend: RTC - 1 Appliance | RTC - 2+ Appliance | Other - 1 Appliance | Other - 2+ Appliance | RTC - 2+ Appliance | Other - 2+ Appliance

X-axis: Hour
Y-axis: Average Hourly Demand

B4d
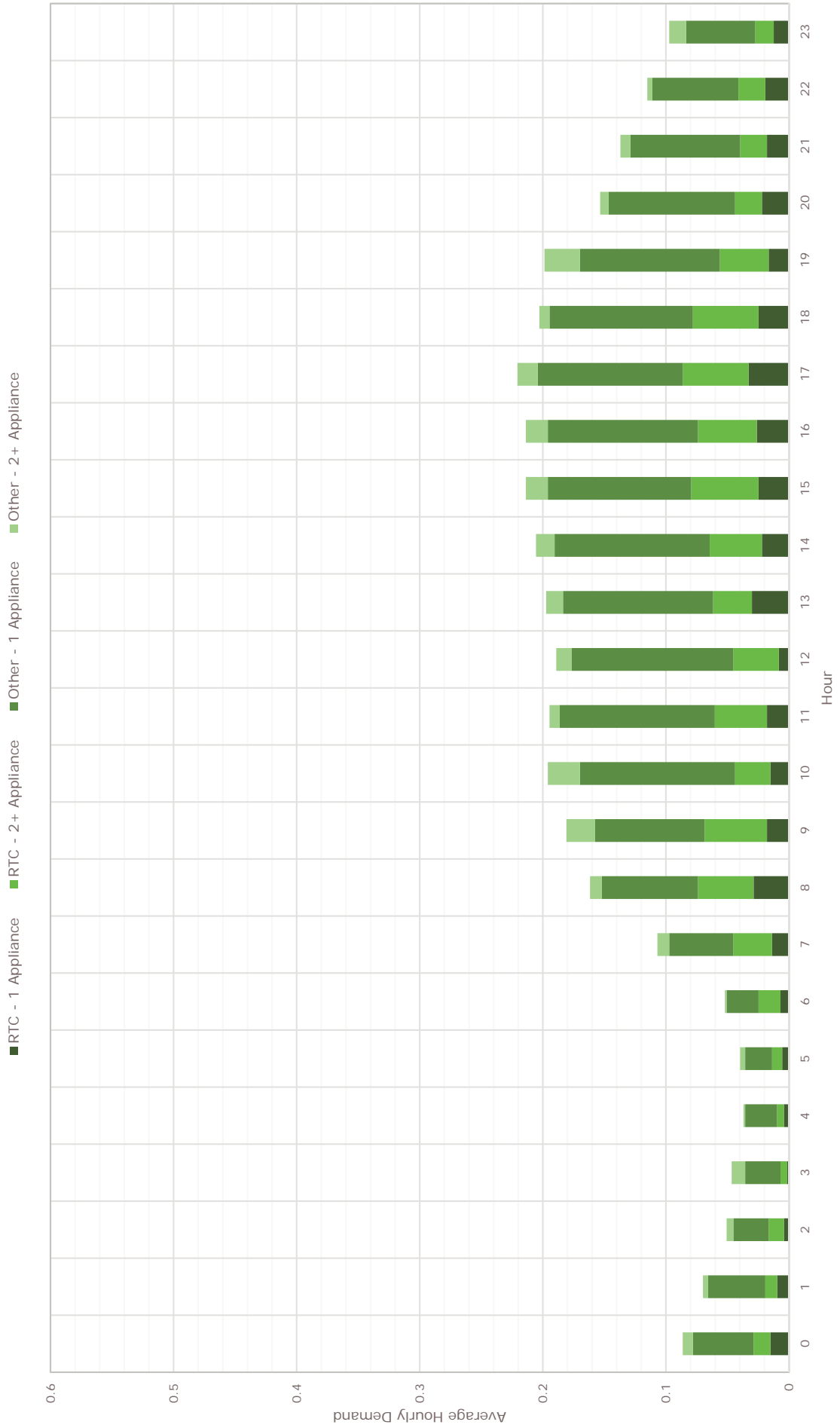
RBFRS - Model Revalidation and Annual Performance Report (2014)
Incident Demand by Hour - False Alarm Incidents
2-Year Sample (2012/13 to 2013/14)

Legend: False Alarm - 1 Appliance ■ False Alarm - 2+ Appliance ■ False Alarm - 1 Appliance ■ False Alarm - 2+ Appliance

RBFRS - Model Revalidation & Annual Performance Report (2014)
Average Daily Incident Demand by Financial Year - Priority Incidents
10-Year Sample (2004/05 to 2013/14)

Legend:
- Primary Dwelling Fires - 1 Appliance
- Primary Dwelling Fires - 2+ Appliance
- RTC - 1 Appliance
- RTC - 2+ Appliance
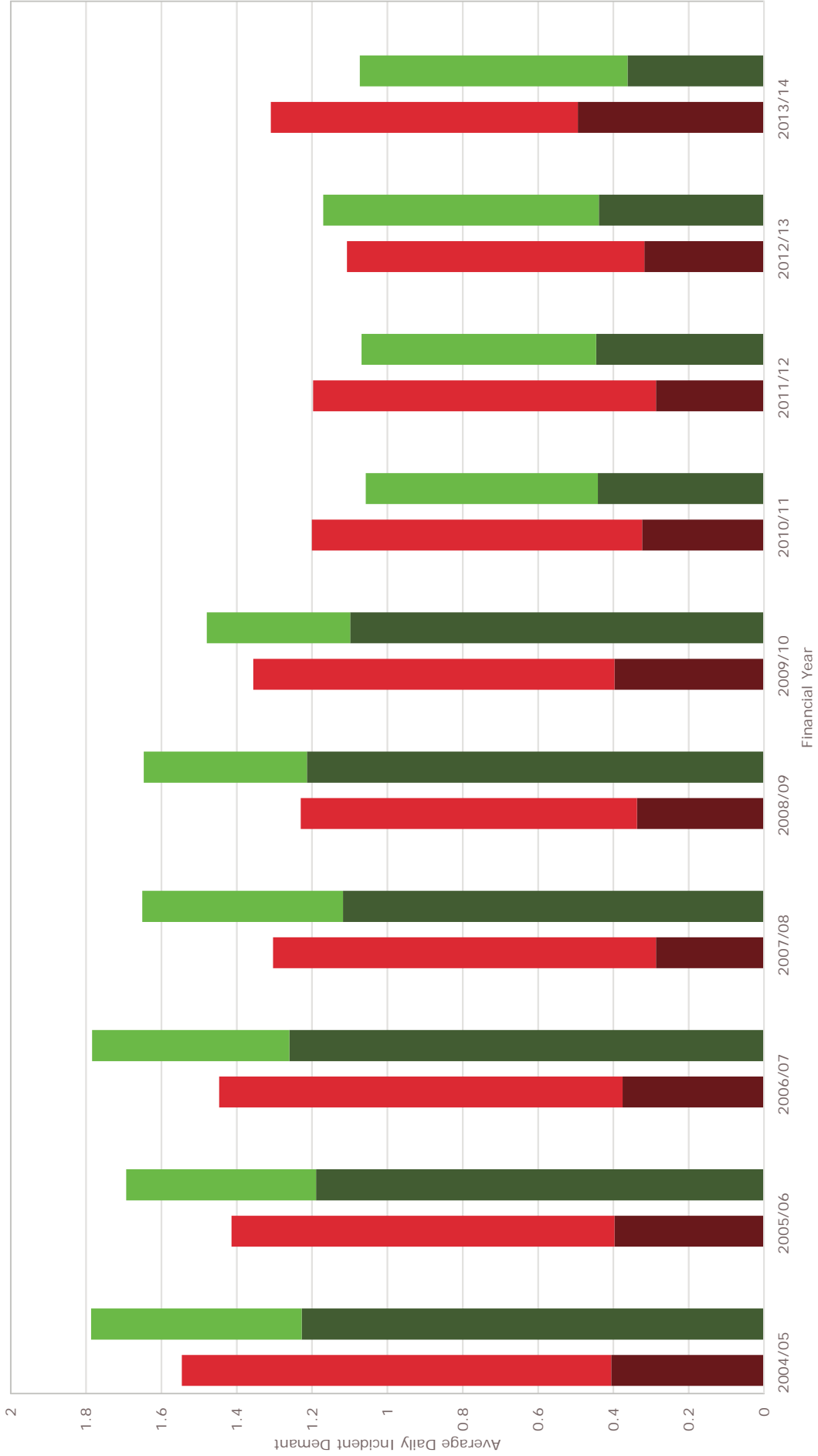
RBFRS - Model Revalidation & Annual Performance Review (2014)

Incident Category Demand Profile - Priority Incidents

10 Year Sample Period (01/04/2004 to 31/03/2014)

Average Daily Incidents

Incident Category	Response Type	Financial Year										Overall	10-Year Average	2-Year Average
		2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14			
Primary Dwelling Fires	1-Appliance	0.4	0.5	0.4	0.3	0.3	0.4	0.3	0.3	0.2	0.5	3.7	0.4	0.3
	2+ Appliance	1.1	1.0	1.0	1.0	0.9	1.0	0.9	0.9	0.7	0.8	9.2	0.9	0.8
	Total	**1.5**	**1.4**	**1.4**	**1.3**	**1.2**	**1.4**	**1.2**	**1.2**	**0.9**	**1.3**	**12.9**	**1.3**	**1.1**
RTC	1-Appliance	1.2	1.2	1.3	1.1	1.2	1.1	0.5	0.5	0.3	0.4	8.8	0.9	0.3
	2+ Appliance	0.6	0.5	0.5	0.5	0.4	0.4	0.6	0.6	0.6	0.7	5.4	0.5	0.7
	Total	**1.8**	**1.7**	**1.8**	**1.7**	**1.7**	**1.5**	**1.1**	**1.1**	**0.9**	**1.1**	**14.3**	**1.4**	**1.0**

Annual Incidents

Incident Category	Response Type	Financial Year										Overall	10-Year Average	2-Year Average
		2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14			
Primary Dwelling Fires	1-Appliance	150	168	151	122	123	146	119	107	70	176	1332	133	122
	2+ Appliance	415	347	377	351	326	349	319	333	256	290	3363	336	273
	Total	**565**	**515**	**528**	**473**	**449**	**495**	**438**	**440**	**326**	**466**	**4695**	**470**	**395**
RTC	1-Appliance	453	447	473	417	450	400	169	165	112	129	3215	322	120
	2+ Appliance	202	183	182	193	158	140	227	227	219	253	1984	198	236
	Total	**655**	**630**	**655**	**610**	**608**	**540**	**396**	**392**	**331**	**382**	**5199**	**520**	**356**

Annual %

Incident Category	Response Type	Financial Year										Overall	10-Year Average	2-Year Average
		2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14			
Primary Dwelling Fires	1-Appliance	26.5%	32.6%	28.6%	25.8%	27.4%	29.5%	27.2%	24.3%	21.5%	37.8%	28.4%	28.1%	29.5%
	2+ Appliance	73.5%	67.4%	71.4%	74.2%	72.6%	70.5%	72.8%	75.7%	78.5%	62.2%	71.6%	71.9%	70.5%
	Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
RTC	1-Appliance	69.2%	71.0%	72.2%	68.4%	74.0%	74.1%	42.7%	42.1%	33.8%	33.8%	61.8%	58.2%	33.8%
	2+ Appliance	30.8%	29.0%	27.8%	31.6%	26.0%	25.9%	57.3%	57.9%	66.2%	66.2%	38.2%	41.8%	66.2%
	Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Note:

Demand on days of Industrial Action have been removed

RBFRS - Model Revalidation & Annual Performance Review (2014)
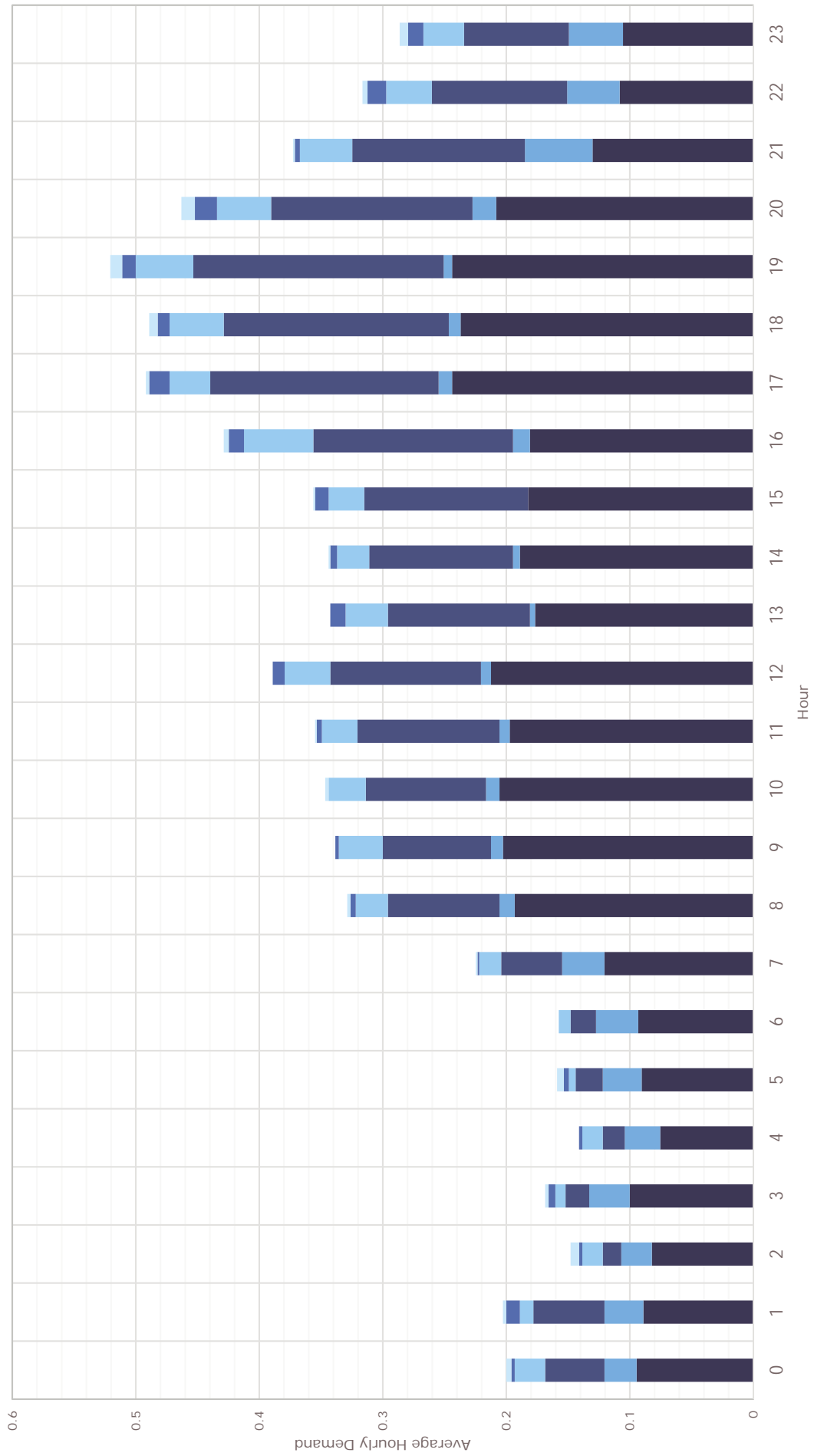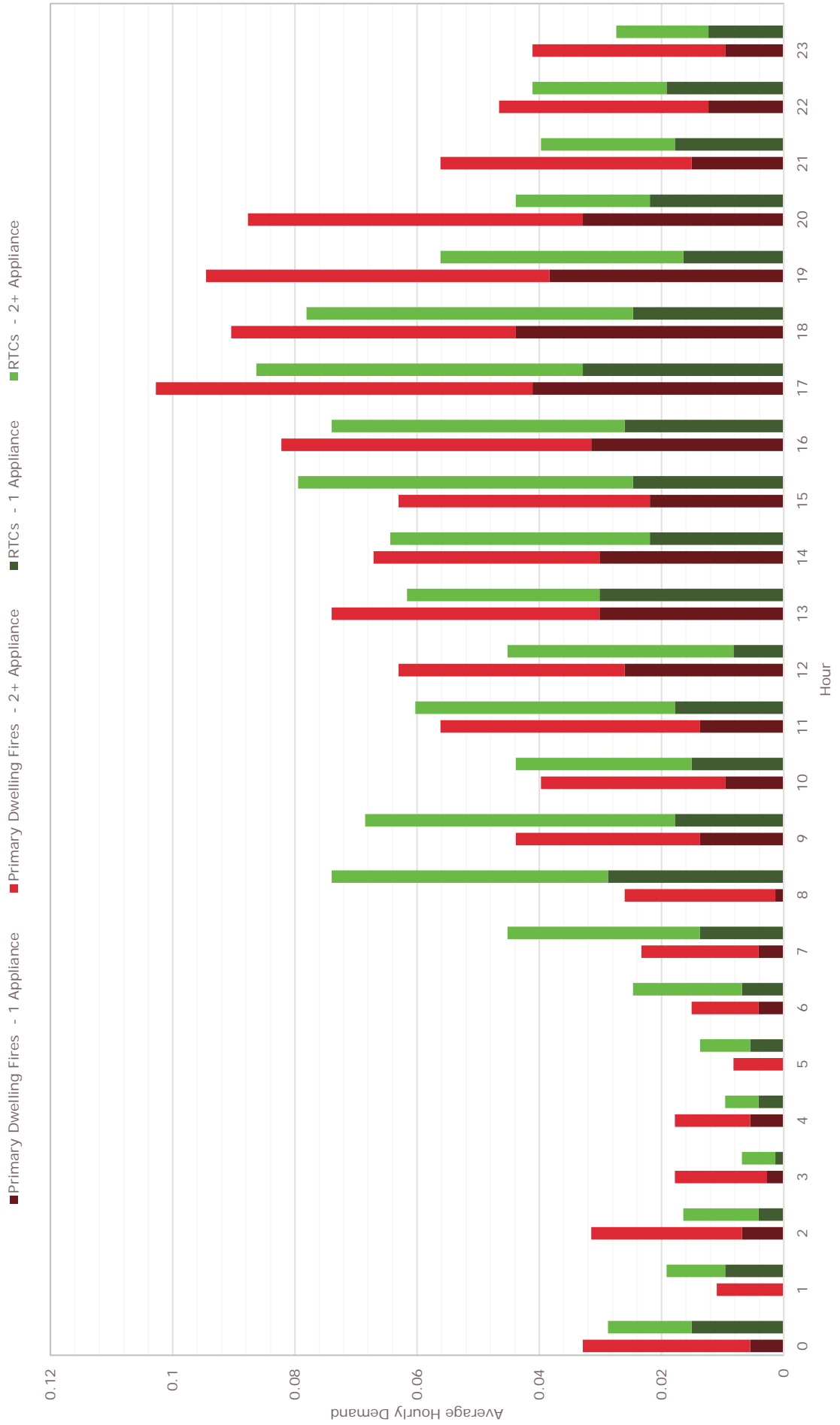**Incident Demand by Hour - Priority Incidents**
2-Year Sample (2012/13 to 2013/14)

B5b

C Geographical Location Analysis

C1   **Geographical Distribution of Incidents**

    C1a   All Incidents

    C1b   1-Appliance Incidents

    C1c   2-Appliance Incidents

    C1d   Fires

    C1e   Special Service

    C1f   False Alarms

    C1g   Priority Incidents

C2   **Incident Locations by Year**

    C2a   by District

    C2b   Map by Year

C3   **Responses by Station**

    C3a   by Year

    C3b   by Incident Type

C4   **Callsign Response Maps**

    C4a   All Responses by Wholetime Callsigns

    C4b   All Responses by Retained Duty Callsigns

C5   **Demand by District**

C6   **Over-the-Border Responses**
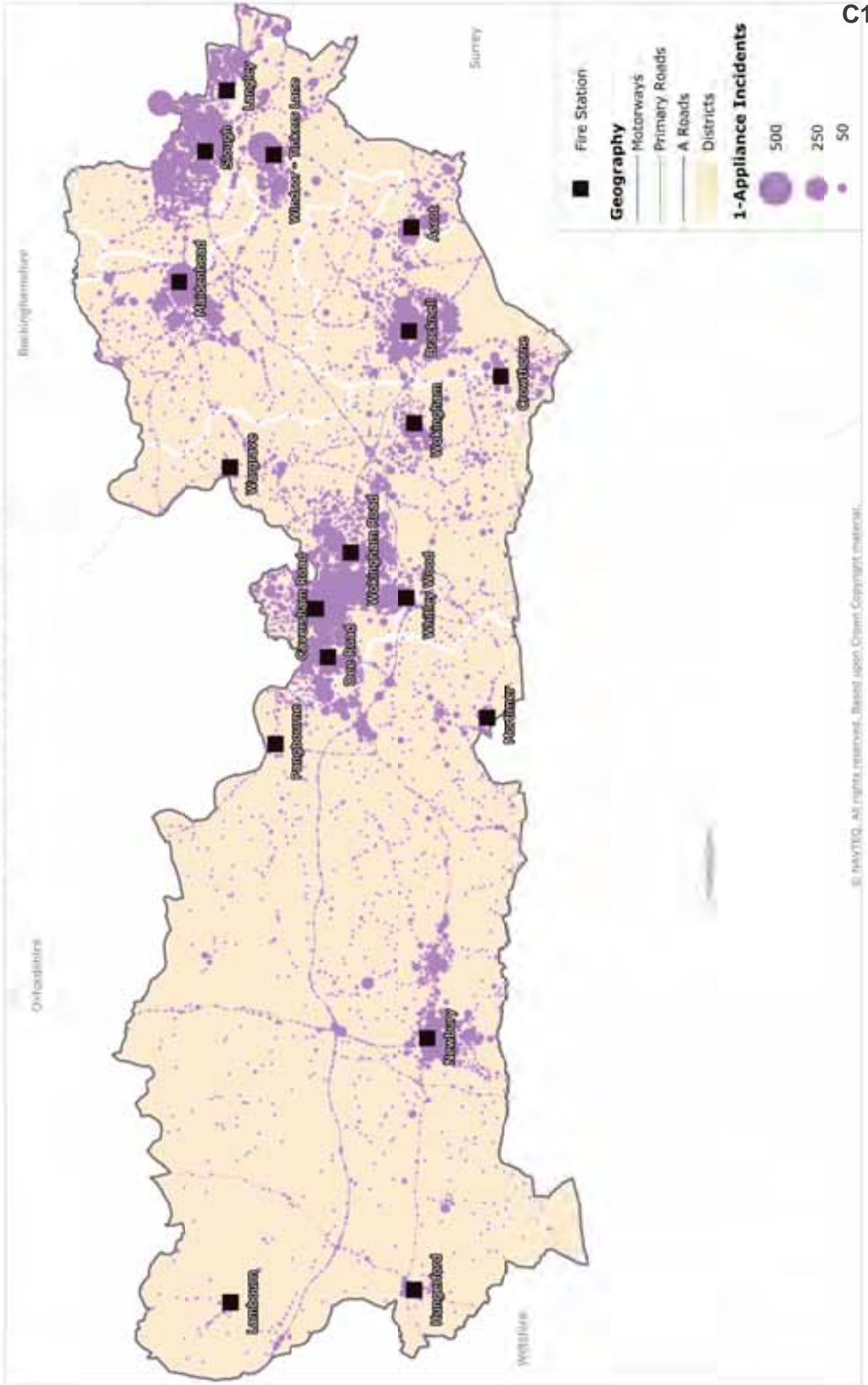
    C6a   Responses Over-the-Border by RBFRS Pumps

    C6b   Responses into RBFRS by Over-the-Border Pumps

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Distribution of All Incidents

10-Year Sample (01/04/2004 to 31/03/2014)

Geography

■ Fire Station

— Motorways
— Primary Roads
— A Roads
　 Districts

All Incidents

● 1,000
● 500
· 100

C1a

C1b
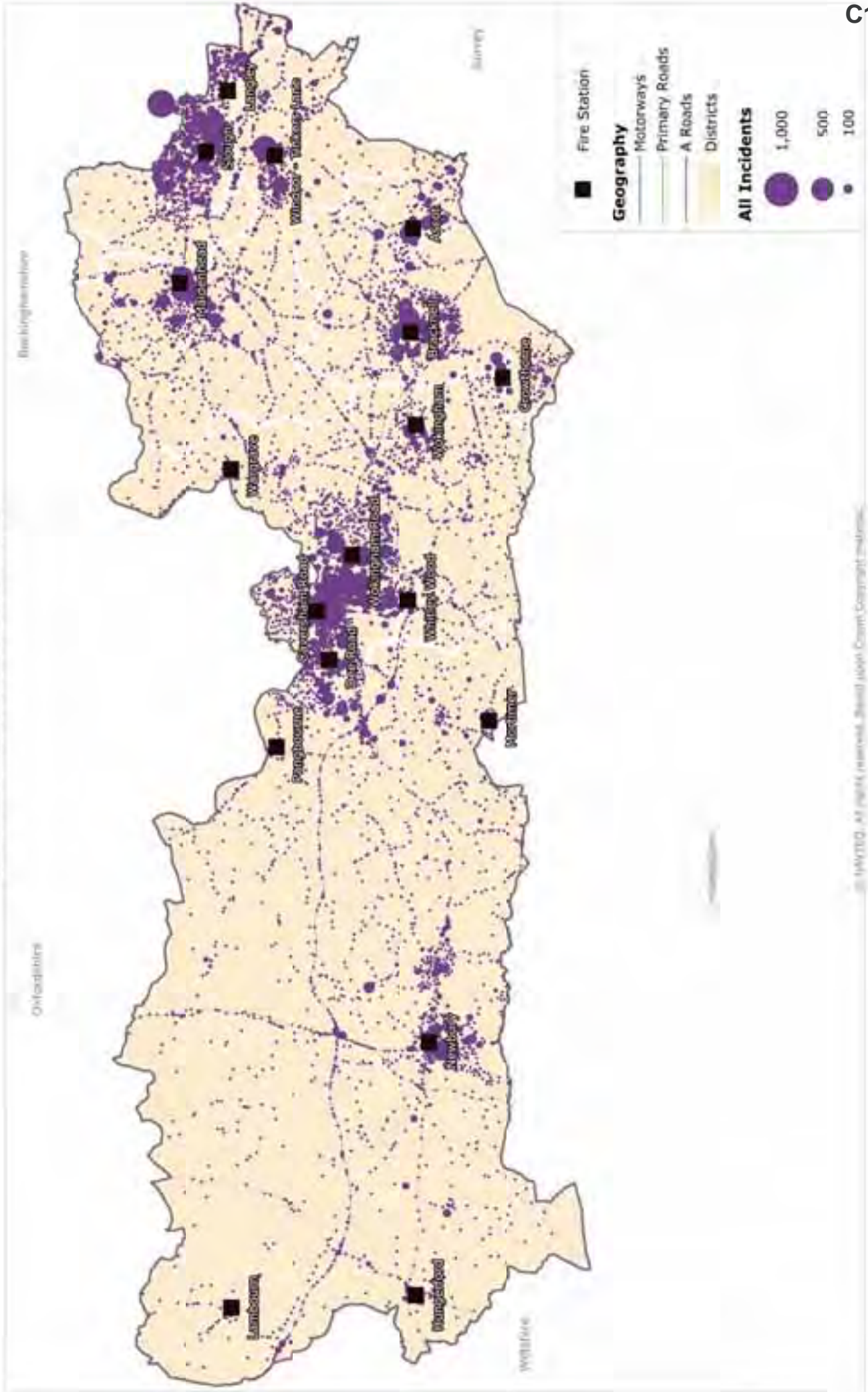
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Distribution of 1-Appliance Incidents

10-Year Sample (01/04/2004 to 31/03/2014)

Buckinghamshire

Oxfordshire

Surrey

Wiltshire

Landey

Slough

Windsor - Tinkers lane

Maidenhead

Ascot

Bracknell

Crowthorne

Wokingham

Wargrave

Wokingham Road

Caversham Road

Whitley Wood

Dee Road

Pangbourne

Mortimer

Lambourn

Newbury

Hungerford

Fire Station

Geography
— Motorways
— Primary Roads
— A Roads
Districts

1-Appliance Incidents

500
250
50

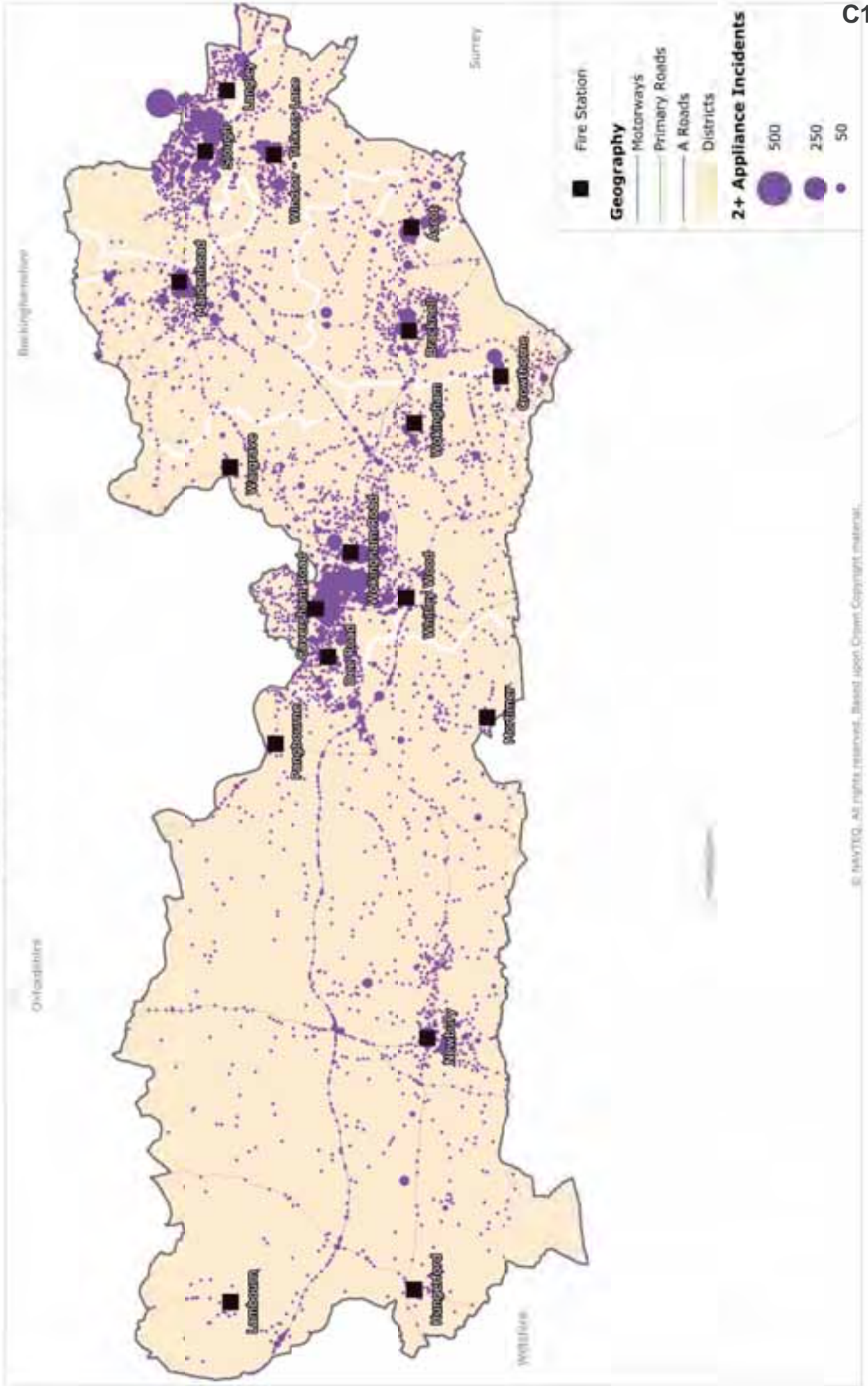© NAVTEQ. All rights reserved. Based upon Crown Copyright material.

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Distribution of 2+ Appliance Incidents

10-Year Sample (01/04/2004 to 31/03/2014)

C1c

Surrey

Buckinghamshire

Oxfordshire

Wiltshire

Geography

■ Fire Station

Motorways
Primary Roads
A Roads
Districts

2+ Appliance Incidents

500
250
50

Distribution of Fire Incidents

C1d

Primary Fires

● 200

Secondary Fires

● 200

Chimney Fires

● 200

■ Fire Station	─── A Roads	─── Primary Roads	─── Motorways	Districts	
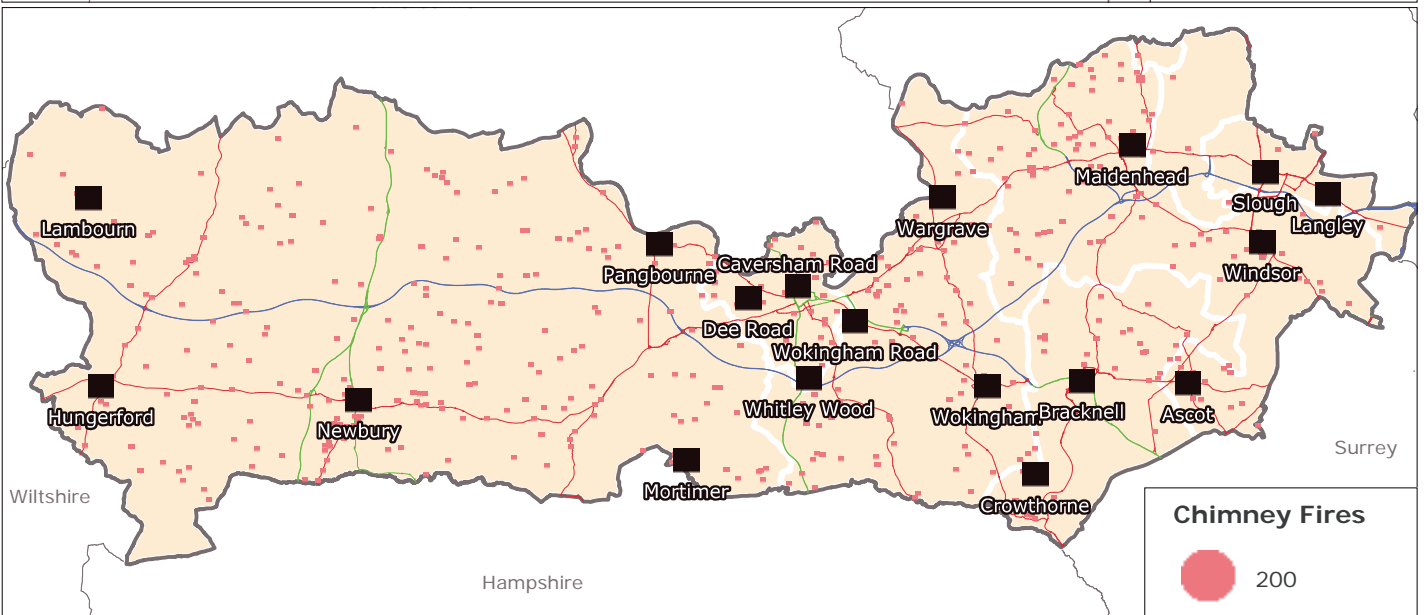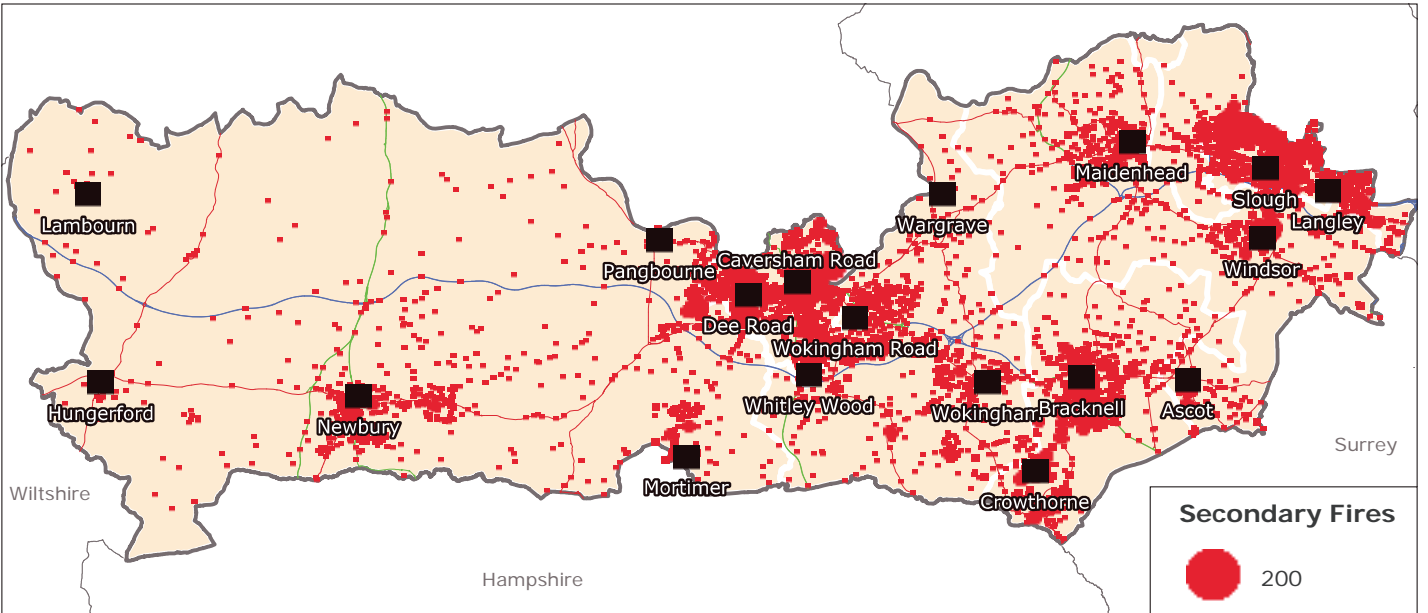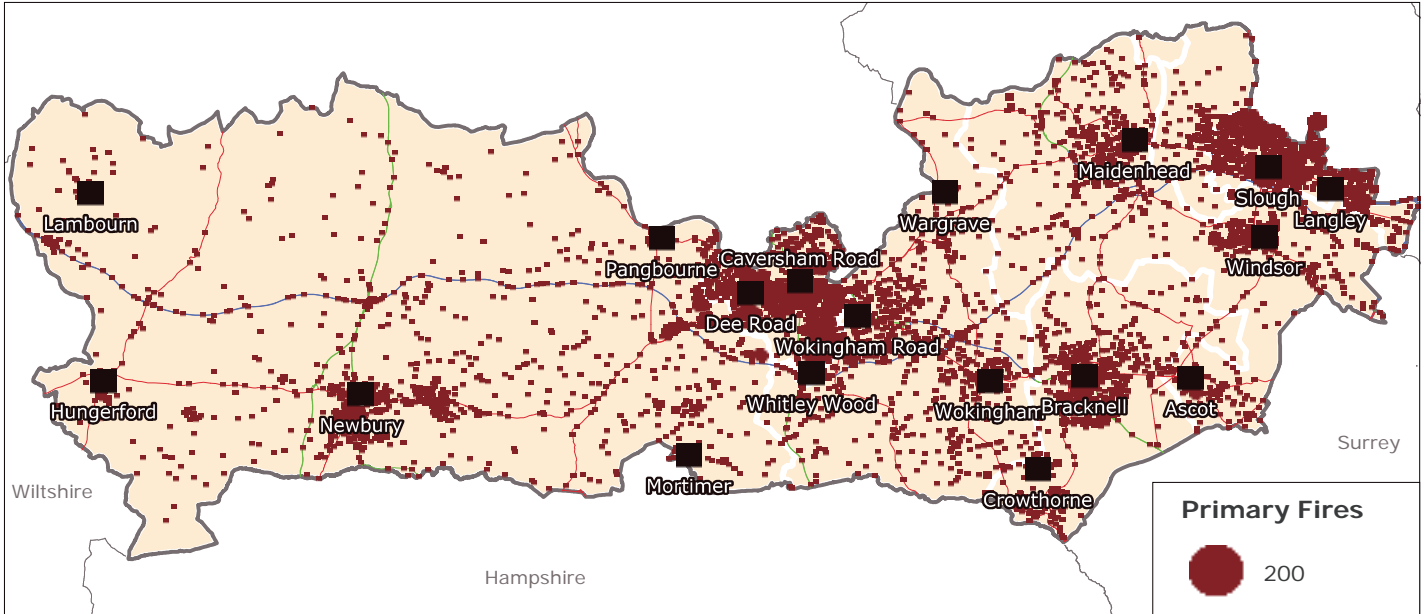
Distribution of Special Service Incidents

10-Year Sample (01/04/2004 to 31/03/2014)

Distribution of False Alarm Incidents
10-Year Sample (01/04/2004 to 31/03/2014)

Surrey

Wiltshire

Apparatus

200

Surrey

Wiltshire

Good Intent

200

Surrey

Wiltshire

Malicious

200

	Fire Station		A Roads		Primary Roads		Motorways		Districts
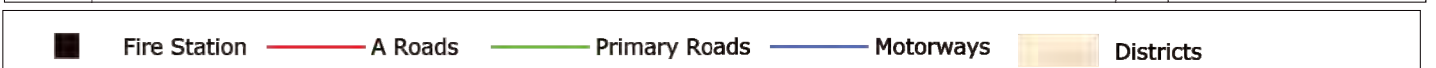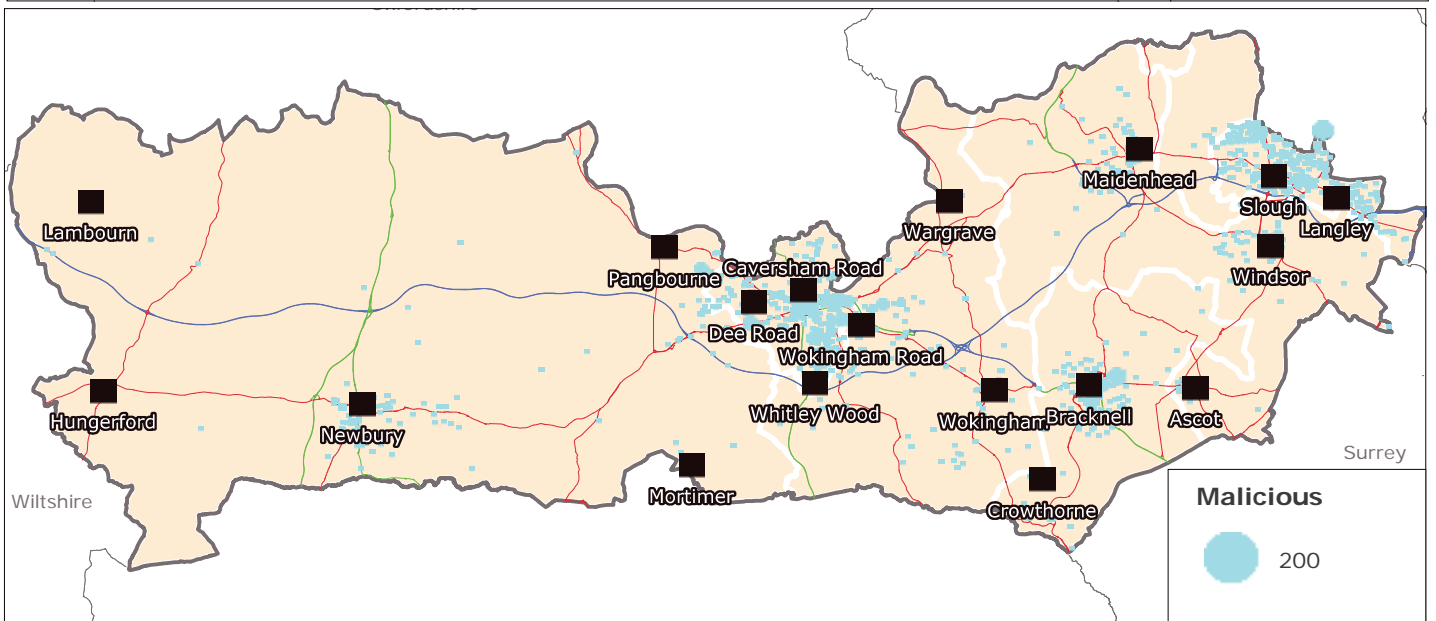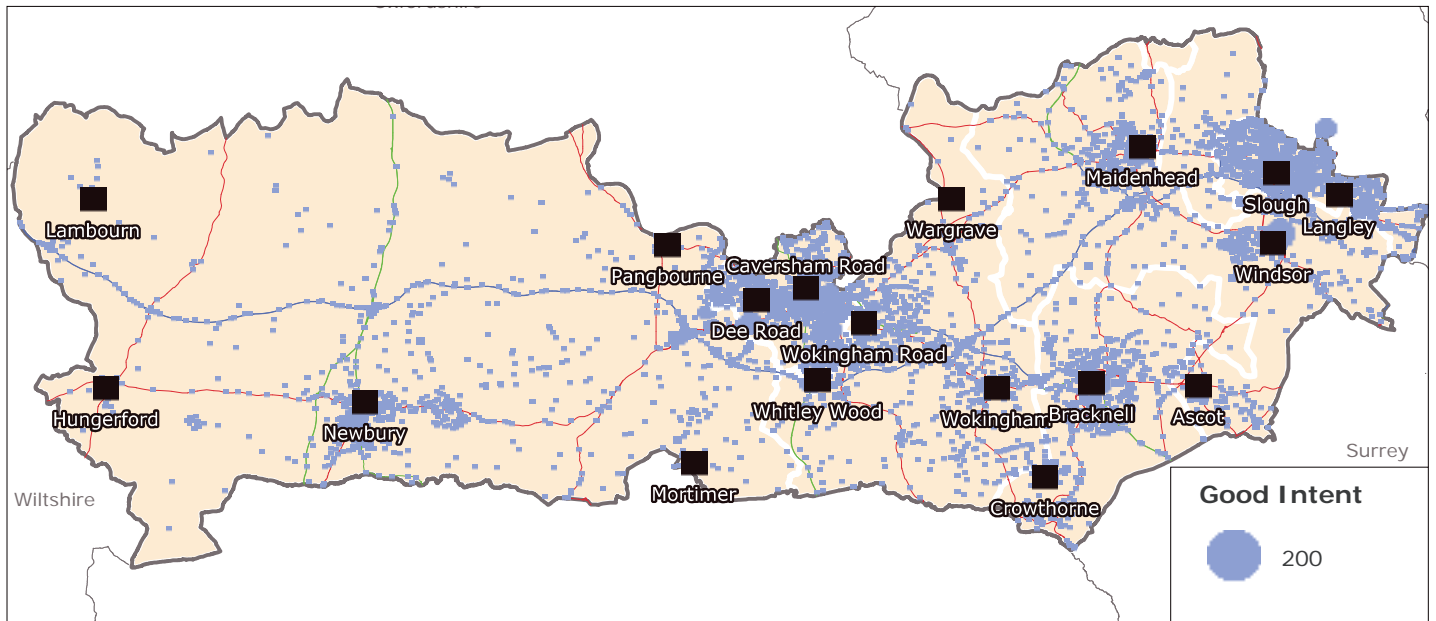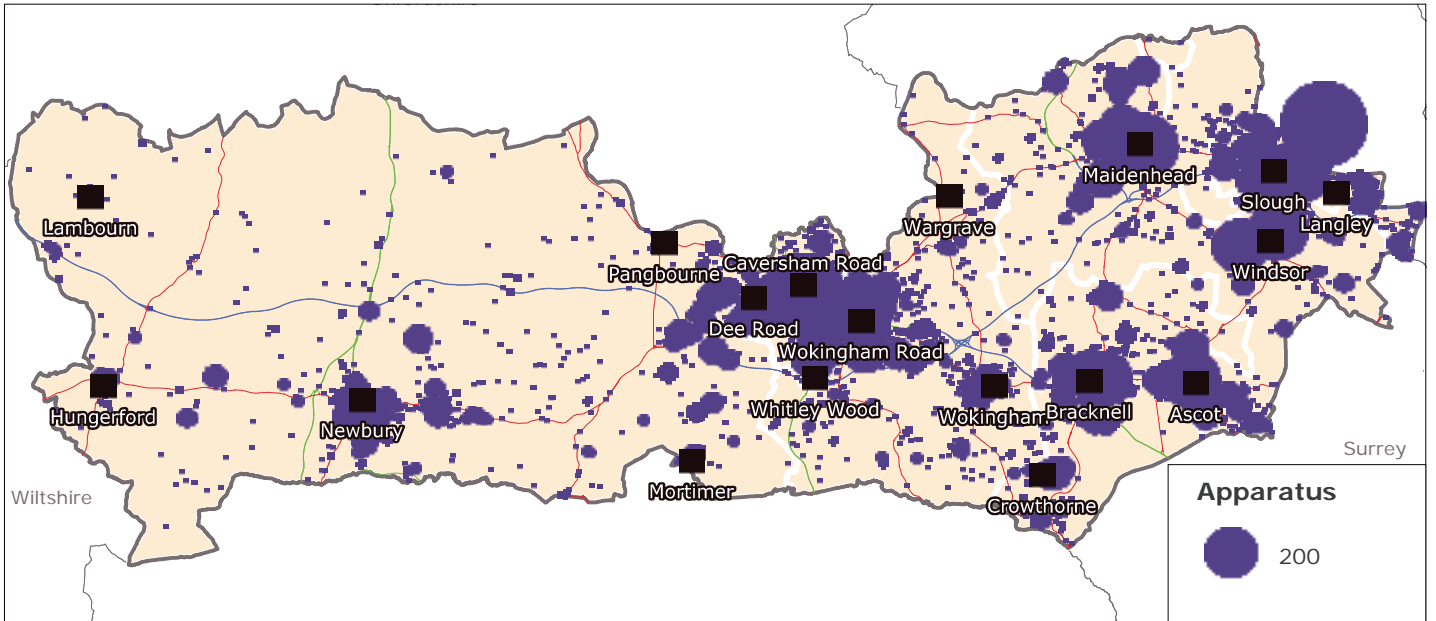
Distribution of Priority Incidents
10-Year Sample (01/04/2004 to 31/03/2014)

C1g

Oxfordshire

Buckinghamshire

Lambourn

Maidenhead

Slough

Langley

Wargrave

Pangbourne Caversham Road

Windsor

Dee Road

Wokingham Road

Hungerford

Whitley Wood

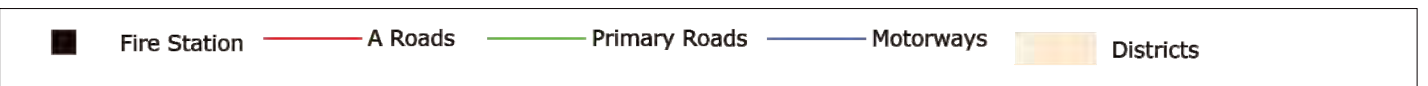Wokingham Bracknell

Ascot

Surrey

Newbury

Wiltshire

Mortimer

Crowthorne

Hampshire

Primary Dwelling Fire

100

Oxfordshire

Buckinghamshire

Lambourn

Maidenhead

Slough

Langley

Wargrave

Pangbourne Caversham Road

Windsor

Dee Road

Wokingham Road

Hungerford

Whitley Wood

Wokingham Bracknell

Ascot

Surrey

Newbury

Wiltshire

Mortimer

Crowthorne

Hampshire

RTC

100

■ **Fire Station** —— **A Roads** —— **Primary Roads** —— **Motorways** **Districts**

RBFRS - Model Revalidation & Annual Performance Review (2014)
Incident Locations by District and Financial Year
10 Year Sample Period (01/04/2004 to 31/03/2014)

False Alarm Incidents

District	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	10-Year Average	2-Year Average
Bracknell Forest	11.3%	12.4%	12.3%	12.6%	12.1%	11.5%	10.9%	11.5%	12.2%	9.9%	11.7%	11.1%
Reading	23.4%	23.7%	23.0%	23.0%	23.0%	23.3%	24.0%	24.9%	24.2%	26.3%	23.9%	25.2%
Slough	18.9%	15.7%	16.2%	16.3%	16.4%	15.8%	16.6%	14.6%	11.8%	12.0%	15.4%	11.9%
West Berkshire	14.1%	16.1%	15.6%	14.8%	15.4%	15.4%	15.0%	14.9%	17.2%	17.5%	15.7%	17.4%
Windsor and Maidenhead	19.3%	19.2%	19.9%	21.0%	20.3%	20.4%	20.7%	22.0%	21.1%	21.8%	20.6%	21.5%
Wokingham	11.8%	12.0%	11.9%	11.9%	12.6%	13.5%	12.3%	11.5%	12.8%	11.3%	12.2%	12.0%
South Buckinghamshire	1.2%	0.9%	1.0%	0.4%	0.2%	0.2%	0.4%	0.7%	0.7%	1.1%	0.7%	0.9%
Berkshire-wide	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Fire Incidents

District	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	10-Year Average	2-Year Average
Bracknell Forest	12.8%	13.0%	12.5%	12.0%	12.3%	12.0%	13.6%	12.8%	13.1%	9.1%	12.3%	11.1%
Reading	24.1%	23.2%	20.9%	22.8%	21.4%	24.1%	20.6%	20.8%	20.0%	20.4%	21.8%	20.2%
Slough	19.6%	18.8%	19.8%	19.4%	20.5%	18.0%	17.8%	18.6%	17.2%	19.1%	18.9%	18.1%
West Berkshire	14.1%	17.1%	18.1%	17.3%	19.4%	18.1%	19.7%	20.0%	20.8%	21.2%	18.6%	21.0%
Windsor and Maidenhead	14.5%	13.1%	13.6%	13.7%	14.3%	14.8%	14.8%	14.9%	16.5%	16.6%	14.7%	16.6%
Wokingham	12.6%	12.2%	12.9%	13.6%	11.4%	12.3%	12.1%	11.6%	11.4%	12.1%	12.2%	11.8%
South Buckinghamshire	2.4%	2.7%	2.1%	1.2%	0.7%	0.7%	1.4%	1.2%	1.1%	1.5%	1.5%	1.3%
Berkshire-wide	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Special Service Incidents

District	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	10-Year Average	2-Year Average
Bracknell Forest	15.4%	13.8%	13.4%	9.5%	10.4%	9.7%	8.5%	10.3%	8.7%	6.8%	10.7%	7.8%
Reading	21.3%	20.8%	19.7%	22.6%	20.6%	21.8%	23.6%	20.9%	21.9%	20.3%	21.3%	21.1%
Slough	13.3%	13.7%	13.9%	15.8%	19.9%	18.7%	21.3%	20.8%	19.6%	20.3%	17.7%	19.9%
West Berkshire	17.6%	20.4%	20.4%	20.4%	20.4%	20.0%	19.0%	15.2%	19.0%	20.3%	19.3%	19.6%
Windsor and Maidenhead	18.7%	16.6%	17.0%	17.2%	15.3%	16.2%	14.7%	19.8%	17.2%	18.8%	17.1%	18.0%
Wokingham	12.4%	13.4%	13.7%	13.1%	12.8%	12.6%	12.1%	12.3%	12.3%	12.8%	12.8%	12.6%
South Buckinghamshire	1.3%	1.2%	1.7%	1.4%	0.6%	1.0%	0.8%	0.7%	1.4%	0.7%	1.1%	1.0%
Berkshire-wide	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

All Incidents

District	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	10-Year Average	2-Year Average
Bracknell Forest	12.8%	12.9%	12.6%	11.9%	11.8%	11.3%	11.6%	11.8%	11.8%	9.0%	11.7%	10.4%
Reading	23.1%	22.9%	21.6%	22.9%	22.1%	23.2%	22.6%	22.6%	22.3%	23.1%	22.7%	22.7%
Slough	17.8%	16.2%	16.7%	17.1%	18.2%	16.8%	17.8%	17.2%	15.2%	16.1%	16.9%	15.6%
West Berkshire	14.9%	17.4%	17.6%	16.5%	17.5%	17.3%	17.4%	17.0%	18.7%	19.3%	17.4%	19.0%
Windsor and Maidenhead	17.6%	16.7%	17.3%	18.2%	17.7%	17.8%	17.6%	18.8%	18.8%	19.5%	18.0%	19.1%
Wokingham	12.2%	12.4%	12.6%	12.6%	12.3%	13.0%	12.2%	11.7%	12.2%	11.9%	12.3%	12.1%
South Buckinghamshire	1.6%	1.5%	1.5%	0.8%	0.4%	0.5%	0.9%	0.9%	1.0%	1.1%	1.0%	1.1%
Berkshire-wide	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Note:
Demand on days of Industrial Action have been removed

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Distribution of All Incidents by Year
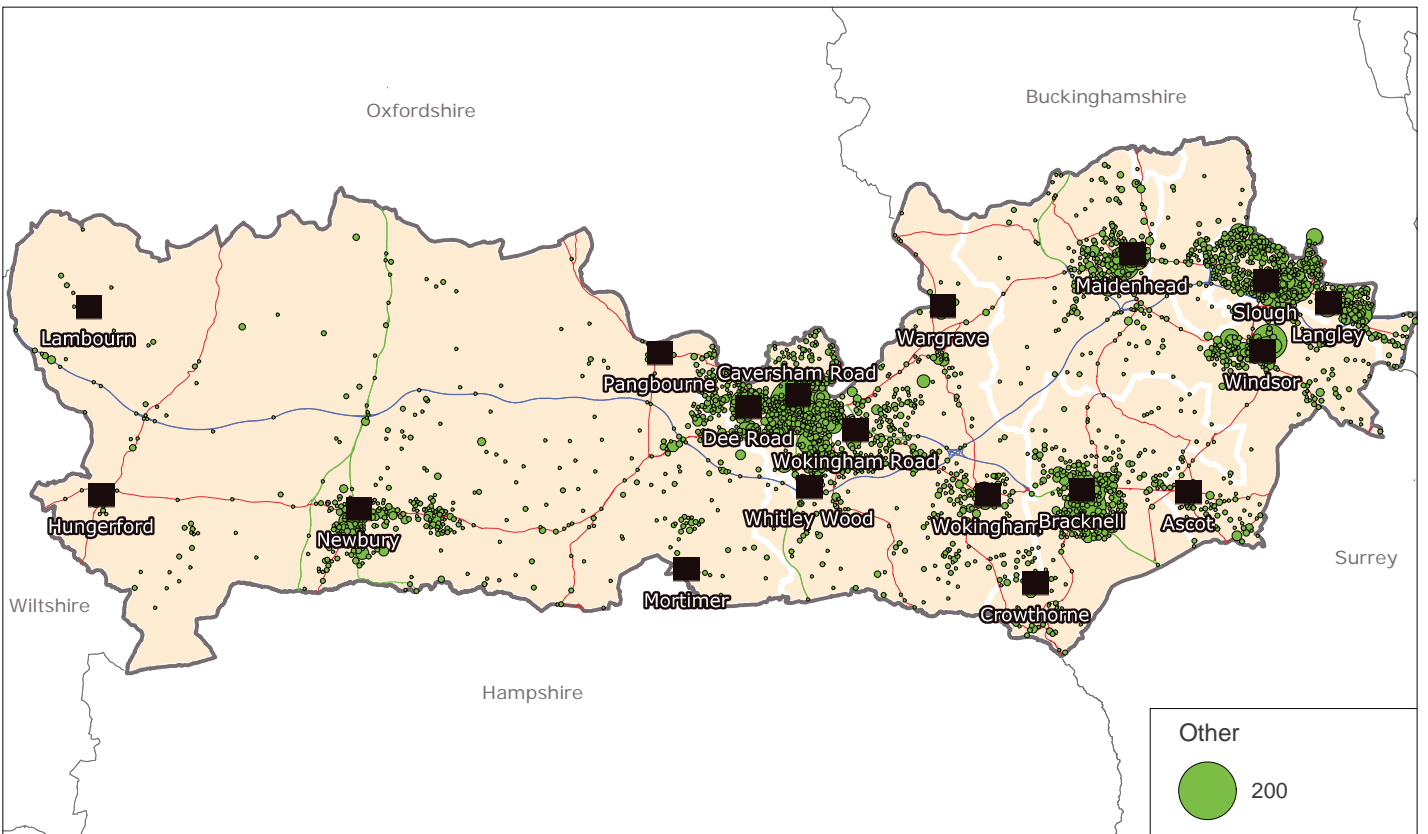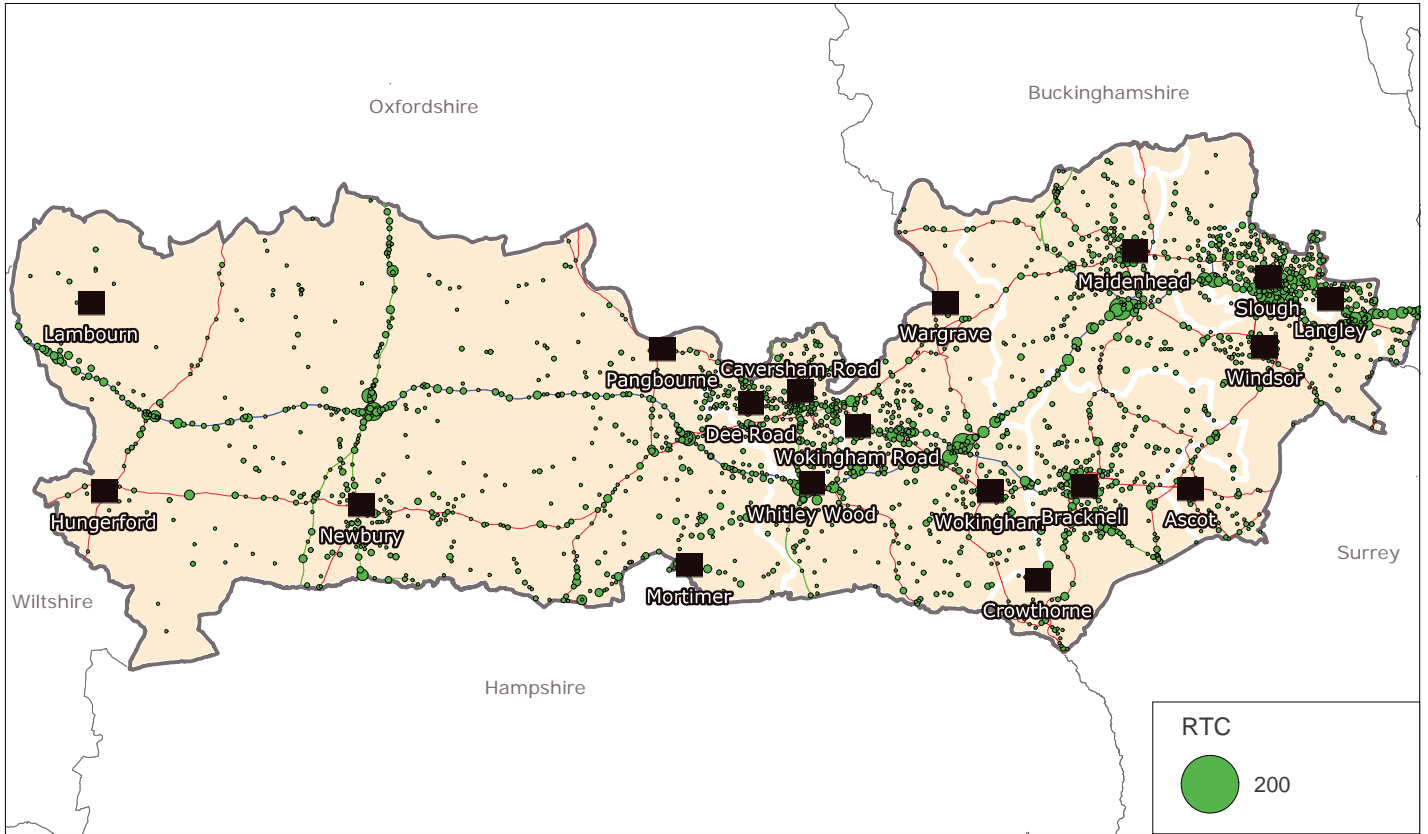5-Year Sample (01/04/2009 to 31/03/2014)

Distribution of All Incidents by Year
5-Year Sample (01/04/2009 to 31/03/2014)

2012/13

2013/14

	Stations

All Incidents

Geography
- Motorways
- Primary Roads
- A Roads
- Districts

- 500
- 250
- 50
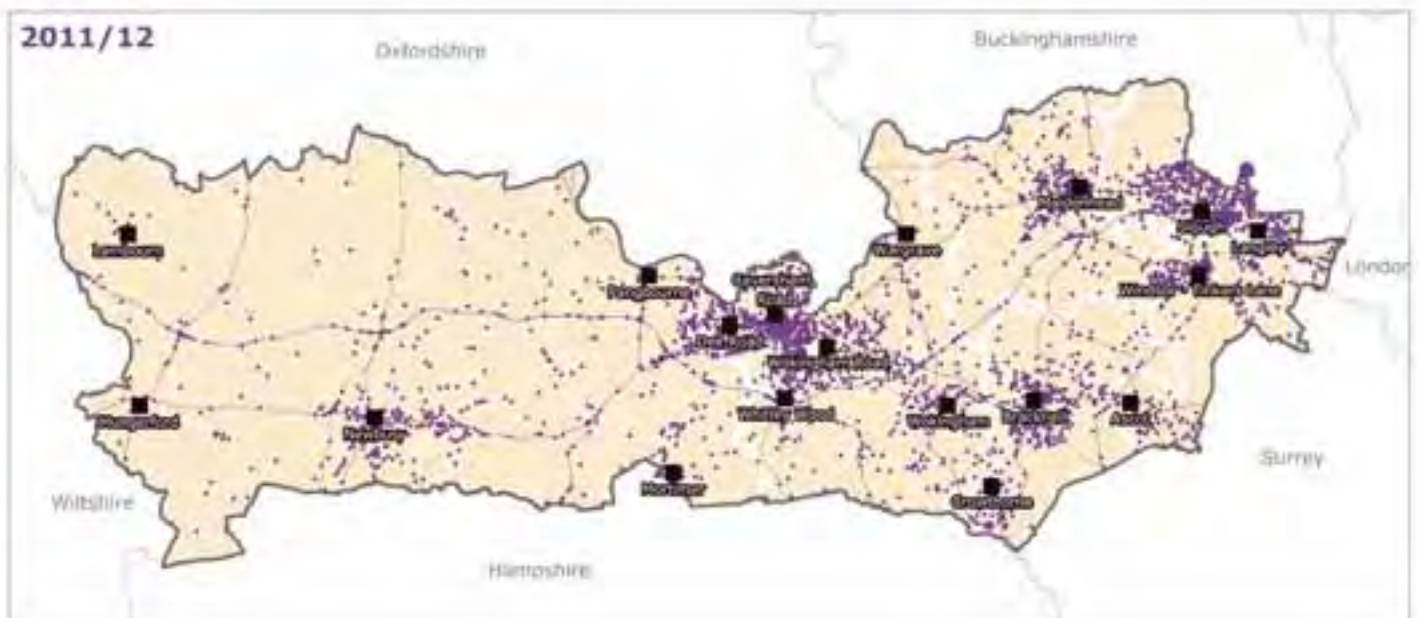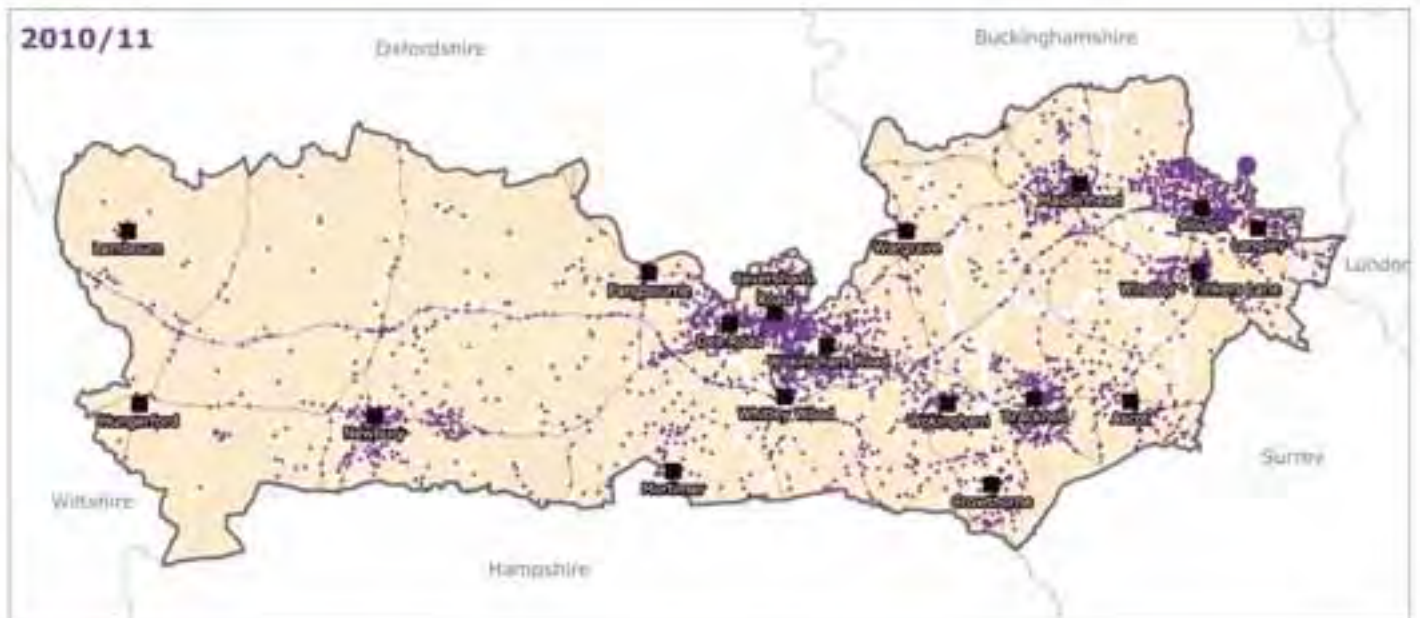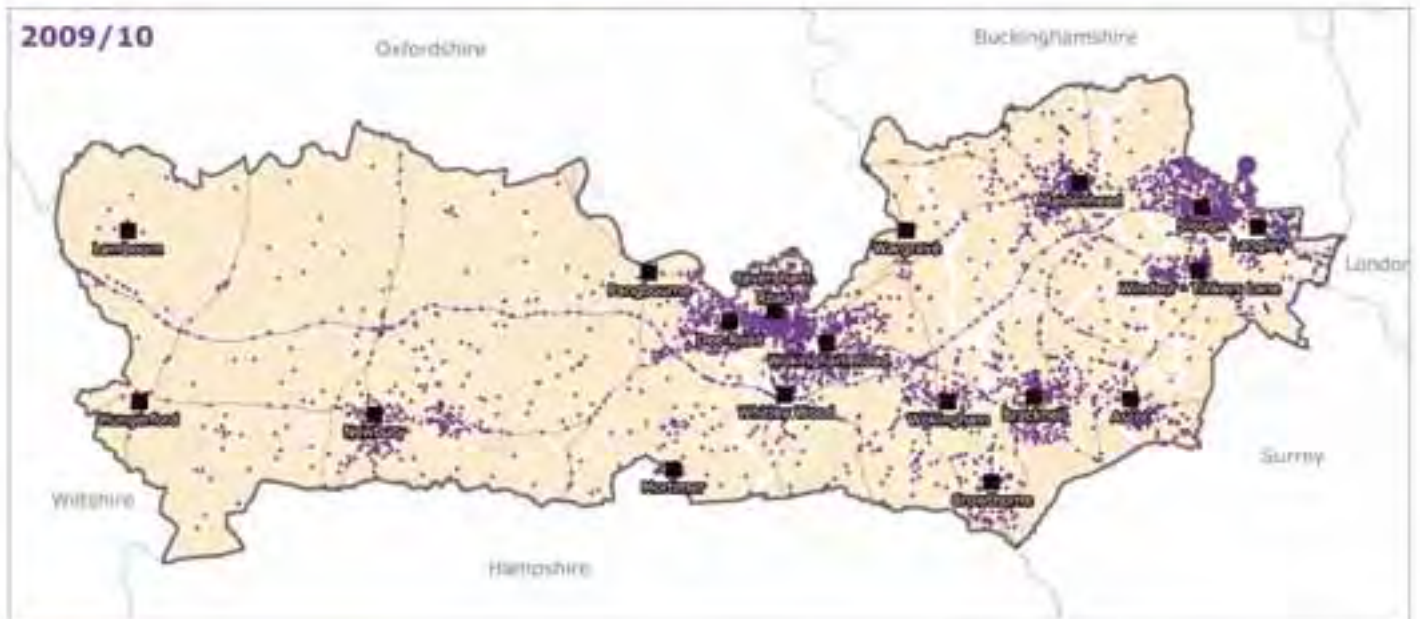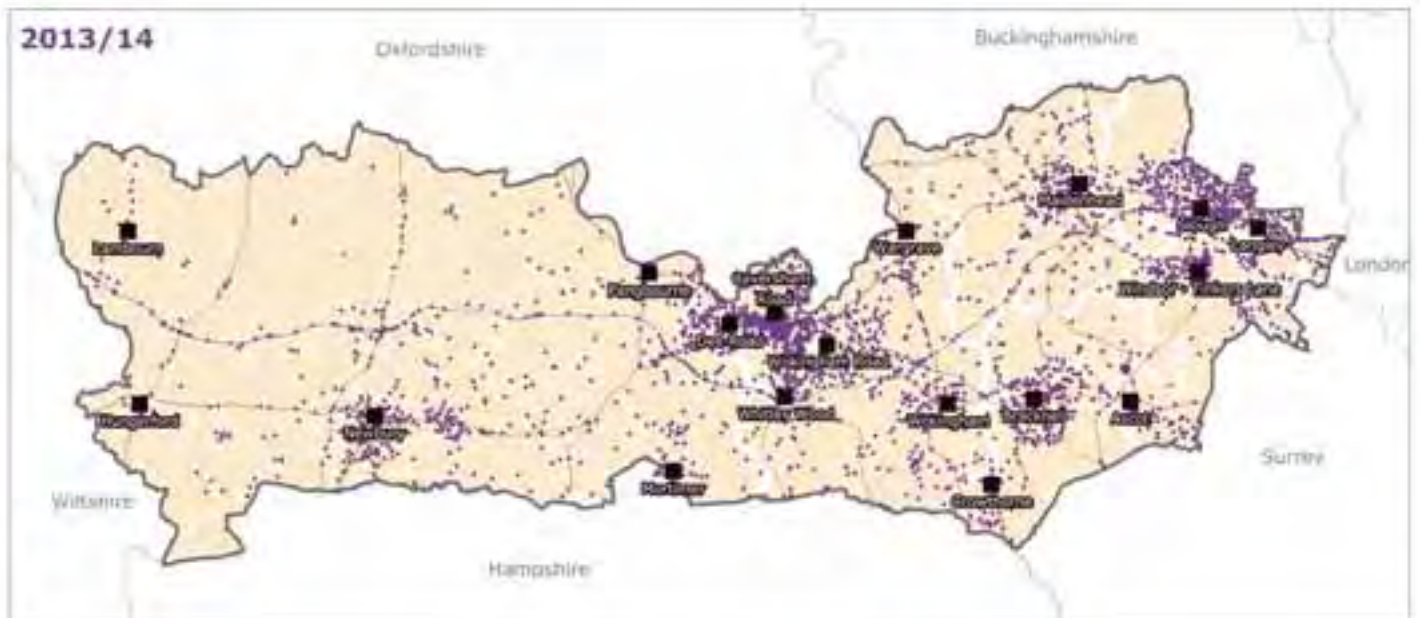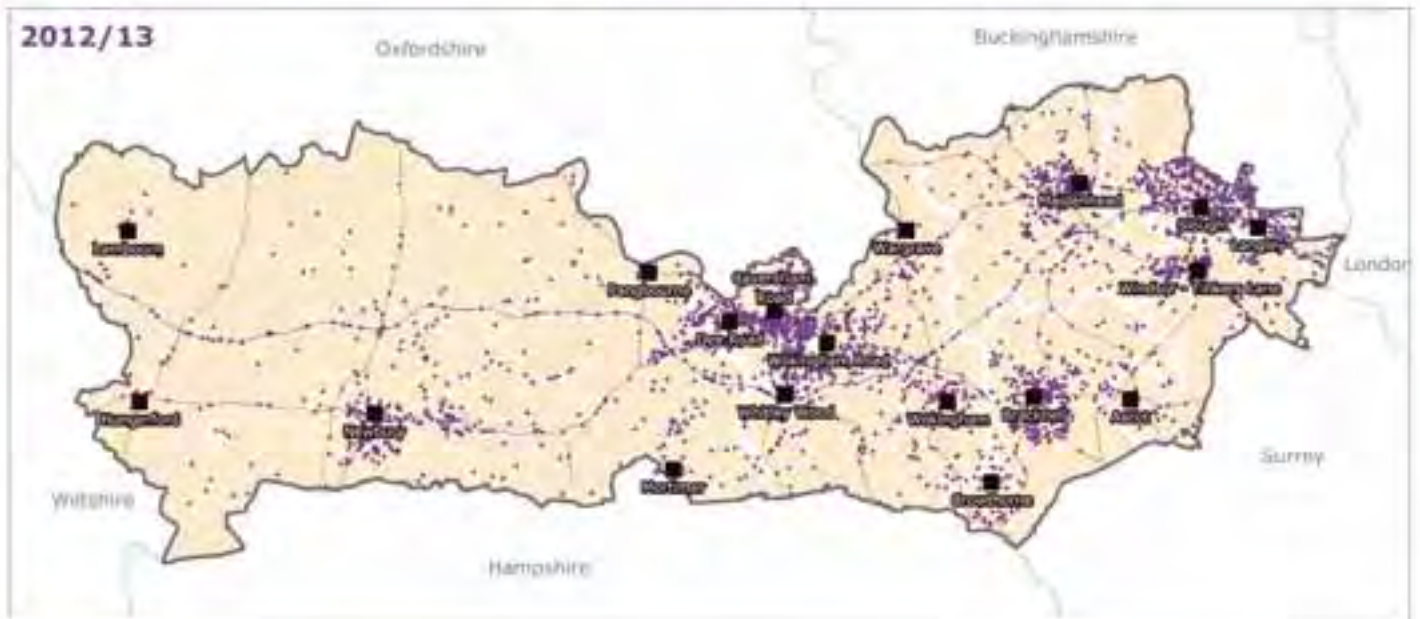
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Station Responses by Financial Year

10-Year Sample (01/04/2004 to 31/03/2014)

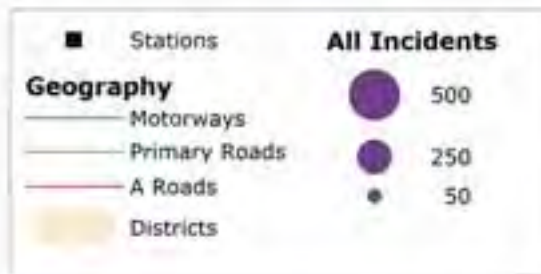| Station	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	Total	10-Year Average	2-Year Average
Ascot	425	389	378	292	199	139	88	20	26	18	1,974	198	22
Bracknell	1,842	1,845	1,908	1,724	1,300	1,140	1,049	987	763	612	13,170	1,319	688
Caversham Road	1,563	1,644	1,442	1,371	1,079	1,030	949	827	721	727	11,353	1,136	724
Cookham	116	129	110	66	40	-	-	-	-	-	461	46	-
Crowthorne	412	438	416	362	326	276	202	157	97	96	2,782	279	97
Dee Road	1,290	1,406	1,294	1,271	995	959	847	759	639	643	10,103	1,011	641
Hungerford	249	295	220	197	189	187	148	150	157	157	1,949	195	157
Lambourn	118	137	135	145	101	68	35	21	22	35	817	82	28
Langley	972	893	881	747	709	620	592	531	422	476	6,843	685	449
Maidenhead	1,337	1,403	1,368	1,356	1,014	866	791	772	712	550	10,169	1,018	632
Mortimer	180	230	215	173	146	132	134	85	85	93	1,473	147	89
Newbury	1,167	1,376	1,360	1,214	1,121	963	814	758	738	774	10,285	1,029	756
Pangbourne	144	165	112	67	67	30	31	27	23	29	695	70	26
Slough	2,700	2,437	2,516	2,442	1,800	1,587	1,531	1,422	1,183	1,167	18,785	1,880	1,175
Sonning	116	144	117	58	-	-	-	-	-	-	435	44	0
Wargrave	130	119	111	80	87	86	67	25	17	29	751	75	23
Whitley Wood	1,282	1,261	1,224	1,110	788	726	643	626	550	501	8,711	872	526
Windsor	670	636	690	634	595	540	476	475	374	437	5,527	553	405
Wokingham	203	102	232	262	302	293	257	359	459	417	2,886	288	438
Wokingham Road	1,655	1,724	1,569	1,481	1,128	1,085	907	827	753	728	11,857	1,187	741
Total	16,571	16,773	16,298	15,052	11,986	10,727	9,561	8,828	7,741	7,489	121,026	12,114	7,617

Note:

Denotes stations closed in this financial year

Responses on days of Industrial Action have been removed

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Station Responses by Incident Type

10-Year Sample (01/04/2004 to 31/03/2014)

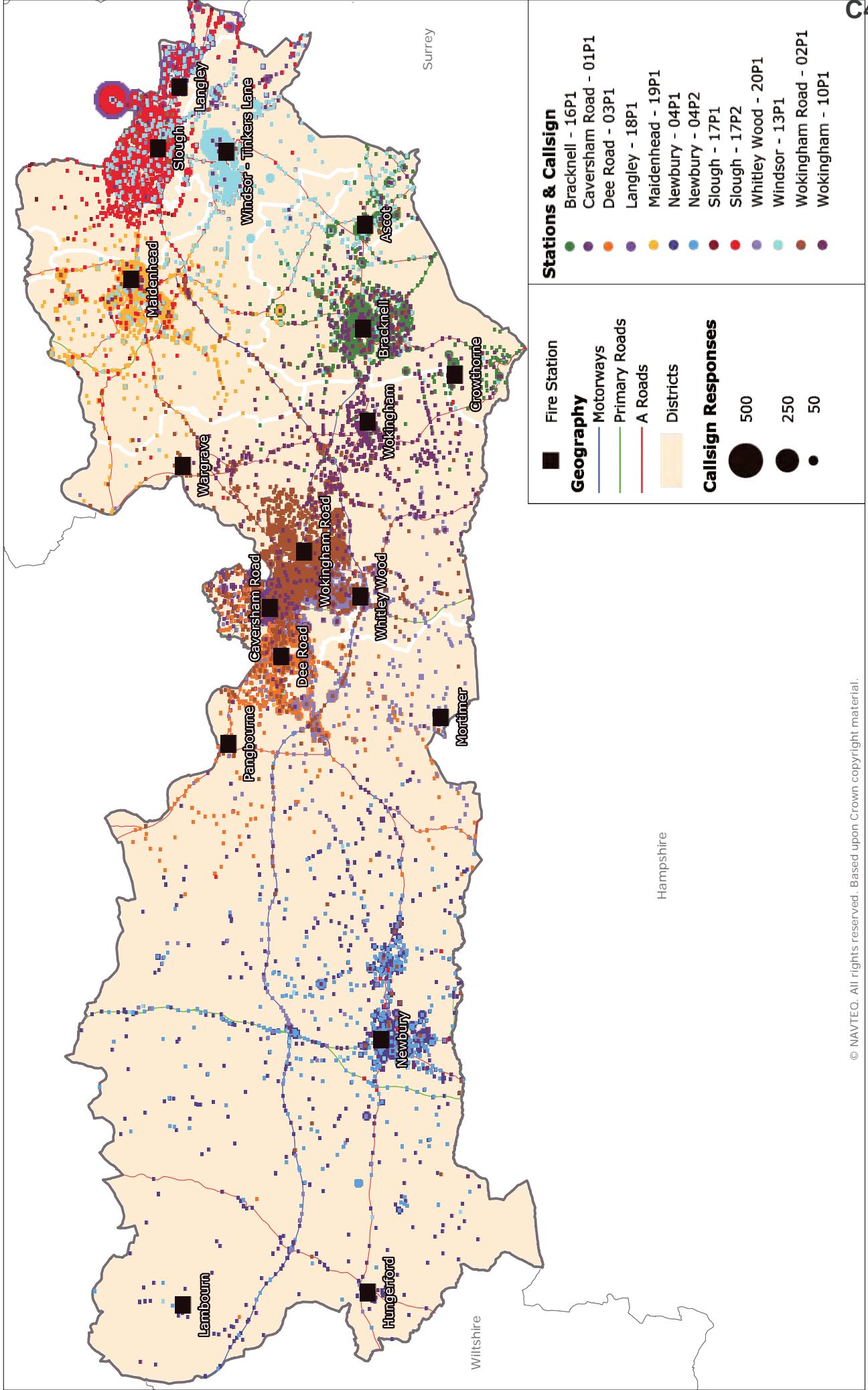| Station	False Alarms				Fires					Special Service			Total
	Apparatus	Good Intent	Malicious	Total	Primary	Secondary	Primary Dwelling	Chimney	Total	RTC	Other	Total	
Ascot	996	151	42	1,189	185	182	93	22	482	68	235	303	1,974
Bracknell	4,668	1,555	368	6,591	1,386	1,734	886	47	4,053	787	1,739	2,526	13,170
Caversham Road	3,947	1,399	400	5,746	1,213	1,377	913	21	3,524	336	1,747	2,083	11,353
Cookham	215	42	6	263	65	27	25	11	128	11	59	70	461
Crowthorne	698	354	29	1,081	328	705	198	18	1,249	132	320	452	2,782
Dee Road	2,793	1,320	263	4,376	1,483	1,480	861	55	3,879	556	1,292	1,848	10,103
Hungerford	476	236	12	724	385	111	151	67	714	279	232	511	1,949
Lambourn	138	86	13	237	154	69	62	52	337	156	87	243	817
Langley	1,894	951	221	3,066	827	1,066	540	12	2,445	484	848	1,332	6,843
Maidenhead	3,969	1,145	117	5,231	1,122	1,054	583	129	2,888	799	1,251	2,050	10,169
Mortimer	312	178	6	496	252	282	62	40	636	164	177	341	1,473
Newbury	3,053	1,310	153	4,516	1,489	916	790	228	3,423	1,010	1,336	2,346	10,285
Pangbourne	158	71	17	246	141	86	55	35	317	47	85	132	695
Slough	5,459	2,715	602	8,776	2,365	2,754	1,707	18	6,844	1,107	2,058	3,165	18,785
Sonning	133	41	7	181	63	60	36	4	163	22	69	91	435
Wargrave	202	87	4	293	131	78	58	27	294	44	120	164	751
Whitley Wood	2,932	1,175	250	4,357	1,150	989	536	45	2,720	672	962	1,634	8,711
Windsor	2,090	737	93	2,920	545	545	416	29	1,535	288	784	1,072	5,527
Wokingham	798	410	42	1,250	402	363	243	19	1,027	253	356	609	2,886
Wokingham Road	4,470	1,541	395	6,406	1,292	1,116	840	45	3,293	694	1,464	2,158	11,857
Total	39,401	15,504	3,040	57,945	14,978	14,994	9,055	924	39,951	7,909	15,221	23,130	121,026

Note:

Denotes stations closed in the 10-Year Sample Period

Responses on days of Industrial Action have been removed

RBFRS - Model Revalidation and Annual Performance Report (2014)

Responses by Wholetime Callsigns

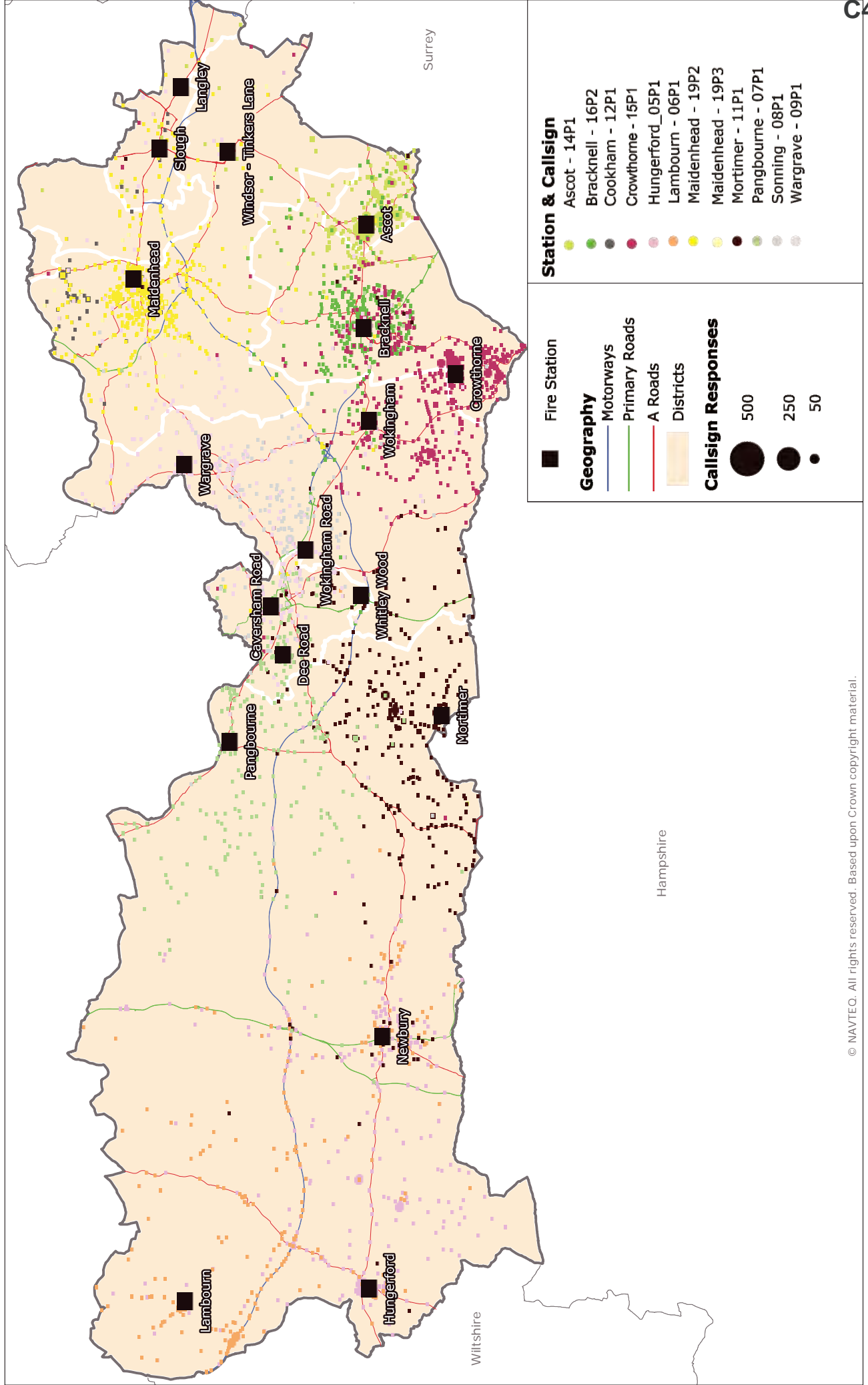10-Year Sample (01/04/2004 to 31/03/2014)

C4a

Surrey

Stations & Callsign

- Bracknell - 16P1
- Caversham Road - 01P1
- Dee Road - 03P1
- Langley - 18P1
- Maidenhead - 19P1
- Newbury - 04P1
- Newbury - 04P2
- Slough - 17P1
- Slough - 17P2
- Whitley Wood - 20P1
- Windsor - 13P1
- Wokingham Road - 02P1
- Wokingham - 10P1

■ Fire Station

Geography
- Motorways
- Primary Roads
- A Roads
- Districts

Callsign Responses

- 500
- 250
- 50

Langley

Slough

Windsor - Tinkers Lane

Ascot

Maidenhead

Bracknell

Crowthorne

Wokingham

Wargrave

Wokingham Road

Caversham Road

Whitley Wood

Dee Road

Pangbourne

Mortimer

Newbury

Lambourn

Hungerford

Hampshire

Wiltshire

Responses by Retained Duty Callsigns

10-Year Sample (01/04/2004 to 31/03/2014)

C4b

Station & Callsign

- Ascot - 14P1
- Bracknell - 16P2
- Cookham - 12P1
- Crowthorne - 15P1
- Hungerford_05P1
- Lambourn - 06P1
- Maidenhead - 19P2
- Maidenhead - 19P3
- Mortimer - 11P1
- Pangbourne - 07P1
- Sonning - 08P1
- Wargrave - 09P1

Geography

- Fire Station
- Motorways
- Primary Roads
- A Roads
- Districts

Callsign Responses

- 500
- 250
- 50

Langley
Slough
Windsor – Tinkers Lane
Maidenhead
Ascot
Bracknell
Crowthorne
Wokingham
Wargrave
Wokingham Road
Whitley Wood
Caversham Road
Dee Road
Pangbourne
Mortimer
Newbury
Lambourn
Hungerford

Surrey
Hampshire
Wiltshire

RBFRS - Model Revalidation & Annual Performance Review (2014)
Incident Locations by District and Financial Year
10 Year Sample Period (01/04/2004 to 31/03/2014)

False Alarm Incidents

District	Financial Year										10-Year Average	2-Year Average
	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14		
Bracknell Forest	603	658	637	702	631	498	394	354	337	274	509	306
Reading	1,242	1,261	1,190	1,285	1,204	1,009	864	769	669	726	1,023	697
Slough	1,002	835	834	912	860	664	600	450	327	332	682	329
West Berkshire	750	856	808	826	807	686	542	462	476	484	670	480
Windsor and Maidenhead	1,027	1,023	1,029	1,173	1,060	884	748	679	584	602	882	593
Wokingham	625	636	612	668	662	585	445	355	354	311	526	333
South Buckinghamshire	66	48	54	24	10	9	14	22	20	30	30	25
Berkshire-wide	**5,315**	**5,317**	**5,164**	**5,590**	**5,234**	**4,335**	**3,607**	**3,091**	**2,767**	**2,759**	**4,322**	**2,763**

Fire Incidents

District	Financial Year										10-Year Average	2-Year Average
	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14		
Bracknell Forest	473	475	427	369	336	334	397	358	263	171	361	218
Reading	893	848	715	699	587	670	603	583	402	386	639	394
Slough	725	688	675	597	560	502	520	522	347	360	550	353
West Berkshire	523	626	619	532	532	505	577	561	418	400	530	409
Windsor and Maidenhead	536	478	465	421	392	412	433	418	332	314	420	323
Wokingham	468	447	440	416	311	343	353	325	230	229	357	230
South Buckinghamshire	88	98	73	36	20	19	42	34	22	29	46	25
Berkshire-wide	**3,706**	**3,660**	**3,414**	**3,070**	**2,738**	**2,785**	**2,925**	**2,801**	**2,014**	**1,889**	**2,903**	**1,952**

Special Service Incidents

District	Financial Year										10-Year Average	2-Year Average
	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14		
Bracknell Forest	434	362	370	173	191	162	102	111	102	88	210	95
Reading	599	545	545	413	378	363	282	225	255	262	387	258
Slough	375	358	385	290	366	311	255	224	228	262	305	245
West Berkshire	494	533	564	373	375	332	227	164	221	262	355	241
Windsor and Maidenhead	525	435	470	315	280	270	176	213	200	243	313	221
Wokingham	348	350	379	240	235	210	145	133	144	165	235	154
South Buckinghamshire	36	32	47	26	11	16	10	8	16	9	21	13
Berkshire-wide	**2,811**	**2,615**	**2,760**	**1,830**	**1,836**	**1,664**	**1,197**	**1,078**	**1,166**	**1,291**	**1,826**	**1,228**

All Incidents

District	Financial Year										10-Year Average	2-Year Average
	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14		
Bracknell Forest	1,510	1,495	1,434	1,244	1,158	994	893	823	702	533	1,080	619
Reading	2,734	2,654	2,450	2,397	2,169	2,042	1,749	1,577	1,326	1,374	2,049	1,350
Slough	2,102	1,881	1,894	1,799	1,786	1,477	1,375	1,196	902	954	1,538	928
West Berkshire	1,767	2,015	1,991	1,731	1,714	1,523	1,346	1,187	1,115	1,146	1,554	1,130
Windsor and Maidenhead	2,088	1,936	1,964	1,909	1,732	1,566	1,357	1,310	1,116	1,159	1,615	1,137
Wokingham	1,441	1,433	1,431	1,324	1,208	1,138	943	813	728	705	1,117	717
South Buckinghamshire	190	178	174	86	41	44	66	64	58	68	97	63
Berkshire-wide	**11,832**	**11,592**	**11,338**	**10,490**	**9,808**	**8,784**	**7,729**	**6,970**	**5,947**	**5,939**	**9,050**	**5,943**

Note:
Demand on days of Industrial Action have been removed

RBFRS - Model Revalidation and Annual Performance Report (2014)

Responses Over-the-Border by RBFRS Pumps

10-Year Sample (01/04/2004 to 31/03/2014)

C6a

Responses by RBFRS

100
50
10

■ RBFRS Station

◄ Over the Border Stations

Geography

— Motorways
— Primary Roads
— A Roads
Districts

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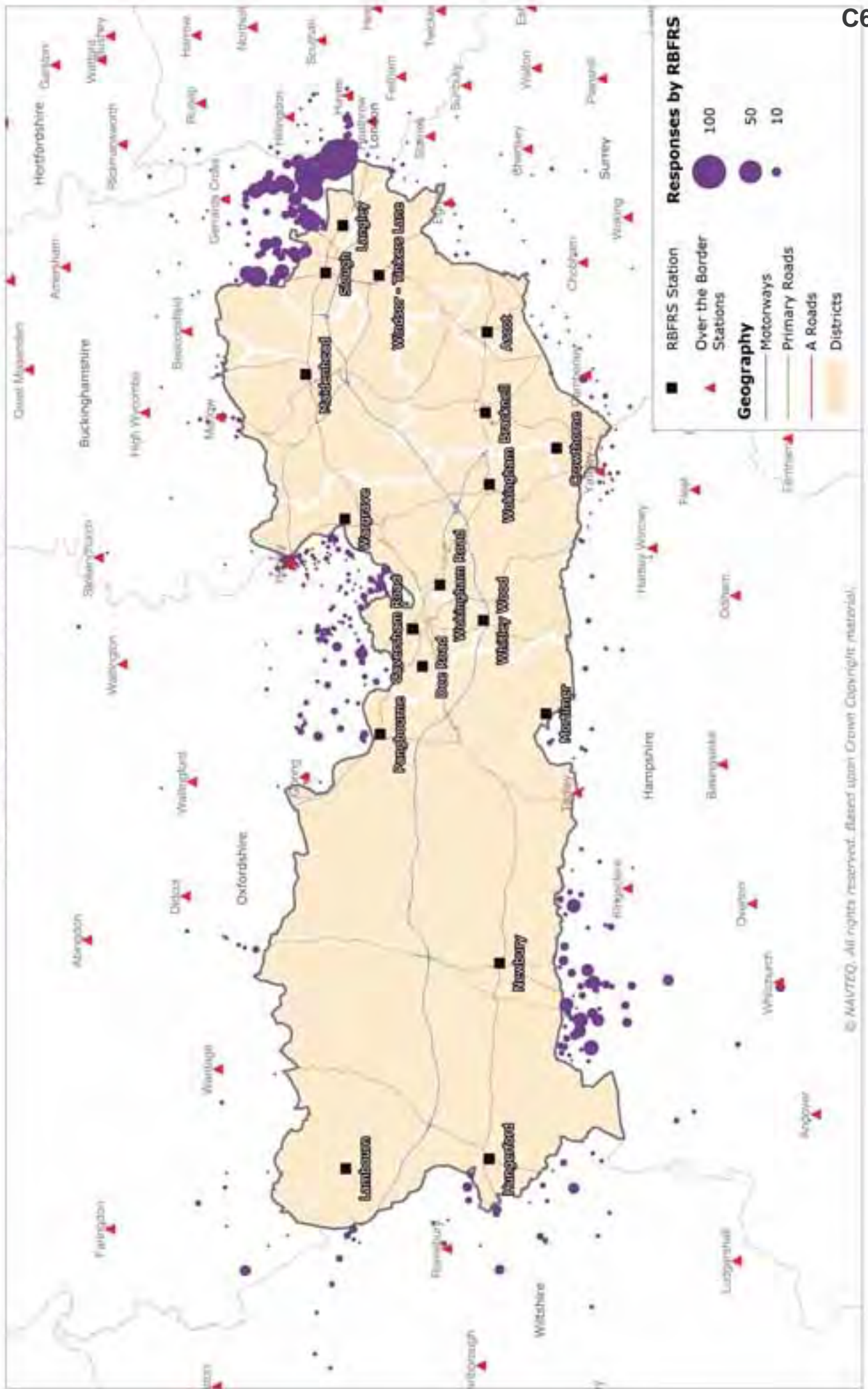
RBFRS - Model Revalidation and Annual Performance Report (2014)

Responses into RBFRS by Over-the-Border Pumps

10-Year Sample (01/04/2004 to 31/03/2014)

C6b

Responses by RBFRS

- 100
- 50
- 10

Geography

- ■ RBFRS Station
- ▲ Over the Border Stations
- Motorways
- Primary Roads
- A Roads
- Districts

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Map labels (RBFRS Stations): Langley, Slough, Windsor – Tinkers Lane, Maidenhead, Ascot, Bracknell, Crowthorne, Wokingham, Wargrave, Wokingham Road, Caversham Road, Whitley Wood, Dee Road, Pangbourne, Mortimer, Newbury, Lambourn, Hungerford

Place labels: Gerrards Cross, Beaconsfield, Marlow, Surrey, Woking, Chobham, Camberley, Yateley, Fleet, Hartley Wintney, Odiham, Hampshire, Basingstoke, Overton, Whitchurch, Kingsclere, Andover, Wantage, Wallingford, Goring, Oxfordshire, Didcot, Chertsey, Egham, Staines

D Response Profile Analysis

RBFRS - Model Revalidation & Annual Performance Report (2014)
Average Control Activiation Time by Year
10-Year Sample (2004/05 to 2013/14)

1st Appliance
2nd Appliance
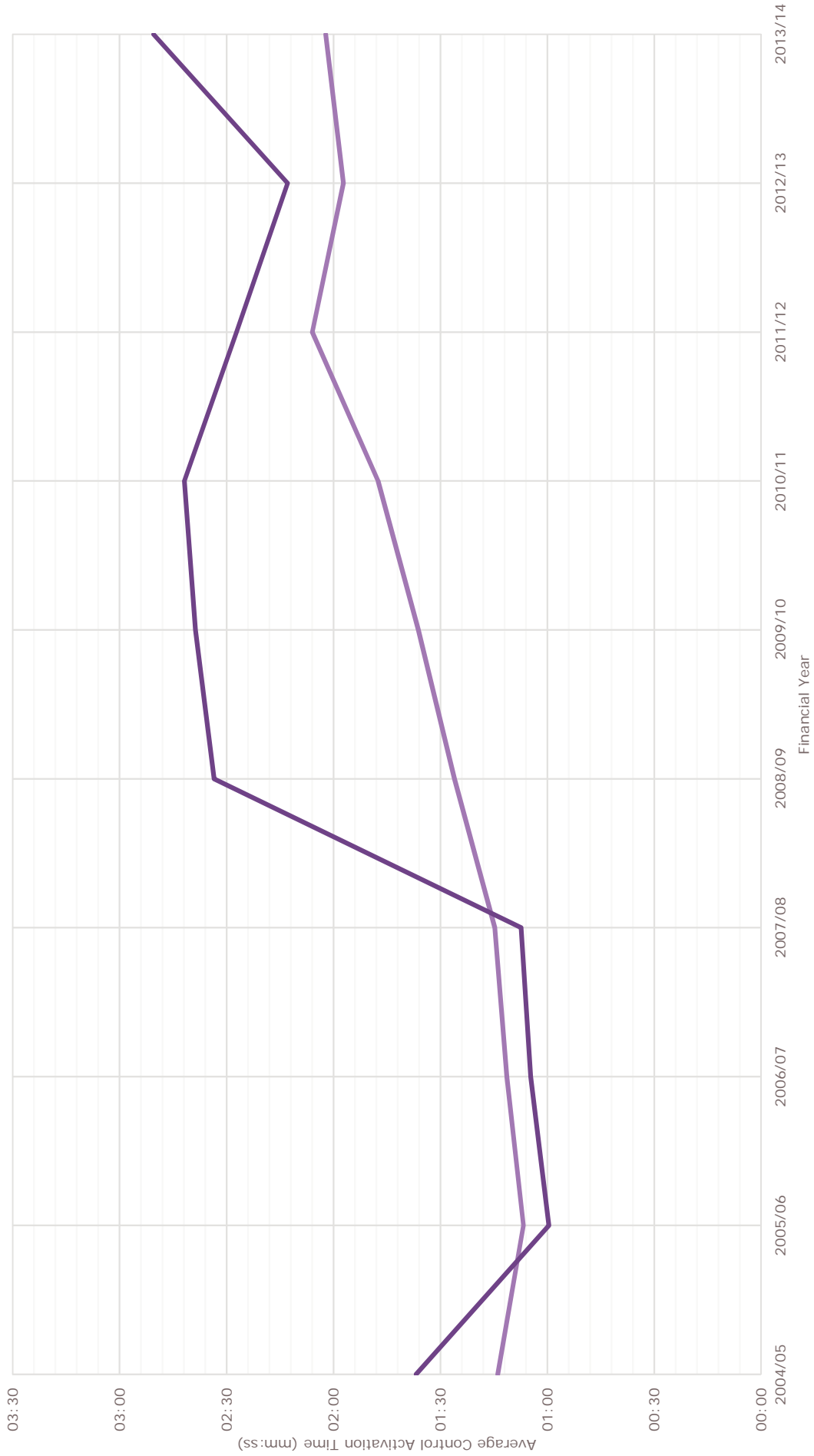
D1a

Average Control Activiation Time (mm:ss)

Financial Year

RBFRS - Model Revalidation & Annual Performance Report (2014)
Average Control Activiation Time by Hour
2-Year Sample (2012/13 to 2013/14)

1st Appliance — 2nd Appliance
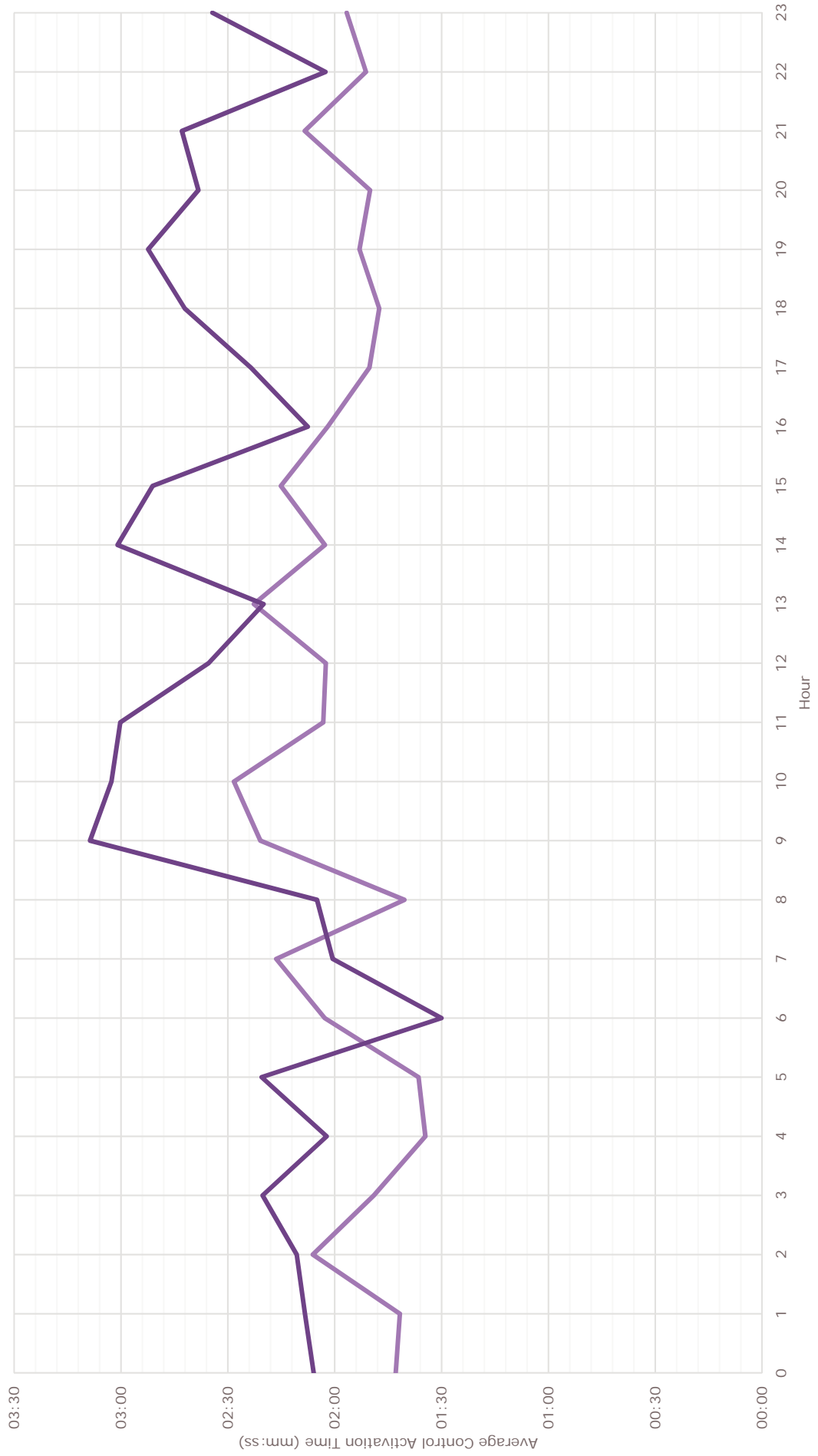
Average Control Activation Time (mm:ss)

Hour

RBFRS - Model Revalidation & Annual Performance Report (2014)
Average Crew Turnout Time by Crew Type by Year
10-Year Sample (2004/05 to 2013/14)
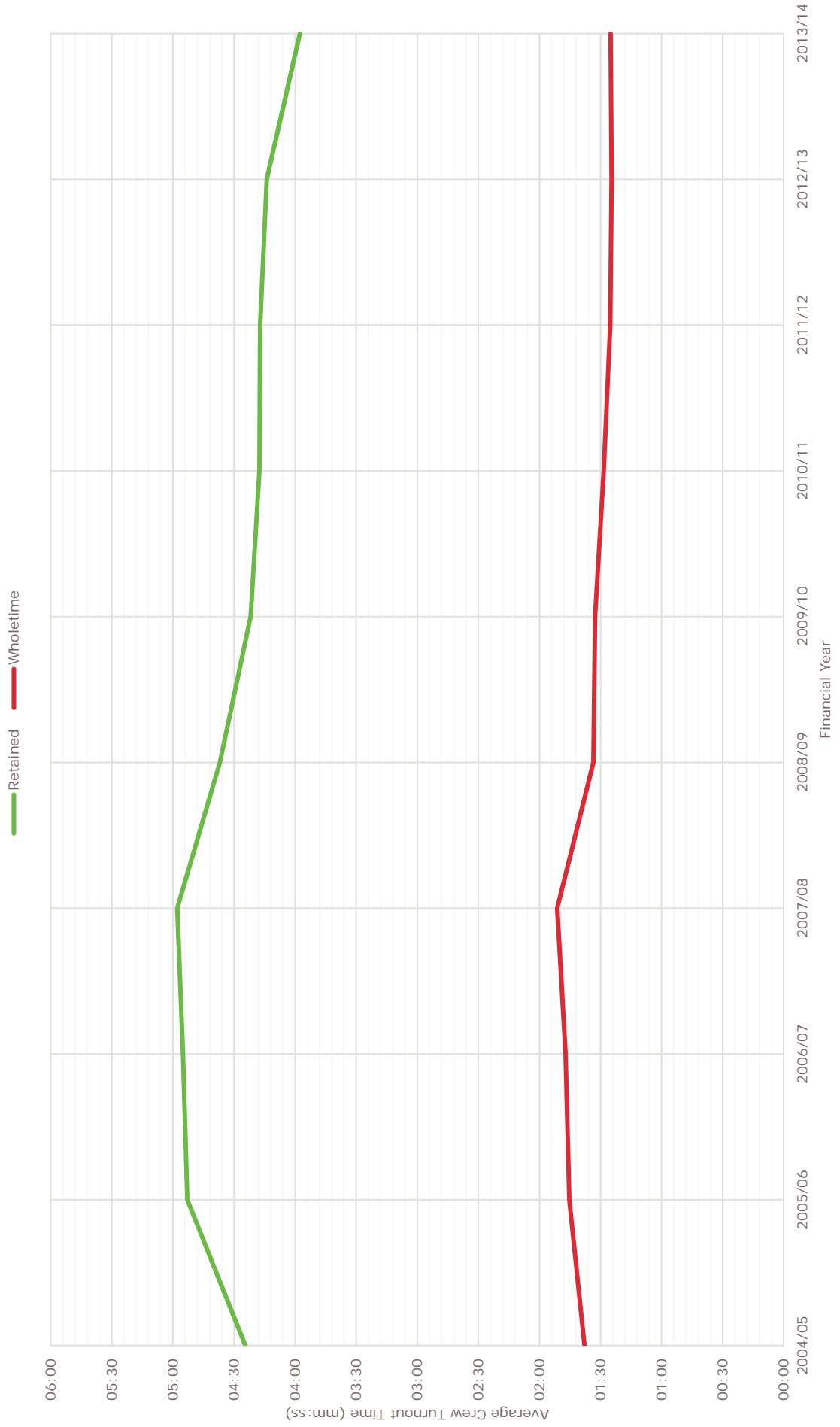
Legend: — Retained — Wholetime

Average Crew Turnout Time (mm:ss)

Financial Year

Y-axis: 06:00, 05:30, 05:00, 04:30, 04:00, 03:30, 03:00, 02:30, 02:00, 01:30, 01:00, 00:30, 00:00

X-axis: 2004/05, 2005/06, 2006/07, 2007/08, 2008/09, 2009/10, 2010/11, 2011/12, 2012/13, 2013/14

D2b

RBFRS - Model Revalidation & Annual Performance Report (2014)
Average Crew Turnout Time by Crew Type by Hour
<u>10-Year Sample (2004/05 to 2013/14)</u>

— Retained
— Wholetime

Average Crew Turnout Time (mm:ss)

Hour

D3a

RBFRS - Model Revalidation & Annual Performance Report (2014)
Average Time to Scene by Incident Type by Year
10-Year Sample (2004/05 to 2013/14)

Legend: False Alarm, Fire, Special Service

X-axis: Financial Year (2004/05 to 2013/14)
Y-axis: Average Time to Scene (mm:ss)

D3b

RBFRS - Model Revalidation & Annual Performance Report (2014)
Average Time to Scene by Incident Type by Hour
10-Year Sample (2004/05 to 2013/14)

Average Time to Scene (mm:ss)

Hour

False Alarm — Fire — Special Service
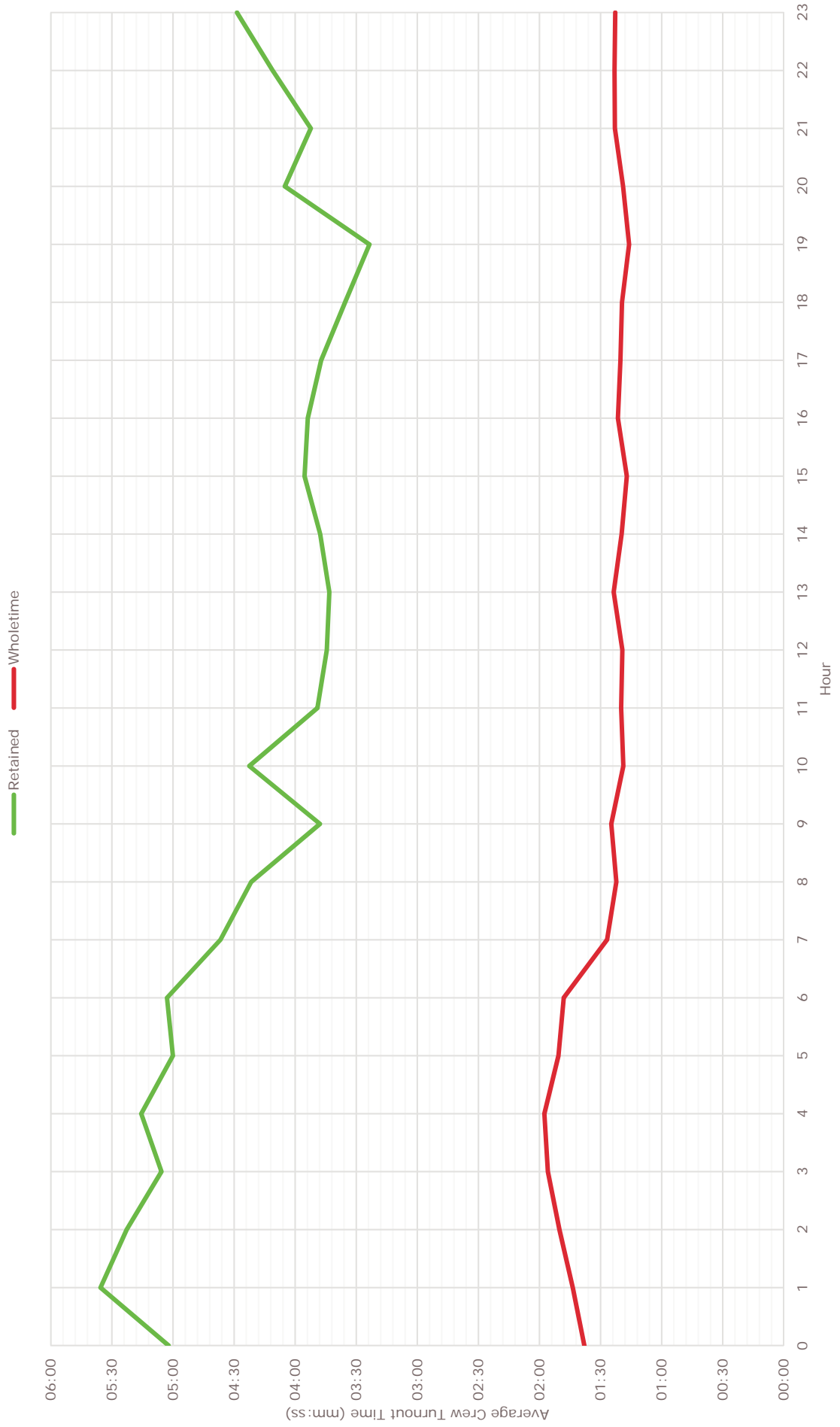
RBFRS - Model Revalidation & Annual Performance Report (2014)
Average Crew Response Performance by Year
10-Year Sample (2004/05 to 2013/14)

Legend:
- False Alarm - 1st Appliance
- Fire - 2nd Appliance
- Fire - 1st Appliance
- False Alarm - 2nd Appliance
- Special Service - 1st Appliance
- Special Service - 2nd Appliance

Average Crew Response Performance (mm:ss)

Financial Year

2004/05, 2005/06, 2006/07, 2007/08, 2008/09, 2009/10, 2010/11, 2011/12, 2012/13, 2013/14

00:00, 01:00, 02:00, 03:00, 04:00, 05:00, 06:00, 07:00, 08:00, 09:00, 10:00, 11:00, 12:00, 13:00, 14:00, 15:00

D4b

RBFRS - Model Revalidation & Annual Performance Report (2014)
Average Crew Response Performance by Hour
10-Year Sample (2004/05 to 2013/14)

Legend:
- False Alarm - 1st Appliance
- Fire - 2nd Appliance
- False Alarm - 2nd Appliance
- Special Service - 1st Appliance
- Fire - 1st Appliance
- Special Service - 2nd Appliance

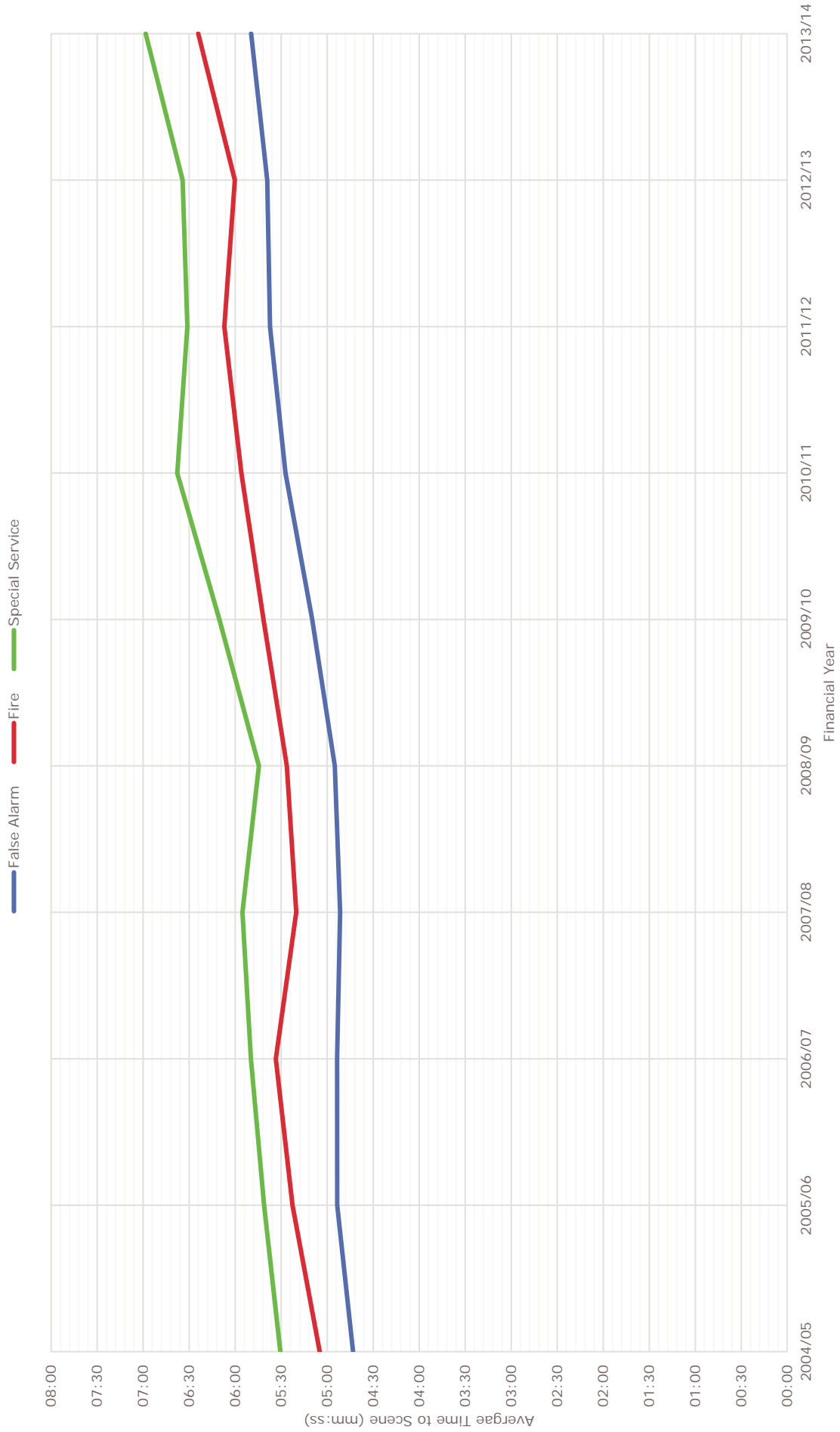Average Crew Response Performance (mm:ss)

Hour

RBFRS - Model Revalidation & Annual Performance Report (2014)
Average Time at Scene by Incident Type by Year
10-Year Sample (2004/05 to 2013/14)

Legend: False Alarm, Fire, Special Service

X-axis: Financial Year (2004/05, 2005/06, 2006/07, 2007/08, 2008/09, 2009/10, 2010/11, 2011/12, 2012/13, 2013/14)

Y-axis: Average Time at Scene (hh:mm:ss) (00:00:00, 00:05:00, 00:10:00, 00:15:00, 00:20:00, 00:25:00, 00:30:00, 00:35:00, 00:40:00, 00:45:00, 00:50:00, 00:55:00, 01:00:00)
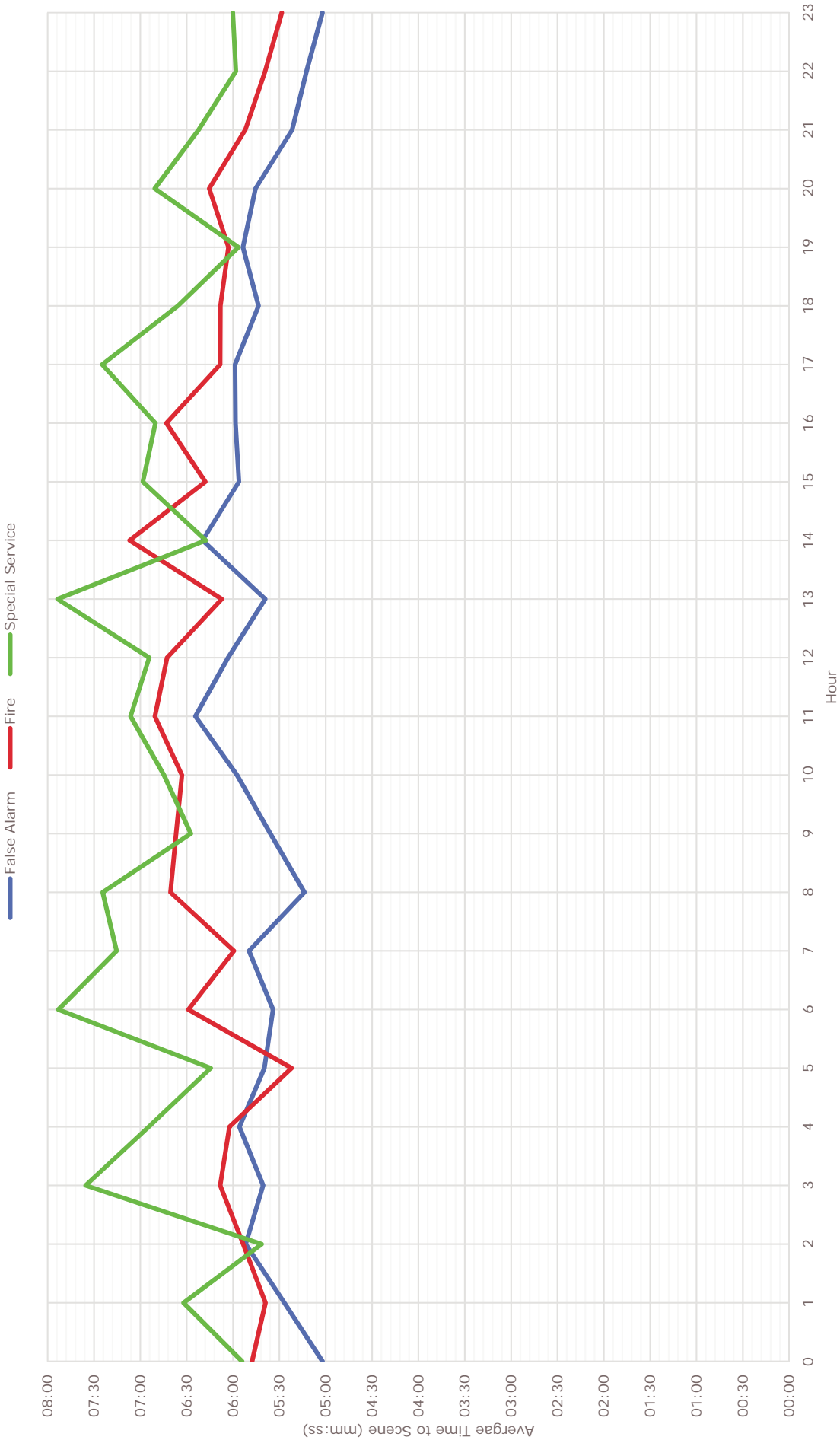
D5b

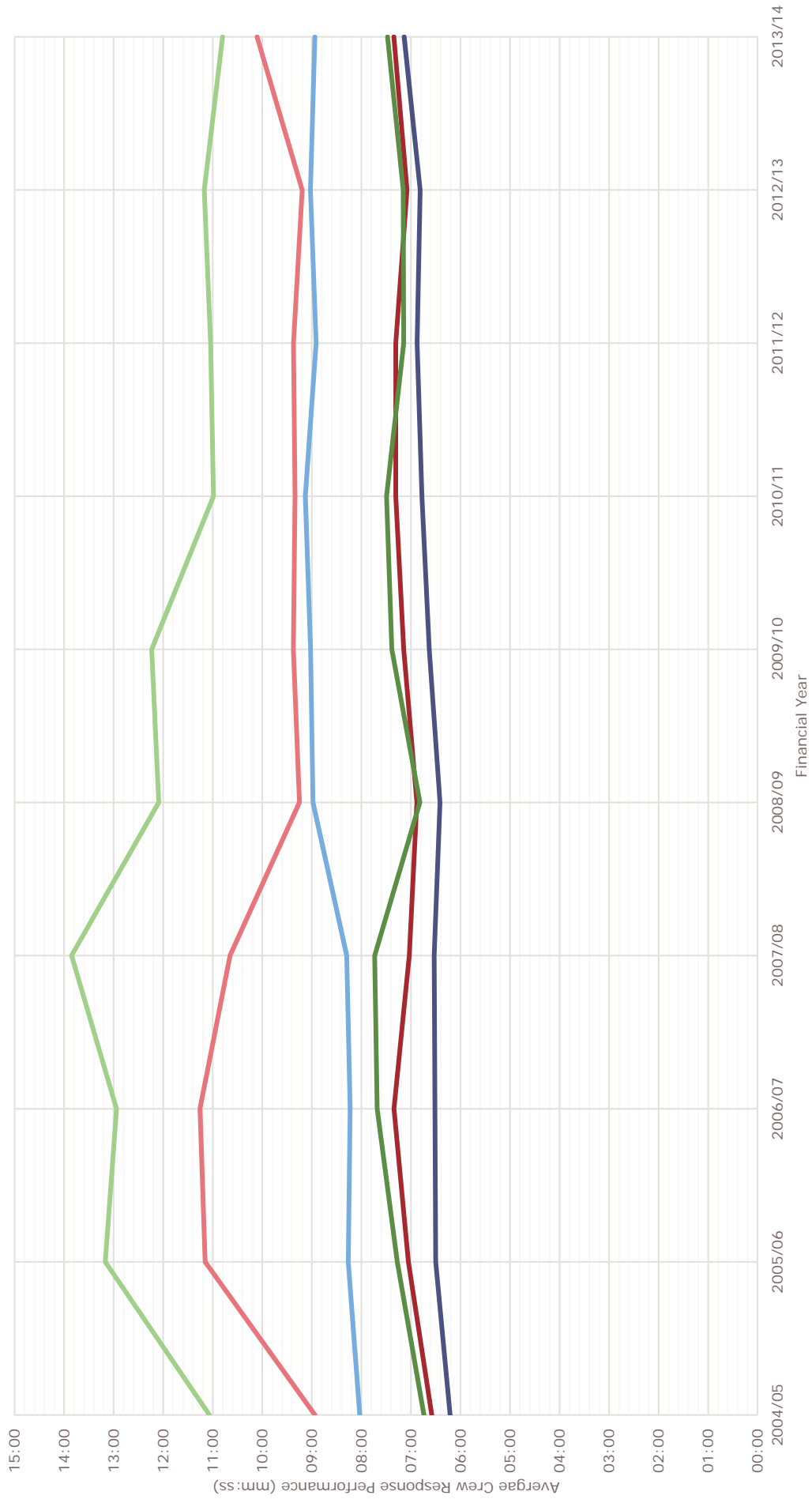RBFRS - Model Revalidation & Annual Performance Report (2014)
Average Time at Scene by Incident Type by Hour
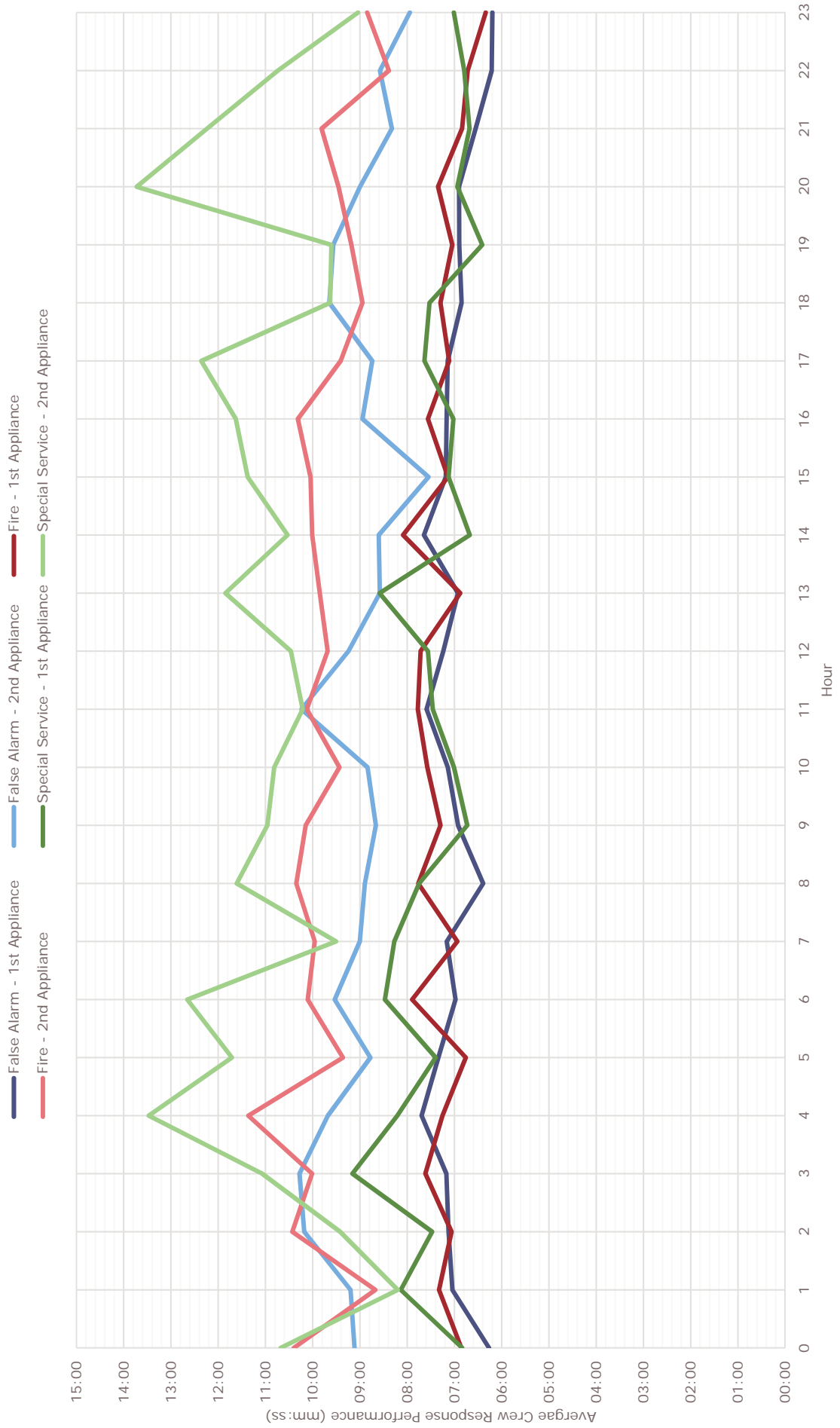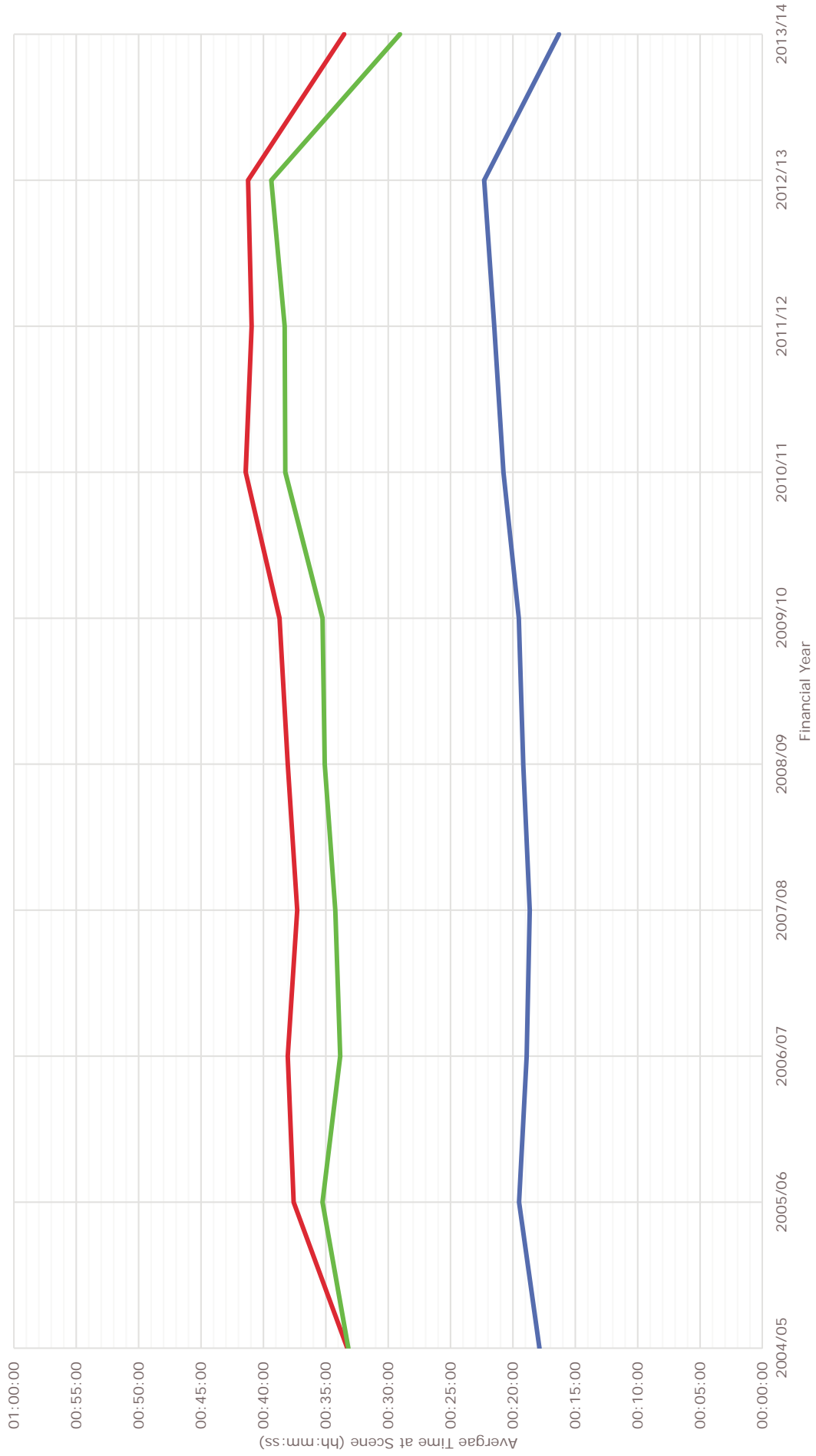10-Year Sample (2004/05 to 2013/14)

Legend: False Alarm, Fire, Special Service

Y-axis: Average Time at Scene (hh:mm:ss)
X-axis: Hour

RBFRS - Model Revalidation & Annual Performance Report (2014)
Cumulative Response Profiles - All Incidents
2-Year Sample (2012/13 to 2013/14)

Legend:
- % 1st to 1-App Incidents
- % 1st to 2+ App Incidents
- % 2nd to 2+ App Incidents

Cumulative Crew Response Performance (%)

Time (mins)

Time (mins)	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
% 1st to 1-App Incidents	1%	3%	3%	6%	16%	31%	48%	61%	70%	77%	82%	87%	90%	92%	94%	95%	96%	97%	98%	98%	99%	99%	99%	99%	99%	99%	99%	99%	100%	100%	100%
% 1st to 2+ App Incidents	0%	0%	1%	4%	15%	31%	48%	62%	71%	78%	84%	88%	91%	93%	96%	97%	98%	98%	99%	99%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%
% 2nd to 2+ App Incidents	0%	0%	0%	1%	3%	8%	16%	28%	41%	52%	62%	69%	76%	82%	86%	89%	91%	94%	95%	96%	97%	98%	98%	98%	99%	99%	99%	99%	99%	99%	99%

RBFRS - Model Revalidation & Annual Performance Report (2014)
Cumulative Response Profiles - Fire Incidents
2-Year Sample (2012/13 to 2013/14)

Legend:
— % 1st to 1-App Incidents
— % 1st to 2+ App Incidents
— % 2nd to 2+ App Incidents

Time (mins)	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
% 1st to 1-App Incidents	0%	2%	2%	4%	13%	28%	44%	58%	69%	77%	82%	86%	89%	92%	94%	95%	96%	97%	98%	98%	99%	99%	99%	99%	99%	99%	100%	100%	100%	100%	100%
% 1st to 2+ App Incidents	0%	0%	0%	4%	15%	30%	50%	65%	75%	80%	85%	90%	93%	94%	96%	97%	98%	98%	99%	99%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%
% 2nd to 2+ App Incidents	0%	0%	0%	1%	3%	8%	16%	29%	42%	53%	63%	71%	78%	83%	86%	89%	92%	93%	95%	96%	97%	97%	98%	98%	99%	99%	99%	99%	99%	100%	100%

Cumulative Crew Response Performance (%)

Time (mins)

RBFRS - Model Revalidation & Annual Performance Report (2014)
Cumulative Response Profiles - Special Service Incidents
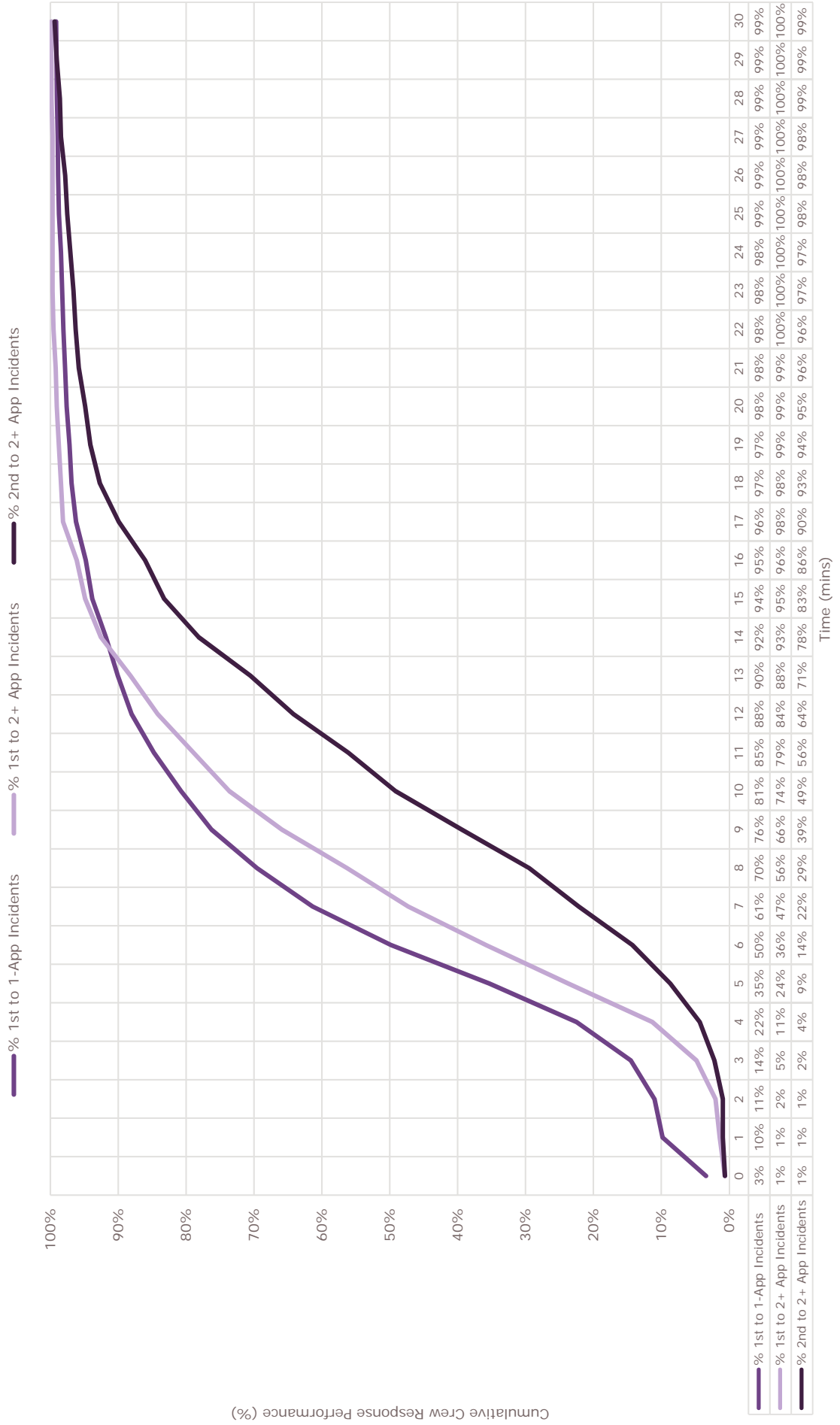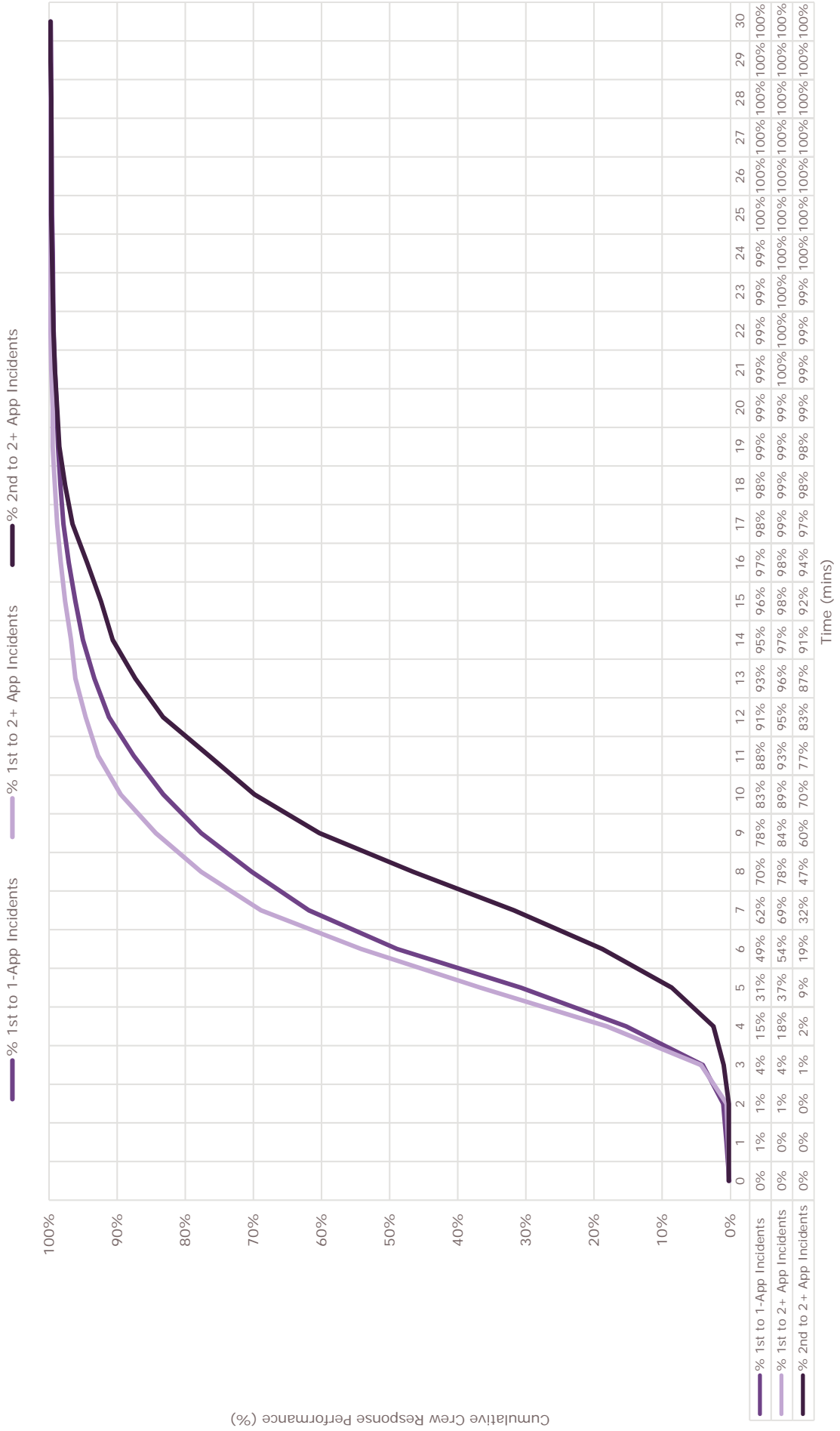2-Year Sample (2012/13 to 2013/14)

Cumulative Crew Response Performance (%)

Time (mins)

— % 1st to 1-App Incidents
— % 1st to 2+ App Incidents
— % 2nd to 2+ App Incidents

Time (mins)	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
% 1st to 1-App Incidents	3%	10%	11%	14%	22%	35%	50%	61%	70%	76%	81%	85%	88%	90%	92%	94%	95%	96%	97%	97%	98%	98%	98%	98%	98%	99%	99%	99%	99%	99%	99%
% 1st to 2+ App Incidents	1%	1%	2%	5%	11%	24%	36%	47%	56%	66%	74%	79%	84%	88%	93%	95%	96%	98%	98%	99%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%
% 2nd to 2+ App Incidents	1%	1%	1%	2%	4%	9%	14%	22%	29%	39%	49%	56%	64%	71%	78%	83%	86%	90%	93%	94%	95%	96%	96%	97%	97%	98%	98%	98%	99%	99%	99%

D6d

RBFRS - Model Revalidation & Annual Performance Report (2014)
Cumulative Response Profiles - False Alarm Incidents
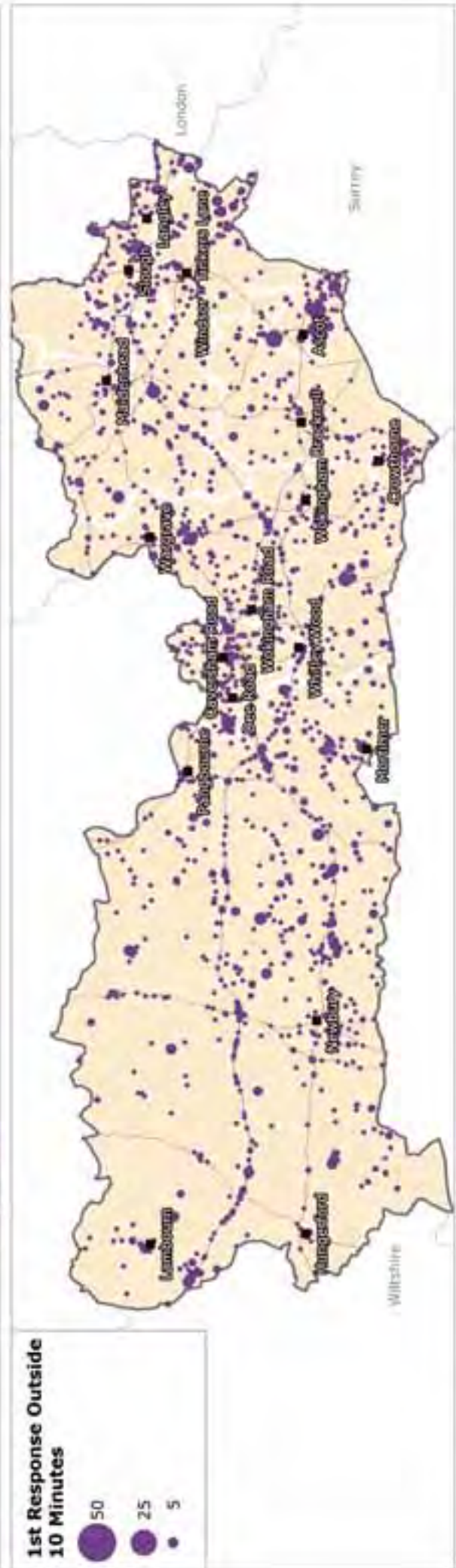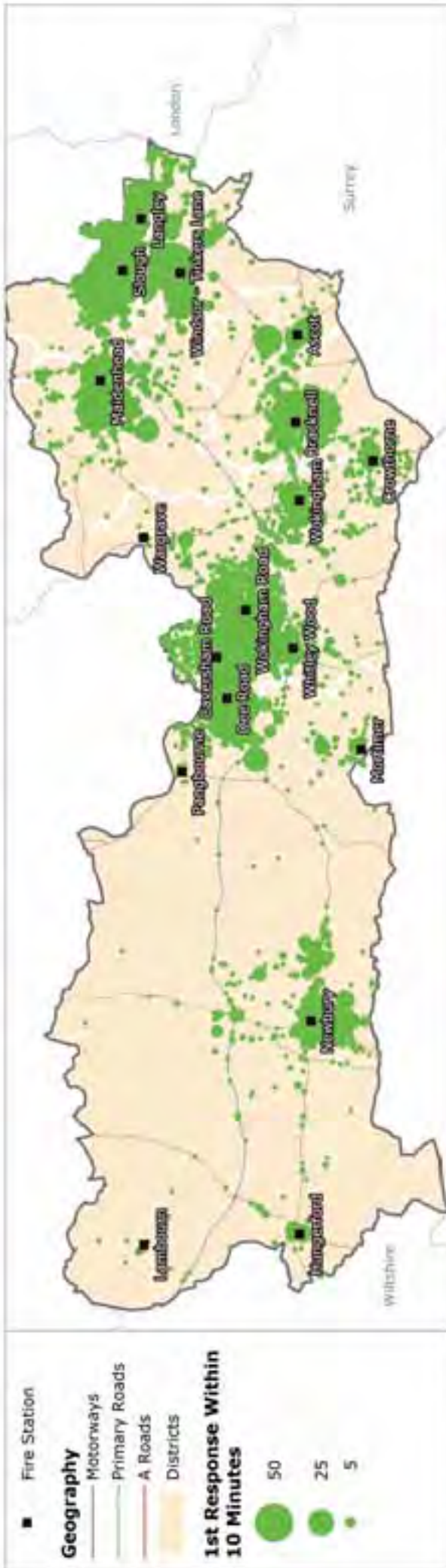2-Year Sample (2012/13 to 2013/14)

% 1st to 1-App Incidents
% 1st to 2+ App Incidents
% 2nd to 2+ App Incidents

Cumulative Crew Response Performance (%)

Time (mins)

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
% 1st to 1-App Incidents	0%	1%	1%	4%	15%	31%	49%	62%	70%	78%	83%	88%	91%	93%	95%	96%	97%	98%	98%	99%	99%	99%	99%	99%	99%	100%	100%	100%	100%	100%	100%
% 1st to 2+ App Incidents	0%	0%	1%	4%	18%	37%	54%	69%	78%	84%	89%	93%	95%	96%	97%	98%	98%	99%	99%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
% 2nd to 2+ App Incidents	0%	0%	0%	1%	2%	9%	19%	32%	47%	60%	70%	77%	83%	87%	91%	92%	94%	97%	98%	98%	99%	99%	99%	99%	100%	100%	100%	100%	100%	100%	100%

RBFRS - Model Revalidation & Annual Performance Report (2014)
Crew Response Performance by District
10-Year Sample (01/04/2004 to 31/03/2014)

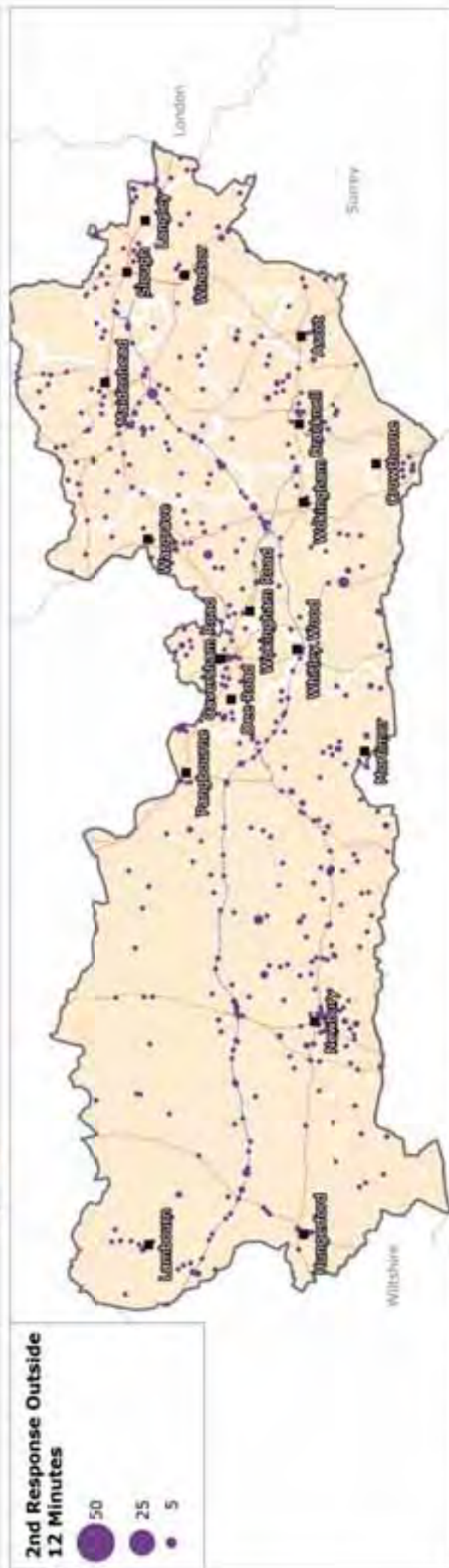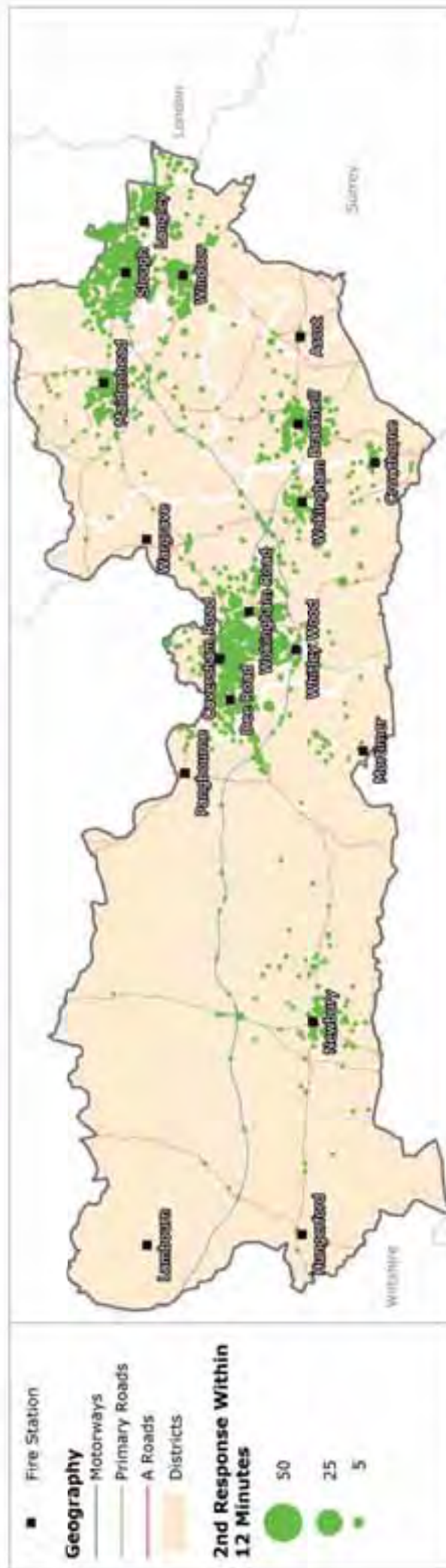| District	Responder	Financial Year										10-Year Average	2-Year Average
		2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14		
Bracknell Forest	1st Appliance	06:05	06:26	06:34	06:32	06:24	06:47	06:33	06:47	06:15	06:33	06:28	06:23
	2nd Appliance	09:52	10:55	11:33	10:45	09:24	09:55	10:37	10:40	10:16	10:28	10:34	10:21
Reading	1st Appliance	04:50	05:05	05:11	05:16	05:09	05:33	05:38	05:42	05:41	05:45	05:19	05:43
	2nd Appliance	06:43	06:56	06:59	07:18	07:20	08:03	07:43	07:41	07:48	08:20	07:16	08:03
Slough	1st Appliance	05:32	05:56	06:06	05:56	05:47	05:57	06:14	06:11	06:01	06:06	05:57	06:04
	2nd Appliance	06:13	07:08	06:56	06:54	06:41	07:11	07:13	06:53	07:05	07:47	06:55	07:25
West Berkshire	1st Appliance	08:21	08:43	09:05	09:17	08:50	09:06	09:08	09:16	09:16	09:40	09:02	09:29
	2nd Appliance	11:53	12:54	13:20	14:17	13:47	13:18	12:53	13:09	14:00	12:57	13:09	13:25
Windsor and Maidenhead	1st Appliance	06:44	07:12	07:16	07:13	06:48	07:08	07:10	07:04	06:56	07:28	07:06	07:13
	2nd Appliance	09:22	10:15	10:06	10:14	10:26	10:14	09:51	10:17	09:23	09:56	10:01	09:38
Wokingham	1st Appliance	07:57	08:09	08:14	08:09	07:28	07:56	08:25	08:03	07:41	07:59	08:01	07:50
	2nd Appliance	10:10	10:47	10:56	10:31	10:43	10:43	11:04	10:14	10:18	11:14	10:39	10:42
South Buckinghamshire	1st Appliance	09:33	09:54	10:12	08:56	08:08	09:48	10:15	11:19	10:35	09:19	09:50	09:53
	2nd Appliance	09:15	19:32	13:10	10:17	09:31	10:53	10:08	12:01	11:22	11:55	12:07	11:38
Berkshire-wide	**1st Appliance**	06:25	06:49	06:59	06:54	06:37	06:56	07:04	07:04	06:57	07:16	06:52	07:07
	2nd Appliance	08:32	09:19	09:22	09:21	09:31	09:37	09:35	09:29	09:31	10:01	09:20	09:45

Note:
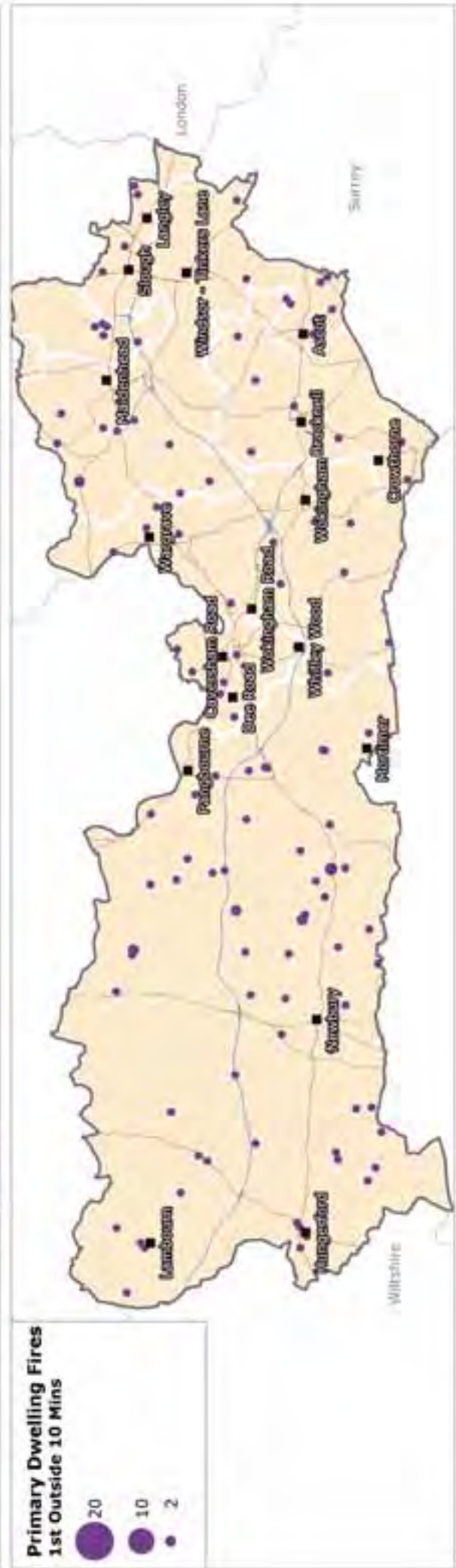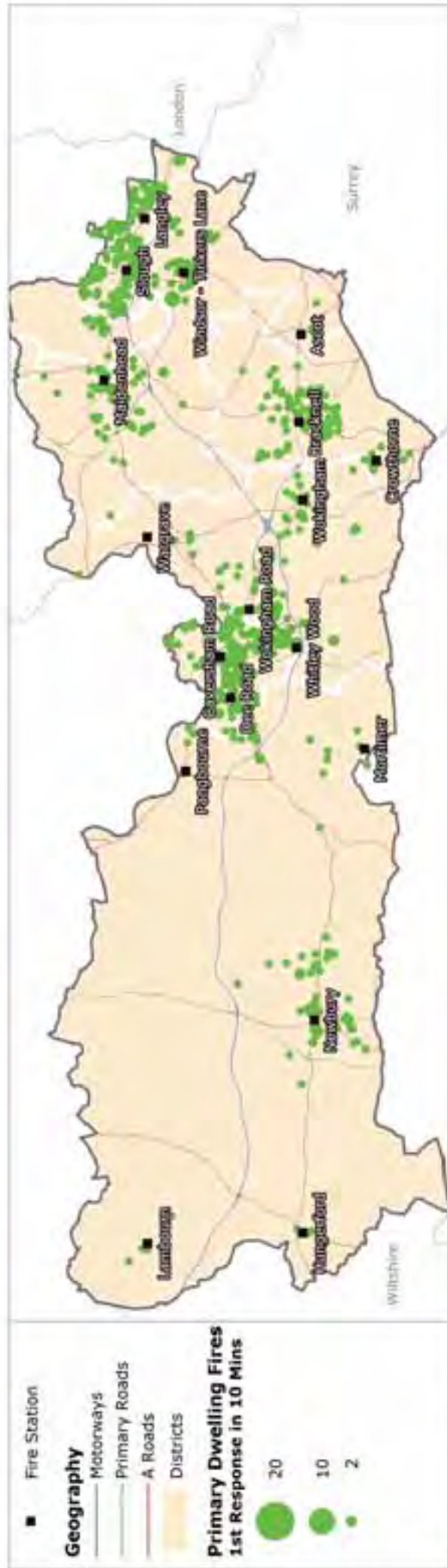Demand on days of Industrial Action have been removed

RBFRS - Model Revalidation and Annual Performance Report (2014)
All Incidents: 1st Appliance Responses Within 10 Minutes
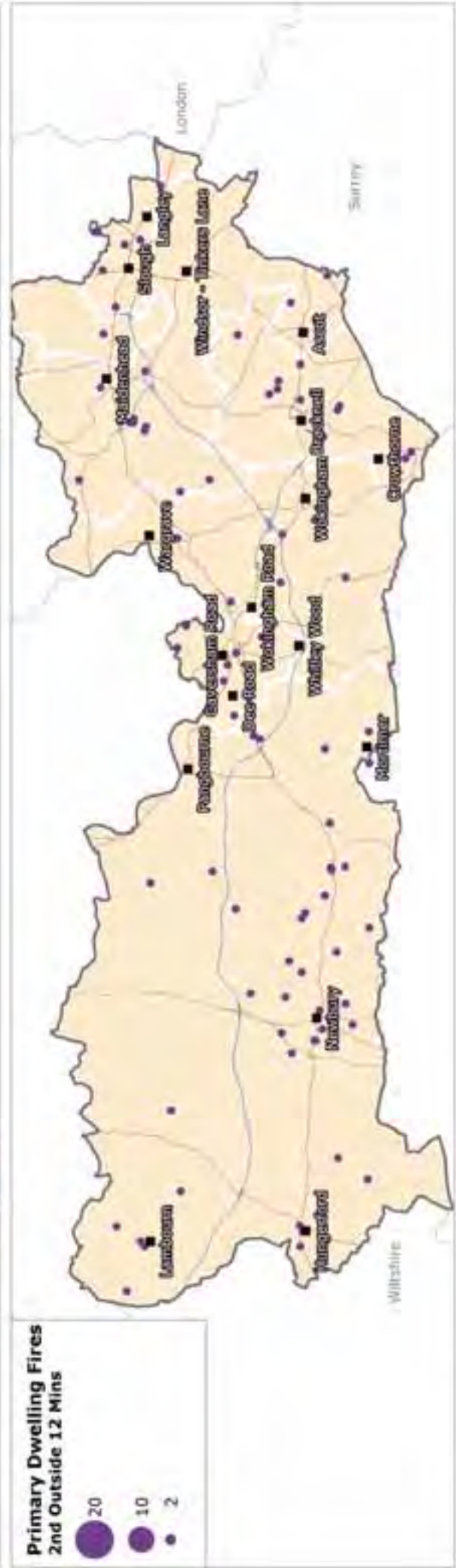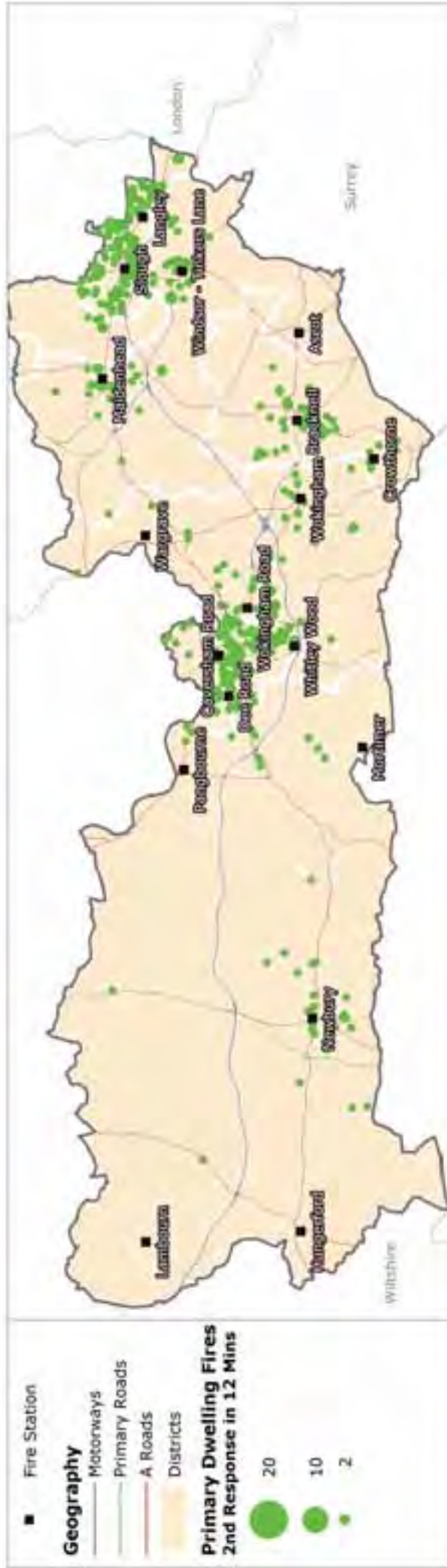2-Year Sample (01/04/2012 to 31/03/2014)

Geography

■ Fire Station

Motorways

Primary Roads

A Roads

Districts

1st Response Within 10 Minutes

50

25

5

1st Response Outside 10 Minutes

50

25

5

RBFRS - Model Revalidation and Annual Performance Report (2014)

All Incidents: 2nd Appliance Responses Within 12 Minutes

2-Year Sample (01/04/2012 to 31/03/2014)

Geography

■ Fire Station

— Motorways
— Primary Roads
— A Roads
Districts

2nd Response Within 12 Minutes

● 50
● 25
· 5

2nd Response Outside 12 Minutes
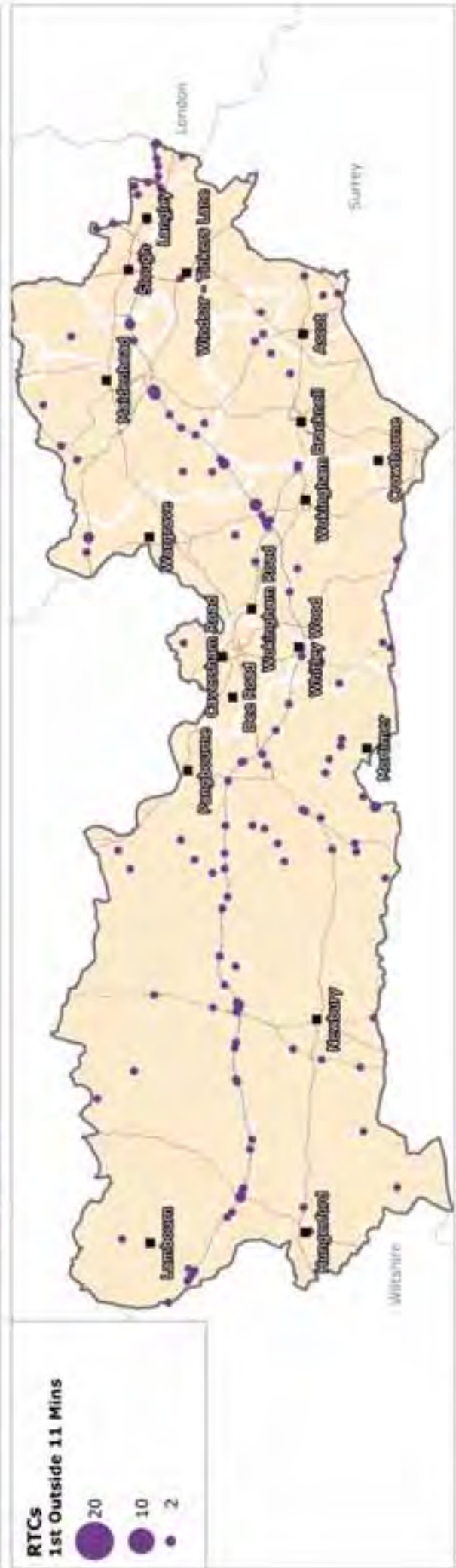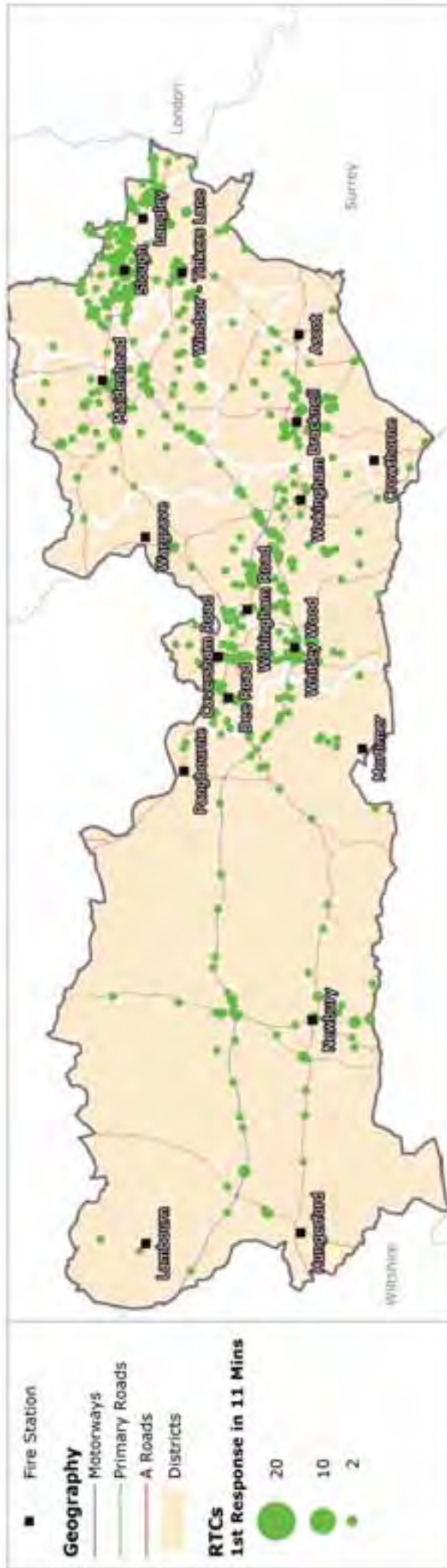
● 50
● 25
· 5

RBFRS - Model Revalidation and Annual Performance Report (2014)

Primary Dwelling Fire Incidents: 1st Appliance Responses Within 10 Minutes

2-Year Sample (01/04/2012 to 31/03/2014)

Fire Station

Geography

Motorways
Primary Roads
A Roads
Districts

Primary Dwelling Fires
1st Response in 10 Mins

- 20
- 10
- 2

Primary Dwelling Fires
1st Outside 10 Mins

- 20
- 10
- 2

RBFRS - Model Revalidation and Annual Performance Report (2014)

Primary Dwelling Fire Incidents: 2nd Appliance Responses Within 12 Minutes

2-Year Sample (01/04/2012 to 31/03/2014)

Geography

- ■ Fire Station
- Motorways
- Primary Roads
- A Roads
- Districts

Primary Dwelling Fires
2nd Response in 12 Mins

- 20
- 10
- 2

Primary Dwelling Fires
2nd Outside 12 Mins

- 20
- 10
- 2

RBFRS - Model Revalidation and Annual Performance Report (2014)

RTC Incidents: 1st Appliance Response Within 11 Minutes

2-Year Sample (01/04/2012 to 31/03/2014)

D8e

Fire Station

Geography
Motorways
Primary Roads
A Roads
Districts

RTCs
1st Response in 11 Mins
20
10
2

RTCs
1st Outside 11 Mins
20
10
2

E   Modelling Period Selection

RBFRS - Model Revalidation & Annual Performance Report (2014)

Modelling Periods

By Day and Hour

Day	Hour																							
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Monday																								
Tuesday					Night						Day - Weekday									Evening				
Wednesday																								
Thursday																								
Friday																								
Saturday												Day - Weekend												
Sunday																								
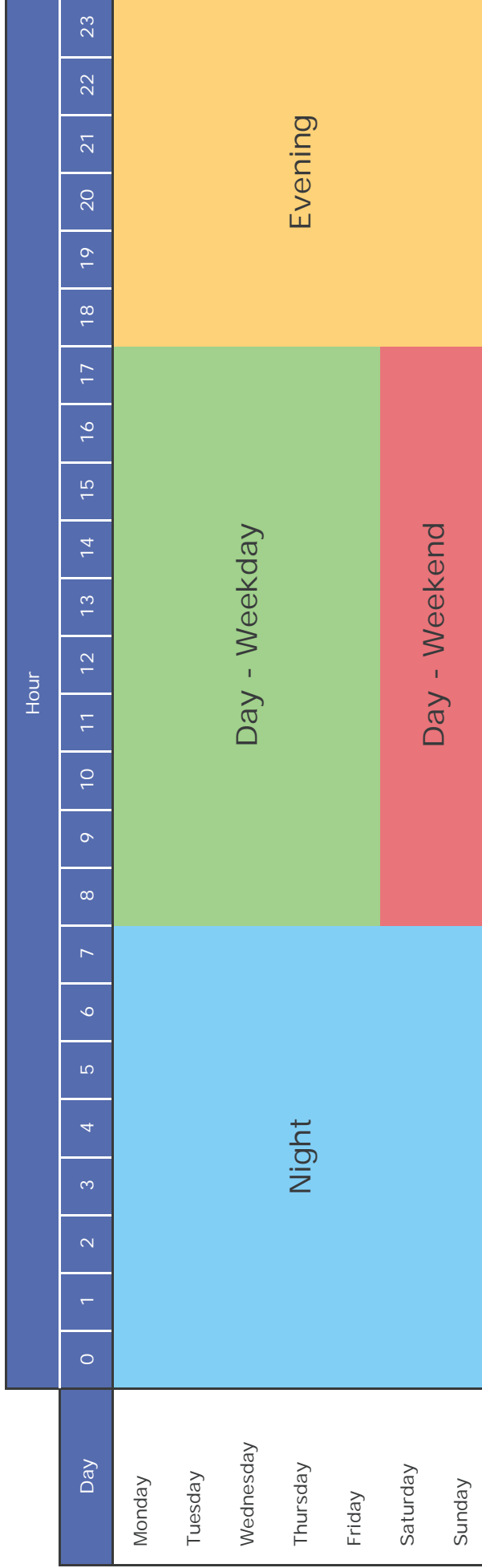
Modelling Period	Hours Per Week
Day-Weekday	50
Day-Weekend	20
Evening	42
Night	56
Total	168

RBFRS - Model Revalidation & Annual Performance Report (2014)

RDS Unavailability by Hour

2-Year Sample: 01/04/12 to 31/03/14

Sample	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Overall
															Hour										
Weekday	22%	22%	22%	22%	25%	28%	44%	63%	68%	57%	55%	54%	55%	54%	53%	52%	52%	59%	42%	37%	35%	33%	30%	27%	42%
Weekend	34%	33%	33%	33%	32%	32%	35%	40%	47%	52%	56%	58%	60%	56%	56%	54%	50%	47%	43%	43%	43%	41%	40%	37%	44%
Overall	26%	25%	25%	25%	27%	29%	41%	57%	62%	56%	56%	55%	57%	56%	54%	53%	52%	56%	42%	38%	37%	35%	33%	30%	43%
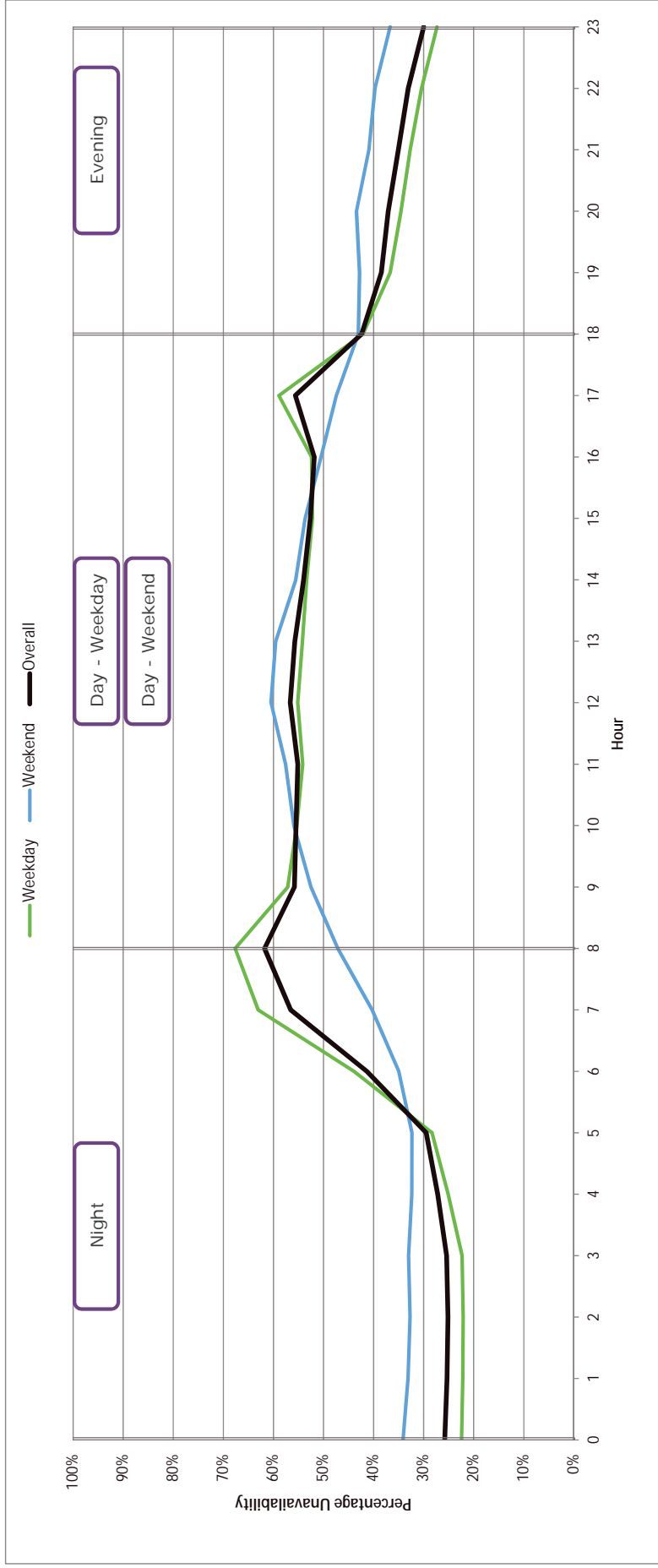
RBFRS - Model Revalidation & Annual Performance Report (2014)

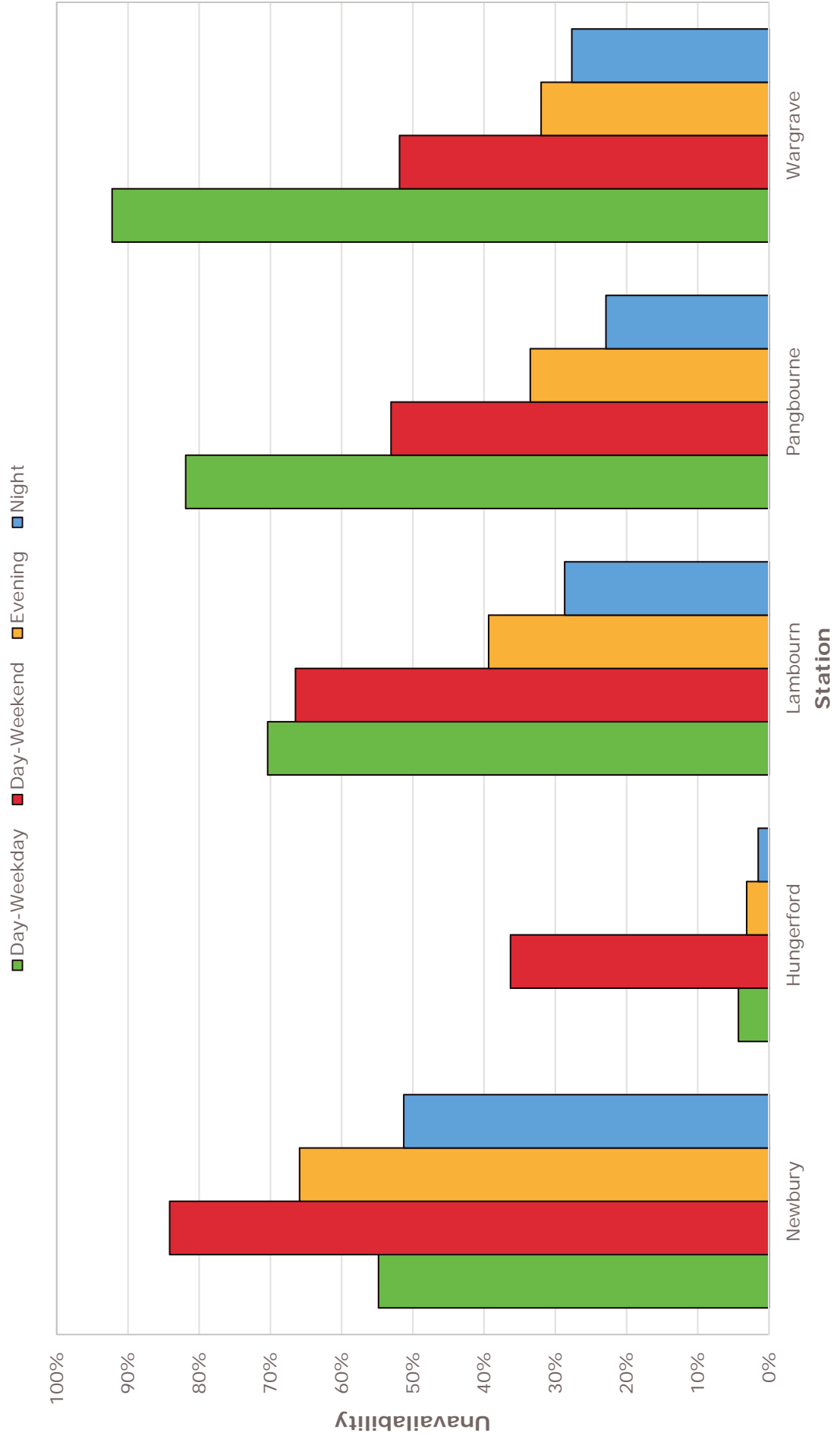**Appliance Unavailability by Modelling Period**

2-Year Sample: 01/04/12 to 31/03/14

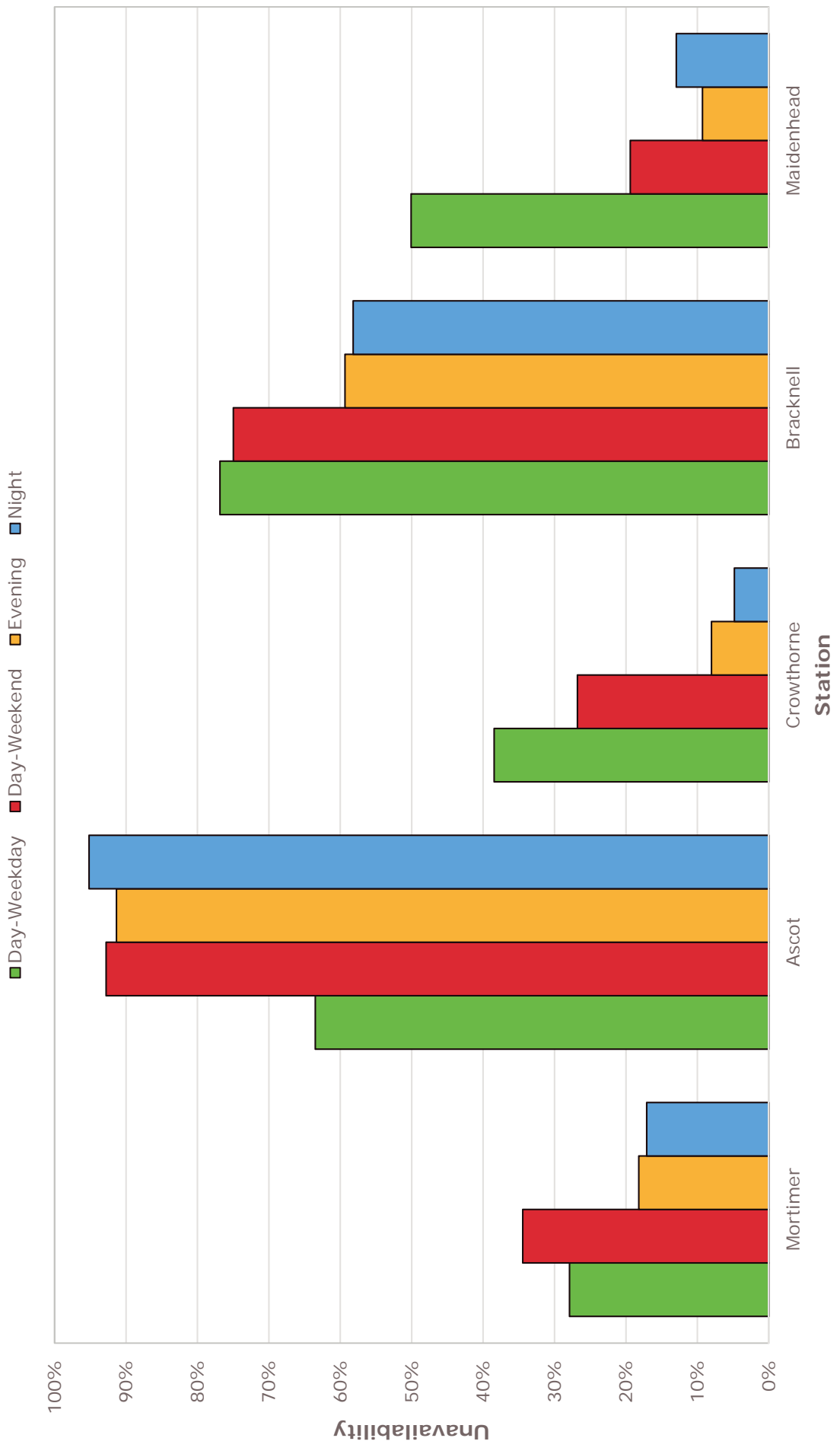| Stn Code	Station	Modelling Period				Overall
		Day-Weekday	Day-Weekend	Evening	Night	
04	Newbury	55%	84%	66%	51%	60%
05	Hungerford	4%	36%	3%	2%	7%
06	Lambourn	70%	66%	39%	29%	48%
07	Pangbourne	82%	53%	34%	23%	47%
09	Wargrave	92%	52%	32%	28%	51%
11	Mortimer	28%	34%	18%	17%	23%
14	Ascot	63%	93%	91%	95%	85%
15	Crowthorne	38%	27%	8%	5%	18%
16	Bracknell	77%	75%	59%	58%	66%
19	Maidenhead	50%	19%	9%	13%	24%
	Overall	56%	54%	36%	32%	43%

Modelling Periods

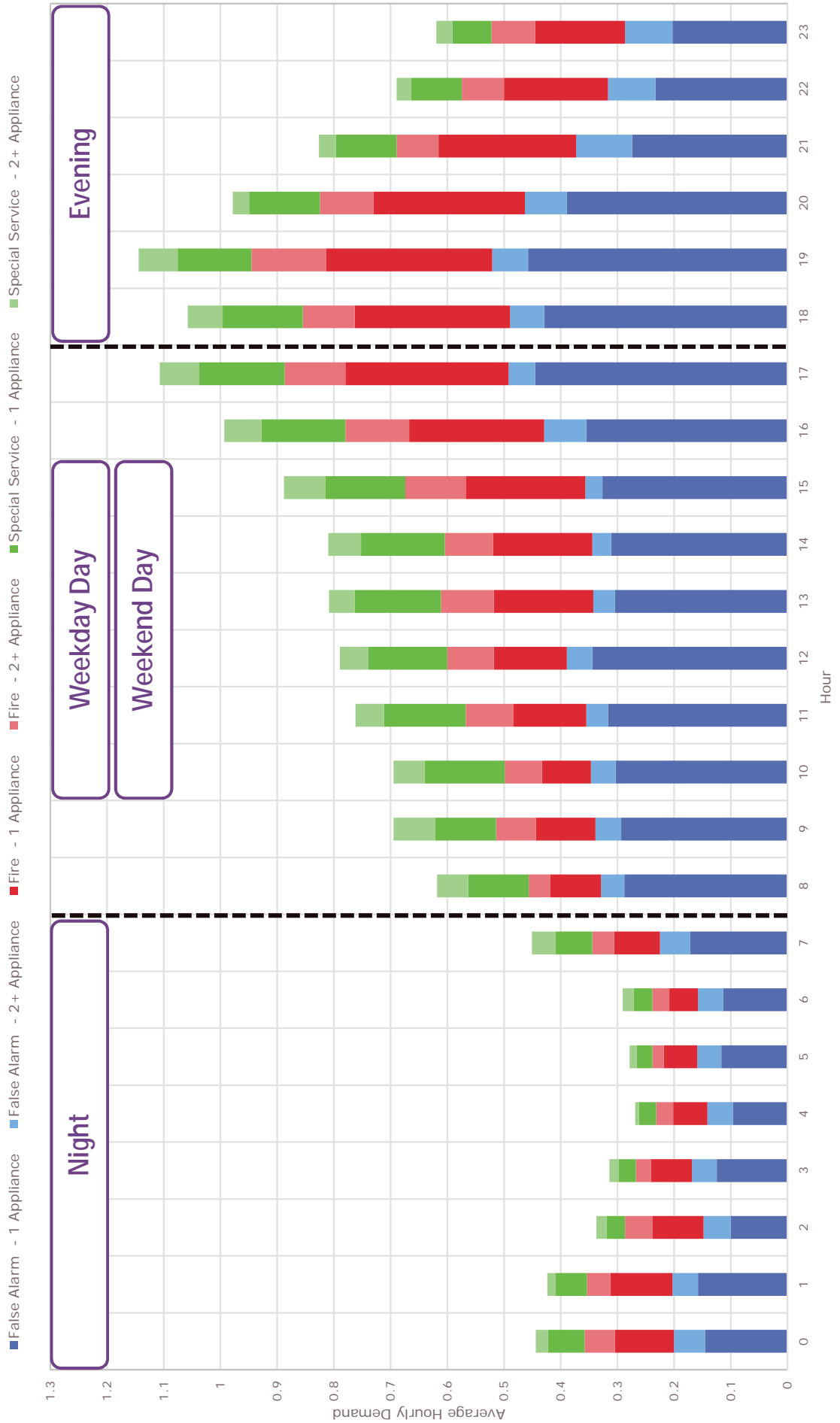|	
Day-Weekday	Mon-Fri 0800-1800
Day-Weekend	Sat-Sun 0800-1800
Evening	All Days 1800-0000
Night	All Days 0000-0800

RBFRS - Model Revalidation & Annual Performance Report (2014)
RDS Unavailability by Callsign and Modelling Period
Two-Year Sample (01/04/2013 to 31/03/2014)

RBFRS - Model Revalidation & Annual Performance Report (2014)

RDS Unavailability by Callsign and Modelling Period

Two-Year Sample (01/04/2013 to 31/03/2014)

RBFRS - Model Revalidation and Annual Performance Report (2014)
**Incident Demand by Hour - All Incidents**
2-Year Sample (2012/13 to 2013/14)

Incident Demand by Modelling Period

2-Year Sample (April 2012 to March 2014)

E3b

Total Incident Demand by Modelling Period

Incident Type	Response Type	1 - Weekday Day 08:00-18:00	2 - Weekend Day 08:00-18:00	3 - Evening 18:00-00:00	4 - Night 00:00-08:00	Overall
False Alarm	1-Appliance	1,611	787	1,449	748	4,595
	2+ Appliance	222	96	338	275	931
Fire	1-Appliance	773	414	1,036	458	2,681
	2+ Appliance	451	165	396	210	1,222
Special Service	1-Appliance	702	304	482	248	1,736
	2+ Appliance	323	111	178	109	721
Total	1-Appliance	3,086	1,505	2,967	1,454	9,012
	2+ Appliance	996	372	912	594	2,874
	All	4,082	1,877	3,879	2,048	11,886
Weekly Hours in Modelling Period		50	20	42	56	168

Average Hourly Demand by Modelling Period

Incident Type	Response Type	1 - Weekday Day 08:00-18:00	2 - Weekend Day 08:00-18:00	3 - Evening 18:00-00:00	4 - Night 00:00-08:00	Overall
False Alarm	1-Appliance	0.315	0.377	0.335	0.130	0.265
	2+ Appliance	0.043	0.046	0.078	0.048	0.054
Fire	1-Appliance	0.151	0.198	0.239	0.079	0.155
	2+ Appliance	0.088	0.079	0.092	0.036	0.071
Special Service	1-Appliance	0.137	0.145	0.111	0.043	0.100
	2+ Appliance	0.063	0.053	0.041	0.019	0.042
Total	1-Appliance	0.603	0.720	0.686	0.252	0.521
	2+ Appliance	0.195	0.178	0.211	0.103	0.166
	All	0.797	0.898	0.897	0.355	0.687

Note:
This demand excludes Strike Days for 2013/14

RBFRS - Model Revalidation & Annual Performance Report (2014)
Average Crew Turnout Time by Crew Type by Hour
10-Year Sample (2004/05 to 2013/14)
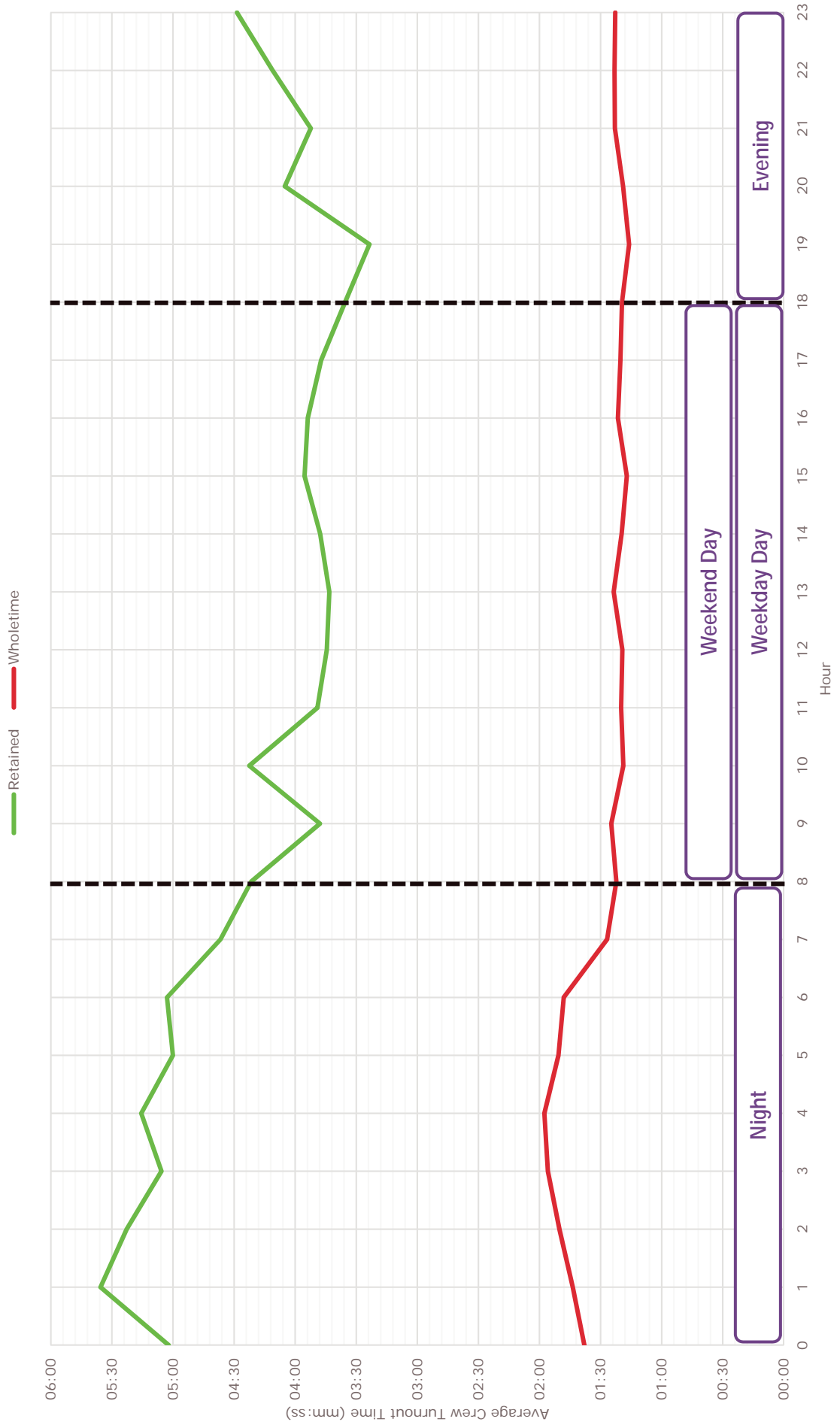
RBFRS - Model Revalidation & Annual Performance Report (2014)
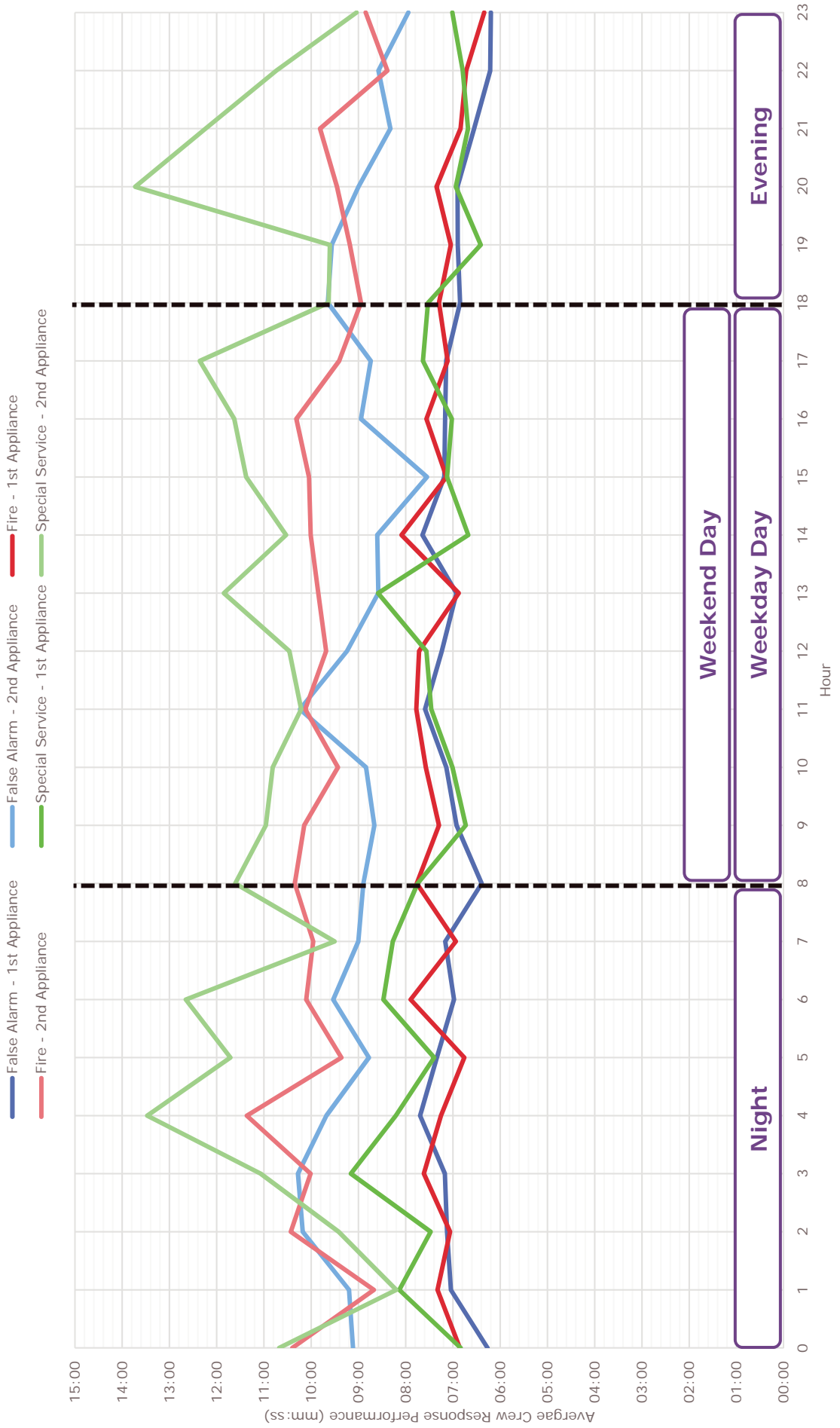**Crew Turnout Time by Modelling Period**
2-Year Sample (April 2012 to March 2014)

| Station | Callsign | Crew Type | Average Crew Turnout Time by Modelling Period | | | | Overall |
			1 - Weekday Day 08:00-18:00	2 - Weekend Day 08:00-18:00	3 - Evening 18:00-00:00	4 - Night 00:00-08:00	
Ascot	14P1	RDS	02:21	-	07:00	-	02:37
Bracknell	16P1	WT	01:21	01:23	01:18	01:40	01:24
Bracknell	16P2	RDS	05:29	03:34	05:21	04:06	04:40
Caversham Road	01P1	WT	01:12	01:15	01:12	01:42	01:19
Crowthorne	15P1	RDS	03:55	03:51	03:11	04:42	03:45
Dee Road	03P1	WT	01:23	01:23	01:21	01:55	01:28
Hungerford	05P1	RDS	03:50	03:58	03:36	04:40	03:57
Lambourn	06P1	RDS	04:46	04:14	03:34	05:56	04:25
Langley	18P1	WT	01:16	01:18	01:19	01:41	01:21
Maidenhead	19P1	WT	01:14	01:12	01:12	01:33	01:17
Maidenhead	19P2	RDS	04:25	04:33	04:08	05:13	04:32
Mortimer	11P1	RDS	04:02	03:39	04:07	05:22	04:07
Newbury	04P1	WT	01:24	01:22	01:26	01:42	01:27
Newbury	04P2	RDS*	03:59	08:56	04:07	06:00	04:36
Newbury	04P2	WT*	01:31	01:24	01:35	02:06	01:37
Pangbourne	07P1	RDS	04:45	04:39	05:04	06:16	05:12
Slough	17P1	WT	01:36	01:33	01:32	01:52	01:36
Slough	17P2	WT	01:25	01:20	01:25	01:44	01:28
Wargrave	09P1	RDS	-	03:17	03:53	06:43	04:27
Whitley Wood	20P1	WT	01:22	01:13	01:15	01:38	01:21
Windsor	13P1	WT	01:18	01:14	01:20	01:53	01:24
Wokingham	10P1	WT	01:14	01:10	01:17	01:42	01:20
Wokingham Road	02P1	WT	01:17	01:19	01:19	01:41	01:22

			1 - Weekday Day 08:00-18:00	2 - Weekend Day 08:00-18:00	3 - Evening 18:00-00:00	4 - Night 00:00-08:00	Overall
Wholetime Average			01:20	01:19	01:20	01:44	01:24
Retained Average			03:54	04:02	03:52	05:11	04:09

Note:
* Newbury 04P2 switched from retained to wholetime in October 2013

RBFRS - Model Revalidation & Annual Performance Report (2014)
Average Crew Response Performance by Hour
10-Year Sample (2004/05 to 2013/14)

E5a

RBFRS - Model Revalidation & Annual Performance Report (2014)

Crew Response Performance by Modelling Period

2-Year Sample (April 2012 to March 2014)

Incident Type	Response Type	Average Crew Response Time				Overall
		1 - Weekday Day 08:00-18:00	2 - Weekend Day 08:00-18:00	3 - Evening 18:00-00:00	4 - Night 00:00-08:00	
False Alarm	1st Appliance	07:17	06:52	06:40	07:04	06:58
	2nd Appliance	09:03	08:27	08:45	09:28	09:00
Fire	1st Appliance	07:28	07:22	06:59	07:11	07:13
	2nd Appliance	10:09	09:20	09:07	10:04	09:41
Special Service	1st Appliance	07:30	07:00	06:55	07:57	07:20
	2nd Appliance	11:22	10:53	10:34	10:31	10:58
Total	1st Appliance	07:23	07:02	06:49	07:15	07:07
	2nd Appliance	10:16	09:32	09:14	09:51	09:45

RBFRS - Model Revalidation & Annual Performance Report (2014)

Modelling Period Summary

2-Year Sample (April 2012 to March 2014)

Performance Measure		Modelling Period				Overall
		1 - Weekday Day 08:00-18:00	2 - Weekend Day 08:00-18:00	3 - Evening 18:00-00:00	4 - Night 00:00-08:00	
Crew Turnout	Wholetime	01:20	01:19	01:20	01:44	01:24
	Retained	03:54	04:02	03:52	05:11	04:09
Hourly Demand	False Alarm	0.358	0.422	0.413	0.177	0.319
	Fire	0.239	0.277	0.331	0.116	0.225
	Special Service	0.200	0.199	0.153	0.062	0.142
	Total	0.797	0.898	0.897	0.355	0.687
RDS Unavailbility	Ascot 14P1	63.5%	92.8%	91.3%	95.2%	84.5%
	Bracknell 16P2	76.8%	75.0%	59.3%	58.2%	66.0%
	Crowthorne 15P1	38.5%	26.8%	8.0%	4.8%	18.2%
	Hungerford 05P1	4.3%	36.3%	3.1%	1.5%	6.9%
	Lambourn 06P1	70.4%	66.5%	39.4%	28.7%	48.3%
	Maidenhead 19P2	50.1%	19.4%	9.3%	13.0%	23.8%
	Mortimer 11P1	27.9%	34.4%	18.2%	17.1%	22.7%
	Newbury 04P2	54.8%	84.1%	65.9%	51.3%	59.9%
	Pangbourne 07P1	81.9%	53.1%	33.5%	22.9%	46.7%
	Wargrave 09P1	92.2%	51.9%	32.0%	27.7%	50.8%
Crew Response Performance	1st Appliance	07:23	07:02	06:49	07:15	07:07
	2nd Appliance	10:16	09:32	09:14	09:51	09:45

F   Model Validation

RBFRS - Model Revalidation and Annual Performance Report (2014)

Model Validation Incident Types

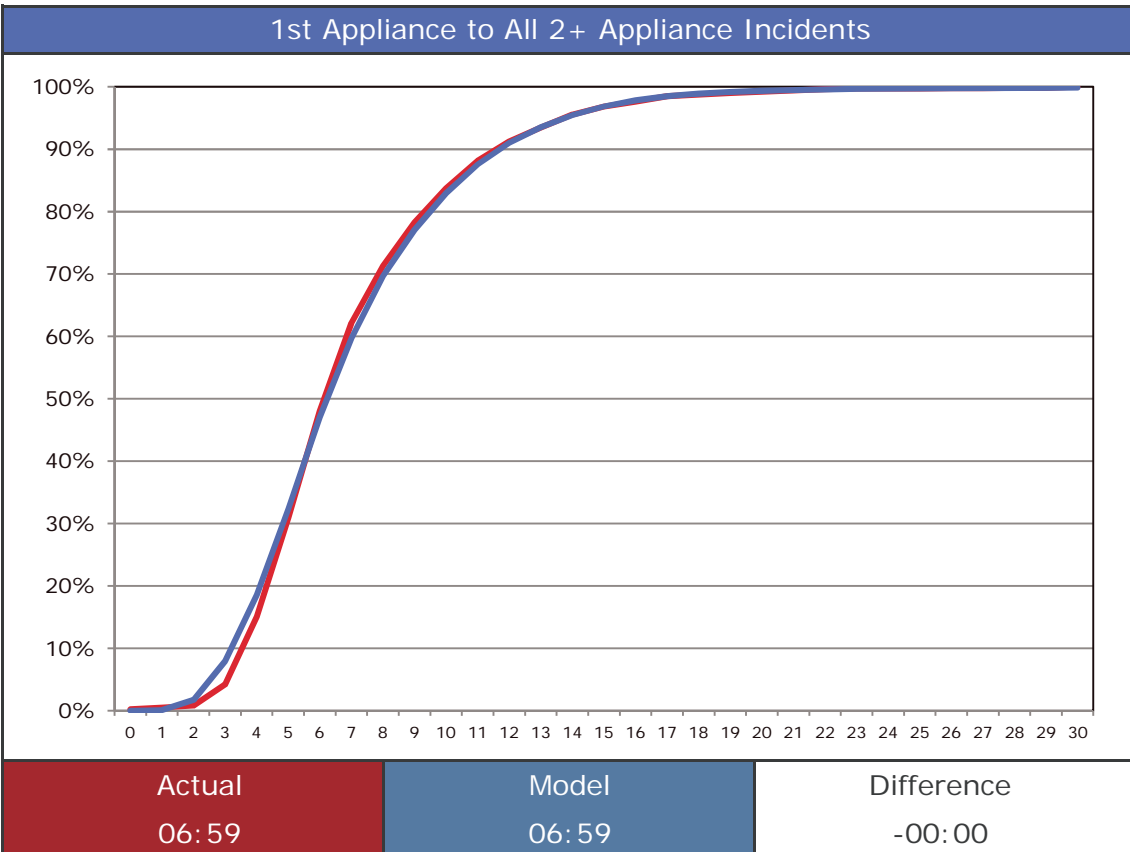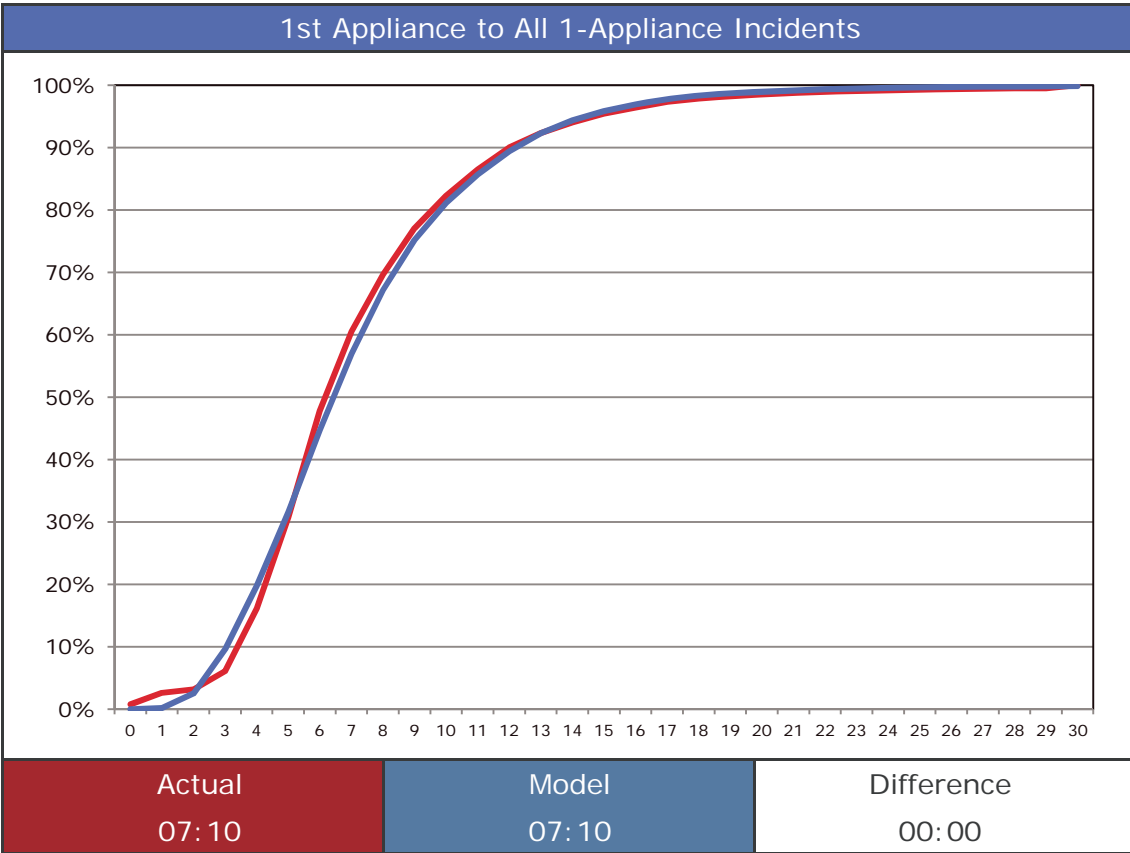2-Year Sample (April 2012 to March 2014)

All Incidents

Incidents by Analysed Incident Type

Modelled Incident Types	Fire				False Alarm			Special Service		Total
	Chimney	Primary	Primary Dwelling	Secondary	Apparatus	Good Intents	Malicious	RTC	Other	
False Alarm					3,114	2,224	188			5,526
Fire - Primary		1,303	870							2,173
RTC								809		809
Other	97			1,633					1,648	3,378

Proportion of All Incidents by Incident Type

Modelled Incident Types	Fire				False Alarm			Special Service		Total
	Chimney	Primary	Primary Dwelling	Secondary	Apparatus	Good Intents	Malicious	RTC	Other	
False Alarm					26.2%	18.7%	1.6%			46.5%
Fire - Primary		11.0%	7.3%							18.3%
RTC								6.8%		6.8%
Other	0.8%			13.7%					13.9%	28.4%

RBFRS - Model Revalidation & Annual Performance Report (2014)
Model Validation: Attendance Distributions by Attendance Type
All Periods Combined

1st Appliance to All 1-Appliance Incidents

Actual	Model	Difference
07:10	07:10	00:00

1st Appliance to All 2+ Appliance Incidents

Actual	Model	Difference
06:59	06:59	-00:00

RBFRS - Model Revalidation & Annual Performance Report (2014)
Model Validation: Attendance Distributions by Attendance Type
All Periods Combined
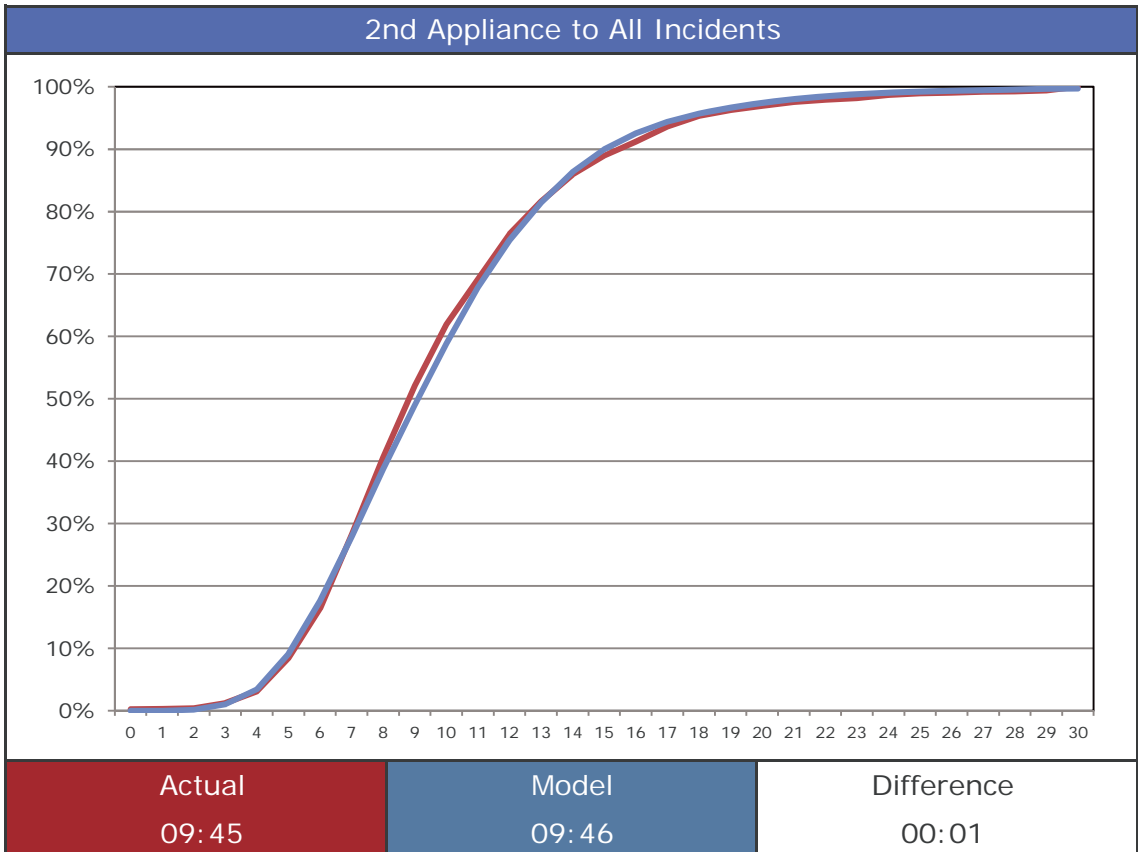
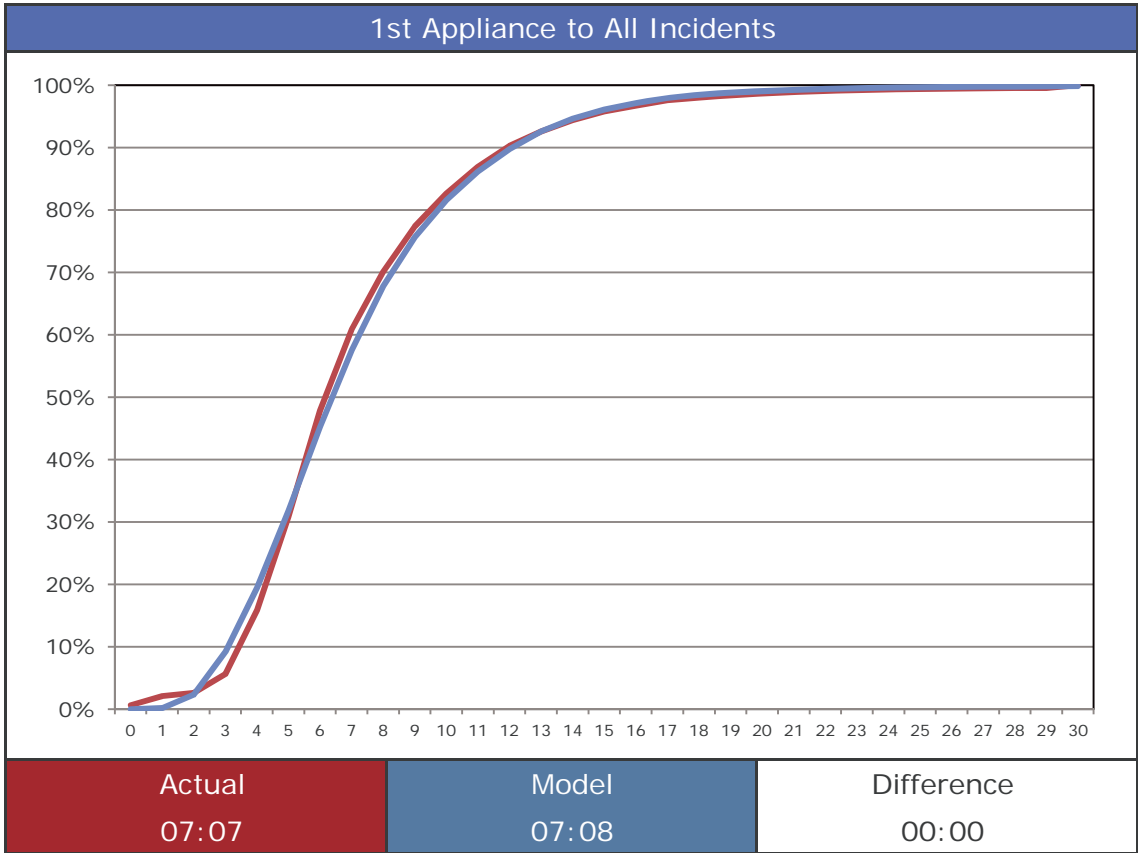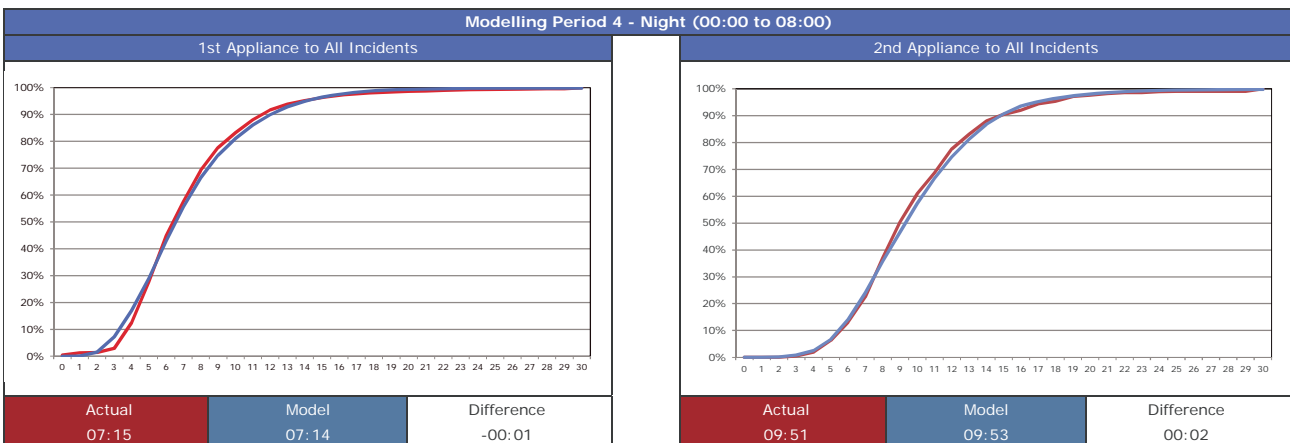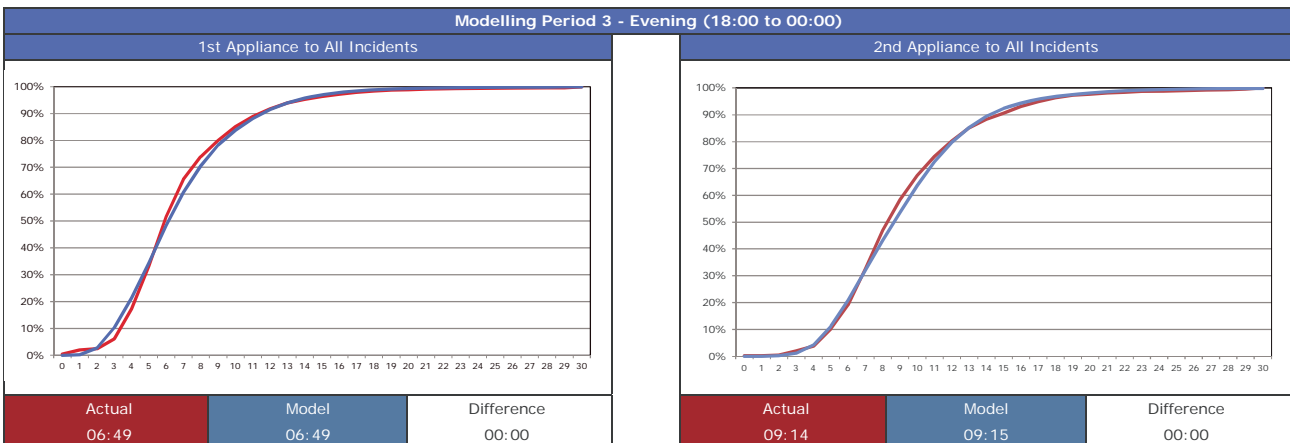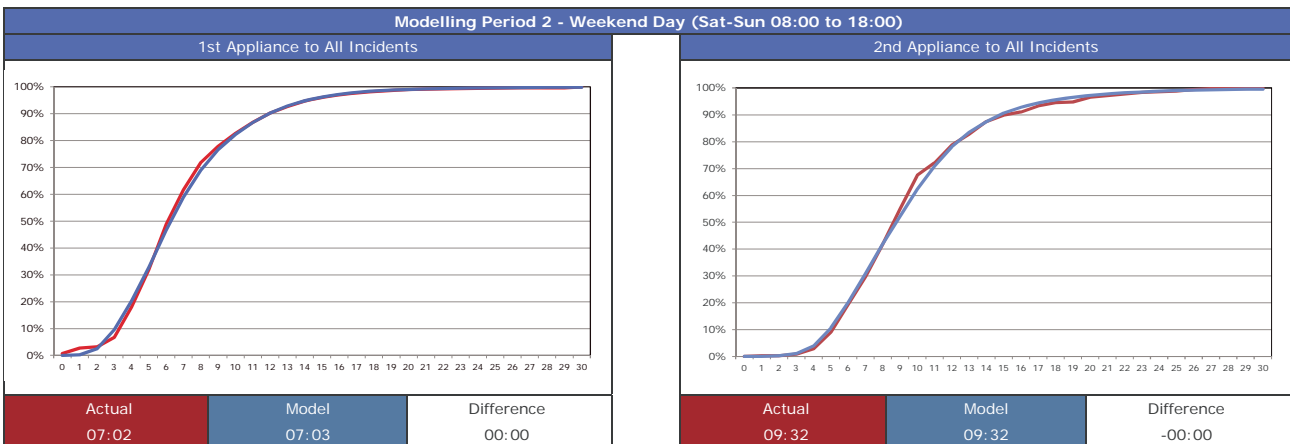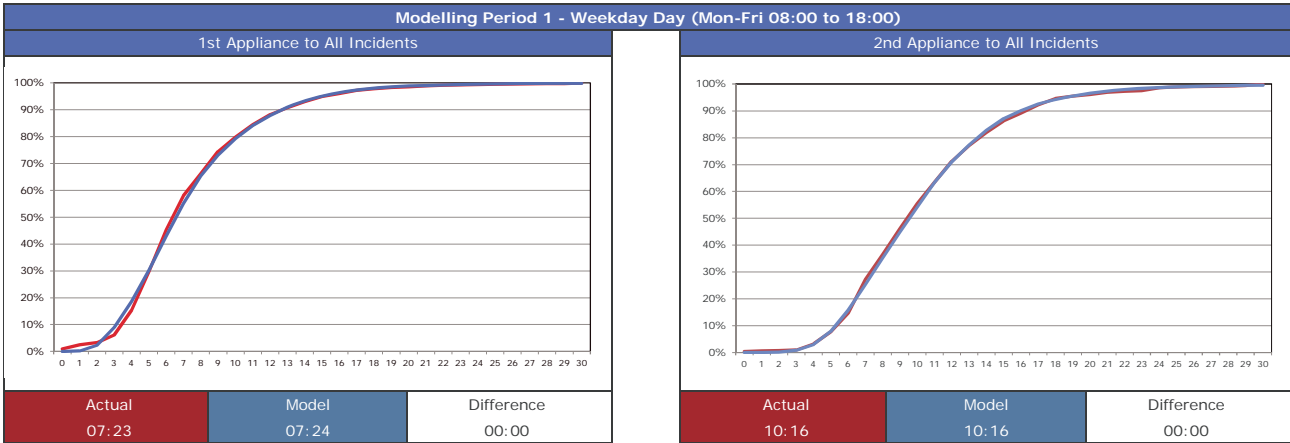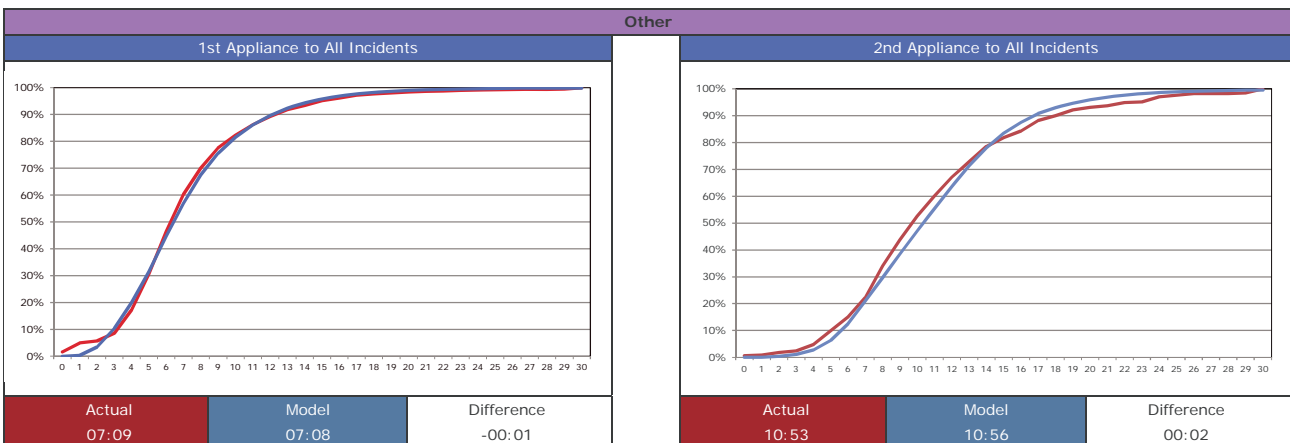| 1st Appliance to All Incidents |
|:---:|

Actual	Model	Difference
07:07	07:08	00:00

2nd Appliance to All Incidents

Actual	Model	Difference
09:45	09:46	00:01

RBFRS - Model Revalidation & Annual Performance Review (2014)
Model Validation: Attendance Distribution by Modelling Period
Attendances to All Incidents

Modelling Period 1 - Weekday Day (Mon-Fri 08:00 to 18:00)

1st Appliance to All Incidents

Actual	Model	Difference
07:23	07:24	00:00

2nd Appliance to All Incidents

Actual	Model	Difference
10:16	10:16	00:00

Modelling Period 2 - Weekend Day (Sat-Sun 08:00 to 18:00)

1st Appliance to All Incidents

Actual	Model	Difference
07:02	07:03	00:00

2nd Appliance to All Incidents

Actual	Model	Difference
09:32	09:32	-00:00

Modelling Period 3 - Evening (18:00 to 00:00)

1st Appliance to All Incidents

Actual	Model	Difference
06:49	06:49	00:00

2nd Appliance to All Incidents

Actual	Model	Difference
09:14	09:15	00:00

Modelling Period 4 - Night (00:00 to 08:00)

1st Appliance to All Incidents

Actual	Model	Difference
07:15	07:14	-00:01

2nd Appliance to All Incidents

Actual	Model	Difference
09:51	09:53	00:02

RBFRS - Model Revalidation & Annual Performance Review (2014)
Model Validation: Attendance Distribution by Modelled Incident Type
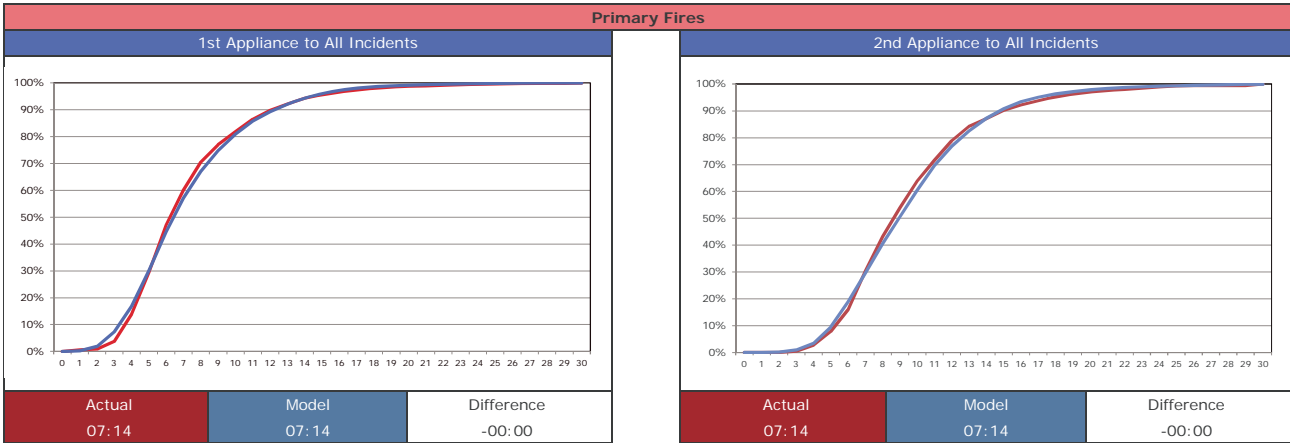<u>All Periods Combined</u>

Primary Fires

1st Appliance to All Incidents

Actual	Model	Difference
07:14	07:14	-00:00

2nd Appliance to All Incidents

Actual	Model	Difference
07:14	07:14	-00:00

RTCs

1st Appliance to All Incidents

Actual	Model	Difference
07:53	07:54	00:01

2nd Appliance to All Incidents

Actual	Model	Difference
10:49	10:49	00:00

False Alarms

1st Appliance to All Incidents

Actual	Model	Difference
06:58	06:59	00:01

2nd Appliance to All Incidents

Actual	Model	Difference
09:00	09:01	00:01

Other

1st Appliance to All Incidents

Actual	Model	Difference
07:09	07:08	-00:01

2nd Appliance to All Incidents

Actual	Model	Difference
10:53	10:56	00:02

RBFRS - Model Revalidation & Annual Performance Review (2014)
Average Response Time Comparison
By Response Type and Modelling Period

All Periods Combined

Incident Type		1st Response to 1-Appliance Incidents	1st Response to 2+ Appliance Incidents	1st Response to All Incidents	2nd Response to All Incidents
False Alarms	Actual	07:05	06:26	06:58	09:00
	Model	07:06	06:26	06:59	09:01
	Difference	00:01	-00:01	00:01	00:01
Primary Fires	Actual	07:49	06:42	07:14	09:34
	Model	07:48	06:43	07:14	09:34
	Difference	-00:01	00:00	-00:00	00:00
RTCs	Actual	08:00	07:50	07:53	10:49
	Model	08:00	07:51	07:54	10:49
	Difference	-00:00	00:01	00:01	00:00
Other	Actual	07:02	08:04	07:09	10:53
	Model	07:02	08:03	07:08	10:56
	Difference	-00:00	-00:02	-00:01	00:02
All Incidents	Actual	07:10	06:59	07:07	09:45
	Model	07:10	06:59	07:08	09:46
	Difference	00:00	-00:00	00:00	00:01

By Modelling Period - All Incident Types

Response Type		1 - Weekday Day Mon - Fri 08:00-18:00	2 - Weekend Day Sat - Sun 08:00-18:00	3 - Evening 18:00-00:00	1 - Night 00:00-08:00
1st Response to 1-Appliance Incidents	Actual	07:25	07:05	06:53	07:18
	Model	07:26	07:06	06:53	07:17
	Difference	00:01	00:01	00:00	-00:01
1st Response to 2+ Appliance Incidents	Actual	07:17	06:50	06:38	07:08
	Model	07:17	06:50	06:38	07:07
	Difference	00:00	00:00	00:00	-00:02
1st Response to All Incidents	Actual	07:23	07:02	06:49	07:15
	Model	07:24	07:03	06:49	07:14
	Difference	00:00	00:00	00:00	-00:01
2nd Response to All Incidents	Actual	10:16	09:32	09:14	09:51
	Model	10:16	09:32	09:15	09:53
	Difference	00:00	-00:00	00:00	00:02

Figure 8: Modelled Base Position

Validated Position

District	All Incidents				Dwelling Fires		RTCs
	Average 1st	1st Within 10 Mins	Average 2nd	2nd Within 12 Mins	1st Within 10 Mins	2nd Within 12 Mins	1st Within 11 Mins
Bracknell Forest	06:26	88.9%	10:18	78.3%	91.6%	81.4%	91.5%
Reading	05:44	93.7%	08:00	91.5%	96.4%	93.1%	97.5%
Slough	06:04	92.3%	07:30	92.3%	97.4%	94.1%	87.1%
West Berkshire	09:30	62.3%	13:32	41.7%	57.1%	50.6%	54.5%
Windsor and Maidenhead	07:14	81.2%	09:41	75.9%	81.3%	80.8%	83.4%
Wokingham	07:52	77.0%	10:50	72.2%	84.9%	83.6%	81.7%
South Buckinghamshire	10:10	63.4%	11:19	59.3%	64.3%	75.0%	72.2%
Service-Wide	07:10	82.3%	09:50	75.7%	84.4%	82.7%	78.1%

Modelled Base

District	All Incidents				Dwelling Fires		RTCs
	Average 1st	1st Within 10 Mins	Average 2nd	2nd Within 12 Mins	1st Within 10 Mins	2nd Within 12 Mins	1st Within 11 Mins
Bracknell Forest	06:26	88.8%	10:19	78.1%	91.3%	81.3%	90.5%
Reading	05:43	93.7%	08:00	91.5%	96.4%	93.1%	97.5%
Slough	06:04	92.1%	07:32	92.0%	97.2%	93.8%	87.0%
West Berkshire	09:20	63.2%	12:36	48.4%	57.8%	57.4%	54.9%
Windsor and Maidenhead	07:35	77.9%	09:36	77.5%	79.4%	82.7%	83.8%
Wokingham	07:52	77.1%	10:49	72.2%	84.9%	83.6%	81.8%
South Buckinghamshire	10:08	63.5%	11:14	59.4%	64.3%	75.0%	72.2%
Service-Wide	07:12	81.9%	09:40	76.9%	84.2%	83.9%	78.2%

Impact

District	All Incidents				Dwelling Fires		RTCs
	Average 1st	1st Within 10 Mins	Average 2nd	2nd Within 12 Mins	1st Within 10 Mins	2nd Within 12 Mins	1st Within 11 Mins
Bracknell Forest	00:00	-0.1%	00:01	-0.2%	-0.3%	-0.1%	-1.0%
Reading	-00:01	0.0%	00:00	0.0%	0.0%	0.0%	0.0%
Slough	00:00	-0.2%	00:02	-0.3%	-0.2%	-0.3%	-0.1%
West Berkshire	-00:10	0.9%	-00:56	6.7%	0.7%	6.8%	0.4%
Windsor and Maidenhead	00:21	-3.3%	-00:05	1.6%	-1.9%	1.9%	0.4%
Wokingham	00:00	0.1%	-00:01	0.0%	0.0%	0.0%	0.1%
South Buckinghamshire	-00:02	0.1%	-00:05	0.1%	0.0%	0.0%	0.0%
Service-Wide	00:02	-0.4%	-00:10	1.2%	-0.2%	1.2%	0.1%

Emergency
Service
Planning
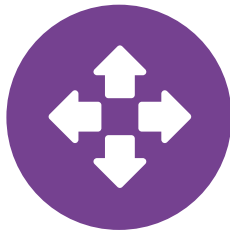
Optimising
Locations

Software
Solutions

ORH

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