Emergency Service Planning
Fire and Rescue Services

Cumbria Fire and Rescue Service

Strategic Service Delivery Review

Final Report

CuF/1
17 July 2017

PLAN. PREPARE. **PERFORM.**

EXECUTIVE SUMMARY

i. This is the Final Report for ORH's strategic service delivery review for Cumbria Fire and Rescue Service. This includes all analysis and deployment change modelling.

ii. CFRS provided a five-year sample of incident and response data; ORH analysed this to establish historical trends and evaluate the current situation. The analysis focused on pumping appliance attendances.

iii. The key observations from the analysis are:

- The number of fires fell during the five-year period, but in the most recent year there was an increase in Special Service and False Alarm incidents.
- Incident demand peaks during the late afternoon and evening, but AFAs peak in the morning.
- The geographic distribution of incidents was similar year-on-year, with greatest concentrations in urban areas.
- Average on-call availability remained stable over the last two years (86% available), but varies by callsign.

iv. ORH modelled the impact on response performance of removing each pump individually. Removing wholetime pumps has more effect than other crew types (removing the pump at Barrow having the largest impact to first pump response performance). On-call pumps at two-pump stations can be removed with little impact on first pump response performance.

v. Closing each station was also assessed. As expected, the largest performance impacts relate to closing wholetime and day-crewed stations.

vi. For the existing wholetime and day-crewed stations, the optimal start and end times for day-crewing were calculated for both 8- and 12-hour shifts:

- Optimal 8-hour shift varies between 10:00 to 18:00 and 12:00 to 20:00.
- Optimal 12-hour shift varies between 07:00 to 19:00 and 11:00 to 23:00.

vii. ORH modelled the response performance differences between each on-call pump being either 100% available or 0% available. The differences between the two were used to identify the pumps where the availability of on-call staff has the greatest impacts on response performance. The greatest difference is associated with Maryport (C08P1) for first response and Walney (C48P1) for second response.

viii. The optimal deployment of pumps at existing stations was found, maintaining the overall number of current wholetime, day-crewed and on-call pumps. This modelling identified changes at four stations:

- Barrow: from 1 wholetime to 1 wholetime and 1 on-call
- Penrith: from 1 day-crewed and 1 on-call to 1 wholetime and 1 on-call
- Ulvertson: from 1 wholetime and 1 on-call to 1 day-crewed and 1 on-call
- Whitehaven: from 1 wholetime and 1 on-call to 1 wholetime

ix. ORH modelled the optimal deployment of between zero and fourteen regular crews for the day and night shift (each 12 hours). There are currently 14 regular shifts (although one is eight-hour): eight in the day, and six at night. The optimal split for 14 and 13 regular shifts is as follows:

- 14 regular shifts: 9 in the day, 5 at night
- 13 regular shifts: 8 in the day, 5 at night

ORH is the trading name of Operational Research in Health Limited, a company registered in England with company number 2676859.

ORH's quality management system is ISO 9001:2015 certified: recognition of ORH's dedication to maintaining high quality services for its clients.

ORH's information security management system is ISO 27001:2013 certified: evidence of ORH's commitment to implementing international best practice with regard to data security.

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Accreditations

Other than data provided by Cumbria Fire and Rescue Service, this report also contains data from the following sources:

HERE UK and NI

UK Census Data Lookups

Contents

1 INTRODUCTION

Context

1.1 Cumbria Fire and Rescue Service (CFRS) commissioned Operational Research in Health Limited (ORH) to carry out a strategic service delivery review.

1.2 The study involves detailed analysis of the current service profile, building appropriate models and using them to assess many options for change.

1.3 This report includes:

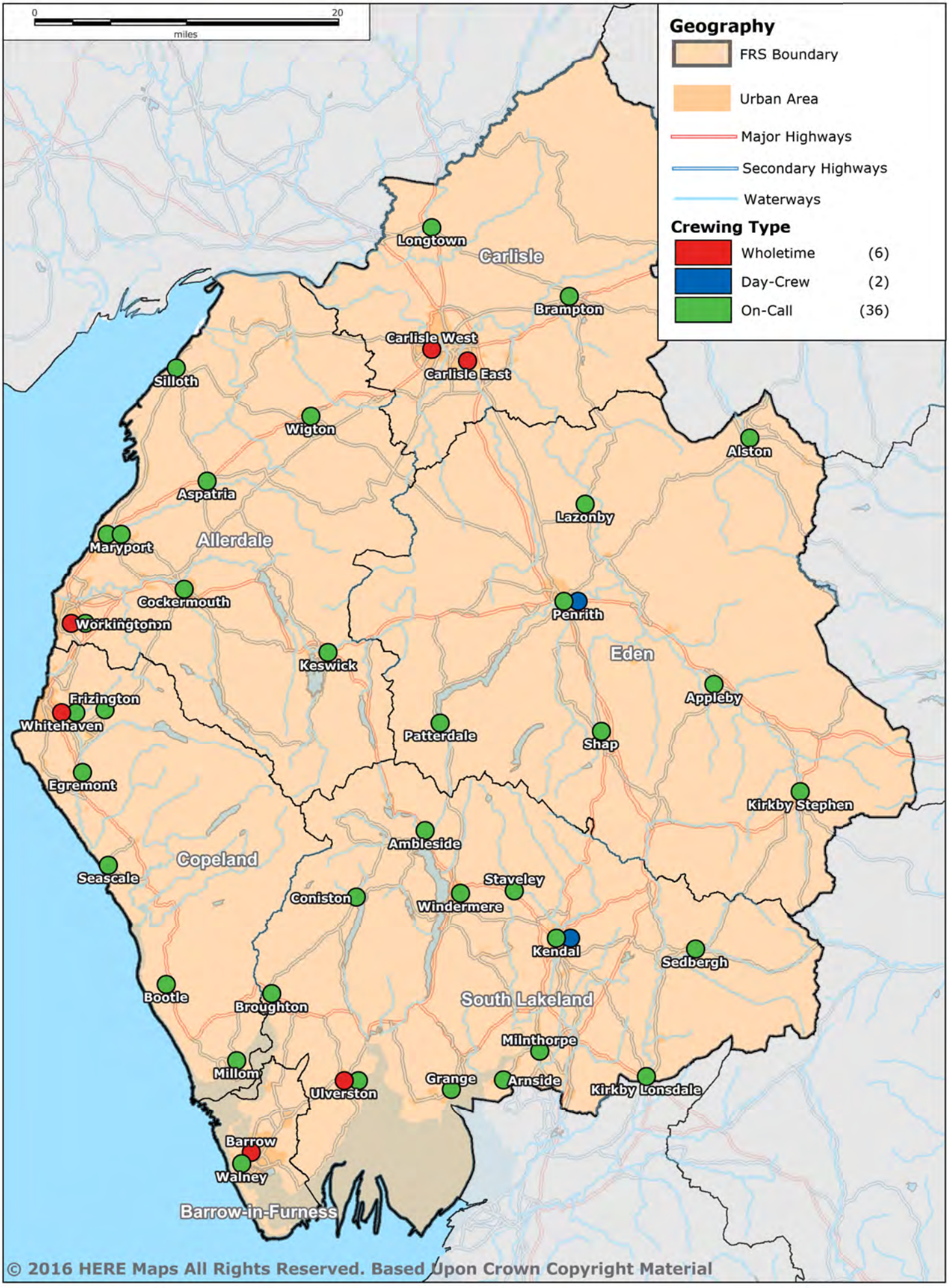
- A quantified analysis of the service (see Section 2)
- Results from a series of modelling scenarios (see Sections 3-9)

Methodology

1.4 Analysis of the current service profile was used to populate the models, which were validated against actual performance. A modelled base position was then established and the models were used to assess the following changes:

- Remove individual pumps
- Close each station
- Identify the optimal on-duty times for day-crewing
- On-call availability changes
- Current station optimisation
- Day and night division of regular 12-hour shifts
- Introduction of targeted response vehicles (TRVs)

Figure 1: Current Pumping Appliance Deployments



2 CURRENT SERVICE PROFILE

ORH analysed incidents and responses across a five-year sample. The number of fires fell during this period, but in the most recent year there was an increase in Special Service and False Alarm incidents. Other key observations from the analysis are:

- Incident demand peaked during the late afternoon and evening, but AFAs peaked in the morning.
- The geographic distribution of incidents was similar year-on-year, with greatest concentrations in urban areas.
- Average on-call availability remained stable over the last two years (86% available), but varied by callsign.

The analysis presented in this report will be used to inform the model validation process.

Resource Profile

2.1 During the two-year sample there were 44 pumps (plus a resilience pump at Barrow) deployed across 38 stations in CFRS (see Figure **1** and Appendix **A1a**). The breakdown between duty systems is as follows:

- 6 wholetime
- 2 day-crewed
- 36 on-call

2.2 A wholetime crew is regular crewed 24 hours a day. A day-crewed pump is regular crewed in the day and on-call at night. Over the five-year sample there have been a number of changes to station locations and pump deployments (see Appendix **A1b**).

Off-the-Run Analysis

2.3 CFRS provided callsign availability data. ORH analysed the data to identify the profile of availability. Trends over the sample and hourly variation were considered.

2.4 Average on-call availability was relatively high over the two-year period. Over the two most recent years average on-call pump availability was 86%, mostly varying between 58% and 98% (see Appendix **A2**).

2.5 Over the two most recent years (October 2014 to September 2016), the second pump at Maryport (callsign C08P2) was the least available appliance (20% availability); however, the first pump at Maryport was 94% available. The least available single pump on-call station was Silloth (61% available).

Figure 2: Average Daily Demand by Incident Type

Reporting Year	Response Type	Fire		Special Service		False Alarm			Total
		Primary	Secondary & Chimney	RTC	Other	AFA Non Residential	AFA Other	Non-AFA	
2011/12	1-Appliance	0.98	2.22	0.28	0.89	1.43	1.54	1.07	8.41
	2+ Appliance	1.01	0.13	0.46	0.22	0.17	0.29	0.31	2.59
	Total	**1.99**	**2.35**	**0.74**	**1.11**	**1.60**	**1.83**	**1.39**	**11.00**
2012/13	1-Appliance	0.87	2.66	0.26	1.07	1.36	1.24	1.17	8.64
	2+ Appliance	1.21	0.18	0.40	0.24	0.16	0.43	0.41	3.04
	Total	**2.09**	**2.84**	**0.66**	**1.32**	**1.52**	**1.66**	**1.59**	**11.68**
2013/14	1-Appliance	0.78	1.95	0.26	0.84	1.08	1.32	1.23	7.47
	2+ Appliance	1.16	0.19	0.51	0.26	0.36	0.46	0.38	3.31
	Total	**1.94**	**2.14**	**0.77**	**1.09**	**1.44**	**1.79**	**1.61**	**10.77**
2014/15	1-Appliance	0.74	1.72	0.32	0.72	1.41	1.18	1.13	7.22
	2+ Appliance	1.11	0.19	0.44	0.26	0.16	0.43	0.39	2.98
	Total	**1.85**	**1.91**	**0.76**	**0.98**	**1.57**	**1.61**	**1.52**	**10.20**
2015/16	1-Appliance	0.74	1.62	0.29	1.57	1.62	1.52	1.24	8.60
	2+ Appliance	1.04	0.25	0.44	0.30	0.18	0.32	0.41	2.93
	Total	**1.78**	**1.87**	**0.73**	**1.87**	**1.80**	**1.83**	**1.65**	**11.53**
5-Year Average	1-Appliance	0.82	2.04	0.28	1.02	1.39	1.36	1.17	8.07
	2+ Appliance	1.10	0.19	0.45	0.26	0.20	0.38	0.38	2.97
	Total	**1.93**	**2.22**	**0.73**	**1.28**	**1.59**	**1.74**	**1.55**	**11.04**
2-Year Average	1-Appliance	0.74	1.67	0.30	1.15	1.52	1.35	1.18	7.91
	2+ Appliance	1.08	0.22	0.44	0.28	0.17	0.37	0.40	2.95
	Total	**1.82**	**1.89**	**0.74**	**1.43**	**1.69**	**1.72**	**1.58**	**10.87**

Note: Responses on days of industrial action have been excluded

2.6 On a monthly basis, on-call availability was fairly consistent across the sample, but varied more by callsign. In both of the recent two years availability was lower in August (see Appendix **A3**).

2.7 The availability of appliances was noticeably lower during the day than at night, and also at weekends (see Appendix **A4**).

Demand Profile

Data Cleansing

2.8 ORH cleansed the incident and response data to remove erroneous records and also to ensure that analysis and model inputs were based on reliable representative data (see Appendix **B1**). The main reasons for excluding records were that the response:

- Occurred on a day of industrial action
- Was not deemed an 'initial response'
- Was not made by a CFRS pumping appliance

Historical Demand Trends

2.9 Demand analysis in this report focuses on incidents within Cumbria where at least one pumping appliance from CFRS attended.

2.10 Incident demand across CFRS remained fairly stable across the five-year sample. There were slight peaks in 2012/13 and 2015/16 (see Figure **2**). Over the two most recent reporting years there was an average of 11 incidents per day (see Appendix **B2a**).

2.11 The number and proportion of Special Service and False Alarm incidents increased in the most recent two years. Over the most recent two reporting years, the proportions were:

- Fires = 34.1%
- Special Service = 19.9%
- False Alarms = 45.9%

2.12 The increase in demand in 2015/16 is mainly due to an increase in non-RTC special service incidents (Flood incidents in December 2015) and False Alarms (see Appendix **B2**).

2.13 There is some evidence that seasonality had an effect on the demand rate of secondary fires. There were also spikes in demand for flooding incidents in December 2013 and 2015 (see Appendix **B3**).

2.14 The number of incidents per day generally varied between 5 and 20 (see Appendix **B4**).

2.15 Demand peaks during the late afternoon and evening (from 15:00 to 22:00). The hourly profile of non-residential AFAs differs to overall demand, with a peak at 09:00 and then falling gradually throughout the day (see **B5**).

Incident Categorisation

2.16 ORH's analysis focused on the final incident type (Stop Code), as this is the most appropriate measure for defining risk for modelling purposes. Additionally, the relationship between the mobilised incident type (Mobilisation Code) and the resulting incident type was analysed (see Appendix **B6**).

2.17 There was generally a very strong relationship between the mobilised and final incident types for incidents in CFRS. Of incidents initially reported as a fire, 24.5% were finally categorised as a False Alarm.

Geographical Analysis

Incident Locations

2.18 The highest incident concentrations were typically in the more urban areas of Carlisle, Workington, Whitehaven and Barrow, but the distribution differed by incident type (see Appendix **C1**). Special Service were the most disparately located, due to RTCs along the major road network (see **C1c**) and False Alarms the most clustered in particular locations (see **C1d**).

2.19 Incidents occurred in similar locations year-on-year: there was little change to the pattern of incident locations across the five-year sample (see **C2**).

2.20 Analysis of incident demand by district further supports the finding that the year-on-year distribution of incidents remained fairly static. For example, the proportion of all CFRS incidents that occurred in Copeland District varies between 12% and 14 % over the five years (see Appendix **C3**).

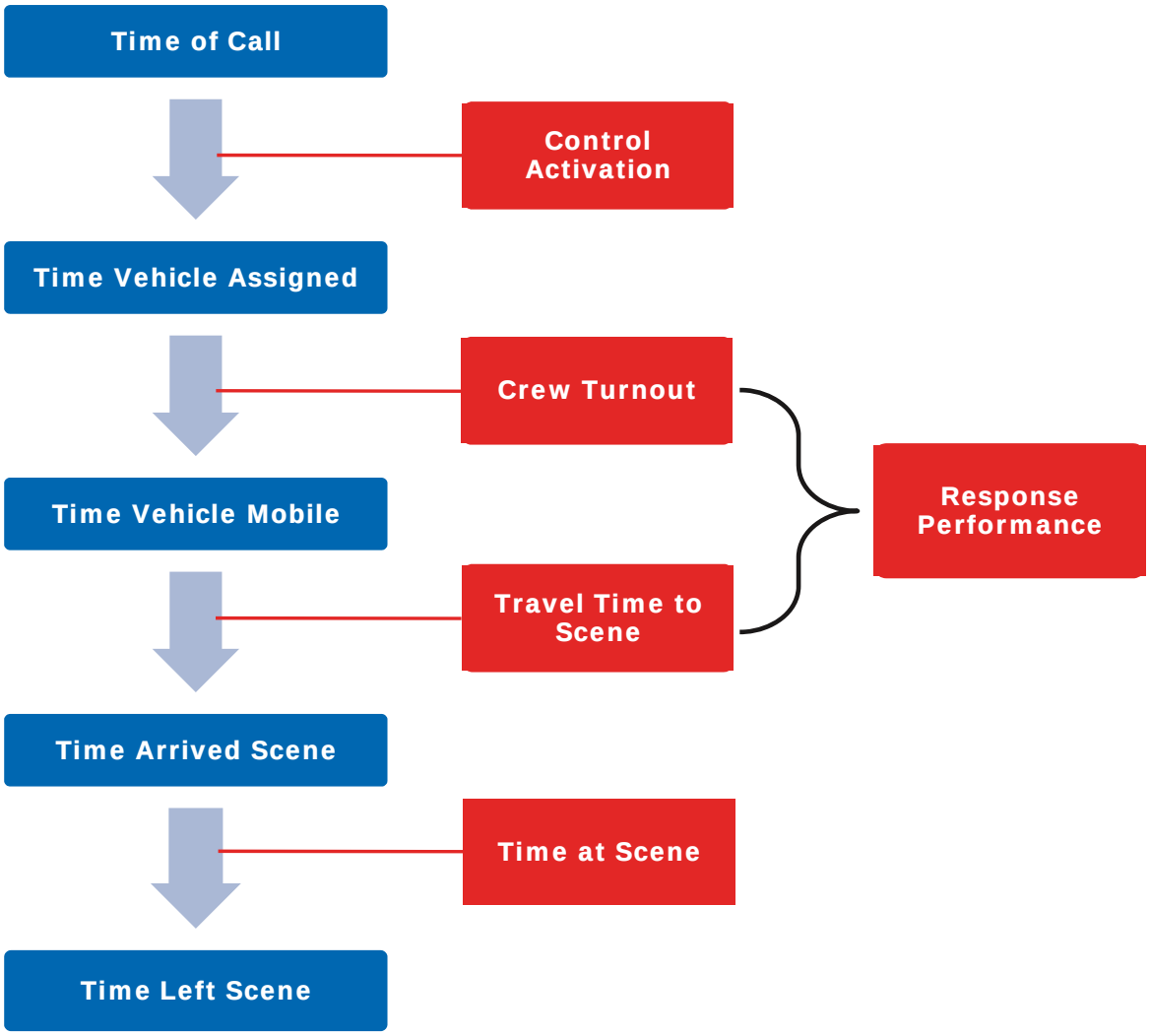
2.21 To ensure there was sufficient historical demand for a robust modelling position while keeping the model up-to-date and relevant, five years of incident locations were used to validate the model.

Pumping Appliance Attendances

2.22 The callsign with the highest average daily workload for the two most recent years was C21P1 at Carlisle West, attending an average of 1.49 incidents per day (see Appendix **C4**). Patterdale attended the fewest average incidents per day (0.04: one incident every 26 days).

2.23 Wholetime and day-crewed appliances attended incidents further afield than on-call appliances, which generally responded within a close proximity to their home station. ORH analysed the location of incidents attended by each callsign (see Appendix **C5**).

Figure 3: Call Components



2.24 ORH assessed each station catchment, taking into account the difference in turnout for day-crewed pumps during the day and at night (see Appendix **C6**).

Response Profile

Call Components

2.25 ORH analysed the historical trend (over five years) and the hourly variation (based on the two most recent years) for the key call components (see Figure **3**).

2.26 CFRS attendance standards do not include Control Activation times and the model consequently excluded this component. This is measured separately by North West Fire Control.

2.27 Crew Turnout times remained fairly stable over the five-year period, but with a slight increase in the most recent year for wholetime and day-crewed appliances (see Appendix **D1a**). Day-crewed pumps operate as regular crewed during the day and on-call at night, and the hourly profile is closely aligned to dedicated wholetime appliances during the day and on-call appliances at night.

2.28 Within each duty system, there was variation in turnout times by callsign (see Appendix **D1b**). Average turnout times varied between 1m 19s (Carlisle West) to 1m 39s (Barrow) for wholetime pumps, and between 3m 03s (Staveley) to 6m 44s (Workington) for on-call pumps.

2.29 Crew Response Performance is a combination of Crew Turnout and Travel Time to Scene, and the profile therefore reflects these two measures (see Appendix **D2**). Crew Response Performance times were slightly longer during the night, reflecting the profile of Crew Turnout.

2.30 Average Time at Scene remained stable across the five-year sample (see Appendix **D3**). Pumps spend longer at scene for Fires and Special Service incidents compared to False Alarm incidents. Time at Scene at night was noticeably longer than during the day.

Response Times

2.31 ORH analysed the cumulative response distributions to determine the proportion of incidents met within each minute (see Appendix **D4**).

2.32 Response performance was slightly better during the night (20:00 to 08:00) than during the day (08:00 to 20:00). ORH analysed the mean response times (first and second response), and the proportion of Primary Building Fires in 10 minutes (first response) and all other incidents within 15 minutes (first response), by district (see Figure **4** and Appendix **D5**).

2.33 Areas around wholetime crewed stations are well covered within 15 minutes for average first appliance response time (see Appendix **D6**). Primary

Figure 4: Response Performance Measures

2-Year Sample (October 2014 to September 2016)

Overall

District	Response Performance to All Incidents		Primary Building Fires	All Other Incidents
	Average 1st	Average 2nd	%1st in 10 Mins	%1st in 15 Mins
Allerdale	09:16	15:50	62%	87%
Barrow-in-Furness	06:17	11:23	92%	97%
Carlisle	07:21	10:23	82%	93%
Copeland	08:47	14:52	64%	89%
Eden	12:16	18:06	52%	71%
South Lakeland	10:06	15:07	63%	84%
Service-Wide	**08:55**	**13:56**	**71%**	**87%**

Day (08:00 - 20:00)

District	Response Performance to All Incidents		Primary Building Fires	All Other Incidents
	Average 1st	Average 2nd	%1st in 10 Mins	%1st in 15 Mins
Allerdale	09:20	15:59	60%	86%
Barrow-in-Furness	06:16	11:43	89%	97%
Carlisle	07:31	10:47	80%	92%
Copeland	09:09	16:16	58%	88%
Eden	11:55	18:33	57%	70%
South Lakeland	09:58	15:25	60%	83%
Service-Wide	**08:59**	**14:28**	**69%**	**86%**

Night (20:00 - 08:00)

District	Response Performance to All Incidents		Primary Building Fires	All Other Incidents
	Average 1st	Average 2nd	%1st in 10 Mins	%1st in 15 Mins
Allerdale	09:07	15:39	64%	88%
Barrow-in-Furness	06:18	10:55	98%	96%
Carlisle	07:05	09:51	85%	94%
Copeland	08:06	12:52	74%	92%
Eden	13:01	17:18	41%	72%
South Lakeland	10:22	14:40	68%	86%
Service-Wide	**08:46**	**13:10**	**75%**	**89%**

Building Fires met within 10 minutes and all other incidents met within 15 minutes are also mapped.

Response Performance Measures

2.34 The model takes account of all incident and response types and can be used to report on any different measures. The following four measures were agreed with CFRS for assessing changes to the service:

- Average first pump response to all incidents
- Average second pump response to all incidents
- Percentage of first pump responses in 10 minutes to Primary Building Fires (PBFs)
- Percentage of first responses in 15 minutes to all other incidents

Model Validation

2.35 The purpose of the model validation process was to ensure that ORH's simulation model reflected the real-life behaviour of CFRS pumps. The model was populated with inputs derived from the analysis of the current service profile, and travel times were calibrated against actual journeys.

2.36 There was a close correspondence between the validated model and the actual analysed position. The model could therefore be used to accurately reflect changes in model inputs (for example, changes in station locations or appliance deployments).

Figure 5: Remove Appliance Modelling Summary

24-Hour Position

Impacts

Station	Station Type	Call Sign	Crew Type	Average Response Performance to All Incidents		Primary Building Fires	All Other Incidents
				Average 1st	Average 2nd	%1st in 10 Mins	%1st in 15 Mins
Modelled Base (Performance)				**08:56**	**13:51**	**71.9%**	**87.1%**
Alston	On-Call	C22P1	On-Call	00:07	00:00	-0.2%	-0.2%
Ambleside	On-Call	C61P1	On-Call	00:10	00:05	-0.6%	-1.1%
Appleby	On-Call	C62P1	On-Call	00:07	00:09	-0.4%	-0.5%
Arnside	On-Call	C63P1	On-Call	00:03	00:07	-0.2%	-0.4%
Aspatria	On-Call	C03P1	On-Call	00:08	00:08	-0.5%	-0.9%
Barrow	Wholetime	C40P1	Wholetime	00:56	00:48	-11.8%	-3.4%
Bootle	On-Call	C41P1	On-Call	00:03	00:03	0.0%	-0.3%
Brampton	On-Call	C23P1	On-Call	00:09	00:06	-0.7%	-1.1%
Broughton	On-Call	C42P1	On-Call	00:03	00:04	-0.2%	-0.3%
Carlisle East	Wholetime	C20P1	Wholetime	00:36	01:36	-5.8%	-2.1%
Carlisle West	Wholetime	C21P1	Wholetime	00:35	01:35	-5.1%	-2.0%
Cockermouth	On-Call	C04P1	On-Call	00:14	00:10	-1.5%	-1.7%
Coniston	On-Call	C43P1	On-Call	00:03	00:03	-0.1%	-0.3%
Egremont	On-Call	C05P1	On-Call	00:04	00:08	-0.8%	-0.4%
Frizington	On-Call	C06P1	On-Call	00:02	00:05	-0.5%	-0.2%
Grange	On-Call	C45P1	On-Call	00:17	00:04	-0.4%	-1.2%
Kendal	Day-Crewed/On-Call	C60P1	Day-Crewed	00:15	00:26	-1.9%	-1.0%
Kendal	Day-Crewed/On-Call	C60P2	On-Call	00:01	00:20	-0.1%	-0.2%
Keswick	On-Call	C07P1	On-Call	00:20	00:07	-0.8%	-1.7%
Kirkby Lonsdale	On-Call	C64P1	On-Call	00:06	00:02	-0.3%	-0.5%
Kirkby Stephen	On-Call	C65P1	On-Call	00:09	00:08	-0.3%	-0.6%
Lazonby	On-Call	C24P1	On-Call	00:03	00:03	-0.2%	-0.3%
Longtown	On-Call	C25P1	On-Call	00:06	00:04	-0.7%	-0.6%
Maryport	2 On-Call	C08P1	On-Call	00:16	00:09	-2.0%	-2.1%
Maryport	2 On-Call	C08P2	On-Call	00:00	00:02	0.0%	0.0%
Millom	On-Call	C46P1	On-Call	00:08	00:04	-0.6%	-0.9%
Milnthorpe	On-Call	C66P1	On-Call	00:06	00:12	-0.5%	-0.8%
Patterdale	On-Call	C26P1	On-Call	00:03	00:00	-0.1%	-0.3%
Penrith	Day-Crewed/On-Call	C27P1	Day-Crewed	00:17	00:41	-1.9%	-1.1%
Penrith	Day-Crewed/On-Call	C27P2	On-Call	00:01	00:33	0.0%	-0.1%
Seascale	On-Call	C09P1	On-Call	00:04	00:03	-0.2%	-0.5%
Sedbergh	On-Call	C67P1	On-Call	00:07	00:03	-0.4%	-0.6%
Shap	On-Call	C68P1	On-Call	00:05	00:03	-0.1%	-0.3%
Silloth	On-Call	C10P1	On-Call	00:03	00:02	-0.4%	-0.3%
Staveley	On-Call	C69P1	On-Call	00:02	00:07	-0.2%	-0.2%
Ulverston	Wholetime/On-Call	C47P1	Wholetime	00:10	00:34	-1.2%	-0.6%
Ulverston	Wholetime/On-Call	C47P2	On-Call	00:01	00:14	-0.1%	-0.1%
Walney	On-Call	C48P1	On-Call	00:03	00:27	-0.2%	-0.2%
Whitehaven	Wholetime/On-Call	C02P1	Wholetime	00:33	00:24	-5.5%	-3.0%
Whitehaven	Wholetime/On-Call	C02P2	On-Call	00:00	00:06	0.0%	-0.1%
Wigton	On-Call	C11P1	On-Call	00:08	00:06	-1.1%	-0.9%
Windermere	On-Call	C70P1	On-Call	00:14	00:09	-1.7%	-1.6%
Workington	Wholetime/On-Call	C01P1	Wholetime	00:35	00:20	-5.3%	-3.2%
Workington	Wholetime/On-Call	C01P2	On-Call	00:01	00:09	-0.1%	-0.1%

3 INDIVIDUAL PUMP REMOVAL

Individual simulation modelling runs assessed the impact on response performance of removing each pump individually. The key findings were as follows:

- Removing wholetime pumps has more effect than other crew types.
- Removal of the pump from Barrow has the largest impact on first response.
- On-call pumps at two-pump stations can be removed with little impact on first pump response performance.

Approach

3.1 The purpose of this modelling was to evaluate the contribution of individual appliances – ranked lists of the impacts can help inform decision making.

3.2 ORH's simulation model was used to independently remove the appliance, with all other deployments unchanged from the modelled base position.

3.3 For each of the 44 separate modelling runs, ORH reported the CFRS-wide impacts against the four response performance measures.

Modelled Results

3.4 By performance measure, the appliance removals with the largest impacts are as follows (see Figure **5** and Appendix **E**):

- Average first (see **E2**) = Barrow (8m56s to 9m52s)
- Average second (see **E2**) = Carlisle East (13m51s to 15m27s)
- PBFs in 10 minutes (see **E3**) = Barrow (71.9% to 60.0%)
- All other incidents in 15 minutes (see **E3**) = Barrow (87.1% to 83.7%)

3.5 Across all measures the largest impacts are typically associated with the removal of wholetime pumps from stations with only one pump (Barrow, Carlisle East and Carlisle West), as these effectively close the stations.

3.6 For the six two-pump stations, removing the second pump has a negligible impact on first response; however, the second response is affected more substantially (for example, removing the on-call pump at Penrith).

3.7 It is important to note that local impacts would be greater for all of the options.

Figure 6: Remove Station Modelling Summary

24-Hour Position

Impacts

Station	Station Type	Average Response Performance to All Incidents		Primary Building Fires	All Other Incidents
		Average 1st	Average 2nd	%1st in 10 Mins	%1st in 15 Mins
Modelled Base (Performance)		**08:56**	**13:51**	**71.9%**	**87.1%**
Alston	On-Call	00:07	00:00	-0.2%	-0.2%
Ambleside	On-Call	00:10	00:05	-0.6%	-1.1%
Appleby	On-Call	00:07	00:09	-0.4%	-0.5%
Arnside	On-Call	00:03	00:07	-0.2%	-0.4%
Aspatria	On-Call	00:08	00:08	-0.5%	-0.9%
Barrow	Wholetime	00:56	00:48	-11.8%	-3.4%
Bootle	On-Call	00:03	00:03	0.0%	-0.3%
Brampton	On-Call	00:09	00:06	-0.7%	-1.1%
Broughton	On-Call	00:03	00:04	-0.2%	-0.3%
Carlisle East	Wholetime	00:36	01:36	-5.8%	-2.1%
Carlisle West	Wholetime	00:35	01:35	-5.1%	-2.0%
Cockermouth	On-Call	00:14	00:10	-1.5%	-1.7%
Coniston	On-Call	00:03	00:03	-0.1%	-0.3%
Egremont	On-Call	00:04	00:08	-0.8%	-0.4%
Frizington	On-Call	00:02	00:05	-0.5%	-0.2%
Grange	On-Call	00:17	00:04	-0.4%	-1.2%
Kendal	Day-Crewed/On-Call	00:48	00:50	-3.8%	-5.7%
Keswick	On-Call	00:20	00:07	-0.8%	-1.7%
Kirkby Lonsdale	On-Call	00:06	00:02	-0.3%	-0.5%
Kirkby Stephen	On-Call	00:09	00:08	-0.3%	-0.6%
Lazonby	On-Call	00:03	00:03	-0.2%	-0.3%
Longtown	On-Call	00:06	00:04	-0.7%	-0.6%
Maryport	2 On-Call	00:19	00:11	-2.4%	-2.6%
Millom	On-Call	00:08	00:04	-0.6%	-0.9%
Milnthorpe	On-Call	00:06	00:12	-0.5%	-0.8%
Patterdale	On-Call	00:03	00:00	-0.1%	-0.3%
Penrith	Day-Crewed/On-Call	00:54	01:09	-2.8%	-4.6%
Seascale	On-Call	00:04	00:03	-0.2%	-0.5%
Sedbergh	On-Call	00:07	00:03	-0.4%	-0.6%
Shap	On-Call	00:05	00:03	-0.1%	-0.3%
Silloth	On-Call	00:03	00:02	-0.4%	-0.3%
Staveley	On-Call	00:02	00:07	-0.2%	-0.2%
Ulverston	Wholetime/On-Call	00:29	01:17	-3.2%	-2.7%
Walney	On-Call	00:03	00:27	-0.2%	-0.2%
Whitehaven	Wholetime/On-Call	00:44	00:33	-6.1%	-4.8%
Wigton	On-Call	00:08	00:06	-1.1%	-0.9%
Windermere	On-Call	00:14	00:09	-1.7%	-1.6%
Workington	Wholetime/On-Call	00:59	00:29	-6.7%	-7.4%

4 CLOSING INDIVIDUAL STATIONS

Individual simulation modelling runs assessed the impact on response performance for closing each station individually.

As expected, the largest performance impacts relate to closing wholetime and day-crewed stations.

Approach

4.1 ORH's simulation model was used to individually close each of the 38 stations in Cumbria, with all other deployments unchanged from the modelled base position.

4.2 ORH reported the CFRS-wide impacts against the four response performance measures.

Modelled Results

4.3 By performance measure, the station closures with the largest impacts are as follows (see Figure **6** and Appendix **F**):

- Average first (see **F2**) = Workington (8m56s to 9m55s)
- Average second (see **F2**) = Carlisle East (13m51s to 15m27s)
- PBFs in 10 minutes (see **F3**) = Barrow (71.9% to 60.0%)
- All other incidents in 15 minutes (see **F3**) = Workington (87.1% to 79.7%)

4.4 The closure of any wholetime or day-crewed station would have a greater impact on average first and second pump response performance and the proportion of Primary Building Fires met within 10 minutes, compared to closing any on-call station.

4.5 Closing Maryport would have a greater impact on all other incidents met within 15 minutes than closing either of the Carlisle stations.

4.6 As with the individual pump removals, impacts would be much larger at local level.

Figure 7: Optimal Day-Crewed Shift Times

Wholetime and Day-Crewed Stations

Optimising For	Station	Optimal 8 Hour Shift	Optimal 12 Hour Shift
Primary Building Fires Within 10 Minutes	Barrow	1000 to 1800	0700 to 1900
	Carlisle East	1100 to 1900	0700 to 1900
	Carlisle West	1200 to 2000	1100 to 2300
	Kendal	1100 to 1900	0800 to 2000
	Penrith	1100 to 1900	0800 to 2000
	Ulverston	1100 to 1900	0800 to 2000
	Whitehaven	1100 to 1900	1100 to 2300
	Workington	1200 to 2000	0800 to 2000
Average 1st Response	Barrow	1200 to 2000	1100 to 2300
	Carlisle East	1200 to 2000	1100 to 2300
	Carlisle West	1200 to 2000	1100 to 2300
	Kendal	1100 to 1900	1100 to 2300
	Penrith	1100 to 1900	1100 to 2300
	Ulverston	1200 to 2000	1100 to 2300
	Whitehaven	1200 to 2000	1100 to 2300
	Workington	1200 to 2000	1100 to 2300

5 OPTIMAL DAY SHIFT TIMES

ORH's analysis identified that during the busiest demand periods there are often fewer pumps available. ORH therefore modelled options for alternative hours for day-crewed shifts.

For the existing wholetime and day-crewed stations, the optimal start and end times were calculated for both 8- and 12-hour shifts:

- Optimal 8-hour shift varies between 10:00 to 18:00 and 12:00 to 20:00.
- Optimal 12-hour shift varies between 07:00 to 19:00 and 11:00 to 23:00.

Approach

5.1 ORH analysed incident and availability data to compare the average number of available pumps to the number of pump responses by hour. The availability of pumps is lowest between 08:00 and 17:00, which is broadly aligned to the busiest demand periods (see Appendix **G1**).

5.2 For all wholetime and day-crewed stations, ORH modelled the difference between being on-call or on-duty for each hour of the day. CFRS-wide 24/7 impacts to response performance were reported for average first response and the percentage of Primary Building Fires in 10 minutes.

5.3 Through this modelling process it was possible to identify optimal start and end times for day-crewed shifts, based on both 8- and 12-hour shifts. The optimal shift times are a function of the temporal profile of demand, availability, turnout times and road speeds.

Modelled Results

5.4 There are differences in the optimal start/end hours by station, by shift length and by the incidents against which response performance is measured (see Figure **7** and Appendix **G2**). For example, at Carlisle West, the optimal day-crewed shift would start at 11:00 or 12:00 in all of the potential scenarios; at Barrow station, the optimal shift start time varies between 07:00 and 12:00, dependent on the different factors.

5.5 The optimal 8-hour shift is similar whether minimising average response performance to all incidents or maximising the number of Primary Building Fires in 10 minutes.

5.6 The optimal 12-hour shift is generally later when minimising average first appliance response performance compared to maximising the number of Primary Building Fires in 10 minutes.

Figure 8: Performance Difference (100% Availability - Appliance Removed)

24-Hour Position

Modelled Impact

Station	Station Type	Call Sign	Crew Type	Current Availabili	Average Response Performance to All Incidents		Primary Building Fires	All Other Incidents
					Average 1st	Average 2nd	%1st in 10 Mins	%1st in 15 Mins
Modelled Base					**08:56**	**13:51**	**72%**	**87%**
Alston	On-Call	C22P1	On-Call	97.3%	00:07	00:00	0.2%	0.3%
Ambleside	On-Call	C61P1	On-Call	94.4%	00:11	00:06	0.6%	1.2%
Appleby	On-Call	C62P1	On-Call	92.6%	00:07	00:10	0.4%	0.6%
Arnside	On-Call	C63P1	On-Call	86.5%	00:04	00:08	0.2%	0.4%
Aspatria	On-Call	C03P1	On-Call	95.3%	00:08	00:09	0.6%	0.9%
Bootle	On-Call	C41P1	On-Call	87.8%	00:03	00:04	0.1%	0.3%
Brampton	On-Call	C23P1	On-Call	92.3%	00:10	00:07	0.8%	1.3%
Broughton	On-Call	C42P1	On-Call	95.6%	00:03	00:05	0.2%	0.3%
Cockermouth	On-Call	C04P1	On-Call	90.3%	00:15	00:11	1.6%	1.9%
Coniston	On-Call	C43P1	On-Call	78.7%	00:04	00:04	0.1%	0.4%
Egremont	On-Call	C05P1	On-Call	73.3%	00:06	00:11	1.1%	0.6%
Frizington	On-Call	C06P1	On-Call	86.8%	00:02	00:06	0.5%	0.2%
Grange	On-Call	C45P1	On-Call	95.5%	00:17	00:05	0.5%	1.2%
Kendal	Day-Crewed / On-Call	C60P2	On-Call	93.7%	00:01	00:22	0.1%	0.2%
Keswick	On-Call	C07P1	On-Call	98.4%	00:21	00:07	0.8%	1.8%
Kirkby Lonsdale	On-Call	C64P1	On-Call	92.7%	00:07	00:02	0.3%	0.5%
Kirkby Stephen	On-Call	C65P1	On-Call	95.0%	00:09	00:09	0.4%	0.6%
Lazonby	On-Call	C24P1	On-Call	70.7%	00:04	00:05	0.3%	0.5%
Longtown	On-Call	C25P1	On-Call	81.4%	00:08	00:06	0.9%	0.8%
Maryport	2 On-Call	C08P1	On-Call	94.0%	00:17	00:11	2.1%	2.2%
Maryport	2 On-Call	C08P2	On-Call	19.8%	00:01	00:06	0.1%	0.1%
Millom	On-Call	C46P1	On-Call	94.9%	00:08	00:04	0.6%	0.9%
Milnthorpe	On-Call	C66P1	On-Call	94.1%	00:07	00:13	0.6%	0.8%
Patterdale	On-Call	C26P1	On-Call	88.5%	00:03	00:01	0.1%	0.3%
Penrith	Day-Crewed / On-Call	C27P2	On-Call	90.3%	00:01	00:37	0.0%	0.1%
Seascale	On-Call	C09P1	On-Call	89.5%	00:05	00:04	0.2%	0.5%
Sedbergh	On-Call	C67P1	On-Call	96.3%	00:07	00:04	0.4%	0.6%
Shap	On-Call	C68P1	On-Call	78.9%	00:06	00:05	0.1%	0.4%
Silloth	On-Call	C10P1	On-Call	60.7%	00:05	00:03	0.7%	0.5%
Staveley	On-Call	C69P1	On-Call	79.3%	00:03	00:10	0.3%	0.2%
Ulverston	Wholetime / On-Call	C47P2	On-Call	90.2%	00:01	00:16	0.1%	0.1%
Walney	On-Call	C48P1	On-Call	74.0%	00:04	00:38	0.2%	0.2%
Whitehaven	Wholetime / On-Call	C02P2	On-Call	57.6%	00:01	00:11	0.1%	0.1%
Wigton	On-Call	C11P1	On-Call	79.2%	00:11	00:09	1.5%	1.2%
Windermere	On-Call	C70P1	On-Call	97.9%	00:14	00:09	1.7%	1.6%
Workington	Wholetime / On-Call	C01P2	On-Call	72.7%	00:01	00:13	0.1%	0.2%

6 ON-CALL STATION AVAILABILITY CHANGES

ORH modelled the response performance differences between each on-call pump being either 100% or 0% available (effectively removing the pump).

For first response, C08P1 (Maryport first pump) has the greatest difference, even though there is a second on-call pump located there. For second response, C48P1 (Walney) has the greatest difference between the two modelled options.

Approach

6.1 In order to consider the effect that on-call station availability has on response performance, ORH individually modelled two different scenarios for all of the on-call pumps (a total of 72 modelling runs):

- On-call staff 100% available – expected improvements in performance
- 0% availability of on-call staff (effectively removing the pump, as described in Section 3) – expected deteriorations in performance

6.2 By considering the differences between the two modelling runs, it was possible to identify the pumps where the availability of on-call staff has the greatest impacts on response performance.

Modelled Results

6.3 The improvements in response performance associated with increasing on-call availability to 100% are generally greater for second response than for first (see Figure **8** and Appendix **H**).

6.4 When these results are compared to the deteriorations associated with 0% availability, it is possible to identify the stations where it is of greatest importance to have a high level of on-call staff availability. The following results are highlighted:

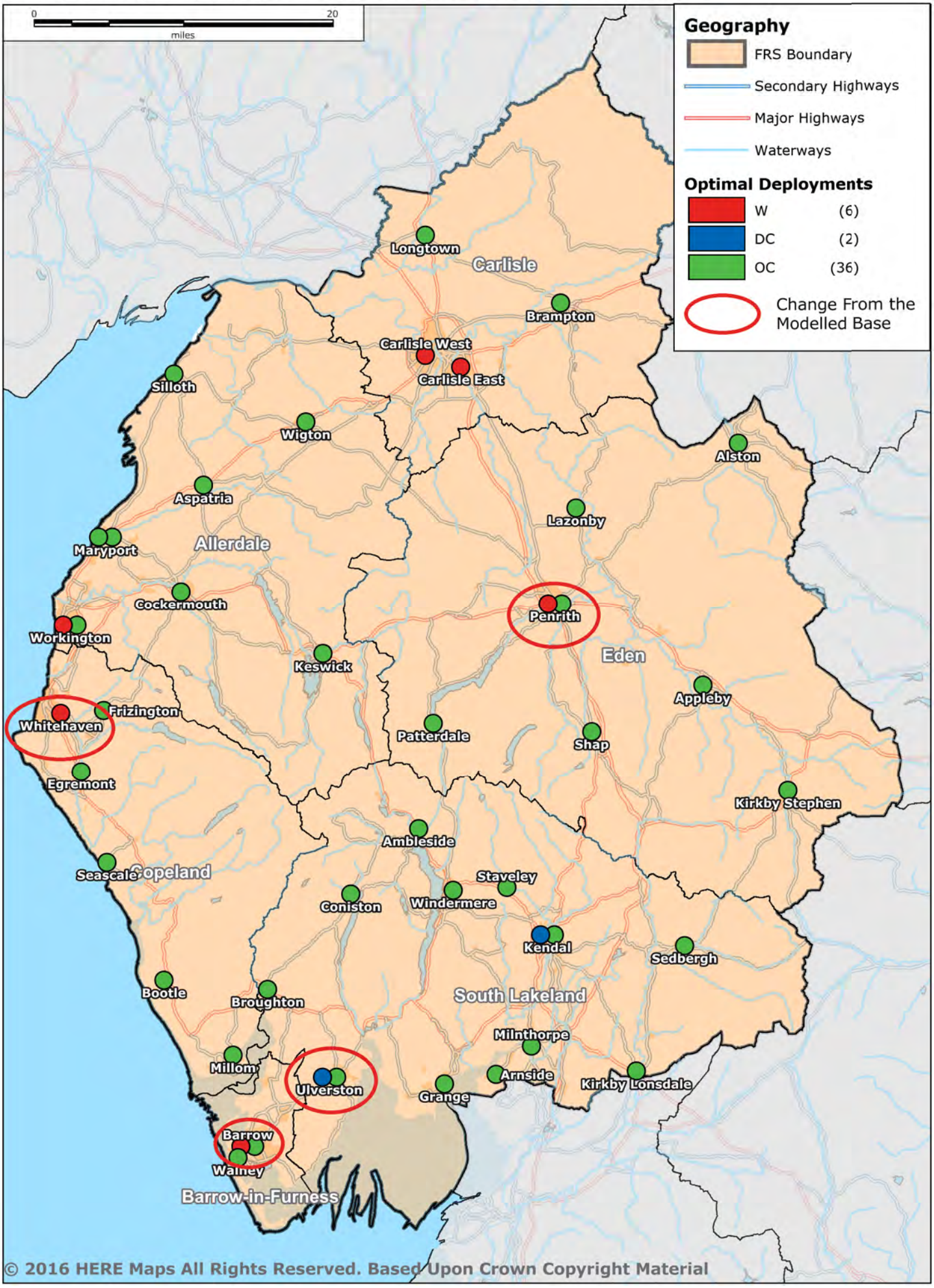
- For first response, C08P1 (Maryport first pump) has the greatest difference to incidents within target, even though there is a second on-call pump located there. Keswick (C07P1) has the greatest impact to average first response.
- For average second response, C48P1 (Walney) has the greatest difference between the two modelled options.

6.5 To examine this further, ORH analysed the population within 5- to 10-minute catchments (see Appendix **H4**) using the following proxies:

- ONS population
- Mosaic CFRS-identified suitable population

Figure 9: Current Station Optimisation

Minimise Average 1st Reponse to:
Primary Building Fires, RTCs (Extrications & Releases) and All Other Incidents



7 CURRENT STATION OPTIMISATION

ORH used optimisation modelling to identify the optimal distribution of pumps (by crew type) across current station locations in Cumbria.

The optimal and current positions are similar, with deployment differences at only four stations: Barrow, Penrith, Ulvertson and Whitehaven.

The optimal configuration would improve CFRS-wide performance for all four response measures, however there would be some local variation.

Approach

7.1 For this modelling, all current station locations were fixed (taking account of the changes to Bootle and Ulverston). ORH's optimisation model was used to identify the optimal distribution of pumps (by crew type), maintaining the current breakdown in crewing types.

7.2 The optimisation was based on minimising average first pump response performance to Primary Building Fires, RTCs (Extrications & Releases) and All Other Incidents. The optimal deployment was simulated with average availability and turnout times applied to any stations with crewing changes.

Modelled Results

7.3 The optimal and current positions are similar, with deployment differences at only four stations (see Figure **9** and Appendix **I1**):

Station	Current Deployment	Optimal Deployment
Barrow	1WT	1WT, 1OC
Penrith	1DC (8 Hour), 1OC	1WT, 1OC
Ulverston	1WT, 1OC	1DC (8 Hour), 1OC
Whitehaven	1WT, 1OC	1WT

7.4 The optimal configuration would improve CFRS-wide performance for all four response measures, however there is some local variation (see Appendix **I2**):

- Barrow-in-Furness: improvement in average second response (10m36s to 08m47s).
- Copeland: deterioration in average second response (14m53 to 15m39s).
- Eden: improvement to PBFs in 10 minutes (52.4% to 59.8%) and all other incidents in 15 minutes (70.8% to 73.6%).
- South Lakeland: small deterioration in all response measures.

Figure 10: Optimal 12 Hour Shift Modelling Deployments

Location of Optimal 12-Hour Day Shifts (08:00 to 20:00)

Station	Number of Optimal 12-Hour Shifts															Current Deployment
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Barrow		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Carlisle East			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Workington				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Carlisle West					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Whitehaven						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Penrith							✓	✓	✓	✓	✓	✓	✓	✓	✓	(8-hour)
Kendal								✓	✓	✓	✓	✓	✓	✓	✓	✓
Ulverston									✓	✓	✓	✓	✓	✓	✓	✓
Maryport										✓	✓	✓	✓	✓	✓	-
Wigton											✓	✓	✓	✓	✓	-
Windermere												✓	✓	✓	✓	-
Cockermouth													✓	✓	✓	-
Milnthorpe														✓		-
Egremont															✓	-

Location of Optimal 12-Hour Night Shifts (20:00 to 08:00)

Station	Number of Optimal 12-Hour Shifts															Current Deployment
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Barrow		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Carlisle East			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Workington				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Carlisle West					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Whitehaven						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Penrith							✓	✓	✓	✓	✓	✓	✓	✓	✓	-
Kendal								✓	✓	✓	✓	✓	✓	✓	✓	-
Ulverston									✓	✓	✓	✓	✓	✓	✓	✓
Maryport										✓	✓	✓	✓	✓	✓	-
Wigton											✓	✓	✓	✓	✓	-
Windermere												✓	✓	✓	✓	-
Cockermouth													✓	✓	✓	-
Milnthorpe														✓		-
Egremont															✓	-

Total 12-Hour Shifts Modelled

Number Optimal 12-Hour Day Shifts	Number of Optimal 12-Hour Night Shifts															Current Deployment
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
0	0															8 (7 12-Hour & 1 8-Hour)
1	1	2														
2	2	3	4													
3	3	4	5	6												
4	4	5	6	7	8											
5	5	6	7	8	9	10										
6	6	7	8	9	10	11	12									
7	7	8	9	10	11	12	13	14								
8	8	9	10	11	12	13	14	15	16							
9	9	10	11	12	13	14	15	16	17	18						
10	10	11	12	13	14	15	16	17	18	19	20					
11	11	12	13	14	15	16	17	18	19	20	21	22				
12	12	13	14	15	16	17	18	19	20	21	22	23	24			
13	13	14	15	16	17	18	19	20	21	22	23	24	25	26		
14	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	

Current Deployment	6	14*

* The current Deployment has the equivalent of 13 12-hour and 1 8-hour regular shifts
All other stations modelled as on-call

8 OPTIMAL DAY/NIGHT DIVISION OF REGULAR SHIFTS

ORH modelled the optimal deployment of between zero and 14 regular crews for the day and night shift (each 12 hours).

The eight current stations with regular crews are the optimal eight from which to deploy regular crews.

There are currently a total of 14 regular shifts (although one is 8-hour): eight in the day, and six at night. The optimal division for 14 and 13 regular 12-hour shifts are as follows:

- 14 regular shifts: 9 in the day, 5 at night
- 13 regular shifts: 8 in the day, 5 at night

The optimal deployment of thirteen 12-hour shifts is for eight in the day and five at night. Ulverston would lose the regular night shift compared to the current deployment.

Approach

8.1 For this modelling, all current station locations were fixed (taking account of the changes to Bootle and Ulverston). ORH's optimisation model was used to identify the optimal distribution of between zero and 14 regular crewed pumps, assuming on-call pumps were in their current locations.

8.2 The optimisation was based on minimising average first pump response performance to Primary Building Fires, RTCs (Extrications & Releases) and All Other Incidents. The optimal deployments were simulated with average availability and turnout times applied to any stations with crewing changes.

8.3 Every combination of zero to 14 regular shifts in the day and zero to 14 regular shifts in the night were modelled (assuming there would never be more regular crews in place during the night than in the day). This resulted in 105 different options.

8.4 There are currently 14 regular shifts: thirteen 12-hour and one 8-hour (at Penrith). Eight of these are during the day (including the eight-hour shift), and six are at night.

8.5 This modelling used the current shift times:

- Day shift: 08:00 to 20:00
- Night shift: 20:00 to 08:00

Modelled Results

8.6 The optimal locations at which to deploy regular shifts does not change between the day and night (see Figure **10** and Appendix **J1**), but it is beneficial to deploy more during the day than at night.

8.7 The optimal deployment of fourteen 12-hour shifts is for nine in the day and five at night. Maryport would gain a regular shift in the day, and Ulverston would lose one at night compared to the current deployment (with Penrith upgraded from 8-hour to 12-hour).

8.8 The optimal deployment of thirteen 12-hour shifts is for eight in the day and five at night. Ulverston would lose the regular night shift compared to the current deployment (with Penrith upgraded from 8-hour to 12-hour). This deployment would have very similar response performance to the current deployment (see Appendix **J2**)

8.9 The number of regular shifts in place during the day and night has a direct relationship to performance during those periods (see Appendix **J3** and **J4**).

8.10 This modelling assumed that current shift times are in place. Response performance gains can be made by altering the shift times where regular crews are in place during the day but not at night (See Section 5).

Figure 11: Targeted Response Vehicles - Response Assumptior

Incident Types	Current PDA	Alternative Response Type	Notes
AFA's Casualty care Chimney fires Outdoor fires Small fires Late fire calls Locked in/out Petrol/Diesel spillage Vehicle fire small Flooding domestic	1 Pump	1 Pump or 1 TRV	TRVs can attend instead of a pump to these incidents
	2 Pump	2 Pumps or 2 TRVs or 1 Pump + 1 TRV	
RTC Large Animal Rescue CO Alarm Cylinder in the open Vehicle fire large	1 Pump	1 Pump	TRVs can form part of the PDA for 2+ appliance incidents
	2 Pump	2 Pumps or 1 Pump + 1 TRV	
Building Fires Collapsed structures Electricity Gas Hazmats, pipeline Ships Trains Tunnels	1 Pump	1 Pump	TRVs will only be considered for 2+ appliance incidents once the number of riders on other pumps attending is confirmed to meet the minimum required.
	2 Pump	2 Pumps or 1 Pump + 1 TRV	

The same assumptions apply for incidents requiring 3 or more appliances

The minimum number of crew required for 2 and 3 Pump PDAs is 8 and 12 respectively

A TRV requires 3 crew, 1 of which is an officer in charge, and 1 of which is a driver

9 TARGETED RESPONSE VEHICLES

There is negligible impact to first responses to Primary Dwelling Fires, as TRVs would not be the first response to these incidents.

TRVs would contribute more to second pump performance than to first but the stations where it is most beneficial to introduce TRVs vary depending on the response performance measure being considered.

Approach

9.1 Individual simulation modelling runs allowed an assessment of the impact of targeted response vehicles (TRVs) at each station with an on-call pump. If a full crew was available to staff a pump, then they would operate as they do currently. If only three staff members were available (including a driver and officer in charge), they could respond as a TRV. A TRV would be an alternative way to crew a pumping appliance, not a new physical vehicle.

9.2 Depending on the category of the incident, a TRV could respond in place of a pump, or as part of the pre-determined attendance (PDA), or part of the PDA only if the total number of crew on other pumps attending equates to the minimum required (see Figure **11** and Appendix **K1**).

9.3 The reason for the appliance being off-the-run was provided within the on-call availability data supplied. It was therefore possible to calculate the expected unavailability for each on-call callsign (if operating as a TRV) given the reduced requirements (see Appendix **K2**).

Modelled Results

9.4 The impact of introducing TRVs at any station individually would be very small. They would contribute more to second pump performance than to first (see Appendix **K3**). The impact to first response to Primary Dwelling Fires in 10 minutes would be negligable, as the TRV would not be a first response to these incidents (see Appendix **K4**).

9.5 The stations where it is most beneficial to introduce TRVs vary depending on the response performance measure being considered:

- Average first (see **K3**) = Wigton (1.36s impact)
- Average second (**K3**) = Maryport P2 (4.4s impact)
- PBFs in 10 minutes (**K4**) = Maryport P1 (0.02% impact)
- All Other Incidents in 15 minutes (**K4**) = Wigton (0.17% impact)

Appendices

Service Analysis

A	Resourcing and Availability
B	Current Service Demand
C	Geographical Location Analysis
D	Response Profile Analysis

Modelled Scenarios

E	Remove Individual Appliances
F	Close Individual Stations
G	Optimal Day-Crew Shift Periods
H	On-Call Station Availability Changes
I	Current Station Optimisation
J	Day and Night Split of Regular 12-hour Shifts
K	Targeted Response Vehicles

A Resourcing and Availability

A1 Pumping Appliance Deployments

A1a Current Deployment Map
A1b Deployment Changes

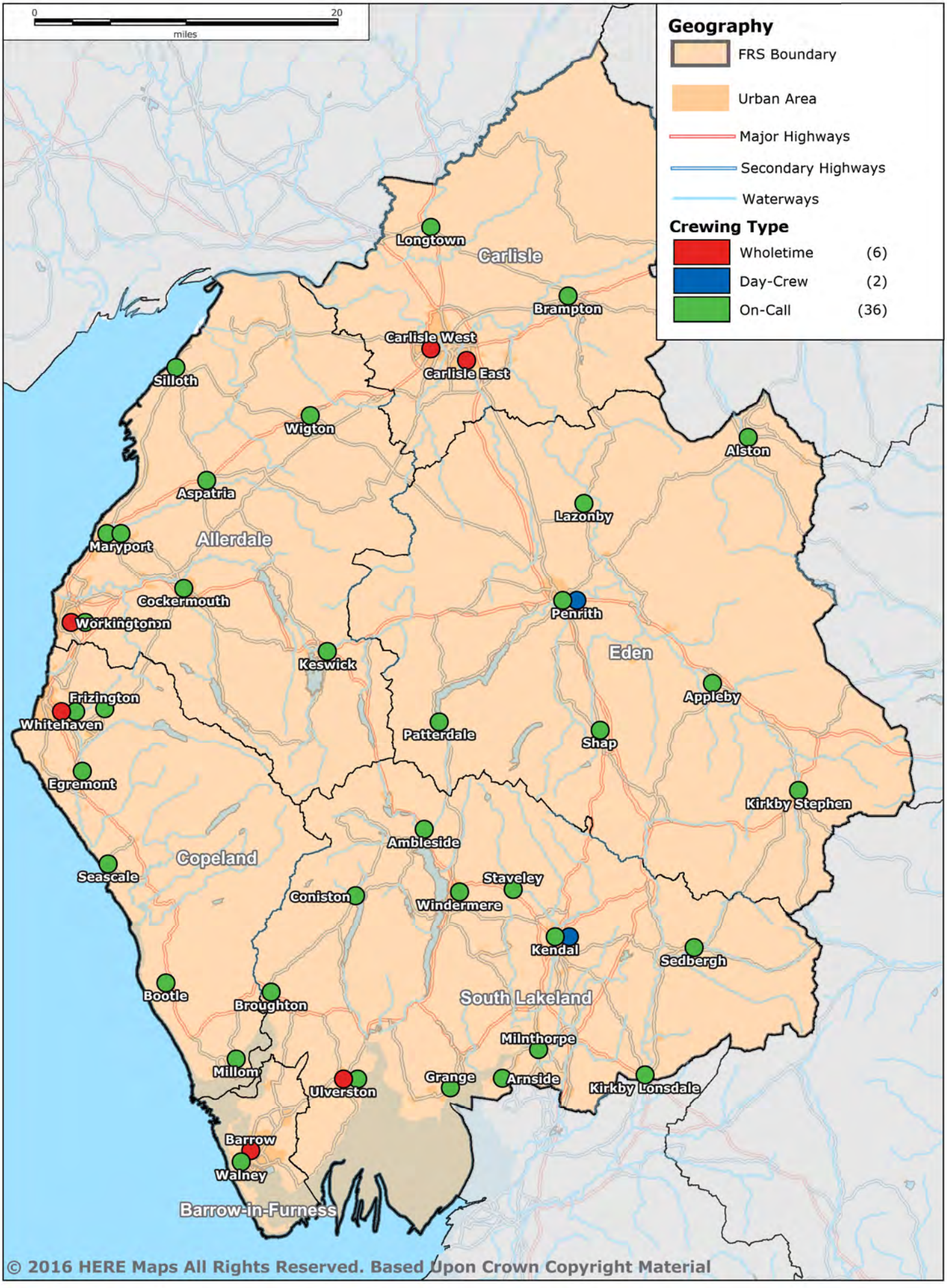
A2 Pump Availability by Reporting Year

A3 Pump Availability by Month

A4 Pump Availability by Hour

A4a Summary Table
A4b Graph

Current Pumping Appliance Deployments



Deployment Changes

October 2011 to September 2016

Name	Code	Deployment (earlier)	Deployment (later)
Bootle (Old)	41	1 On-Call	Closed
Bootle (New)	41	-	1 On-Call
Barrow	40	2 Wholetime	1 Wholetime
Dalton	44	1 On-Call	Closed
Ulverston	47	2 On-Call	1 Wholetime, 1 On-Call
Penrith	27	1 Day-Crew (5 day) 1 On-Call	1 Day-Crew (7 day, 1000 to 1800), 1 On-Call
Workington (Old)	01	1 Wholetime, 1 On-Call	Closed
Workington	01	-	1 Wholetime, 1 On-Call
Kendal	60	1 Day-Crew, 1 On-Call	1 Day-Crew (7 day, 0800 to 2000), 1 On-Call
Carslisle (Old)	20	2 Wholetime	Closed
Carlisle East	20	-	1 Wholetime
Carlisle West	21	-	1 Wholetime
Alston	22	1 On-Call	
Ambleside	61	1 On-Call	
Appleby	62	1 On-Call	
Arnside	63	1 On-Call	
Aspatria	03	1 On-Call	
Brampton	23	1 On-Call	
Broughton	42	1 On-Call	
Cockermouth	04	1 On-Call	
Coniston	43	1 On-Call	
Egremont	05	1 On-Call	
Frizington	06	1 On-Call	
Grange	45	1 On-Call	
Keswick	07	1 On-Call	
Kirkby Lonsdale	64	1 On-Call	
Kirkby Stephen	65	1 On-Call	
Lazonby	24	1 On-Call	
Longtown	25	1 On-Call	
Maryport	08	2 On-Call	
Millom	46	1 On-Call	
Milnthorpe	66	1 On-Call	
Patterdale	26	1 On-Call	
Seascale	09	1 On-Call	
Sedbergh	67	1 On-Call	
Shap	68	1 On-Call	
Silloth	10	1 On-Call	
Staveley	69	1 On-Call	
Walney	48	1 On-Call	
Whitehaven	02	1 Wholetime, 1 On-Call	
Wigton	11	1 On-Call	
Windermere	70	1 On-Call	

Pump Availability by Reporting Year

Current Crewing Requirements
2-Year Sample Period (October 2014 to September 2016)

Percentage Available

Call Sign	Station	Station Type	Crew Type	Reporting Year		2-Year Average
				2014/2015	2015/2016	
C27P1	Penrith	Day-Crewed/On-Call	Day-Crewed	100%	100%	100%
C60P1	Kendal	Day-Crewed/On-Call	Day-Crewed	100%	100%	100%
C27P2	Penrith	Day-Crewed/On-Call	On-Call	89%	92%	90%
C60P2	Kendal	Day-Crewed/On-Call	On-Call	98%	90%	94%
C01P2	Workington	Wholetime/On-Call	On-Call	71%	75%	73%
C02P2	Whitehaven	Wholetime/On-Call	On-Call	50%	65%	58%
C47P2	Ulverston	Wholetime/On-Call	On-Call	91%	90%	90%
C08P1	Maryport	2 On-Call	On-Call	93%	95%	94%
C08P2	Maryport	2 On-Call	On-Call	10%	30%	20%
C03P1	Aspatria	On-Call	On-Call	95%	95%	95%
C04P1	Cockermouth	On-Call	On-Call	93%	88%	90%
C05P1	Egremont	On-Call	On-Call	75%	71%	73%
C06P1	Frizington	On-Call	On-Call	86%	88%	87%
C07P1	Keswick	On-Call	On-Call	99%	97%	98%
C09P1	Seascale	On-Call	On-Call	92%	87%	90%
C10P1	Silloth	On-Call	On-Call	59%	63%	61%
C11P1	Wigton	On-Call	On-Call	74%	84%	79%
C22P1	Alston	On-Call	On-Call	97%	98%	97%
C23P1	Brampton	On-Call	On-Call	94%	91%	92%
C24P1	Lazonby	On-Call	On-Call	65%	77%	71%
C25P1	Longtown	On-Call	On-Call	77%	86%	81%
C26P1	Patterdale	On-Call	On-Call	95%	82%	89%
C41P1	Bootle	On-Call	On-Call	89%	87%	88%
C42P1	Broughton	On-Call	On-Call	95%	96%	96%
C43P1	Coniston	On-Call	On-Call	84%	74%	79%
C45P1	Grange	On-Call	On-Call	93%	98%	95%
C46P1	Millom	On-Call	On-Call	95%	94%	95%
C48P1	Walney	On-Call	On-Call	75%	73%	74%
C61P1	Ambleside	On-Call	On-Call	94%	95%	94%
C62P1	Appleby	On-Call	On-Call	91%	94%	93%
C63P1	Arnside	On-Call	On-Call	89%	84%	87%
C64P1	Kirkby Lonsdale	On-Call	On-Call	93%	92%	93%
C65P1	Kirkby Stephen	On-Call	On-Call	96%	94%	95%
C66P1	Milnthorpe	On-Call	On-Call	92%	96%	94%
C67P1	Sedbergh	On-Call	On-Call	98%	94%	96%
C68P1	Shap	On-Call	On-Call	84%	74%	79%
C69P1	Staveley	On-Call	On-Call	83%	76%	79%
C70P1	Windermere	On-Call	On-Call	98%	98%	98%

Day-Crewed Average	**100%**	**100%**	**100%**
1st On-Call Average e.g. P1	**88%**	**87%**	**88%**
2nd On-Call Average e.g. P2	**68%**	**73%**	**71%**
Overall Average	**86%**	**86%**	**86%**

Note: In addition to the above there is a Resilience Pump Stationed at Barrow

Pump Availability by Month
Current Crewing Requirments
2-Year Sample Period (October 2014 to September 2016)

Call Sign	Station	Station Type	Crew Type	Reporting Year																								Reporting Year		2-Year Average
				2014/15												2015/16														
				Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	2014/2015	2015/2016	
C27P1	Penrith	Day-Crewed/On-Call	Day-Crewed	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
C60P1	Kendal	Day-Crewed/On-Call	Day-Crewed	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
C27P2	Penrith	Day-Crewed/On-Call	On-Call	91%	94%	87%	94%	87%	92%	93%	92%	91%	78%	84%	83%	90%	94%	92%	97%	89%	95%	95%	97%	90%	90%	83%	90%	89%	92%	90%
C60P2	Kendal	Day-Crewed/On-Call	On-Call	99%	99%	99%	100%	100%	97%	96%	99%	97%	97%	96%	94%	95%	99%	94%	91%	90%	86%	95%	94%	93%	86%	79%	75%	98%	90%	94%
C01P2	Workington	Wholetime/On-Call	On-Call	78%	85%	72%	88%	81%	63%	71%	63%	55%	63%	66%	66%	74%	58%	57%	63%	79%	80%	84%	84%	81%	79%	76%	81%	71%	75%	73%
C02P2	Whitehaven	Wholetime/On-Call	On-Call	47%	43%	42%	51%	29%	36%	59%	53%	60%	42%	45%	89%	84%	91%	87%	66%	57%	56%	48%	46%	61%	62%	61%	63%	50%	65%	58%
C47P2	Ulverston	Wholetime/On-Call	On-Call	96%	94%	91%	96%	93%	95%	84%	83%	88%	91%	89%	89%	88%	85%	90%	98%	94%	85%	89%	90%	91%	88%	86%	95%	91%	90%	90%
C08P1	Maryport	2 On-Call	On-Call	98%	91%	90%	94%	95%	87%	97%	89%	95%	98%	89%	97%	91%	97%	97%	100%	100%	98%	97%	94%	99%	94%	79%	90%	93%	95%	94%
C08P2	Maryport	2 On-Call	On-Call	10%	3%	0%	0%	5%	2%	8%	9%	18%	17%	17%	23%	25%	41%	37%	46%	45%	41%	31%	23%	21%	26%	4%	18%	10%	30%	20%
C03P1	Aspatria	On-Call	On-Call	99%	92%	89%	94%	98%	93%	97%	92%	95%	98%	98%	98%	96%	97%	92%	98%	96%	97%	96%	95%	95%	97%	86%	97%	95%	95%	95%
C04P1	Cockermouth	On-Call	On-Call	97%	98%	96%	94%	98%	94%	98%	89%	89%	87%	87%	92%	96%	99%	90%	95%	84%	72%	86%	86%	84%	91%	71%	97%	93%	88%	90%
C05P1	Egremont	On-Call	On-Call	75%	71%	69%	78%	76%	77%	86%	79%	79%	78%	68%	64%	76%	91%	80%	75%	73%	72%	65%	63%	54%	77%	50%	80%	75%	71%	73%
C06P1	Frizington	On-Call	On-Call	86%	82%	77%	94%	90%	86%	91%	87%	88%	87%	85%	72%	87%	95%	82%	93%	92%	87%	86%	90%	82%	87%	79%	95%	86%	88%	87%
C07P1	Keswick	On-Call	On-Call	99%	100%	100%	99%	98%	100%	100%	100%	99%	100%	99%	100%	100%	99%	99%	99%	99%	95%	98%	99%	93%	96%	98%	92%	99%	97%	98%
C09P1	Seascale	On-Call	On-Call	93%	96%	94%	92%	91%	95%	95%	91%	88%	96%	86%	89%	94%	89%	93%	91%	93%	93%	80%	87%	74%	87%	74%	92%	92%	87%	90%
C10P1	Silloth	On-Call	On-Call	66%	74%	49%	60%	55%	59%	70%	51%	61%	62%	56%	45%	59%	58%	73%	78%	65%	41%	53%	64%	62%	70%	60%	67%	59%	63%	61%
C11P1	Wigton	On-Call	On-Call	71%	76%	60%	84%	79%	82%	82%	67%	71%	83%	62%	72%	72%	77%	70%	84%	83%	85%	86%	88%	95%	91%	84%	96%	74%	84%	79%
C22P1	Alston	On-Call	On-Call	93%	98%	99%	99%	99%	95%	97%	97%	98%	95%	97%	98%	98%	99%	99%	99%	100%	94%	95%	99%	100%	99%	95%	97%	97%	98%	97%
C23P1	Brampton	On-Call	On-Call	96%	97%	93%	99%	93%	93%	92%	97%	91%	94%	82%	95%	91%	96%	98%	97%	97%	83%	78%	95%	95%	97%	71%	95%	94%	91%	92%
C24P1	Lazonby	On-Call	On-Call	63%	57%	59%	66%	67%	63%	64%	60%	63%	77%	73%	61%	75%	82%	84%	78%	74%	76%	78%	68%	72%	72%	83%	82%	65%	77%	71%
C25P1	Longtown	On-Call	On-Call	79%	79%	81%	78%	80%	79%	85%	77%	73%	77%	63%	73%	79%	82%	91%	91%	89%	95%	89%	85%	85%	83%	79%	82%	77%	86%	81%
C26P1	Patterdale	On-Call	On-Call	92%	91%	94%	97%	94%	92%	99%	99%	97%	97%	99%	92%	89%	88%	82%	92%	86%	87%	73%	80%	82%	69%	77%	77%	95%	82%	89%
C41P1	Bootle	On-Call	On-Call	93%	92%	95%	97%	96%	88%	91%	80%	82%	86%	79%	87%	89%	91%	95%	92%	87%	89%	92%	91%	91%	87%	66%	75%	89%	87%	88%
C42P1	Broughton	On-Call	On-Call	90%	87%	89%	99%	98%	96%	96%	98%	98%	94%	96%	97%	99%	97%	100%	98%	95%	96%	93%	88%	98%	92%	98%	99%	95%	96%	96%
C43P1	Coniston	On-Call	On-Call	93%	87%	83%	94%	76%	87%	87%	80%	83%	86%	81%	66%	83%	89%	79%	84%	67%	80%	75%	68%	73%	70%	69%	49%	84%	74%	79%
C45P1	Grange	On-Call	On-Call	98%	97%	97%	97%	97%	91%	92%	88%	91%	83%	88%	96%	93%	99%	99%	99%	100%	100%	100%	99%	99%	99%	90%	100%	93%	98%	95%
C46P1	Millom	On-Call	On-Call	99%	100%	99%	100%	100%	98%	100%	95%	96%	84%	83%	93%	95%	93%	96%	98%	98%	100%	100%	79%	92%	94%	92%	94%	95%	94%	95%
C48P1	Walney	On-Call	On-Call	86%	79%	75%	74%	62%	77%	66%	68%	70%	73%	83%	84%	86%	85%	79%	71%	79%	67%	75%	64%	69%	71%	64%	65%	75%	73%	74%
C61P1	Ambleside	On-Call	On-Call	93%	91%	89%	98%	96%	95%	95%	95%	94%	91%	95%	93%	94%	96%	94%	94%	96%	96%	96%	97%	96%	95%	96%	92%	94%	95%	94%
C62P1	Appleby	On-Call	On-Call	92%	93%	90%	86%	88%	95%	93%	90%	94%	94%	90%	93%	91%	89%	90%	92%	89%	97%	96%	97%	94%	98%	95%	96%	91%	94%	93%
C63P1	Arnside	On-Call	On-Call	89%	90%	90%	91%	91%	92%	91%	89%	87%	83%	87%	88%	93%	95%	92%	93%	92%	86%	81%	76%	80%	80%	69%	74%	89%	84%	87%
C64P1	Kirkby Lonsdale	On-Call	On-Call	96%	97%	92%	95%	84%	97%	92%	90%	96%	91%	91%	94%	93%	91%	93%	81%	91%	91%	96%	99%	98%	98%	81%	96%	93%	92%	93%
C65P1	Kirkby Stephen	On-Call	On-Call	98%	98%	99%	100%	100%	96%	97%	97%	98%	94%	93%	89%	94%	93%	97%	98%	97%	95%	90%	91%	92%	93%	91%	92%	96%	94%	95%
C66P1	Milnthorpe	On-Call	On-Call	93%	93%	94%	98%	94%	86%	92%	88%	92%	89%	96%	87%	97%	100%	99%	99%	98%	98%	98%	96%	96%	96%	88%	90%	92%	96%	94%
C67P1	Sedbergh	On-Call	On-Call	100%	98%	99%	100%	100%	100%	99%	100%	98%	98%	92%	95%	94%	99%	97%	98%	95%	93%	93%	95%	95%	91%	92%	94%	98%	94%	96%
C68P1	Shap	On-Call	On-Call	94%	91%	90%	90%	94%	86%	90%	84%	83%	78%	62%	71%	77%	79%	77%	79%	63%	70%	87%	78%	82%	72%	51%	69%	84%	74%	79%
C69P1	Staveley	On-Call	On-Call	94%	94%	91%	96%	92%	91%	89%	80%	54%	78%	69%	68%	69%	75%	87%	79%	82%	79%	85%	71%	70%	77%	74%	65%	83%	76%	79%
C70P1	Windermere	On-Call	On-Call	98%	100%	94%	99%	99%	99%	99%	99%	98%	97%	94%	99%	98%	99%	99%	100%	99%	98%	98%	93%	99%	98%	97%	98%	98%	98%	98%
Day-Crewed Average				**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
1st On-Call Average e.g. P1				**90%**	**90%**	**87%**	**91%**	**89%**	**89%**	**91%**	**86%**	**87%**	**88%**	**84%**	**85%**	**88%**	**91%**	**90%**	**91%**	**89%**	**87%**	**87%**	**86%**	**86%**	**87%**	**80%**	**86%**	**88%**	**87%**	**88%**
2nd On-Call Average e.g. P2				**70%**	**70%**	**65%**	**71%**	**66%**	**64%**	**68%**	**67%**	**68%**	**65%**	**66%**	**74%**	**76%**	**78%**	**76%**	**77%**	**76%**	**74%**	**74%**	**72%**	**73%**	**72%**	**65%**	**70%**	**68%**	**73%**	**71%**
Overall Average				**88%**	**87%**	**84%**	**89%**	**86%**	**86%**	**88%**	**84%**	**84%**	**85%**	**82%**	**84%**	**87%**	**89%**	**88%**	**89%**	**87%**	**86%**	**86%**	**84%**	**85%**	**86%**	**79%**	**84%**	**86%**	**86%**	**86%**

Note: In addition to the above there is a Resilience Pump Stationed at Barrow

A3

Pump Availability by Hour

Current Crewing Requirements
2-Year Sample Period (October 2014 to September 2016)

Percentage Available

Call Sign	Station	Station Type	Crew Type	Hour																								Overall
				0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
C27P1	Penrith	Day-Crewed / On-Call	Day-Crewed	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
C60P1	Kendal	Day-Crewed / On-Call	Day-Crewed	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
C27P2	Penrith	Day-Crewed / On-Call	On-Call	94%	94%	94%	95%	95%	95%	92%	86%	68%	58%	97%	98%	98%	97%	98%	98%	99%	98%	73%	80%	86%	90%	92%	93%	90%
C60P2	Kendal	Day-Crewed / On-Call	On-Call	96%	96%	97%	97%	97%	94%	93%	71%	97%	95%	94%	92%	92%	91%	92%	95%	96%	97%	99%	100%	86%	92%	94%	95%	94%
C01P2	Workington	Wholetime / On-Call	On-Call	84%	84%	84%	84%	84%	77%	71%	71%	65%	72%	68%	65%	62%	57%	62%	64%	69%	62%	67%	74%	77%	78%	81%	82%	73%
C02P2	Whitehaven	Wholetime / On-Call	On-Call	83%	82%	82%	82%	73%	68%	61%	60%	52%	44%	39%	32%	31%	27%	29%	33%	43%	42%	54%	66%	68%	73%	75%	84%	58%
C47P2	Ulverston	Wholetime / On-Call	On-Call	98%	98%	98%	98%	98%	97%	97%	98%	86%	83%	82%	81%	77%	73%	74%	74%	79%	92%	96%	97%	97%	98%	98%	98%	90%
C08P1	Maryport	2 On-Call	On-Call	98%	99%	99%	98%	99%	98%	97%	95%	92%	91%	89%	89%	88%	87%	87%	87%	90%	92%	94%	97%	97%	97%	98%	98%	94%
C08P2	Maryport	2 On-Call	On-Call	39%	40%	39%	40%	38%	26%	12%	11%	7%	5%	3%	3%	2%	2%	2%	4%	6%	9%	18%	27%	31%	35%	38%	39%	20%
C03P1	Aspatria	On-Call	On-Call	98%	98%	98%	98%	98%	98%	98%	97%	96%	94%	93%	91%	90%	88%	89%	91%	91%	94%	95%	97%	97%	98%	98%	98%	95%
C04P1	Cockermouth	On-Call	On-Call	94%	94%	95%	95%	95%	94%	93%	92%	87%	84%	82%	81%	80%	83%	87%	91%	92%	93%	93%	91%	91%	93%	93%	93%	90%
C05P1	Egremont	On-Call	On-Call	81%	81%	81%	81%	80%	68%	68%	81%	80%	80%	79%	75%	71%	70%	67%	64%	66%	56%	56%	71%	74%	75%	76%	79%	73%
C06P1	Frizington	On-Call	On-Call	95%	96%	96%	96%	95%	90%	92%	93%	91%	90%	85%	80%	78%	73%	77%	78%	77%	66%	81%	88%	90%	91%	92%	92%	87%
C07P1	Keswick	On-Call	On-Call	99%	100%	100%	100%	100%	100%	100%	99%	96%	96%	97%	98%	97%	97%	97%	97%	97%	98%	98%	98%	99%	99%	100%	100%	98%
C09P1	Seascale	On-Call	On-Call	99%	99%	99%	99%	100%	100%	99%	93%	87%	83%	81%	78%	75%	74%	74%	72%	80%	85%	87%	95%	96%	98%	99%	99%	90%
C10P1	Silloth	On-Call	On-Call	77%	78%	78%	78%	78%	69%	76%	71%	48%	43%	39%	39%	31%	40%	41%	47%	48%	51%	64%	73%	68%	72%	74%	76%	61%
C11P1	Wigton	On-Call	On-Call	89%	89%	90%	90%	91%	91%	90%	86%	81%	76%	73%	74%	72%	67%	62%	65%	66%	70%	75%	78%	77%	80%	83%	85%	79%
C22P1	Alston	On-Call	On-Call	100%	100%	100%	100%	100%	100%	100%	100%	97%	96%	94%	94%	93%	93%	92%	92%	96%	96%	98%	99%	99%	99%	99%	99%	97%
C23P1	Brampton	On-Call	On-Call	98%	98%	98%	98%	98%	98%	98%	96%	92%	90%	89%	85%	82%	80%	80%	83%	86%	92%	92%	94%	94%	96%	96%	97%	92%
C24P1	Lazonby	On-Call	On-Call	97%	98%	98%	98%	98%	98%	92%	60%	34%	39%	41%	42%	42%	41%	41%	36%	37%	43%	87%	93%	94%	95%	96%	97%	71%
C25P1	Longtown	On-Call	On-Call	97%	97%	96%	96%	96%	96%	95%	78%	53%	49%	51%	55%	58%	62%	63%	68%	81%	91%	93%	94%	96%	97%	97%	97%	81%
C26P1	Patterdale	On-Call	On-Call	98%	99%	99%	99%	99%	98%	98%	98%	75%	74%	77%	75%	76%	77%	78%	73%	79%	89%	94%	93%	92%	94%	95%	97%	89%
C41P1	Bootle	On-Call	On-Call	99%	99%	99%	99%	99%	98%	94%	91%	83%	76%	72%	68%	70%	72%	72%	73%	85%	89%	92%	91%	94%	96%	97%	98%	88%
C42P1	Broughton	On-Call	On-Call	98%	98%	98%	98%	98%	99%	99%	99%	96%	88%	89%	86%	90%	90%	91%	93%	97%	99%	99%	99%	98%	97%	96%	97%	96%
C43P1	Coniston	On-Call	On-Call	95%	96%	96%	96%	96%	96%	96%	95%	91%	72%	57%	52%	51%	50%	52%	58%	65%	84%	81%	79%	77%	81%	85%	87%	79%
C45P1	Grange	On-Call	On-Call	99%	99%	99%	100%	100%	100%	100%	100%	93%	86%	87%	87%	94%	93%	93%	91%	91%	96%	96%	96%	97%	98%	98%	99%	95%
C46P1	Millom	On-Call	On-Call	98%	98%	98%	98%	98%	98%	97%	95%	93%	92%	93%	91%	91%	91%	92%	89%	89%	93%	94%	97%	97%	98%	98%	98%	95%
C48P1	Walney	On-Call	On-Call	88%	88%	88%	89%	87%	84%	91%	88%	69%	64%	60%	59%	61%	59%	57%	60%	58%	51%	71%	77%	79%	81%	83%	85%	74%
C61P1	Ambleside	On-Call	On-Call	98%	99%	99%	99%	99%	99%	99%	96%	68%	74%	89%	92%	92%	94%	95%	96%	98%	99%	97%	96%	96%	96%	97%	98%	94%
C62P1	Appleby	On-Call	On-Call	99%	99%	99%	99%	99%	99%	99%	98%	87%	86%	86%	84%	83%	82%	83%	82%	86%	90%	93%	96%	97%	98%	99%	99%	93%
C63P1	Arnside	On-Call	On-Call	99%	99%	99%	99%	99%	99%	96%	87%	79%	74%	66%	63%	58%	59%	67%	82%	79%	87%	96%	96%	97%	98%	99%	99%	87%
C64P1	Kirkby Lonsdale	On-Call	On-Call	95%	95%	96%	96%	96%	96%	98%	96%	94%	91%	90%	88%	87%	88%	86%	88%	93%	95%	94%	95%	92%	92%	92%	93%	93%
C65P1	Kirkby Stephen	On-Call	On-Call	99%	99%	99%	99%	99%	99%	99%	97%	90%	90%	91%	90%	90%	94%	94%	93%	92%	92%	92%	94%	95%	97%	98%	99%	95%
C66P1	Milnthorpe	On-Call	On-Call	99%	99%	99%	99%	99%	99%	98%	97%	91%	89%	85%	83%	84%	85%	85%	88%	94%	98%	98%	98%	98%	98%	99%	99%	94%
C67P1	Sedbergh	On-Call	On-Call	98%	98%	98%	98%	99%	99%	99%	100%	99%	97%	94%	90%	89%	91%	93%	94%	95%	96%	98%	98%	98%	97%	97%	97%	96%
C68P1	Shap	On-Call	On-Call	94%	94%	94%	95%	95%	94%	83%	71%	76%	69%	53%	52%	54%	53%	55%	60%	77%	82%	87%	89%	90%	90%	91%	92%	79%
C69P1	Staveley	On-Call	On-Call	95%	96%	96%	96%	97%	97%	95%	81%	66%	64%	61%	60%	60%	60%	61%	63%	67%	72%	73%	78%	85%	91%	94%	95%	79%
C70P1	Windermere	On-Call	On-Call	100%	100%	100%	100%	100%	100%	100%	99%	97%	97%	97%	97%	97%	97%	97%	97%	96%	95%	96%	96%	97%	99%	99%	99%	98%
Day-Crewed Average				100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1st On-Call Average e.g. P1				96%	96%	96%	96%	96%	95%	95%	91%	83%	80%	78%	77%	76%	76%	77%	78%	82%	84%	89%	91%	92%	93%	94%	95%	88%
2nd On-Call Average e.g. P2				82%	82%	82%	83%	81%	76%	71%	66%	62%	60%	64%	62%	60%	58%	59%	62%	65%	67%	68%	74%	74%	77%	80%	82%	71%
Overall Average				94%	94%	94%	94%	94%	92%	91%	87%	80%	78%	77%	75%	75%	75%	75%	77%	80%	82%	86%	89%	89%	91%	92%	93%	86%

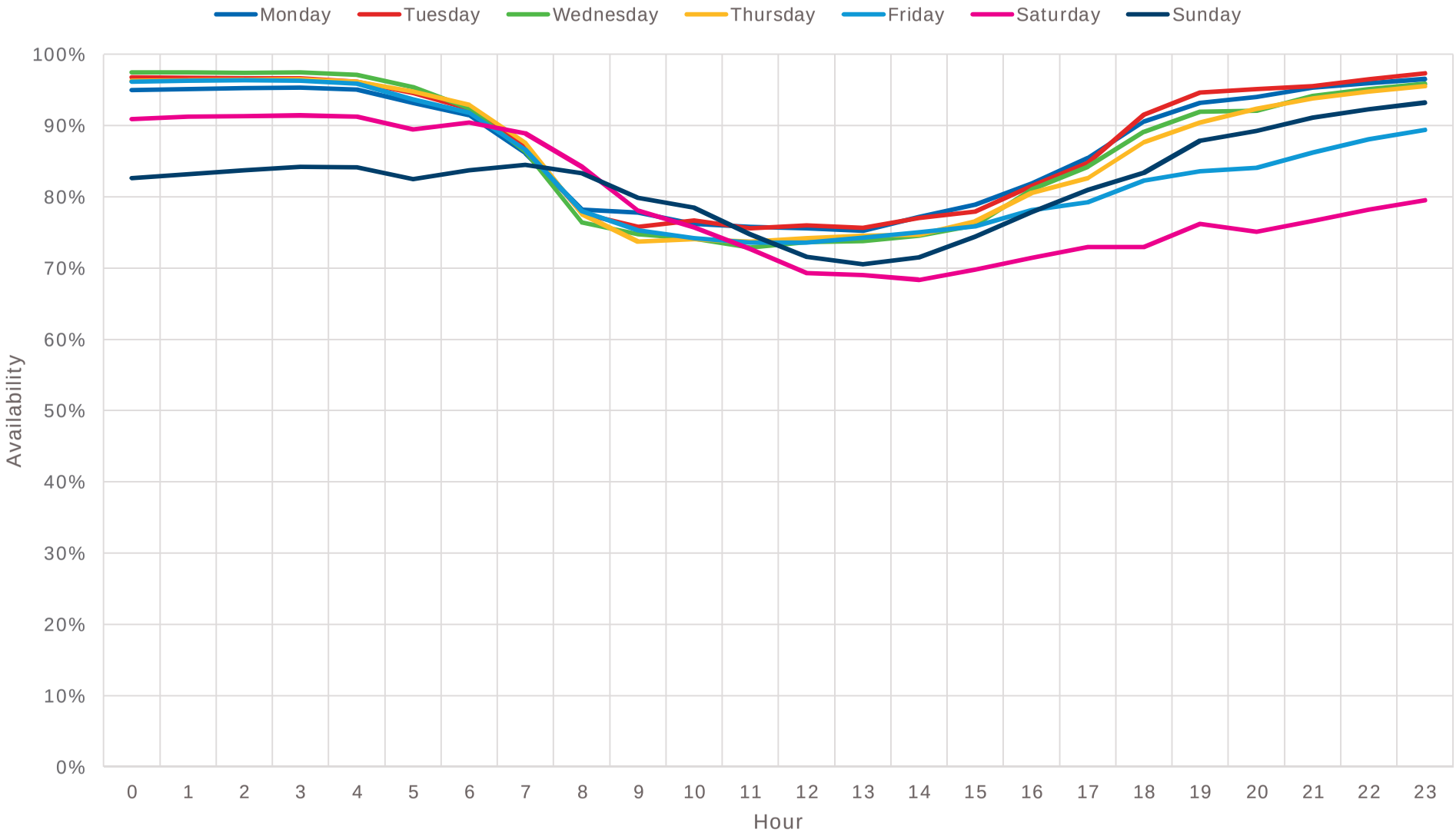
Note: In addition to the above there is a Resilience Pump Stationed at Barrow

A4a

Availability by Day and Hour

Current Crewing Requirements

2-Year Sample (October 2014 - September 2016)



A4b

B Current Service Demand

B1 Data Cleansing

B2 Annual Demand Trend (Five-Year Sample)

- **B2a** All Incidents
- **B2b** Fires
- **B2c** Special Service
- **B2d** False Alarms

B3 Demand by Month (Five-Year Sample)

B4 Demand by Day (Five-Year Sample)

B5 Demand by Hour (One-Year Sample

B6 Incidents by Mobilisation and Stop Code

Data Cleansing

5-Year Sample (October 2011 to September 2016)

Data Received

Reporting Year	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016	Total
Initial Records	11,852	10,646	10,238	8,914	9,753	51,403

Reporting Year	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016	Total
Records on Days of Industrial Action	0	43	905	169	0	1,117

Records missing essential time fields, or exceeding ORH call component cutoffs

Reporting Year	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016	Total
Time arrived at Scene missing	4,171	3,098	2,634	1,884	2,177	13,964
Reponse performance outside of ORH cutoffs (1hr)	465	149	177	404	308	1,503
Control activation time or Crew Turnout time missing or outside of ORH cutoffs (1hr)	1,160	153	127	195	212	1,847
Duplicate Record / Repeat Attendance	89	16	19	77	13	214

Vehicle and Geographic Exclusions

Reporting Year	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016	Total
Non-pump/Non Cumbria Mobilisations	831	1,642	1,504	1,322	1,545	6,844
Incident coordinates missing or outside of the service boundary	9	0	2	2	6	19

Final Incident Type Not in ORH Categories

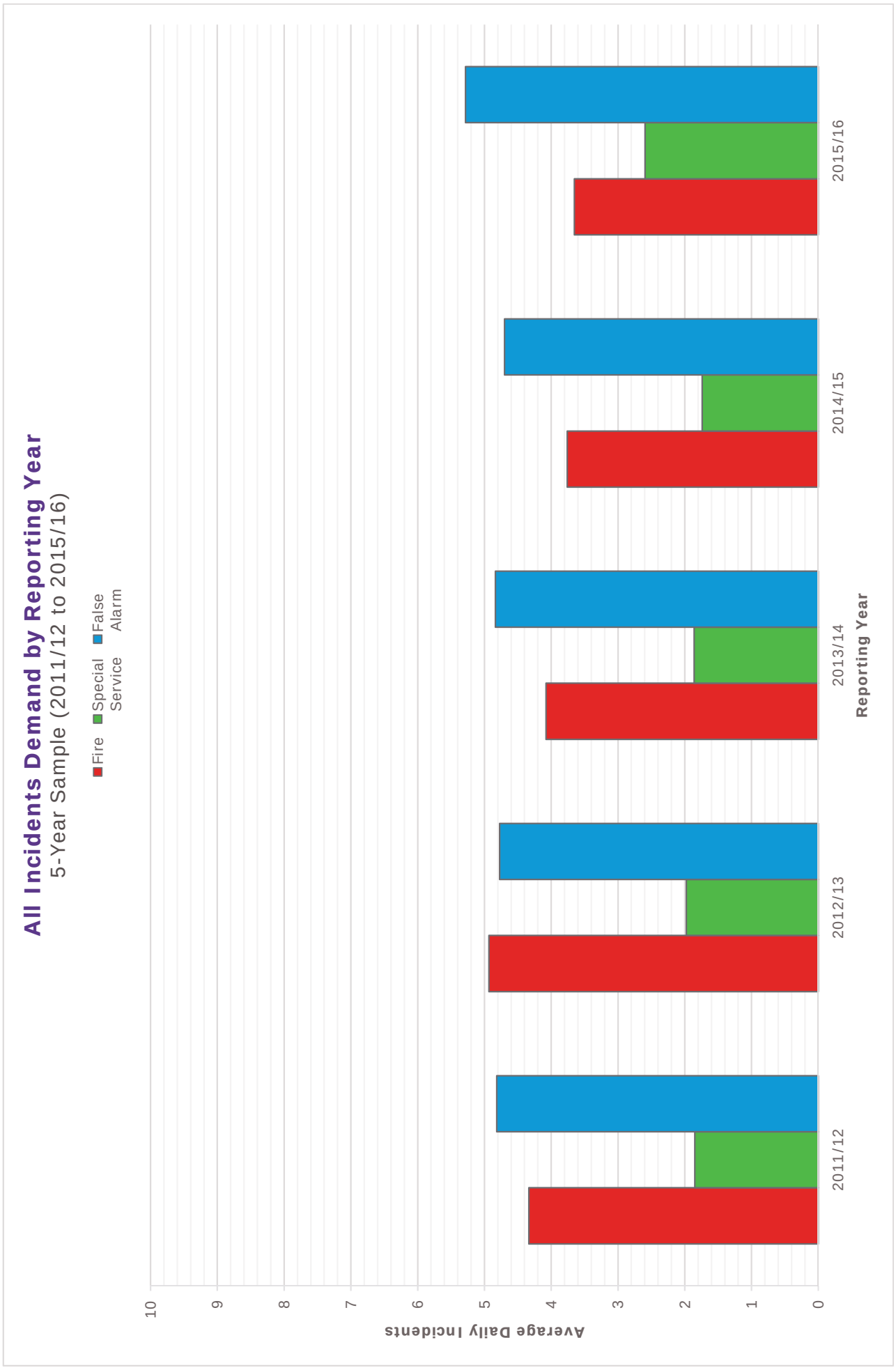
Reporting Year	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016	Total
Non attendance	0	0	29	15	4	48

Summary

Reporting Year	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016	Total
Total excluded records	6,725	5,101	5,397	4,068	4,265	25,556

Reporting Year	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016	Total
Mobilisations used in the analysis	5,127	5,545	4,841	4,846	5,488	25,847
(Total, Average Daily)	14.01	15.23	14.58	13.61	14.99	14.49
Incidents used in the analysis	4,026	4,251	3,577	3,631	4,221	19,706
(Total, Average Daily)	11.00	11.68	10.77	10.20	11.53	11.05

Note: Excludes records ouside of the sample period: 9588 records


All Incidents Demand by Reporting Year
5-Year Sample (2011/12 to 2015/16)
Fire
Special Service
False Alarm
Average Daily Incidents
0
1
2
3
4
5
6
7
8
9
10
2011/12
2012/13
2013/14
2014/15
2015/16
Reporting Year

Service Review

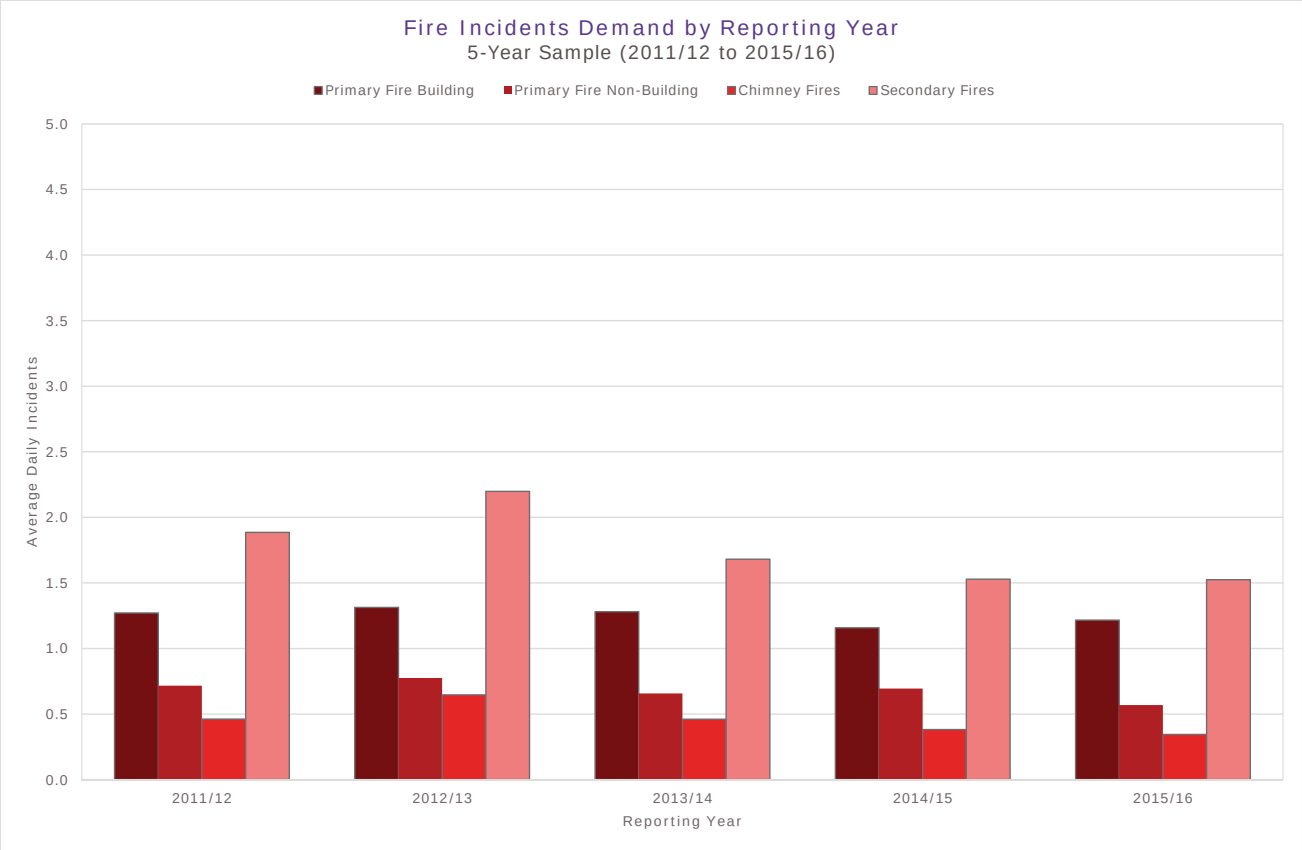
Incident Category Demand Profile for All Incidents

5-Year Sample (September 2011 to October 2016)

	Incident Category	Response Type	Reporting Year 2011/12	2012/13	2013/14	2014/15	2015/16	5-Year Average	2-Year Average
Average Daily Incidents	Fire	1-Appliance	3.2	3.5	2.7	2.5	2.4	2.9	2.4
		2+ Appliance	1.1	1.4	1.3	1.3	1.3	1.3	1.3
		Total	**4.3**	**4.9**	**4.1**	**3.8**	**3.7**	**4.2**	**3.7**
	Special Service	1-Appliance	1.2	1.3	1.1	1.0	1.9	1.3	1.4
		2+ Appliance	0.7	0.6	0.8	0.7	0.7	0.7	0.7
		Total	**1.8**	**2.0**	**1.9**	**1.7**	**2.6**	**2.0**	**2.2**
	False Alarm	1-Appliance	4.0	3.8	3.6	3.7	4.4	3.9	4.0
		2+ Appliance	0.8	1.0	1.2	1.0	0.9	1.0	0.9
		Total	**4.8**	**4.8**	**4.8**	**4.7**	**5.3**	**4.9**	**5.0**
Average Daily Incidents	All Incidents	1-Appliance	8.4	8.6	7.5	7.2	8.6	8.1	7.9
		2+ Appliance	2.6	3.0	3.3	3.0	2.9	3.0	3.0
		Total	**11.0**	**11.7**	**10.8**	**10.2**	**11.5**	**11.0**	**10.9**

	Incident Category	Response Type	Reporting Year 2011/12	2012/13	2013/14	2014/15	2015/16	5-Year Average	2-Year Average
Proportion of Incidents	Fire	1-Appliance	29.1%	30.3%	25.4%	24.1%	20.5%	25.9%	22.2%
		2+ Appliance	10.3%	11.9%	12.5%	12.8%	11.2%	11.7%	11.9%
		Total	**39.4%**	**42.2%**	**37.9%**	**36.9%**	**31.7%**	**37.6%**	**34.1%**
	Special Service	1-Appliance	10.6%	11.4%	10.2%	10.2%	16.2%	11.8%	13.3%
		2+ Appliance	6.2%	5.5%	7.1%	6.9%	6.3%	6.4%	6.6%
		Total	**16.8%**	**16.9%**	**17.2%**	**17.0%**	**22.5%**	**18.2%**	**19.9%**
	False Alarm	1-Appliance	36.7%	32.3%	33.8%	36.5%	38.0%	35.4%	37.3%
		2+ Appliance	7.1%	8.6%	11.1%	9.6%	7.9%	8.8%	8.7%
		Total	**43.8%**	**40.9%**	**44.9%**	**46.1%**	**45.8%**	**44.2%**	**45.9%**
Proportion of Incidents	All Incidents	1-Appliance	76.5%	74.0%	69.3%	70.8%	74.6%	73.1%	72.8%
		2+ Appliance	23.5%	26.0%	30.7%	29.2%	25.4%	26.9%	27.2%
		Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Note: Responses on days of industrial action have been excluded



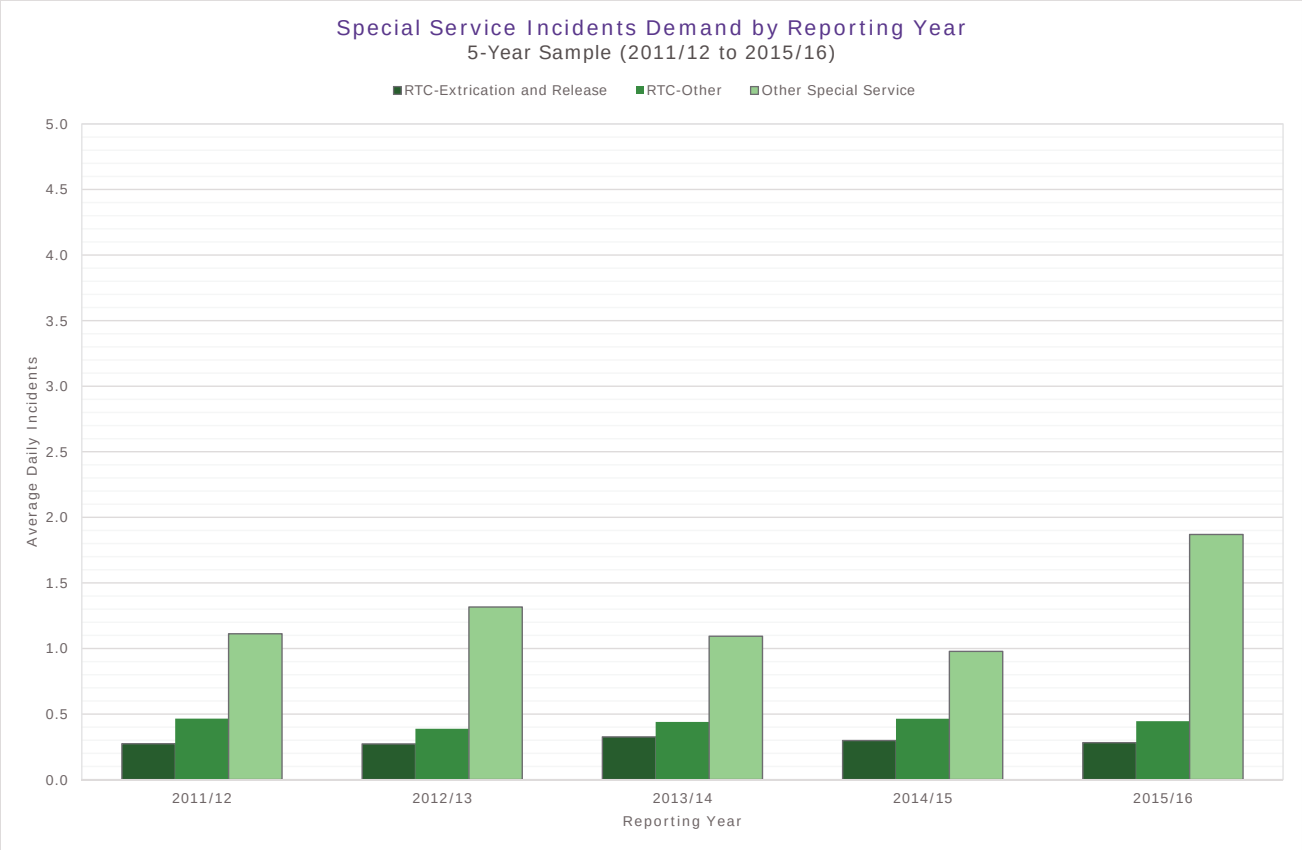
Incident Category Demand Profile for Fire Incidents

5-Year Sample (September 2011 to October 2016)

	Incident Category	Response Type	Reporting Year 2011/12	2012/13	2013/14	2014/15	2015/16	5-Year Average	2-Year Average
Average Daily Incidents	Primary Fire Building	1-Appliance	0.4	0.4	0.3	0.3	0.3	0.4	0.3
		2+ Appliance	0.8	1.0	1.0	0.8	0.9	0.9	0.9
		Total	1.3	1.3	1.3	1.2	1.2	1.2	1.2
	Primary Fire Non-Building	1-Appliance	0.6	0.5	0.5	0.4	0.4	0.5	0.4
		2+ Appliance	0.2	0.3	0.2	0.3	0.2	0.2	0.2
		Total	0.7	0.8	0.7	0.7	0.6	0.7	0.6
	Chimney Fires	1-Appliance	0.4	0.6	0.4	0.3	0.3	0.4	0.3
		2+ Appliance	0.0	0.1	0.1	0.0	0.0	0.1	0.0
		Total	0.5	0.6	0.5	0.4	0.3	0.5	0.4
	Secondary Fires	1-Appliance	1.8	2.1	1.6	1.4	1.3	1.6	1.4
		2+ Appliance	0.1	0.1	0.1	0.1	0.2	0.1	0.2
		Total	1.9	2.2	1.7	1.5	1.5	1.8	1.5
Average Daily Incidents	All Fires	1-Appliance	3.2	3.5	2.7	2.5	2.4	2.9	2.4
		2+ Appliance	1.1	1.4	1.3	1.3	1.3	1.3	1.3
		Total	4.3	4.9	4.1	3.8	3.7	4.2	3.7

	Incident Category	Response Type	Reporting Year 2011/12	2012/13	2013/14	2014/15	2015/16	5-Year Average	2-Year Average
Proportion of Incidents	Primary Fire Building	1-Appliance	9.9%	7.1%	8.0%	8.7%	9.3%	8.5%	9.0%
		2+ Appliance	19.4%	19.5%	23.4%	22.1%	24.0%	21.5%	23.0%
		Total	29.3%	26.6%	31.4%	30.8%	33.3%	30.0%	32.0%
	Primary Fire Non-Building	1-Appliance	12.7%	10.6%	11.2%	11.0%	11.1%	11.3%	11.0%
		2+ Appliance	3.8%	5.1%	4.9%	7.5%	4.5%	5.1%	6.0%
		Total	16.5%	15.7%	16.1%	18.4%	15.6%	16.4%	17.0%
	Chimney Fires	1-Appliance	9.9%	11.6%	9.5%	9.0%	8.1%	9.7%	8.5%
		2+ Appliance	0.8%	1.4%	1.8%	1.2%	1.3%	1.3%	1.3%
		Total	10.7%	13.1%	11.3%	10.2%	9.4%	11.1%	9.8%
	Secondary Fires	1-Appliance	41.4%	42.4%	38.4%	36.8%	36.3%	39.3%	36.6%
		2+ Appliance	2.1%	2.2%	2.8%	3.8%	5.5%	3.2%	4.6%
		Total	43.5%	44.6%	41.2%	40.6%	41.7%	42.5%	41.2%
Proportion of Incidents	All Fires	1-Appliance	73.9%	71.8%	67.0%	65.4%	64.7%	68.9%	65.1%
		2+ Appliance	26.1%	28.2%	33.0%	34.6%	35.3%	31.1%	34.9%
		Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Note: Responses on days of industrial action have been excluded



Incident Category Demand Profile for Special Service Incidents

5-Year Sample (September 2011 to October 2016)

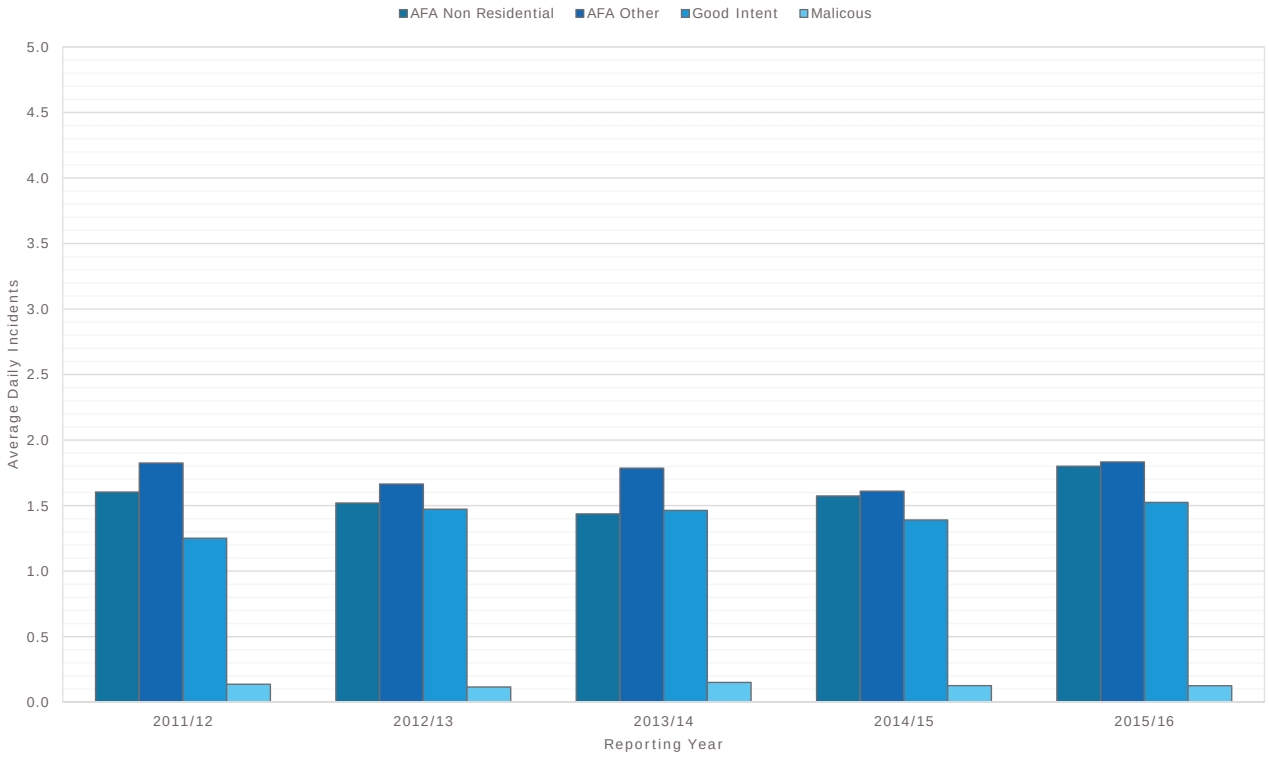
	Incident Category	Response Type	Reporting Year 2011/12	2012/13	2013/14	2014/15	2015/16	5-Year Average	2-Year Average
Average Daily Incidents	RTC-Extrication and Release	1-Appliance	0.04	0.04	0.02	0.03	0.02	0.03	0.03
		2+ Appliance	0.24	0.24	0.31	0.27	0.26	0.26	0.26
		Total	0.27	0.27	0.33	0.30	0.28	0.29	0.29
	RTC-Other	1-Appliance	0.24	0.23	0.24	0.29	0.27	0.25	0.28
		2+ Appliance	0.22	0.16	0.20	0.17	0.18	0.19	0.18
		Total	0.46	0.39	0.44	0.46	0.45	0.44	0.45
	Other Special Service	1-Appliance	0.89	1.07	0.84	0.72	1.57	1.02	1.15
		2+ Appliance	0.22	0.24	0.26	0.26	0.30	0.26	0.28
		Total	1.11	1.32	1.09	0.98	1.87	1.27	1.42
Average Daily Incidents	All Special Service	1-Appliance	1.17	1.34	1.10	1.04	1.86	1.30	1.45
		2+ Appliance	0.68	0.64	0.76	0.70	0.73	0.70	0.72
		Total	1.85	1.98	1.86	1.74	2.60	2.00	2.17

	Incident Category	Response Type	Reporting Year 2011/12	2012/13	2013/14	2014/15	2015/16	5-Year Average	2-Year Average
Proportion of Incidents	RTC-Extrication and Release	1-Appliance	1.9%	1.8%	0.8%	1.8%	0.8%	1.4%	1.2%
		2+ Appliance	12.9%	12.0%	16.7%	15.3%	10.0%	13.1%	12.1%
		Total	14.8%	13.8%	17.5%	17.1%	10.8%	14.5%	13.4%
	RTC-Other	1-Appliance	13.0%	11.5%	13.1%	16.6%	10.3%	12.7%	12.9%
		2+ Appliance	12.1%	8.1%	10.5%	10.0%	6.8%	9.3%	8.1%
		Total	25.1%	19.6%	23.7%	26.7%	17.2%	22.0%	21.0%
	Other Special Service	1-Appliance	48.3%	54.2%	45.1%	41.2%	60.6%	50.8%	52.8%
		2+ Appliance	11.8%	12.4%	13.8%	15.0%	11.4%	12.7%	12.8%
		Total	60.1%	66.6%	58.8%	56.2%	72.0%	63.6%	65.7%
Proportion of Incidents	All Special Service	1-Appliance	63.2%	67.6%	59.0%	59.6%	71.8%	64.9%	66.9%
		2+ Appliance	36.8%	32.4%	41.0%	40.4%	28.2%	35.1%	33.1%
		Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Note: Responses on days of industrial action have been excluded

False Alarm Incidents Demand by Reporting Year

5-Year Sample (October 2011 to September 2016)



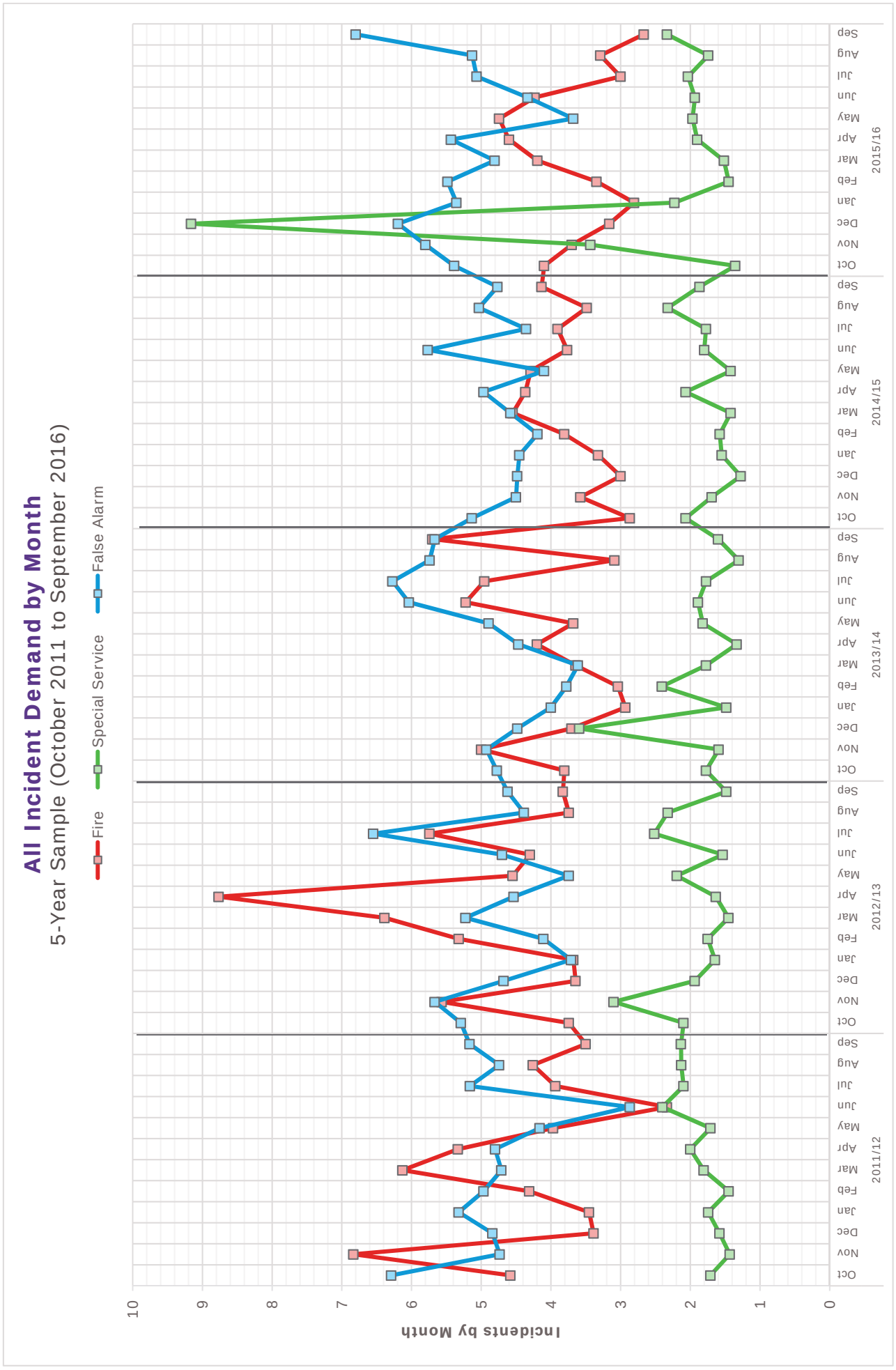
Incident Category Demand Profile for False Alarm Incidents

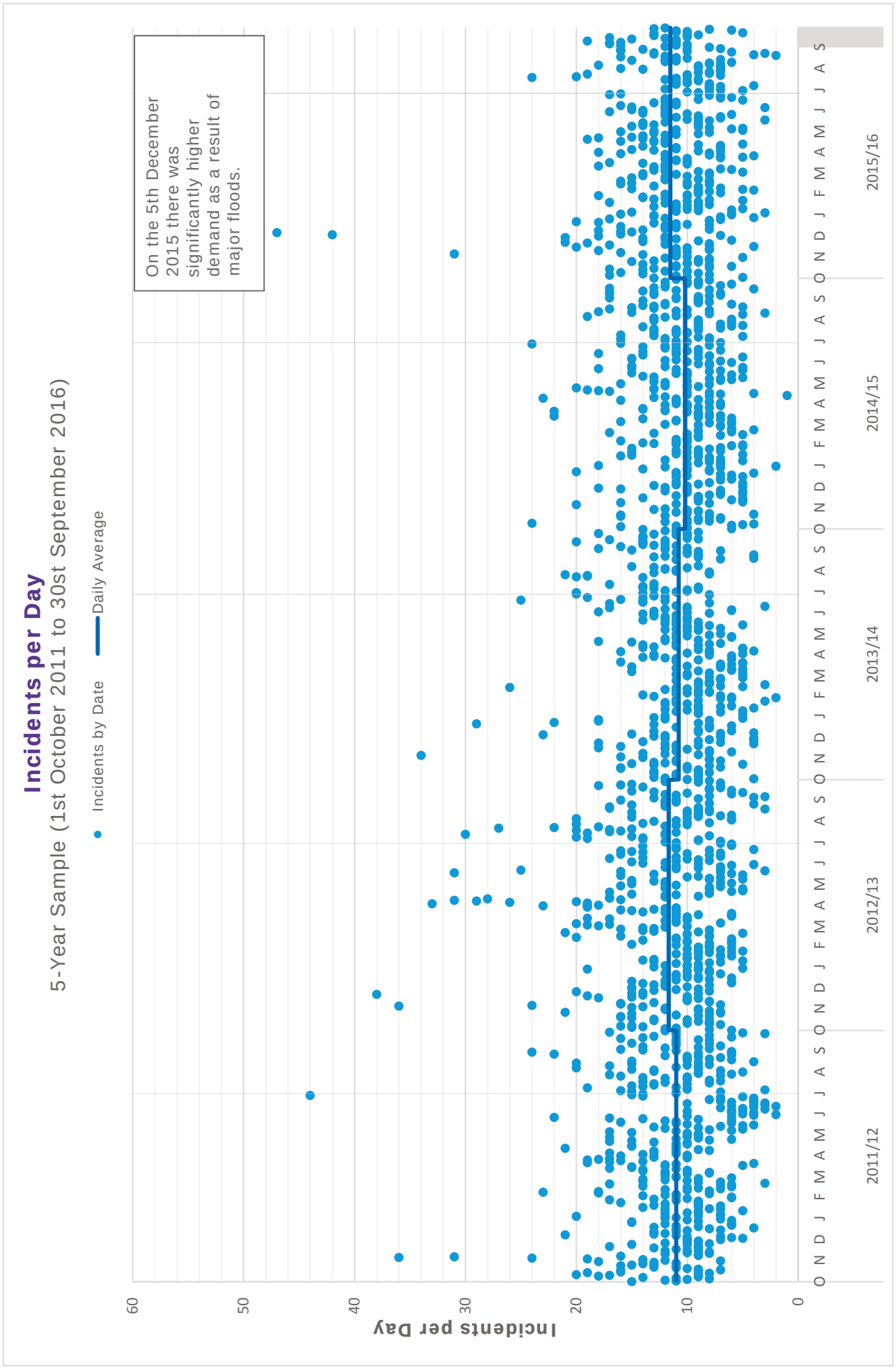
5-Year Sample (September 2011 to October 2016)

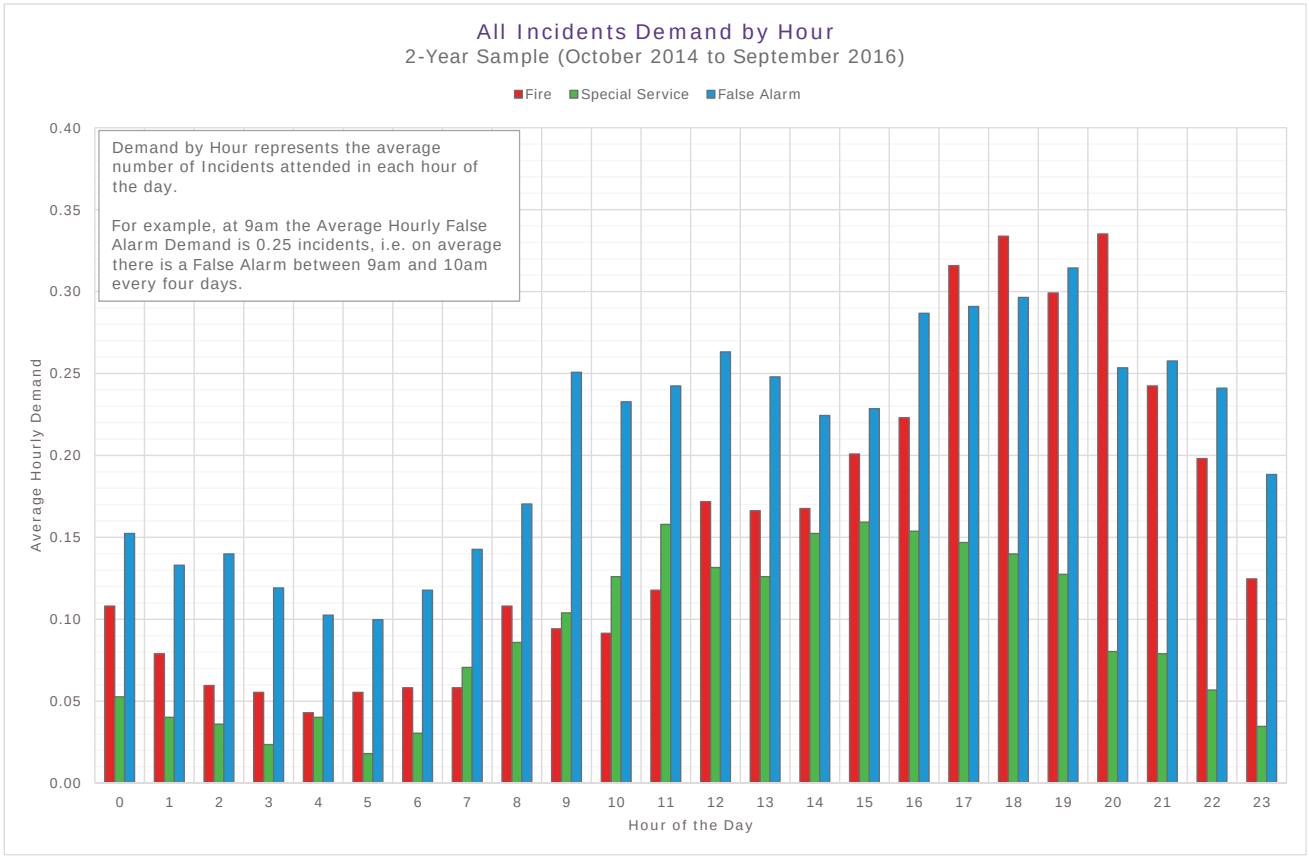
	Incident Category	Response Type	Reporting Year 2011/12	2012/13	2013/14	2014/15	2015/16	5-Year Average	2-Year Average
Average Daily Incidents	AFA Non Residential	1-Appliance	1.4	1.4	1.1	1.4	1.6	1.4	1.5
		2+ Appliance	0.2	0.2	0.4	0.2	0.2	0.2	0.2
		Total	1.6	1.5	1.4	1.6	1.8	1.6	1.7
	AFA Other	1-Appliance	1.5	1.2	1.3	1.2	1.5	1.4	1.3
		2+ Appliance	0.3	0.4	0.5	0.4	0.3	0.4	0.4
		Total	1.8	1.7	1.8	1.6	1.8	1.7	1.7
	Good Intent	1-Appliance	1.0	1.1	1.1	1.0	1.1	1.1	1.1
		2+ Appliance	0.3	0.4	0.3	0.3	0.4	0.3	0.4
		Total	1.3	1.5	1.5	1.4	1.5	1.4	1.5
	Malicous	1-Appliance	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		2+ Appliance	0.1	0.0	0.0	0.0	0.0	0.0	0.0
		Total	0.1	0.1	0.2	0.1	0.1	0.1	0.1
Average Daily Incidents	All False Alarms	1-Appliance	4.0	3.8	3.6	3.7	4.4	3.9	4.0
		2+ Appliance	0.8	1.0	1.2	1.0	0.9	1.0	0.9
		Total	4.8	4.8	4.8	4.7	5.3	4.9	5.0

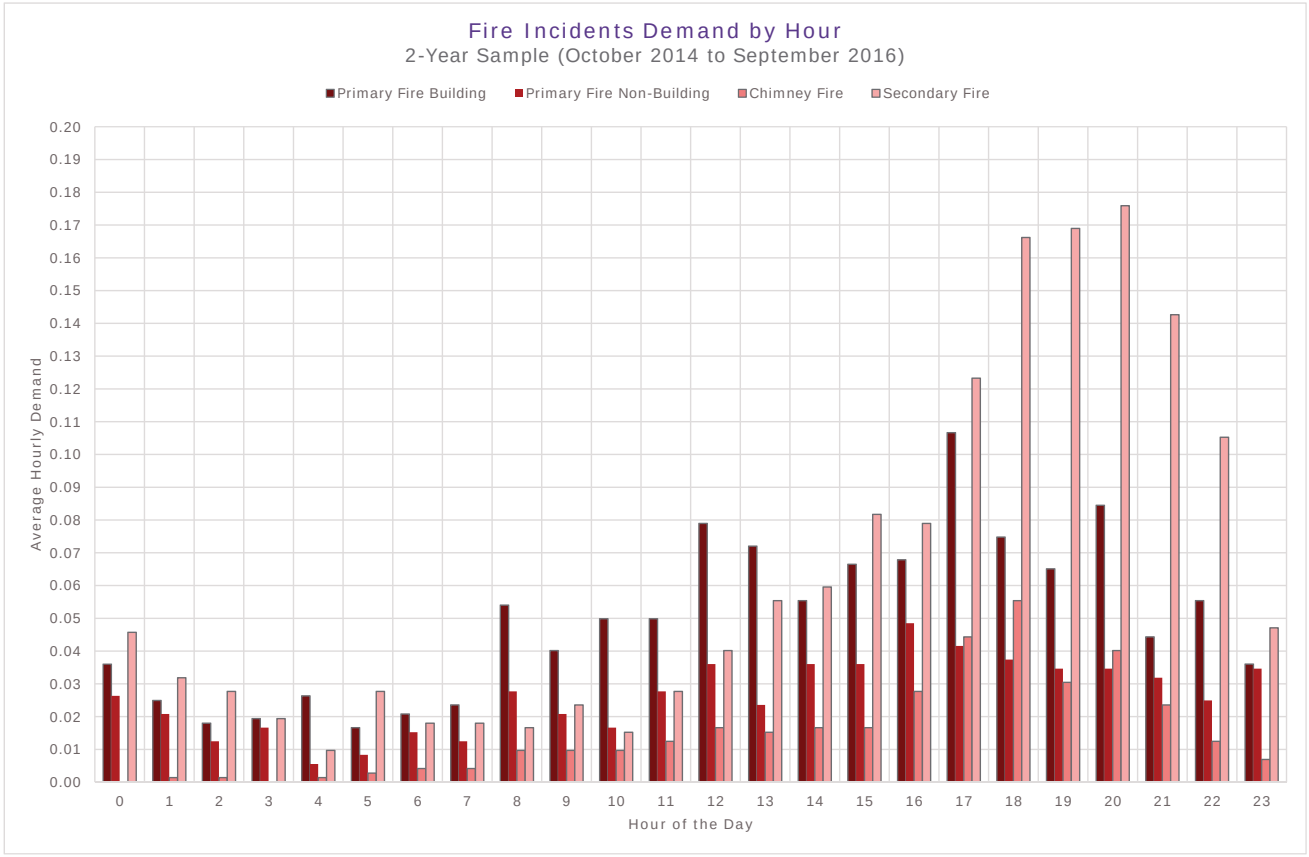
	Incident Category	Response Type	Reporting Year 2011/12	2012/13	2013/14	2014/15	2015/16	5-Year Average	2-Year Average
Proportion of Incidents	AFA Non Residential	1-Appliance	29.7%	28.4%	22.4%	30.1%	30.7%	28.3%	30.4%
		2+ Appliance	3.6%	3.4%	7.3%	3.4%	3.4%	4.2%	3.4%
		Total	33.3%	31.8%	29.7%	33.5%	34.1%	32.5%	33.8%
	AFA Other	1-Appliance	31.9%	25.9%	27.3%	25.2%	28.7%	27.8%	27.0%
		2+ Appliance	6.0%	9.0%	9.6%	9.1%	6.0%	7.9%	7.5%
		Total	37.9%	34.9%	36.9%	34.2%	34.7%	35.7%	34.5%
	Good Intent	1-Appliance	20.6%	23.1%	23.3%	22.2%	21.4%	22.1%	21.7%
		2+ Appliance	5.4%	7.8%	7.0%	7.4%	7.5%	7.0%	7.5%
		Total	26.0%	30.9%	30.3%	29.6%	28.9%	29.1%	29.2%
	Malicous	1-Appliance	1.7%	1.5%	2.2%	1.8%	2.1%	1.9%	1.9%
		2+ Appliance	1.1%	0.9%	0.9%	0.9%	0.3%	0.8%	0.6%
		Total	2.8%	2.4%	3.1%	2.7%	2.4%	2.7%	2.5%
Proportion of Incidents	All False Alarms	1-Appliance	83.9%	78.9%	75.2%	79.2%	82.8%	80.1%	81.1%
		2+ Appliance	16.1%	21.1%	24.8%	20.8%	17.2%	19.9%	18.9%
		Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

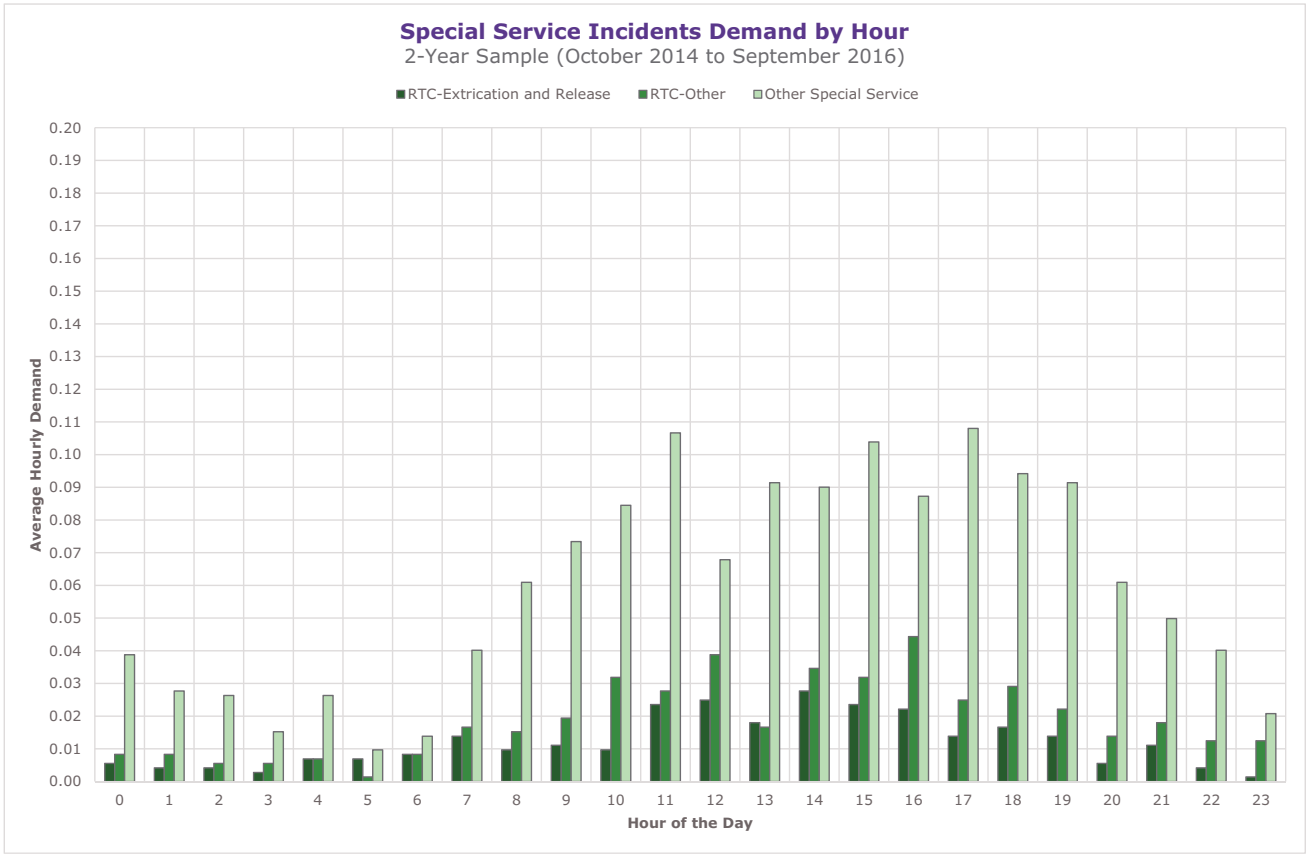
Note: Responses on days of industrial action have been excluded

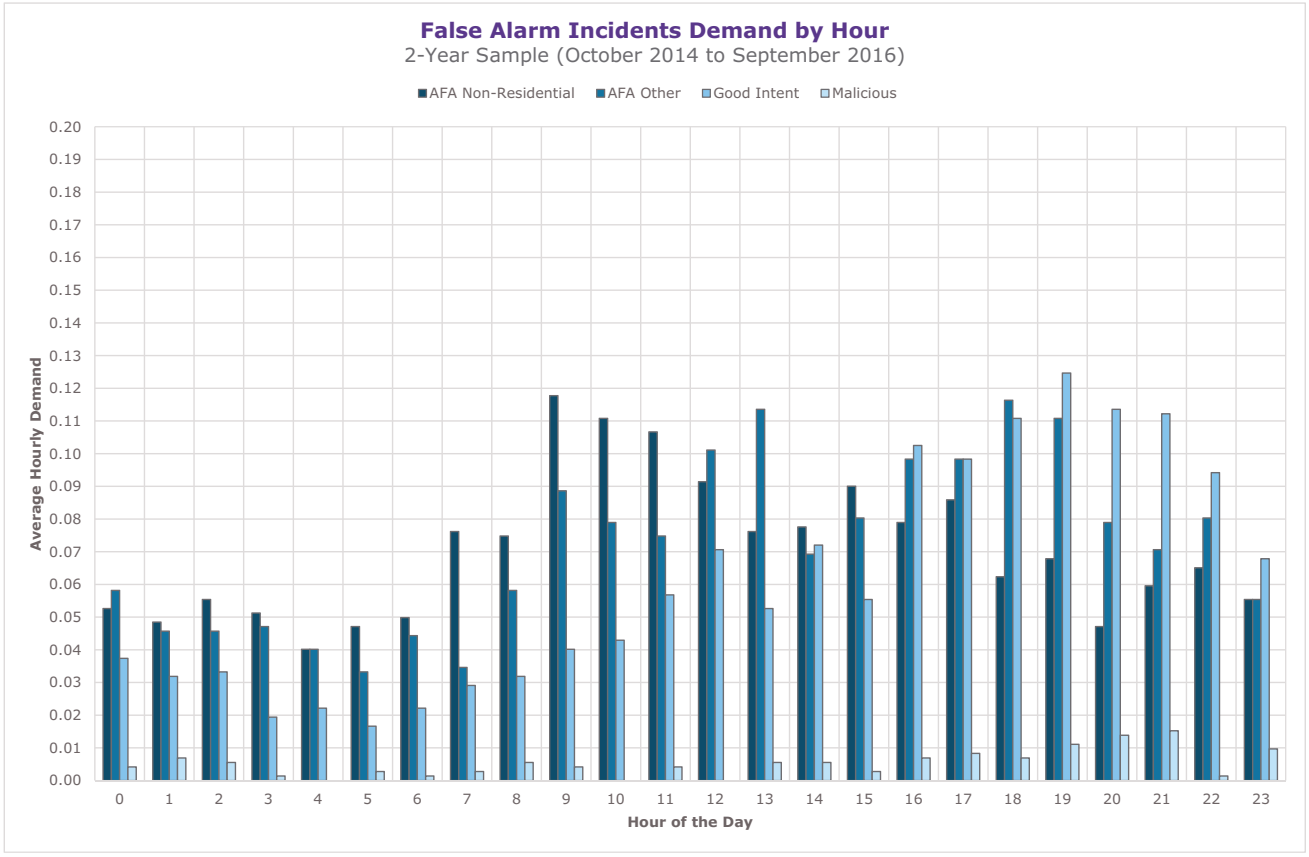

All Incident Demand by Month
5-Year Sample (October 2011 to September 2016)
Fire
Special Service
False Alarm
Incidents by Month
0
1
2
3
4
5
6
7
8
9
10
2011/12
2012/13
2013/14
2014/15
2015/16
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep


Incidents per Day
5-Year Sample (1st October 2011 to 30st September 2016)
Incidents by Date
Daily Average
On the 5th December 2015 there was significantly higher demand as a result of major floods.
Incidents per Day
60
50
40
30
20
10
0
O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S
2011/12
2012/13
2013/14
2014/15
2015/16


All Incidents Demand by Hour
2-Year Sample (October 2014 to September 2016)
Fire
Special Service
False Alarm
Demand by Hour represents the average number of Incidents attended in each hour of the day.
For example, at 9am the Average Hourly False Alarm Demand is 0.25 incidents, i.e. on average there is a False Alarm between 9am and 10am every four days.
Average Hourly Demand
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hour of the Day


Fire Incidents Demand by Hour
2-Year Sample (October 2014 to September 2016)
Primary Fire Building
Primary Fire Non-Building
Chimney Fire
Secondary Fire
Average Hourly Demand
0.00
0.01
0.02
0.03
0.04
0.05
0.06
0.07
0.08
0.09
0.10
0.11
0.12
0.13
0.14
0.15
0.16
0.17
0.18
0.19
0.20
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hour of the Day


Special Service Incidents Demand by Hour
2-Year Sample (October 2014 to September 2016)
RTC-Extrication and Release
RTC-Other
Other Special Service
Average Hourly Demand
0.20
0.19
0.18
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hour of the Day


False Alarm Incidents Demand by Hour
2-Year Sample (October 2014 to September 2016)
AFA Non-Residential
AFA Other
Good Intent
Malicious
Average Hourly Demand
0.20
0.19
0.18
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hour of the Day

Incidents by Mobilised and Final Incident Type

5-Year Sample (October 2011 to September 2016)

Number of Incidents

Mobilised Incident Type	Final Incident Type			Total
	Fire	Special Service	False Alarm	
Alarms	237	40	6,182	6,459
Fire	7,166	134	2,363	9,663
Hazardous Material	4	209	79	292
Humanitarian or Assistance	-	1,292	27	1,319
Rescue	4	1,907	62	1,973
Total	**7,411**	**3,582**	**8,713**	**19,706**

Proportion of Incidents by Mobilised Incident type

Mobilised Incident Type	Final Incident Type			Total
	Fire	Special Service	False Alarm	
Alarms	3.7%	0.6%	95.7%	100.0%
Fire	74.2%	1.4%	24.5%	100.0%
Hazardous Material	1.4%	71.6%	27.1%	100.0%
Humanitarian or Assistance	0.0%	98.0%	2.0%	100.0%
Rescue	0.2%	96.7%	3.1%	100.0%
Total	**37.6%**	**18.2%**	**44.2%**	**100.0%**

Proportion of Incidents by Final Incident Type

Mobilised Incident Type	Final Incident Type			Total
	Fire	Special Service	False Alarm	
Alarms	3.2%	1.1%	71.0%	32.8%
Fire	96.7%	3.7%	27.1%	49.0%
Hazardous Material	0.1%	5.8%	0.9%	1.5%
Humanitarian or Assistance	0.0%	36.1%	0.3%	6.7%
Rescue	0.1%	53.2%	0.7%	10.0%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Note: Responses on days of industrial action have been excluded

C Geographical Location Analysis

C1 Geographical Distribution of Incidents

- **C1a** All Incidents
- **C1b** Fires
- **C1c** Special Service
- **C1d** False Alarm

C2 Incident Locations by Year

C3 Incident Trends by District

C4 Responses by Callsign

- **C4a** By Reporting Year
- **C4b** By Incident Category

C5 Geographical Distribution of Responses by Callsign

- **C5a** Wholetime and Day-Crewed Pumps
- **C5b** On-Call Pumps

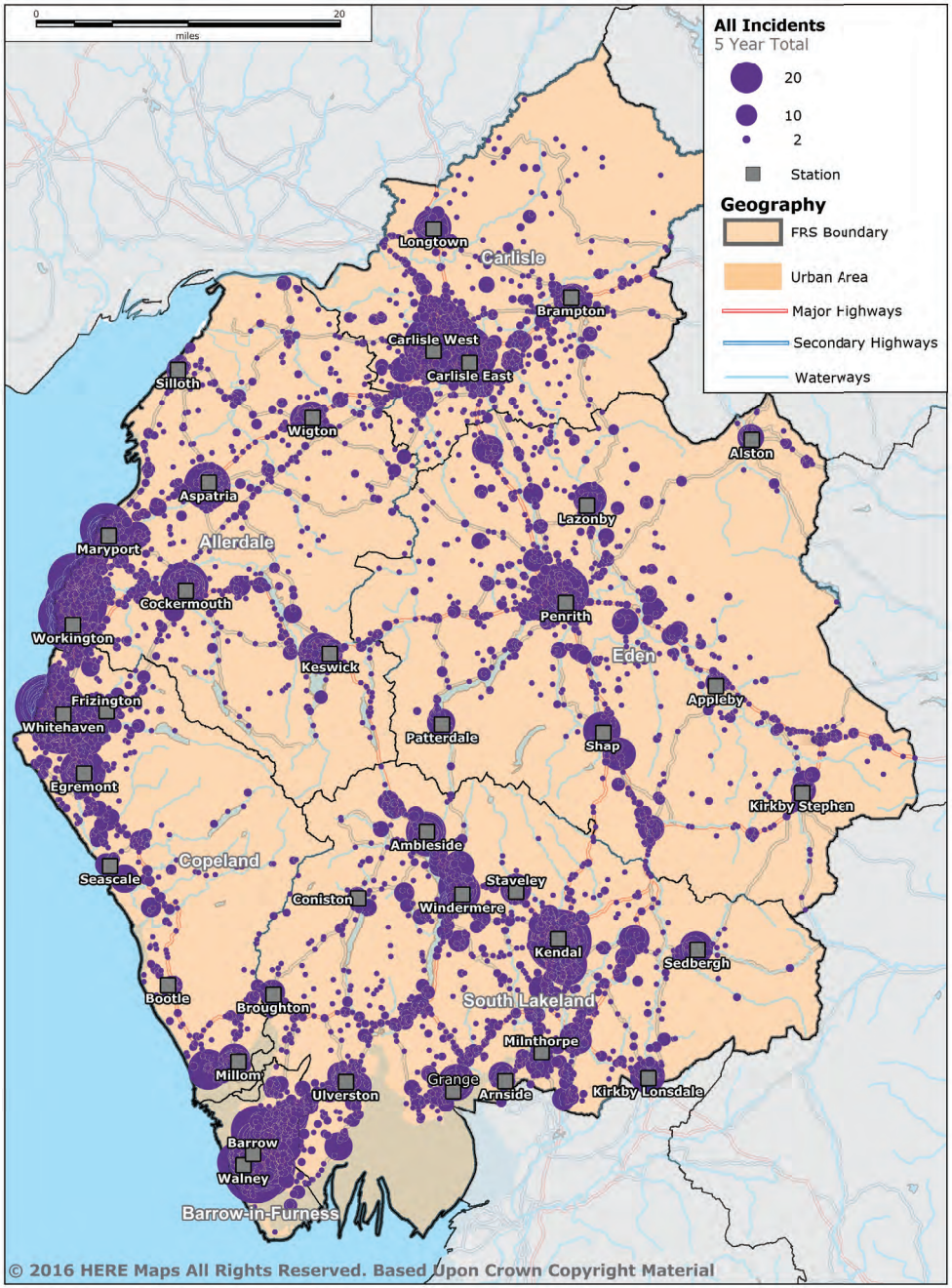
C6 Responses by Station Catchment

- **C6a Station Catchment Map**
- **C6b Responses by Station**

C7 Pump Response Combination By Incident Type

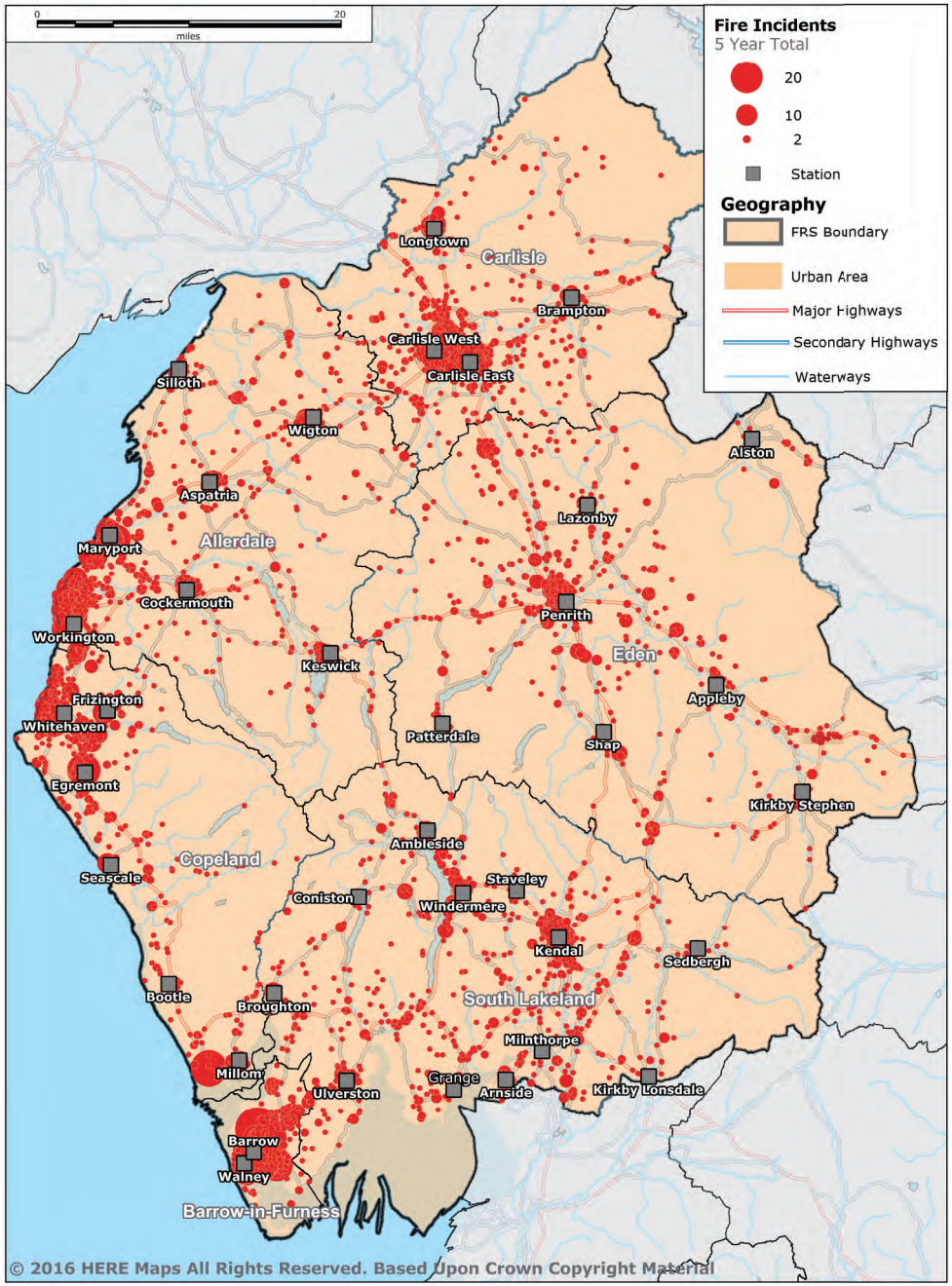
Geographical Location of All Incidents

5-Year Sample (October 2011 to September 2016)



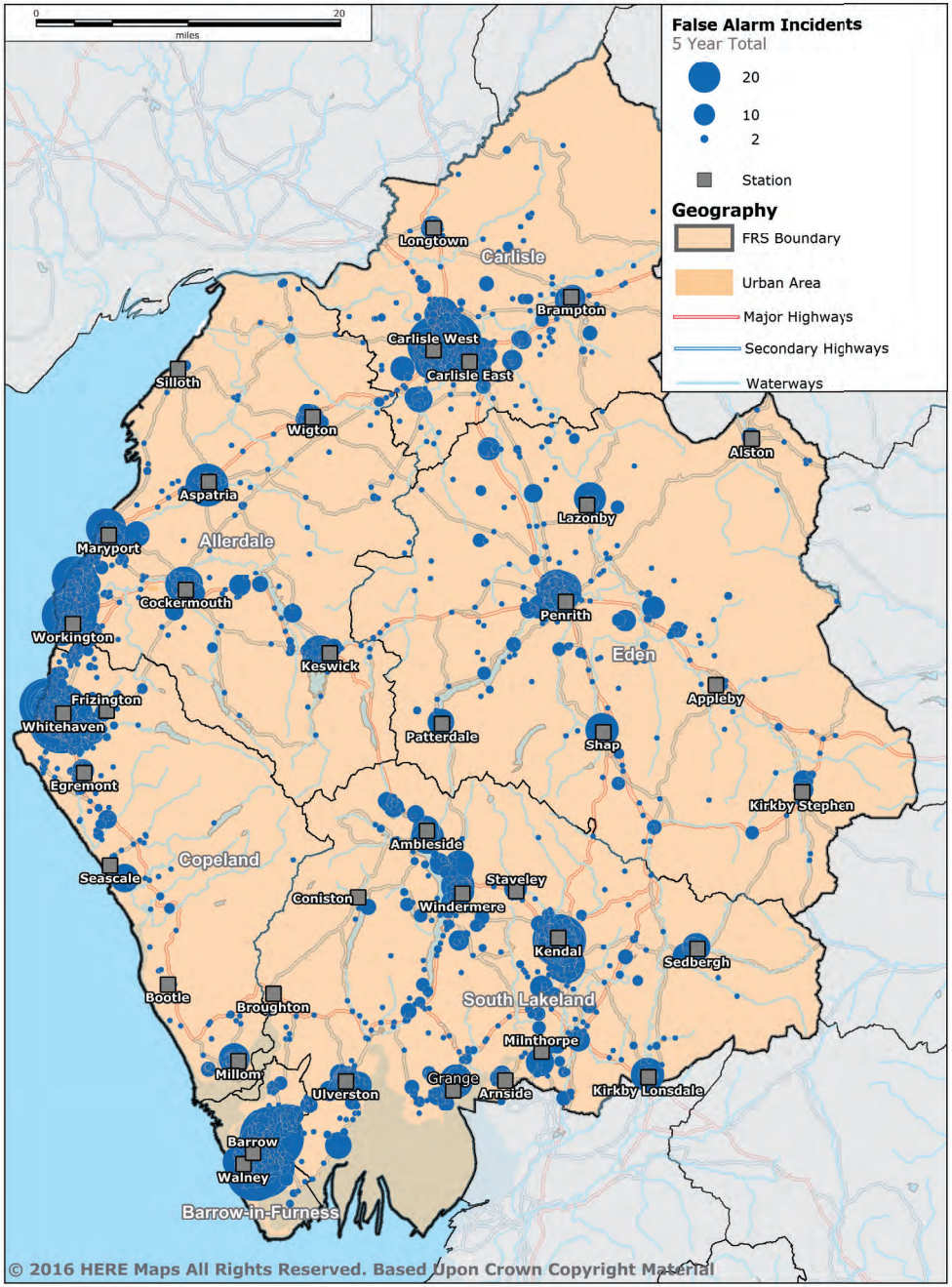
Geographical Location of Fire Incidents

5-Year Sample (October 2011 to September 2016)



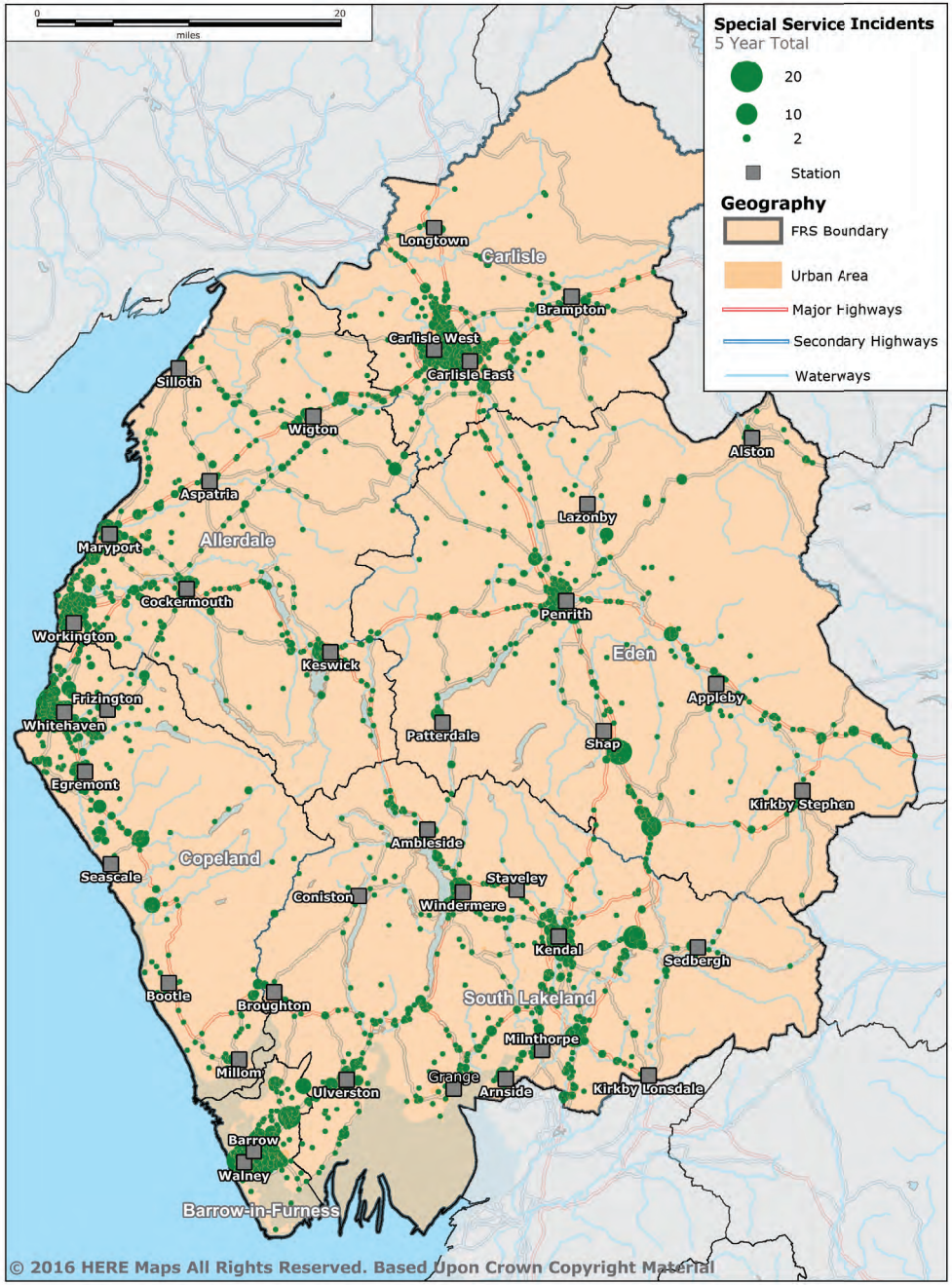
Geographical Location of False Alarm Incidents

5-Year Sample (October 2011 to September 2016)



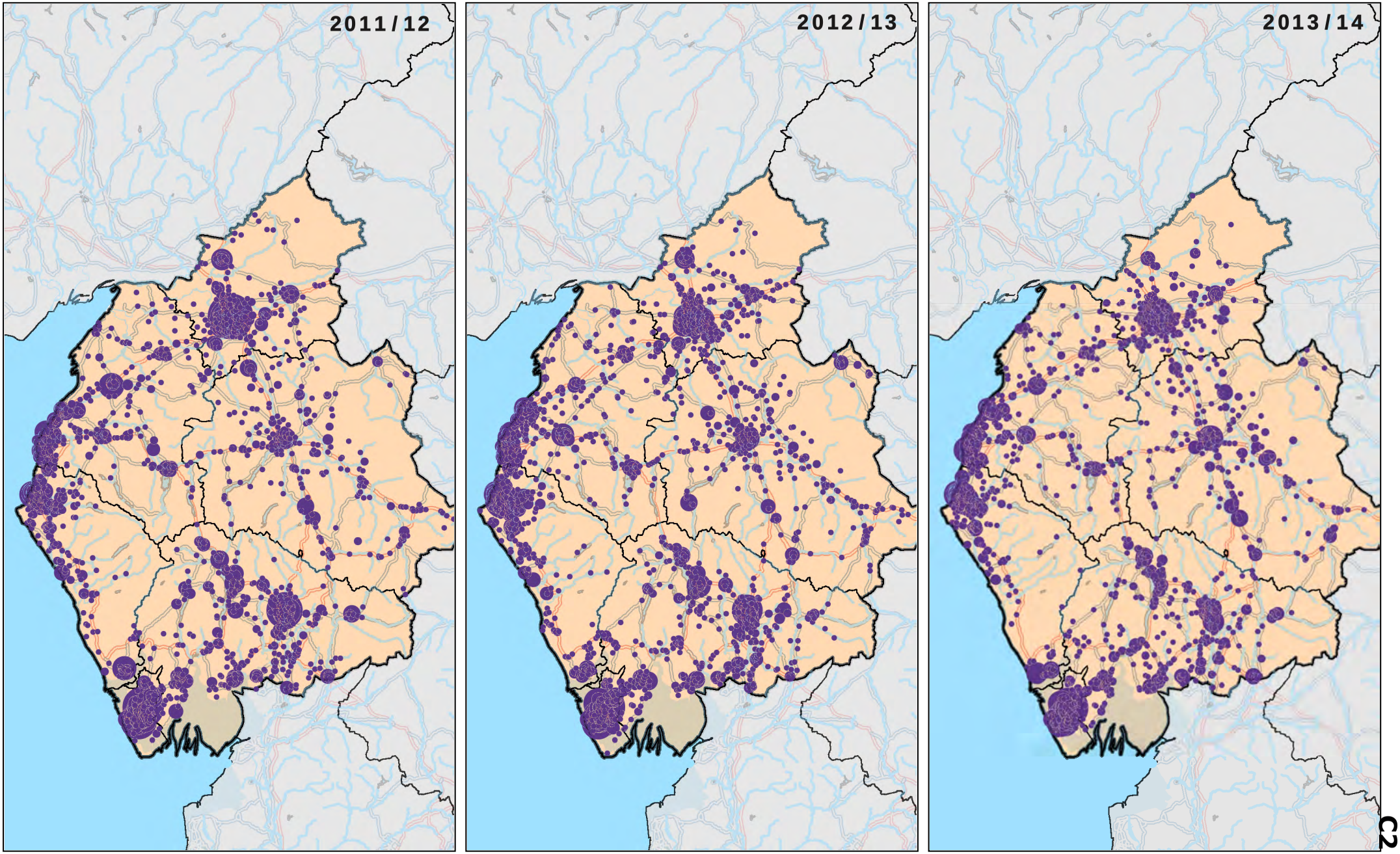
Geographical Location of Special Service Incidents

5-Year Sample (October 2011 to September 2016)



Geographical Location of Incidents by Reporting Year

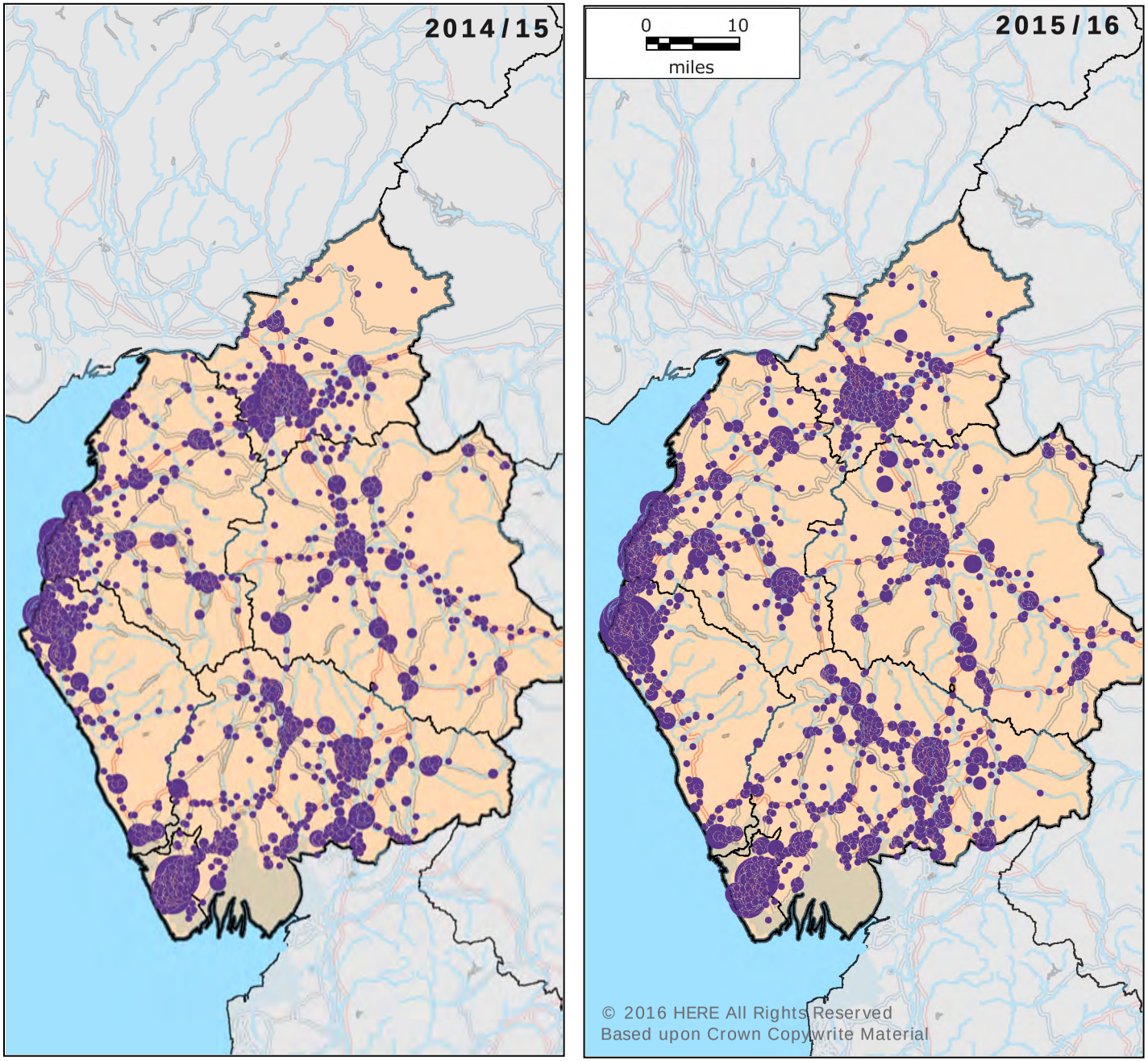
5-Year Sample (October 2011 to September 2016)



C2

Geographical Location of Incidents by Reporting Year

5-Year Sample (October 2011 to September 2016)



Total Incidents

20

10

2

Geographical

Region

Major Highways

Secondary Highways

Waterways

C2

Average Daily Incidents by District and Reporting Year

5-Year Sample (October 2011 to September 2016)

Fire Incidents

District	Average Daily Incidents					5-Year Average	2-Year Average
	2011/12	2012/13	2013/14	2014/15	2015/16		
Allerdale	1.04	1.20	0.80	0.83	0.86	0.95	0.85
Barrow-in-Furness	0.64	0.80	0.62	0.47	0.51	0.61	0.49
Carlisle	1.03	1.01	0.91	0.87	0.88	0.94	0.87
Copeland	0.46	0.80	0.61	0.49	0.48	0.57	0.48
Eden	0.47	0.49	0.43	0.38	0.31	0.42	0.35
South Lakeland	0.69	0.64	0.71	0.72	0.61	0.67	0.66
Overall	**4.33**	**4.93**	**4.08**	**3.76**	**3.65**	**4.15**	**3.71**

Special Service Incidents

District	Average Daily Incidents					5-Year Average	2-Year Average
	2011/12	2012/13	2013/14	2014/15	2015/16		
Allerdale	0.34	0.35	0.35	0.33	0.50	0.37	0.42
Barrow-in-Furness	0.25	0.28	0.31	0.21	0.27	0.26	0.24
Carlisle	0.32	0.36	0.29	0.31	0.47	0.35	0.39
Copeland	0.30	0.28	0.23	0.24	0.29	0.27	0.27
Eden	0.23	0.27	0.25	0.22	0.38	0.27	0.30
South Lakeland	0.41	0.44	0.43	0.42	0.69	0.48	0.56
Overall	**1.85**	**1.98**	**1.86**	**1.74**	**2.60**	**2.01**	**2.17**

False Alarm Incidents

District	Average Daily Incidents					5-Year Average	2-Year Average
	2011/12	2012/13	2013/14	2014/15	2015/16		
Allerdale	0.76	0.86	0.81	0.85	0.92	0.84	0.88
Barrow-in-Furness	0.84	0.75	0.81	0.58	0.73	0.74	0.66
Carlisle	1.31	0.99	1.02	1.10	1.07	1.10	1.09
Copeland	0.53	0.61	0.67	0.65	0.71	0.63	0.68
Eden	0.34	0.45	0.47	0.42	0.59	0.45	0.51
South Lakeland	1.02	1.11	1.06	1.10	1.27	1.11	1.19
Overall	**4.82**	**4.77**	**4.84**	**4.70**	**5.28**	**4.88**	**5.00**

All Incidents

District	Average Daily Incidents					5-Year Average	2-Year Average
	2011/12	2012/13	2013/14	2014/15	2015/16		
Allerdale	2.14	2.41	1.95	2.01	2.28	2.16	2.15
Barrow-in-Furness	1.74	1.83	1.74	1.26	1.52	1.62	1.39
Carlisle	2.67	2.36	2.21	2.27	2.42	2.39	2.34
Copeland	1.29	1.69	1.51	1.38	1.48	1.47	1.43
Eden	1.04	1.21	1.15	1.03	1.28	1.14	1.16
South Lakeland	2.13	2.18	2.20	2.24	2.57	2.27	2.41
Overall	**11.00**	**11.68**	**10.77**	**10.20**	**11.53**	**11.05**	**10.88**

Note: Responses on days of industrial action have been excluded

Propotion of Incidents by District and Reporting Year

5-Year Sample (October 2011 to September 2016)

Fire Incidents

District	Proportion of Incidents					5-Year Average	2-Year Average
	2011/12	2012/13	2013/14	2014/15	2015/16		
Allerdale	24%	24%	19%	22%	24%	23%	23%
Barrow-in-Furness	15%	16%	15%	12%	14%	15%	13%
Carlisle	24%	20%	22%	23%	24%	23%	24%
Copeland	11%	16%	15%	13%	13%	14%	13%
Eden	11%	10%	11%	10%	9%	10%	9%
South Lakeland	16%	13%	17%	19%	17%	16%	18%
Overall	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Special Service Incidents

District	Proportion of Incidents					5-Year Average	2-Year Average
	2011/12	2012/13	2013/14	2014/15	2015/16		
Allerdale	18%	18%	19%	19%	19%	19%	19%
Barrow-in-Furness	13%	14%	17%	12%	10%	13%	11%
Carlisle	17%	18%	15%	18%	18%	17%	18%
Copeland	16%	14%	12%	14%	11%	14%	13%
Eden	12%	13%	14%	13%	15%	13%	14%
South Lakeland	22%	22%	23%	24%	27%	24%	25%
Overall	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

False Alarm Incidents

District	Proportion of Incidents					5-Year Average	2-Year Average
	2011/12	2012/13	2013/14	2014/15	2015/16		
Allerdale	16%	18%	17%	18%	17%	17%	18%
Barrow-in-Furness	18%	16%	17%	12%	14%	15%	13%
Carlisle	27%	21%	21%	23%	20%	23%	22%
Copeland	11%	13%	14%	14%	13%	13%	14%
Eden	7%	9%	10%	9%	11%	9%	10%
South Lakeland	21%	23%	22%	23%	24%	23%	24%
Overall	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

All Incidents

District	Proportion of Incidents					5-Year Average	2-Year Average
	2011/12	2012/13	2013/14	2014/15	2015/16		
Allerdale	19%	21%	18%	20%	20%	20%	20%
Barrow-in-Furness	16%	16%	16%	12%	13%	15%	13%
Carlisle	24%	20%	20%	22%	21%	22%	22%
Copeland	12%	14%	14%	14%	13%	13%	13%
Eden	9%	10%	11%	10%	11%	10%	11%
South Lakeland	19%	19%	20%	22%	22%	21%	22%
Overall	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Note: Responses on days of industrial action have been excluded

Average Daily Responses by Callsign and Reporting Year

2-Year Sample October 2014 to September 2016

Station	Callsign	Crew Type	Reporting Year		2 - Year Average
			2014/2015	2015/2016	
Carlisle West	C21P1	Wholetime	1.50	1.48	1.49
Carlisle East	C20P1	Wholetime	1.29	1.47	1.38
Barrow	C40P1	Wholetime	1.07	1.39	1.23
Workington	C01P1	Wholetime	1.18	1.04	1.11
Whitehaven	C02P1	Wholetime	0.96	1.05	1.00
Kendal	C60P1	Day-Crewed	0.88	0.98	0.93
Penrith	C27P1	Day-Crewed	0.63	0.79	0.71
Ulverston	C47P1	Wholetime	0.61	0.64	0.62
Maryport	C08P1	On-Call	0.36	0.44	0.40
Walney	C48P1	On-Call	0.32	0.35	0.34
Windermere	C70P1	On-Call	0.26	0.33	0.29
Kendal	C60P2	On-Call	0.32	0.27	0.29
Milnthorpe	C66P1	On-Call	0.28	0.28	0.28
Aspatria	C03P1	On-Call	0.24	0.29	0.26
Cockermouth	C04P1	On-Call	0.23	0.29	0.26
Penrith	C27P2	On-Call	0.25	0.23	0.24
Keswick	C07P1	On-Call	0.18	0.28	0.23
Ambleside	C61P1	On-Call	0.22	0.22	0.22
Egremont	C05P1	On-Call	0.24	0.16	0.20
Wigton	C11P1	On-Call	0.16	0.21	0.19
Grange	C45P1	On-Call	0.14	0.22	0.18
Ulverston	C47P2	On-Call	0.17	0.19	0.18
Brampton	C23P1	On-Call	0.21	0.14	0.18
Longtown	C25P1	On-Call	0.16	0.17	0.16
Whitehaven	C02P2	On-Call	0.11	0.21	0.16
Workington	C01P2	On-Call	0.15	0.17	0.16
Frizington	C06P1	On-Call	0.14	0.14	0.14
Sedbergh	C67P1	On-Call	0.13	0.13	0.13
Millom	C46P1	On-Call	0.12	0.13	0.13
Shap	C68P1	On-Call	0.13	0.12	0.13
Kirkby Stephen	C65P1	On-Call	0.10	0.15	0.12
Appleby	C62P1	On-Call	0.10	0.13	0.11
Staveley	C69P1	On-Call	0.12	0.10	0.11
Broughton	C42P1	On-Call	0.10	0.10	0.10
Lazonby	C24P1	On-Call	0.08	0.12	0.10
Kirkby Lonsdale	C64P1	On-Call	0.07	0.11	0.09
Bootle	C41P1	On-Call	0.08	0.07	0.08
Seascale	C09P1	On-Call	0.07	0.07	0.07
Coniston	C43P1	On-Call	0.07	0.07	0.07
Arnside	C63P1	On-Call	0.05	0.07	0.06
Silloth	C10P1	On-Call	0.04	0.06	0.05
Alston	C22P1	On-Call	0.04	0.05	0.04
Patterdale	C26P1	On-Call	0.04	0.04	0.04
Maryport	C08P2	On-Call	0.01	0.05	0.03

Wholetime Average	1.10	1.18	1.14
Day-Crewed Average	0.75	0.88	0.82
On-Call Average	0.15	0.17	0.16

Overall Average	**0.31**	**0.34**	**0.33**

Note: Responses on days of industrial action have been excluded

Annualised Responses by Callsign and Incident Type

2-Year Sample October 2014 to September 2016

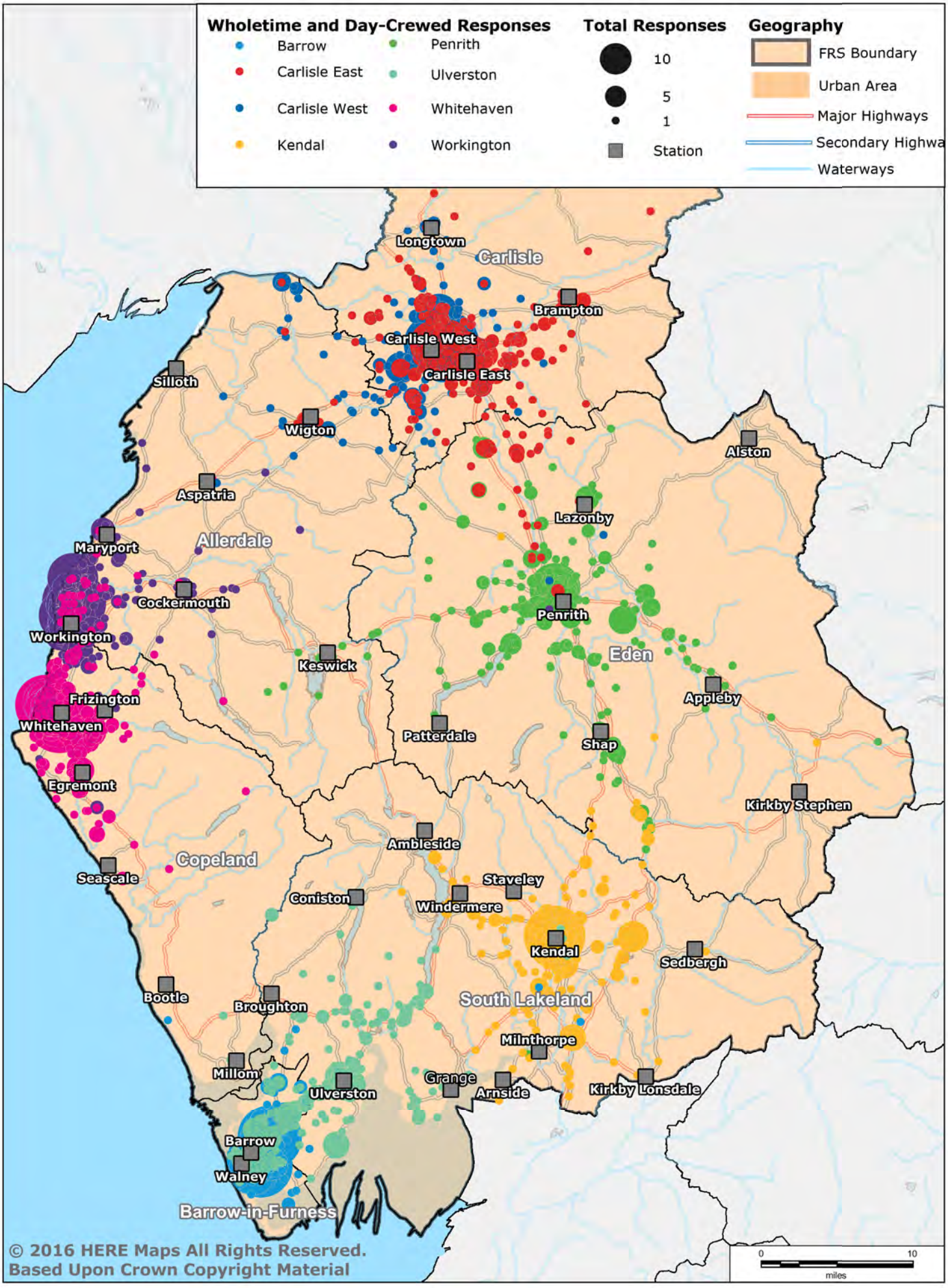
Station	Call Sign	Crew Type	Fires			Total Fires	Special Service		Total Special Service	False Alarms				Total False Alarms	Total Responses
			Primary	Chimney	Secondary		RTC	Other		AFA Non-Residential	AFA Other	Good Intent	Malicious		
Carlisle West	C21P1	Wholetime	120.32	9.10	76.34	205.75	34.88	61.17	96.05	83.92	75.83	74.82	6.07	240.64	**542.44**
Carlisle East	C20P1	Wholetime	112.74	6.57	74.82	194.13	35.89	52.07	87.96	70.27	75.33	71.79	5.06	222.44	**504.53**
Barrow	C40P1	Wholetime	89.48	7.58	64.71	161.77	12.13	66.73	78.86	86.95	57.63	59.65	5.06	209.29	**449.93**
Workington	C01P1	Wholetime	76.84	5.56	90.49	172.89	16.68	44.99	61.68	54.60	53.08	52.58	9.10	169.36	**403.93**
Whitehaven	C02P1	Wholetime	52.58	4.55	57.13	114.25	22.75	47.02	69.76	67.74	55.61	52.58	6.57	182.50	**366.52**
Kendal	C60P1	Day-Crewed	47.02	9.10	21.74	77.85	34.88	47.02	81.90	60.66	64.71	51.06	2.02	178.46	**338.21**
Penrith	C27P1	Day-Crewed	53.08	11.12	11.63	75.83	35.39	27.80	63.19	32.86	50.55	34.88	2.53	120.82	**259.85**
Ulverston	C47P1	Wholetime	61.68	6.07	21.23	88.98	19.21	28.82	48.03	20.73	32.35	36.90	1.01	91.00	**228.00**
Maryport	C08P1	On-Call	34.38	3.03	33.87	71.28	11.63	12.64	24.27	15.17	16.68	15.67	2.53	50.05	**145.60**
Walney	C48P1	On-Call	41.45	2.53	15.17	59.15	3.03	12.64	15.67	7.08	18.70	19.72	2.02	47.52	**122.34**
Windermere	C70P1	On-Call	21.74	4.55	3.54	29.83	9.61	15.67	25.28	13.14	27.30	10.62	1.01	52.07	**107.17**
Kendal	C60P2	On-Call	28.31	2.53	5.06	35.89	9.10	12.64	21.74	10.62	19.72	16.68	1.52	48.53	**106.16**
Milnthorpe	C66P1	On-Call	21.23	4.04	5.56	30.84	19.21	14.16	33.37	13.65	13.14	10.62	1.01	38.42	**102.62**
Aspatria	C03P1	On-Call	24.77	3.54	11.63	39.94	13.14	11.63	24.77	13.65	5.56	12.64	-	31.85	**96.56**
Cockermouth	C04P1	On-Call	28.82	5.06	4.55	38.42	8.59	11.12	19.72	13.14	13.65	9.10	2.02	37.92	**96.05**
Penrith	C27P2	On-Call	25.78	3.03	3.54	32.35	17.19	8.09	25.28	3.54	13.65	12.64	-	29.83	**87.46**
Keswick	C07P1	On-Call	18.20	1.01	2.02	21.23	8.59	15.67	24.27	11.63	14.16	12.13	0.51	38.42	**83.92**
Ambleside	C61P1	On-Call	13.65	5.06	6.07	24.77	6.57	14.66	21.23	9.10	22.75	2.53	0.51	34.88	**80.89**
Egremont	C05P1	On-Call	15.17	0.51	11.63	27.30	7.08	10.11	17.19	10.11	11.12	6.57	1.01	28.82	**73.30**
Wigton	C11P1	On-Call	22.75	2.02	8.09	32.86	10.11	7.08	17.19	6.07	5.56	6.57	0.51	18.70	**68.75**
Grange	C45P1	On-Call	13.65	1.01	4.55	19.21	8.09	7.58	15.67	5.56	18.20	6.57	0.51	30.84	**65.72**
Ulverston	C47P2	On-Call	21.74	2.02	3.54	27.30	7.08	7.58	14.66	2.53	10.62	10.62	-	23.76	**65.72**
Brampton	C23P1	On-Call	15.67	3.54	7.08	26.29	8.59	6.57	15.17	6.07	9.61	7.58	-	23.25	**64.71**
Longtown	C25P1	On-Call	20.73	5.06	11.12	36.90	4.55	6.07	10.62	2.53	6.07	4.04	-	12.64	**60.16**
Whitehaven	C02P2	On-Call	15.67	0.51	7.58	23.76	4.55	4.55	9.10	8.09	10.11	6.57	1.01	25.78	**58.64**
Workington	C01P2	On-Call	22.75	1.01	8.09	31.85	2.53	9.10	11.63	3.03	7.58	2.53	0.51	13.65	**57.13**
Frizington	C06P1	On-Call	16.18	1.01	9.10	26.29	5.56	4.55	10.11	3.54	3.54	6.07	1.52	14.66	**51.06**
Sedbergh	C67P1	On-Call	9.10	5.56	2.53	17.19	14.16	5.06	19.21	4.55	2.53	4.04	-	11.12	**47.52**
Millom	C46P1	On-Call	10.62	2.02	5.06	17.69	4.04	6.07	10.11	7.58	4.55	6.57	0.51	19.21	**47.02**
Shap	C68P1	On-Call	9.10	1.52	1.01	11.63	14.16	5.06	19.21	1.01	7.58	6.57	-	15.17	**46.00**
Kirkby Stephen	C65P1	On-Call	7.58	2.02	5.06	14.66	10.62	7.58	18.20	2.02	4.55	6.07	-	12.64	**45.50**
Appleby	C62P1	On-Call	7.58	4.04	3.03	14.66	8.59	9.10	17.69	2.02	2.53	4.55	-	9.10	**41.45**
Staveley	C69P1	On-Call	9.61	2.53	0.51	12.64	5.56	8.09	13.65	1.52	5.56	6.07	0.51	13.65	**39.94**
Broughton	C42P1	On-Call	11.12	3.03	8.09	22.24	4.04	4.55	8.59	1.52	1.52	4.04	-	7.08	**37.92**
Lazonby	C24P1	On-Call	7.08	4.55	2.53	14.16	4.04	3.54	7.58	3.03	6.57	5.56	-	15.17	**36.90**
Kirkby Lonsdale	C64P1	On-Call	7.58	1.01	2.02	10.62	4.04	5.06	9.10	4.55	5.56	3.54	-	13.65	**33.37**
Bootle	C41P1	On-Call	8.09	2.53	3.54	14.16	3.03	4.55	7.58	2.53	0.51	2.53	0.51	6.07	**27.80**
Seascale	C09P1	On-Call	6.07	2.02	2.53	10.62	3.54	6.57	10.11	3.54	1.01	1.01	-	5.56	**26.29**
Coniston	C43P1	On-Call	6.07	1.01	4.55	11.63	1.01	5.06	6.07	2.53	2.53	3.03	-	8.09	**25.78**
Arnside	C63P1	On-Call	4.04	2.02	1.01	7.08	0.51	5.06	5.56	1.52	5.06	2.53	-	9.10	**21.74**
Silloth	C10P1	On-Call	5.56	0.51	2.53	8.59	0.51	4.55	5.06	-	0.51	2.02	1.01	3.54	**17.19**
Alston	C22P1	On-Call	2.53	3.54	0.51	6.57	2.02	4.04	6.07	-	2.53	0.51	-	3.03	**15.67**
Patterdale	C26P1	On-Call	0.51	1.52	-	2.02	1.52	3.03	4.55	4.55	1.52	1.52	-	7.58	**14.16**
Maryport	C08P2	On-Call	3.03	-	2.53	5.56	1.01	3.54	4.55	-	0.51	1.01	1.01	2.53	**12.64**
Wholetime Average			85.60	6.57	64.12	156.30	23.59	50.13	73.72	64.04	58.31	58.05	5.48	185.87	415.89
Day-Crewed Average			50.05	10.11	16.68	76.84	35.14	37.41	72.55	46.76	57.63	42.97	2.27	149.64	299.03
On-Call Average			14.94	2.51	5.80	23.25	6.87	7.85	14.72	5.57	8.41	6.68	0.55	21.22	59.19
Overall Average			**26.17**	**3.41**	**14.25**	**43.83**	**10.43**	**14.96**	**25.39**	**15.42**	**17.45**	**15.34**	**1.30**	**49.51**	**118.73**

Note: Responses on days of industrial action have been excluded

Annualised incidents are calculated as the average daily multiplied by 365

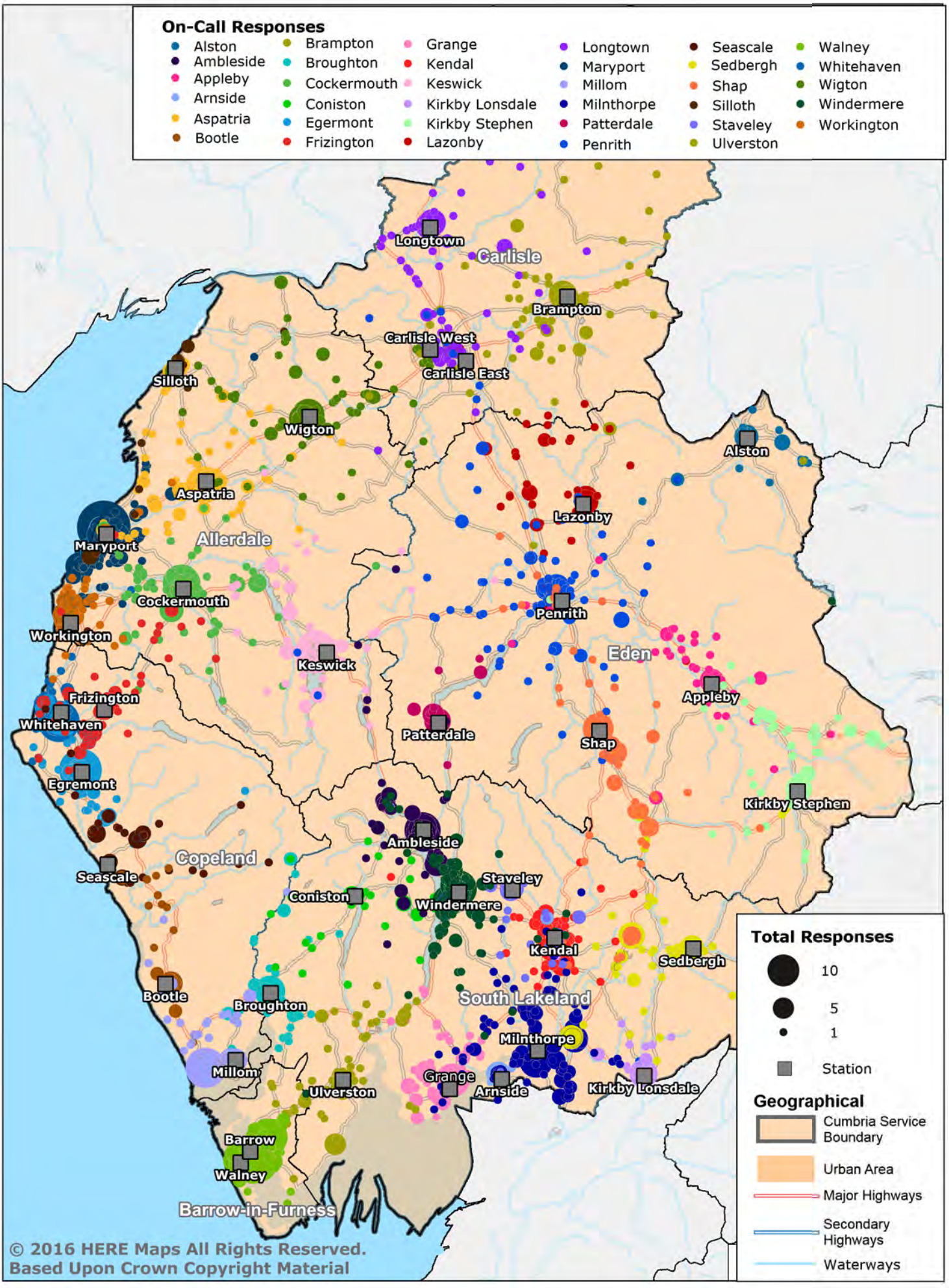
Geographical Location of Responses by Wholetime and Day-Crewed Pumps

2-Year Sample (October 2014 to September 2016)



Geographical Location of Responses by On-Call Pumps

2-Year Sample (October 2014 to September 2016)



Calculated Station Catchments

Station Catchments Analysis

Incidents within Calculated Catchment
2-Year Sample (October 2014 to September 2016)

Station	Crew Type	Total Incidents Within Catchment	First Response by "Home Station"	% First Response by "Home Station"	First or Subsequent Response by "Home Station"	No Response to Incident by "Home Station"	% First or Subsequent Response by "Home Station"	% No Response to Incident by "Home Station"
Alston	On-Call	30	28	93.3%	28	2	93.3%	6.7%
Ambleside	On-Call	120	99	82.5%	100	20	83.3%	16.7%
Appleby	On-Call	68	55	80.9%	57	11	83.8%	16.2%
Arnside	On-Call	32	22	68.8%	25	7	78.1%	21.9%
Aspatria	On-Call	86	77	89.5%	79	7	91.9%	8.1%
Barrow	Wholetime	953	802	84.2%	840	113	88.1%	11.9%
Bootle	On-Call	42	28	66.7%	28	14	66.7%	33.3%
Brampton	On-Call	98	78	79.6%	81	17	82.7%	17.3%
Broughton	On-Call	49	35	71.4%	42	7	85.7%	14.3%
Carlisle East	Wholetime	740	537	72.6%	606	134	81.9%	18.1%
Carlisle West	Wholetime	849	654	77.0%	706	143	83.2%	16.8%
Cockermouth	On-Call	170	129	75.9%	136	34	80.0%	20.0%
Coniston	On-Call	35	23	65.7%	24	11	68.6%	31.4%
Egremont	On-Call	125	66	52.8%	79	46	63.2%	36.8%
Frizington	On-Call	52	24	46.2%	29	23	55.8%	44.2%
Grange	On-Call	119	106	89.1%	109	10	91.6%	8.4%
Kendal	Day-Crewed/On-Call	643	590	91.8%	602	41	93.6%	6.4%
Keswick	On-Call	159	144	90.6%	149	10	93.7%	6.3%
Kirkby Lonsdale	On-Call	61	42	68.9%	42	19	68.9%	31.1%
Kirkby Stephen	On-Call	74	64	86.5%	67	7	90.5%	9.5%
Lazonby	On-Call	67	37	55.2%	38	29	56.7%	43.3%
Longtown	On-Call	68	55	80.9%	57	11	83.8%	16.2%
Maryport	2 On-Call	244	199	81.6%	208	36	85.2%	14.8%
Millom	On-Call	78	65	83.3%	65	13	83.3%	16.7%
Milnthorpe	On-Call	156	112	71.8%	125	31	80.1%	19.9%
Patterdale	On-Call	28	21	75.0%	21	7	75.0%	25.0%
Penrith	Day-Crewed/On-Call	434	397	91.5%	408	26	94.0%	6.0%
Seascale	On-Call	48	29	60.4%	37	11	77.1%	22.9%
Sedbergh	On-Call	54	44	81.5%	46	8	85.2%	14.8%
Shap	On-Call	86	52	60.5%	59	27	68.6%	31.4%
Silloth	On-Call	53	21	39.6%	24	29	45.3%	54.7%
Staveley	On-Call	27	21	77.8%	21	6	77.8%	22.2%
Ulverston	Wholetime/On-Call	273	254	93.0%	257	16	94.1%	5.9%
Walney	On-Call	39	25	64.1%	28	11	71.8%	28.2%
Whitehaven	Wholetime/On-Call	641	587	91.6%	593	48	92.5%	7.5%
Wigton	On-Call	126	87	69.0%	92	34	73.0%	27.0%
Windermere	On-Call	206	166	80.6%	177	29	85.9%	14.1%
Workington	Wholetime/On-Call	722	667	92.4%	676	46	93.6%	6.4%
Total		**7855**	**6442**	**82.0%**	**6761**	**1094**	**86.1%**	**13.9%**

Note: Catchments calculated using travel times and standard Turn-out time (Regular - 5m00s, On-Call - 1m30s)

Pump Response Combination by Incident Type

5 Year Sample (October 2011 to September 2016)

First Response	1-Pump Incidents		2-Pump Incidents			
	Wholetime	On-Call	Wholetime	On-Call	Wholetime	On-Call
Second Response	-	-	Wholetime	On-Call	On-Call	Wholetime
Primary Building Fires	59%	41%	39%	26%	24%	10%
Non-Building Primary Fires	56%	44%	25%	38%	20%	17%
Secondary & Chimney Fires	62%	38%	30%	29%	22%	19%
RTCs	50%	50%	24%	46%	17%	13%
Non-RTC Special Service	58%	42%	33%	24%	20%	24%
Non-Residential AFAs	67%	33%	55%	17%	21%	6%
Other AFAs	59%	41%	38%	31%	23%	8%
Non-AFA False Alarms	60%	40%	46%	24%	21%	9%
Total	61%	39%	37%	29%	22%	12%

D Response Profile Analysis

D1 Crew Turnout Time

- **D1a** Overall
- **D1b** By Callsign

D2 Average Response Performance

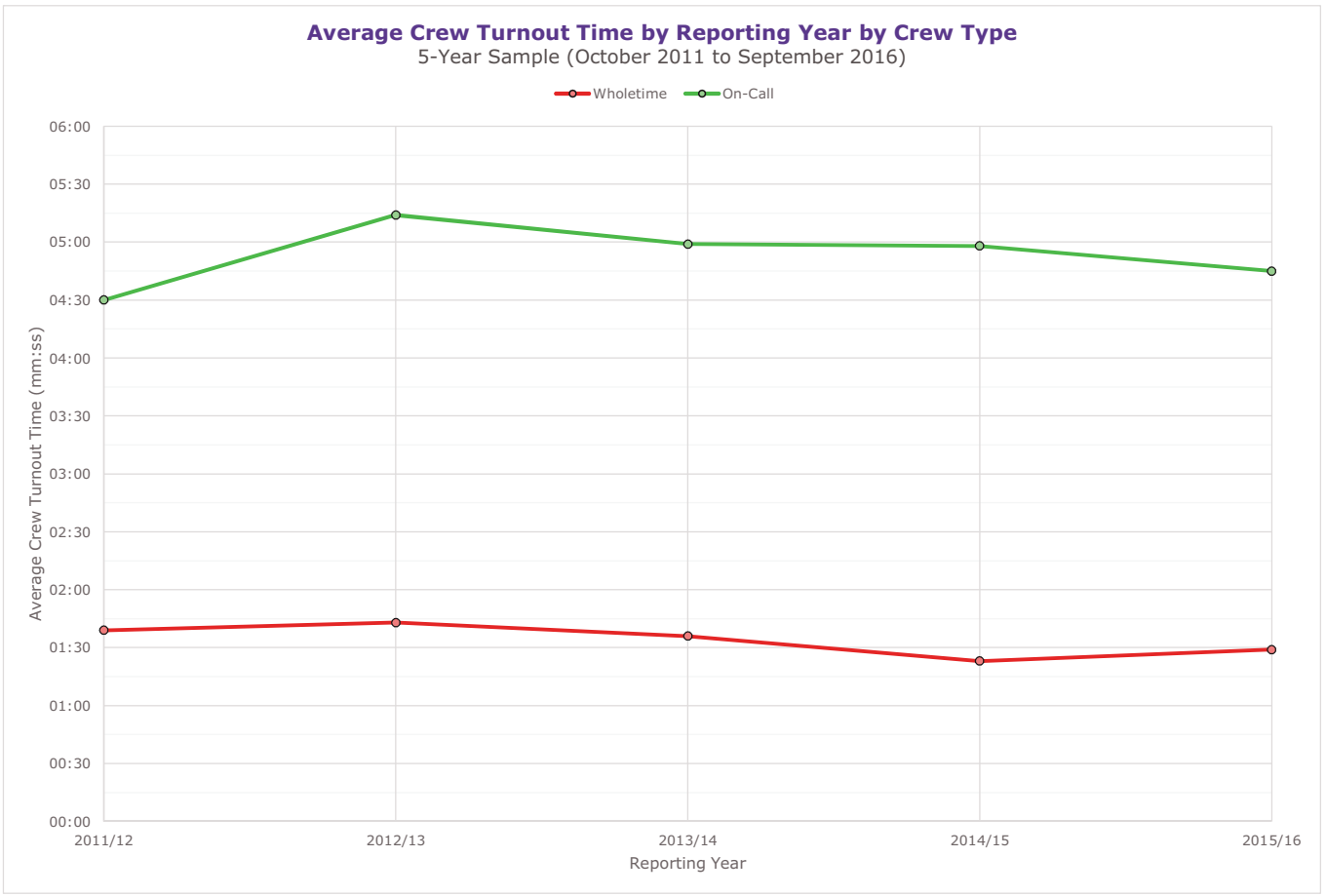
D3 Time at Scene

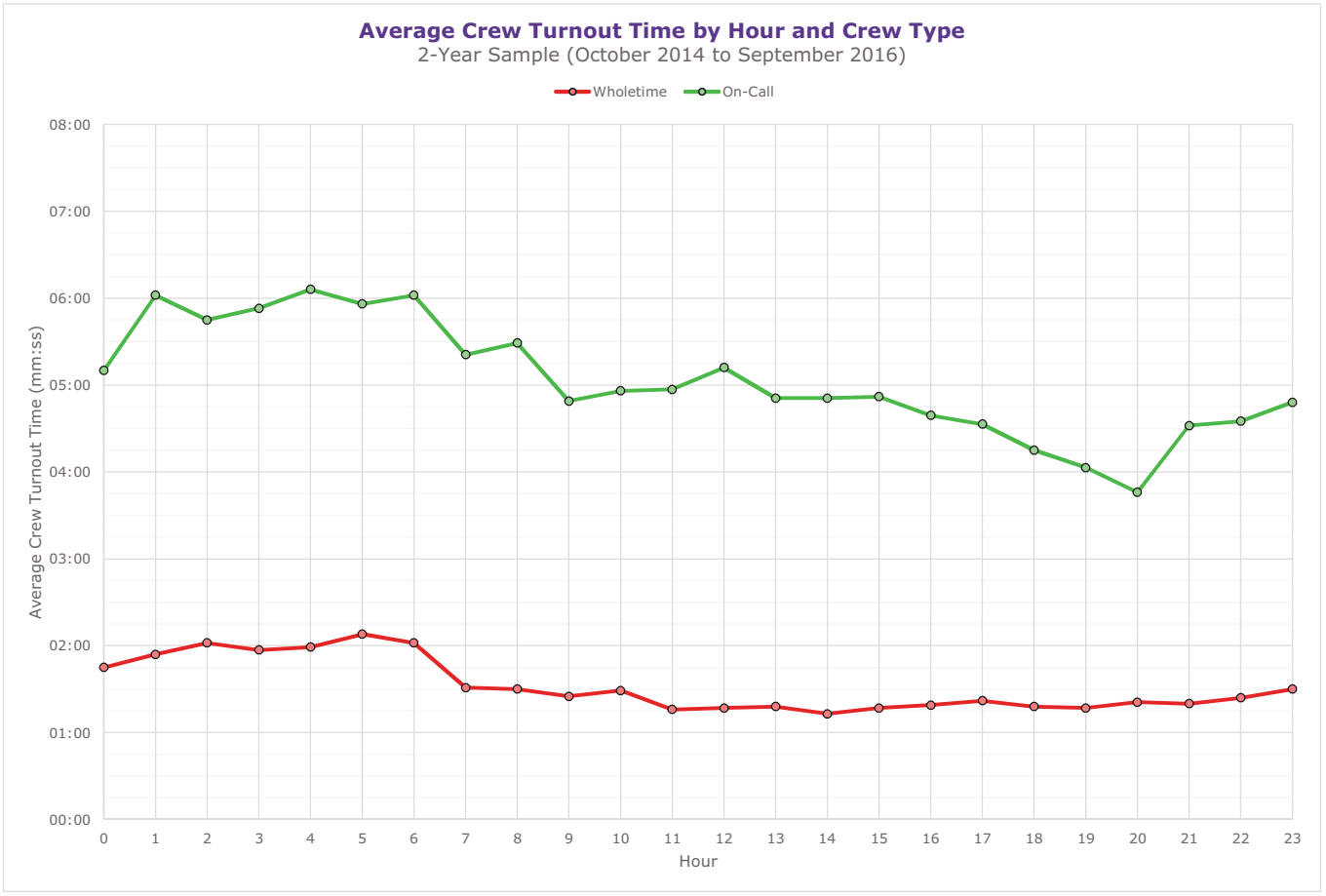
D4 Cumulative Response Performance Profile

D5 Response Performance Measures

D6 Response Performance Maps

- **D8a** Average Response Performance
- **D8b** Primary Building Fires in 10 Minutes
- **D8c** All Other Incidents in 15 Minutes


Average Crew Turnout Time by Reporting Year by Crew Type
5-Year Sample (October 2011 to September 2016)
Wholetime
On-Call
Average Crew Turnout Time (mm:ss)
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
2011/12
2012/13
2013/14
2014/15
2015/16
Reporting Year

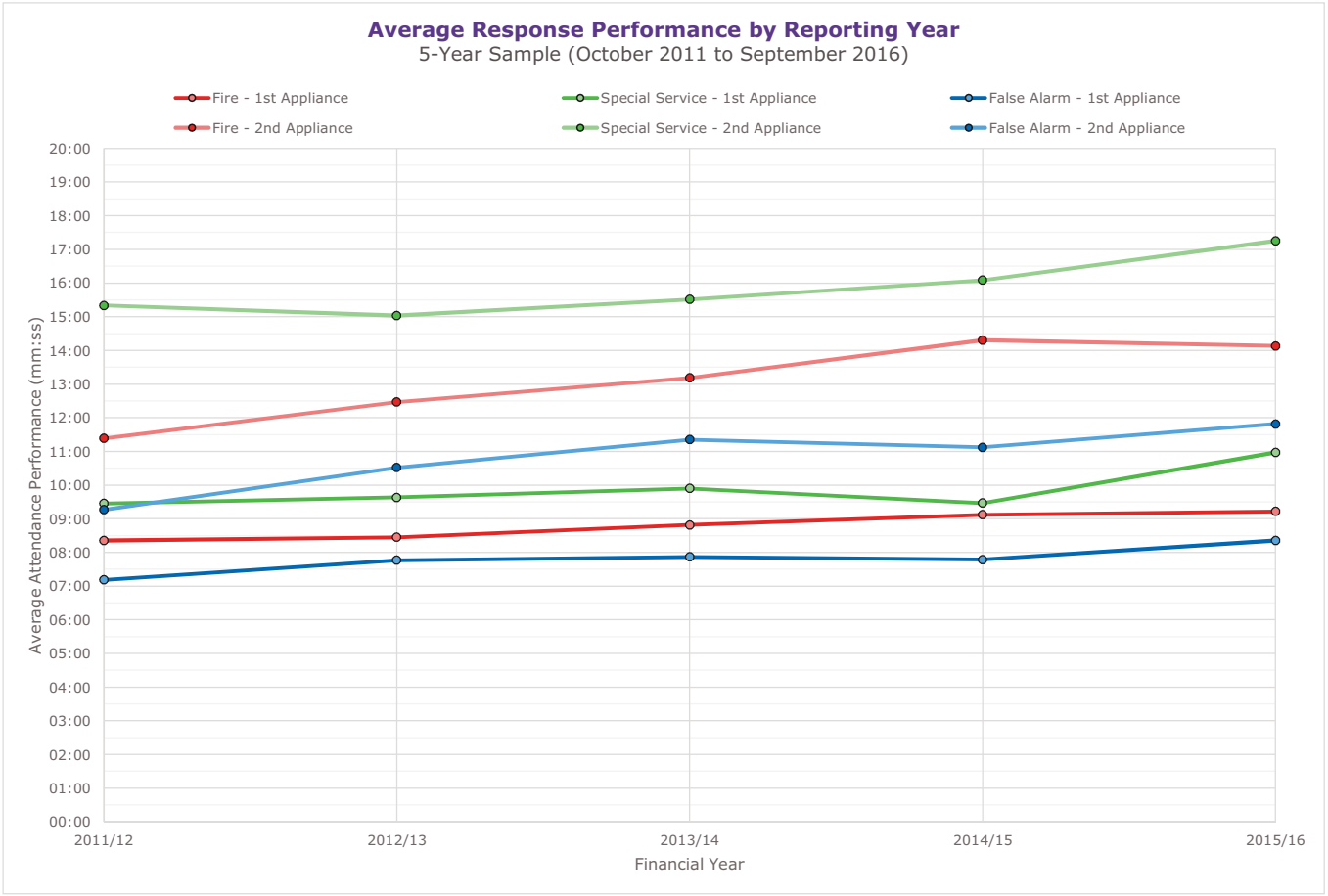

Average Crew Turnout Time by Hour and Crew Type
2-Year Sample (October 2014 to September 2016)
Wholetime
On-Call
Average Crew Turnout Time (mm:ss)
08:00
07:00
06:00
05:00
04:00
03:00
02:00
01:00
00:00
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
Hour

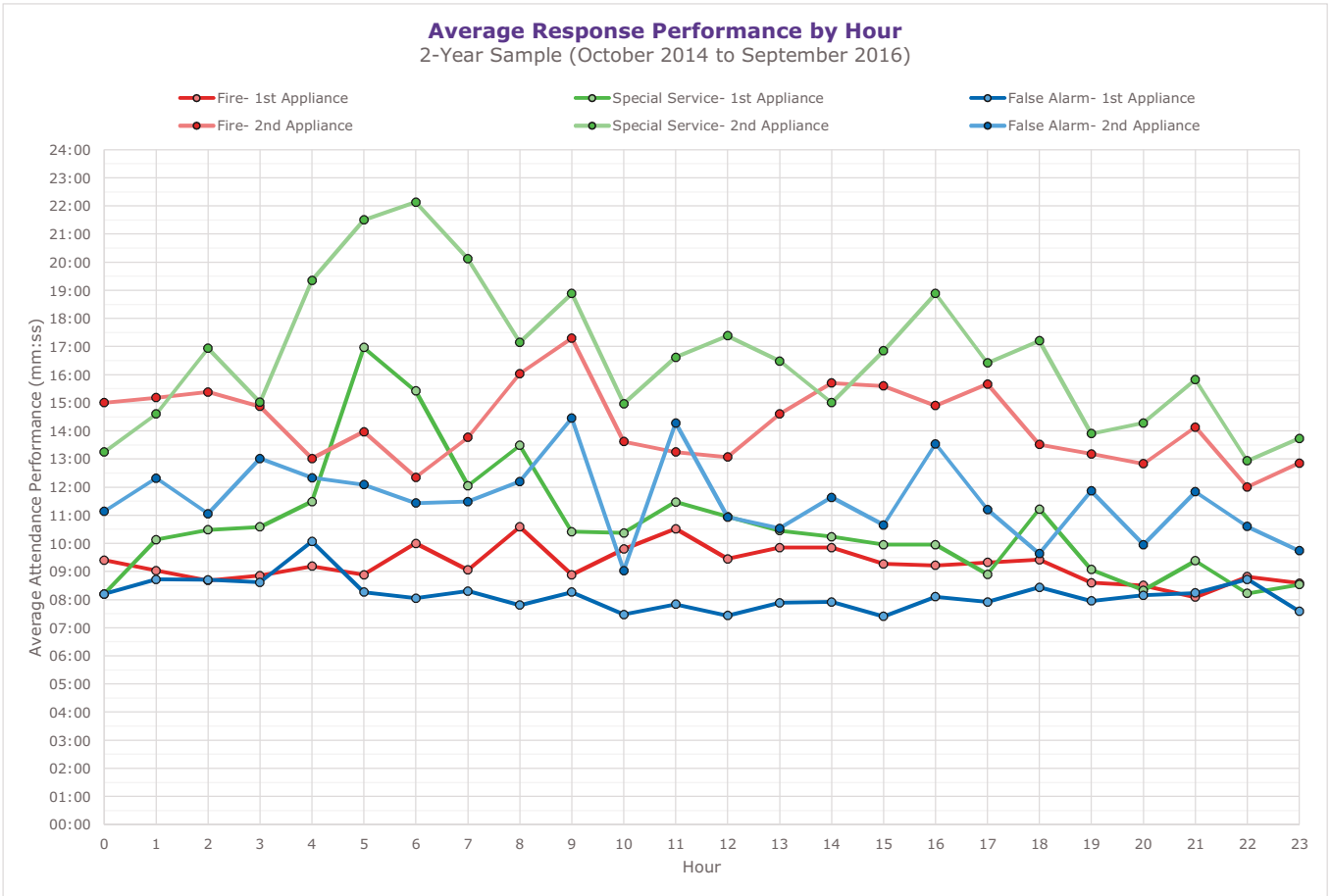
Crew Turnout Time by Call Sign and Shift Period

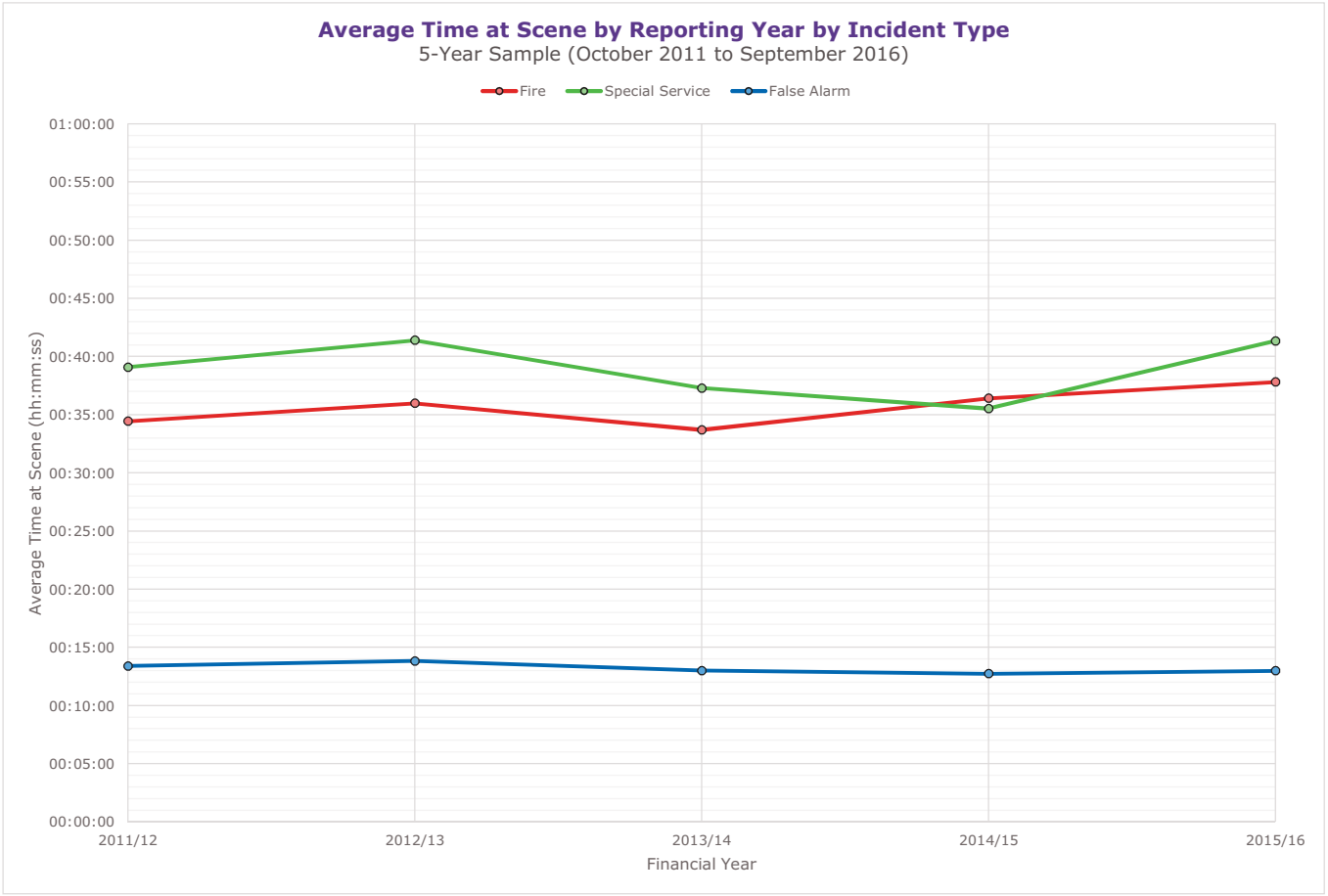
2-Year Sample (October 2014 to September 2016)

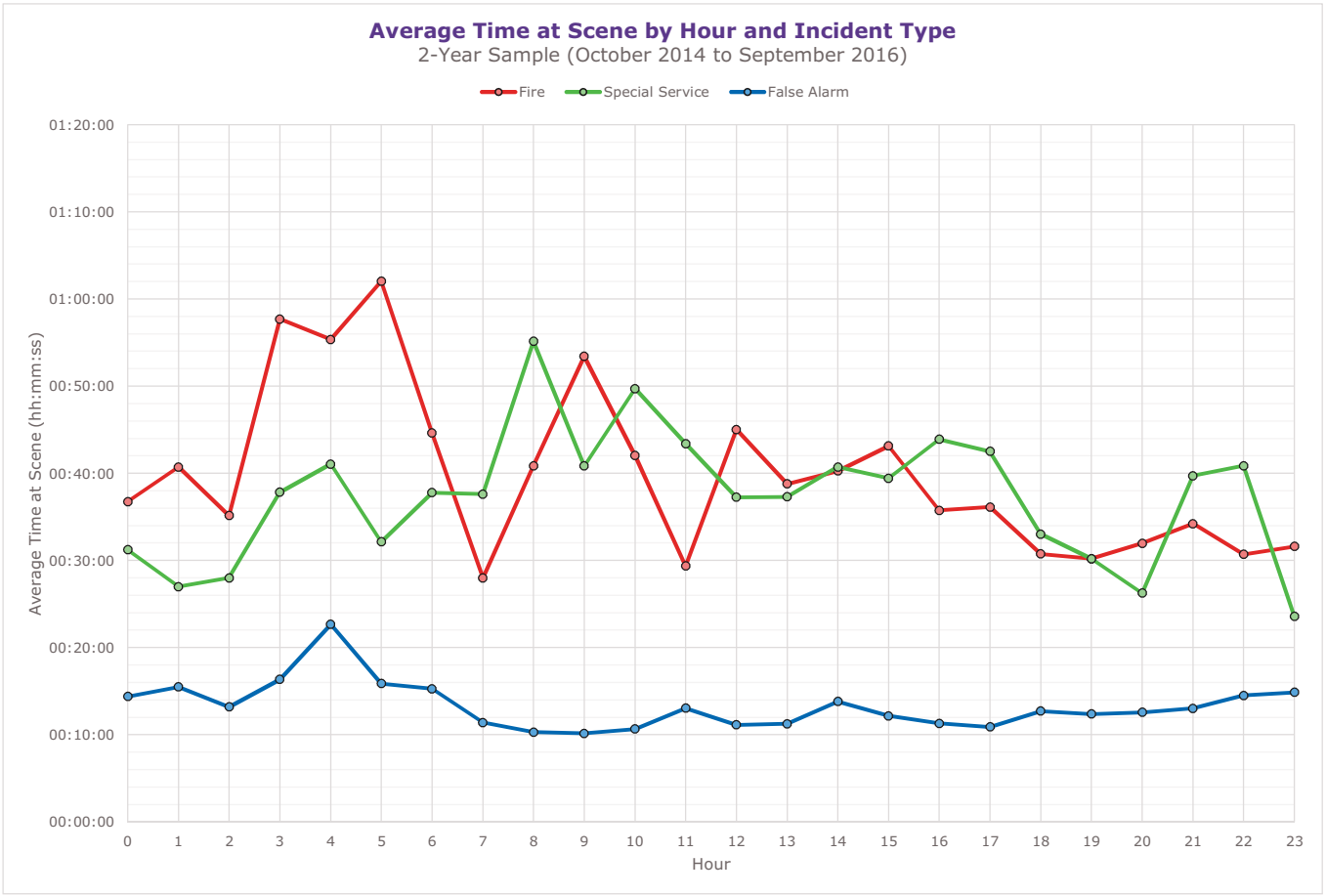
Callsign	Station	Crewtype	Shift Period		Overall	Shift Period	
			On-Shift	On-Call		% in 01:30	% in 05:00
C01P1	Workington	Wholetime	01:23	-	01:23	65.5%	-
C01P2	Workington	On-Call	-	06:44	06:44	-	11.7%
C02P1	Whitehaven	Wholetime	01:21	-	01:21	71.4%	-
C02P2	Whitehaven	On-Call	-	04:33	04:33	-	66.4%
C03P1	Aspatria	On-Call	-	03:53	03:53	-	81.7%
C04P1	Cockermouth	On-Call	-	04:18	04:18	-	76.9%
C05P1	Egremont	On-Call	-	05:18	05:18	-	41.7%
C06P1	Frizington	On-Call	-	05:19	05:19	-	37.0%
C07P1	Keswick	On-Call	-	04:24	04:24	-	71.8%
C08P1	Maryport	On-Call	-	04:43	04:43	-	51.9%
C08P2	Maryport	On-Call	-	05:04	05:04	-	39.1%
C09P1	Seascale	On-Call	-	05:13	05:13	-	48.9%
C10P1	Silloth	On-Call	-	03:26	03:26	-	96.6%
C11P1	Wigton	On-Call	-	04:53	04:53	-	53.5%
C20P1	Carlisle East	Wholetime	01:27	-	01:27	61.7%	-
C21P1	Carlisle West	Wholetime	01:19	-	01:19	74.1%	-
C22P1	Alston	On-Call	-	05:14	05:14	-	56.7%
C23P1	Brampton	On-Call	-	04:21	04:21	-	73.3%
C24P1	Lazonby	On-Call	-	04:21	04:21	-	60.6%
C25P1	Longtown	On-Call	-	03:39	03:39	-	84.0%
C26P1	Patterdale	On-Call	-	05:08	05:08	-	50.0%
C27P1	Penrith	Day-Crewed	01:48	06:17	04:02	56.6%	18.0%
C27P2	Penrith	On-Call	-	06:43	06:43	-	17.3%
C40P1	Barrow	Wholetime	01:39	-	01:39	43.3%	-
C41P1	Bootle	On-Call	-	04:49	04:49	-	65.4%
C42P1	Broughton	On-Call	-	05:00	05:00	-	57.4%
C43P1	Coniston	On-Call	-	04:21	04:21	-	57.4%
C45P1	Grange	On-Call	-	04:25	04:25	-	70.0%
C46P1	Millom	On-Call	-	04:35	04:35	-	61.5%
C47P1	Ulverston	Wholetime	01:30	-	01:30	62.4%	-
C47P2	Ulverston	On-Call	-	04:59	04:59	-	51.3%
C48P1	Walney	On-Call	-	03:55	03:55	-	82.9%
C60P1	Kendal	Day-Crewed	01:30	04:58	02:36	59.9%	43.4%
C60P2	Kendal	On-Call	-	05:39	05:39	-	33.3%
C61P1	Ambleside	On-Call	-	04:25	04:25	-	74.8%
C62P1	Appleby	On-Call	-	04:33	04:33	-	64.2%
C63P1	Arnside	On-Call	-	04:11	04:11	-	74.4%
C64P1	Kirkby Lonsdale	On-Call	-	05:39	05:39	-	41.9%
C65P1	Kirkby Stephen	On-Call	-	04:26	04:26	-	63.9%
C66P1	Milnthorpe	On-Call	-	05:15	05:15	-	40.4%
C67P1	Sedbergh	On-Call	-	04:00	04:00	-	81.9%
C68P1	Shap	On-Call	-	04:54	04:54	-	56.1%
C69P1	Staveley	On-Call	-	03:03	03:03	-	95.9%
C70P1	Windermere	On-Call	-	04:06	04:06	-	81.6%

Note: Day-Crewed pumps are considered to be 'On-Shift' during their shift periods and 'On-Call' outside of these periods.


Average Response Performance by Reporting Year
5-Year Sample (October 2011 to September 2016)
Fire - 1st Appliance
Special Service - 1st Appliance
False Alarm - 1st Appliance
Fire - 2nd Appliance
Special Service - 2nd Appliance
False Alarm - 2nd Appliance
Average Attendance Performance (mm:ss)
20:00
19:00
18:00
17:00
16:00
15:00
14:00
13:00
12:00
11:00
10:00
09:00
08:00
07:00
06:00
05:00
04:00
03:00
02:00
01:00
00:00
2011/12
2012/13
2013/14
2014/15
2015/16
Financial Year

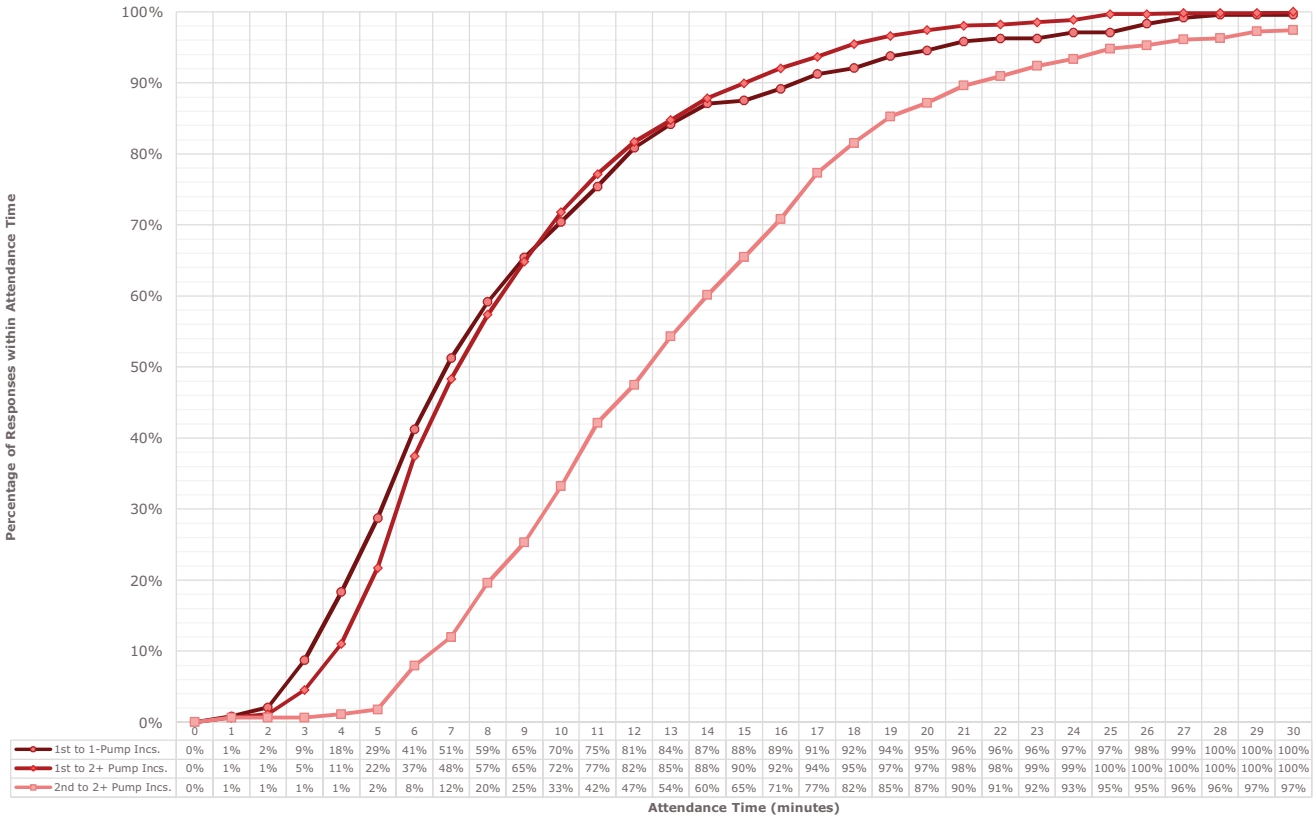

Average Response Performance by Hour
2-Year Sample (October 2014 to September 2016)
Fire- 1st Appliance
Special Service- 1st Appliance
False Alarm- 1st Appliance
Fire- 2nd Appliance
Special Service- 2nd Appliance
False Alarm- 2nd Appliance
Average Attendance Performance (mm:ss)
24:00
23:00
22:00
21:00
20:00
19:00
18:00
17:00
16:00
15:00
14:00
13:00
12:00
11:00
10:00
09:00
08:00
07:00
06:00
05:00
04:00
03:00
02:00
01:00
00:00
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
Hour


Average Time at Scene by Reporting Year by Incident Type
5-Year Sample (October 2011 to September 2016)
Fire
Special Service
False Alarm
01:00:00
00:55:00
00:50:00
00:45:00
00:40:00
00:35:00
00:30:00
00:25:00
00:20:00
00:15:00
00:10:00
00:05:00
00:00:00
Average Time at Scene (hh:mm:ss)
2011/12
2012/13
2013/14
2014/15
2015/16
Financial Year


Average Time at Scene by Hour and Incident Type
2-Year Sample (October 2014 to September 2016)
Fire
Special Service
False Alarm
01:20:00
01:10:00
01:00:00
00:50:00
00:40:00
00:30:00
00:20:00
00:10:00
00:00:00
Average Time at Scene (hh:mm:ss)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
Hour

Cumulative Response Profiles to Primary Building Fire Incidents

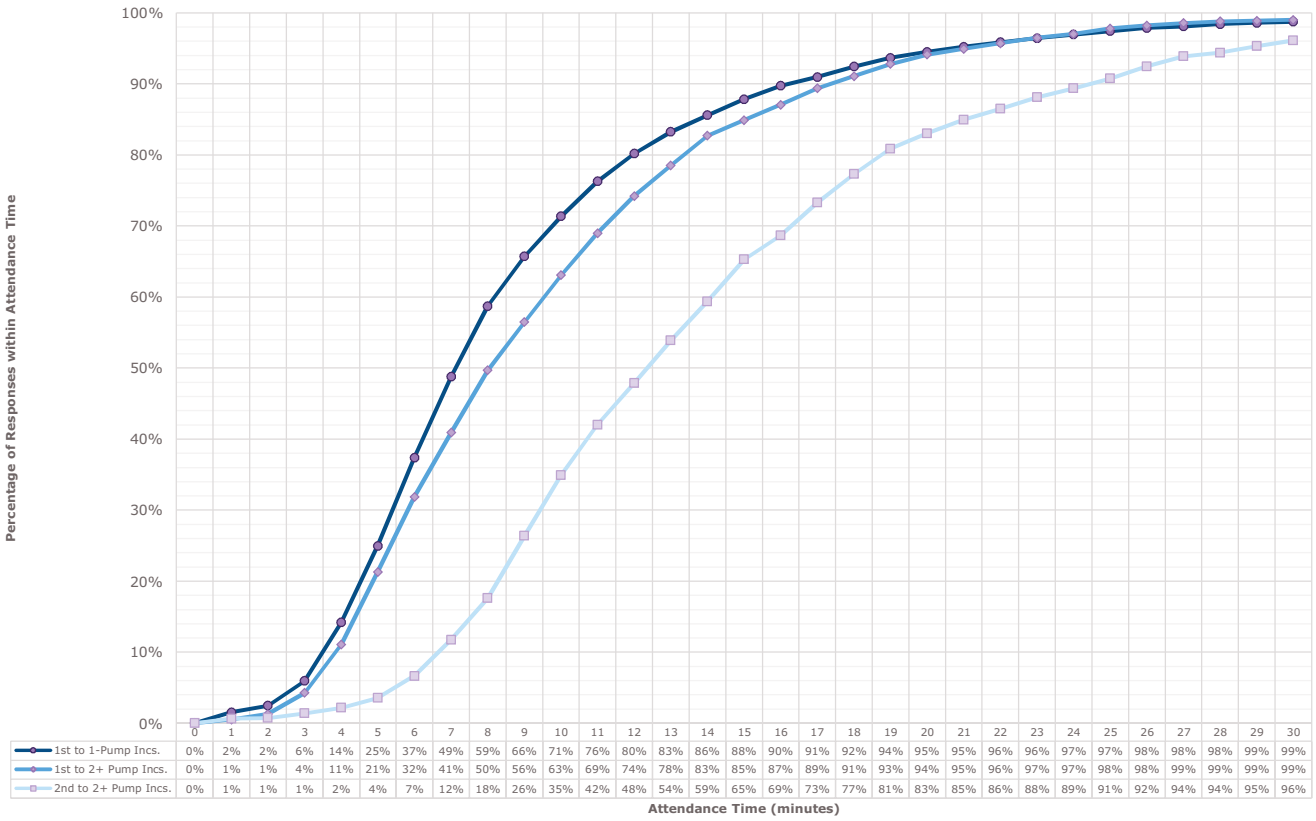
2-Year Sample (October 2014 to September 2016)



Attendance Time (minutes)	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-Pump Incs.	0%	1%	2%	9%	18%	29%	41%	51%	59%	65%	70%	75%	81%	84%	87%	88%	89%	91%	92%	94%	95%	96%	96%	96%	97%	97%	98%	99%	100%	100%	100%
1st to 2+ Pump Incs.	0%	1%	1%	5%	11%	22%	37%	48%	57%	65%	72%	77%	82%	85%	88%	90%	92%	94%	95%	97%	97%	98%	98%	99%	99%	100%	100%	100%	100%	100%	100%
2nd to 2+ Pump Incs.	0%	1%	1%	1%	1%	2%	8%	12%	20%	25%	33%	42%	47%	54%	60%	65%	71%	77%	82%	85%	87%	90%	91%	92%	93%	95%	95%	96%	96%	97%	97%

Cumulative Response Profiles to All Other Incidents

2-Year Sample (October 2014 to September 2016)



Attendance Time (minutes)	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-Pump Incs.	0%	2%	2%	6%	14%	25%	37%	49%	59%	66%	71%	76%	80%	83%	86%	88%	90%	91%	92%	94%	95%	95%	96%	96%	97%	97%	98%	98%	98%	99%	99%
1st to 2+ Pump Incs.	0%	1%	1%	4%	11%	21%	32%	41%	50%	56%	63%	69%	74%	78%	83%	85%	87%	89%	91%	93%	94%	95%	96%	97%	97%	98%	98%	99%	99%	99%	99%
2nd to 2+ Pump Incs.	0%	1%	1%	1%	2%	4%	7%	12%	18%	26%	35%	42%	48%	54%	59%	65%	69%	73%	77%	81%	83%	85%	86%	88%	89%	91%	92%	94%	94%	95%	96%

Response Performance Measures

2-Year Sample (October 2014 to September 2016)

Overall

District	Response Performance to All Incidents		Primary Building Fires	All Other Incidents
	Average 1st	Average 2nd	%1st in 10 Mins	%1st in 15 Mins
Allerdale	09:16	15:50	62%	87%
Barrow-in-Furness	06:17	11:23	92%	97%
Carlisle	07:21	10:23	82%	93%
Copeland	08:47	14:52	64%	89%
Eden	12:16	18:06	52%	71%
South Lakeland	10:06	15:07	63%	84%
Service-Wide	**08:55**	**13:56**	**71%**	**87%**

Day (08:00 - 20:00)

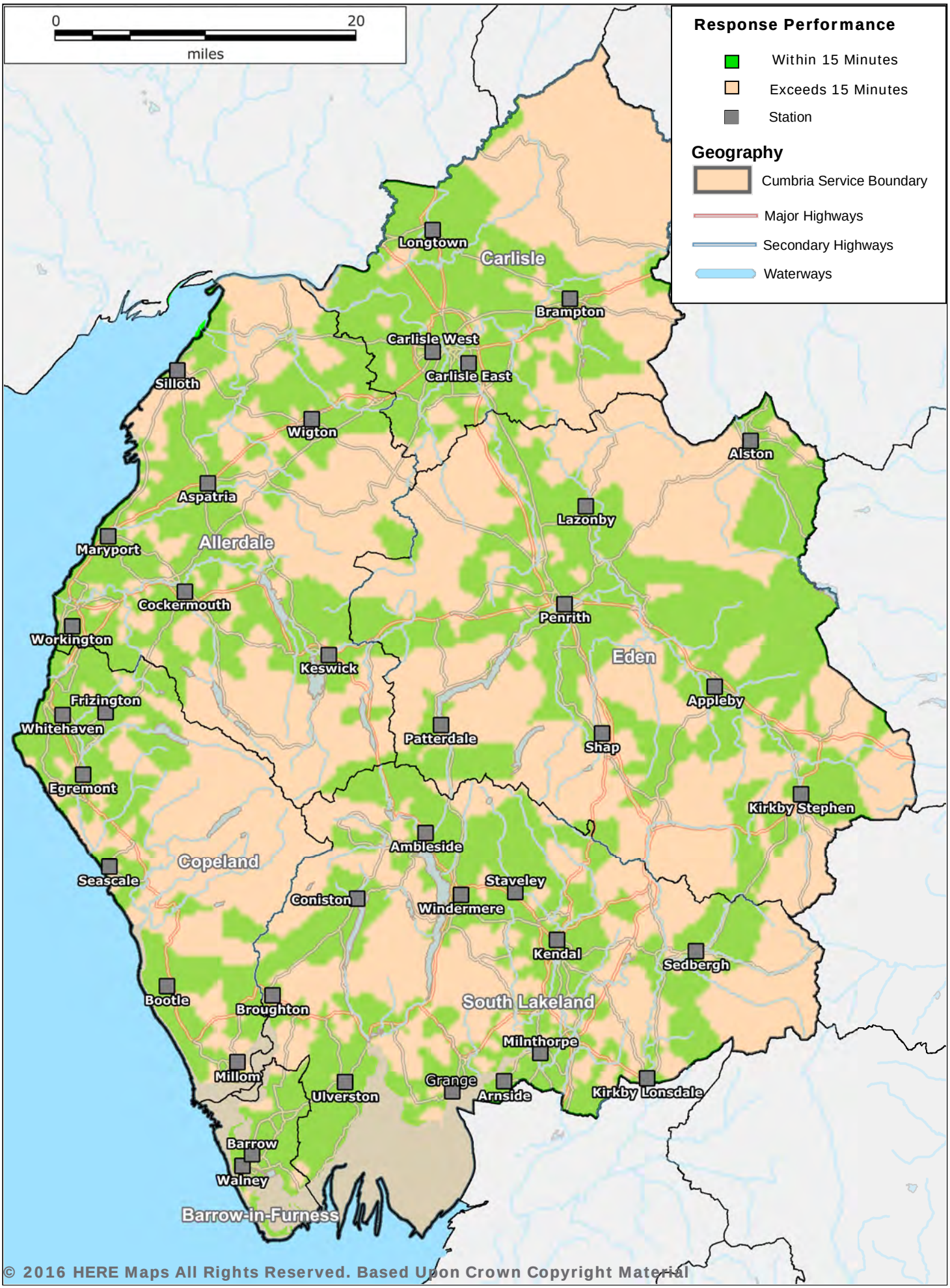
District	Response Performance to All Incidents		Primary Building Fires	All Other Incidents
	Average 1st	Average 2nd	%1st in 10 Mins	%1st in 15 Mins
Allerdale	09:20	15:59	60%	86%
Barrow-in-Furness	06:16	11:43	89%	97%
Carlisle	07:31	10:47	80%	92%
Copeland	09:09	16:16	58%	88%
Eden	11:55	18:33	57%	70%
South Lakeland	09:58	15:25	60%	83%
Service-Wide	**08:59**	**14:28**	**69%**	**86%**

Night (20:00 - 08:00)

District	Response Performance to All Incidents		Primary Building Fires	All Other Incidents
	Average 1st	Average 2nd	%1st in 10 Mins	%1st in 15 Mins
Allerdale	09:07	15:39	64%	88%
Barrow-in-Furness	06:18	10:55	98%	96%
Carlisle	07:05	09:51	85%	94%
Copeland	08:06	12:52	74%	92%
Eden	13:01	17:18	41%	72%
South Lakeland	10:22	14:40	68%	86%
Service-Wide	**08:46**	**13:10**	**75%**	**89%**

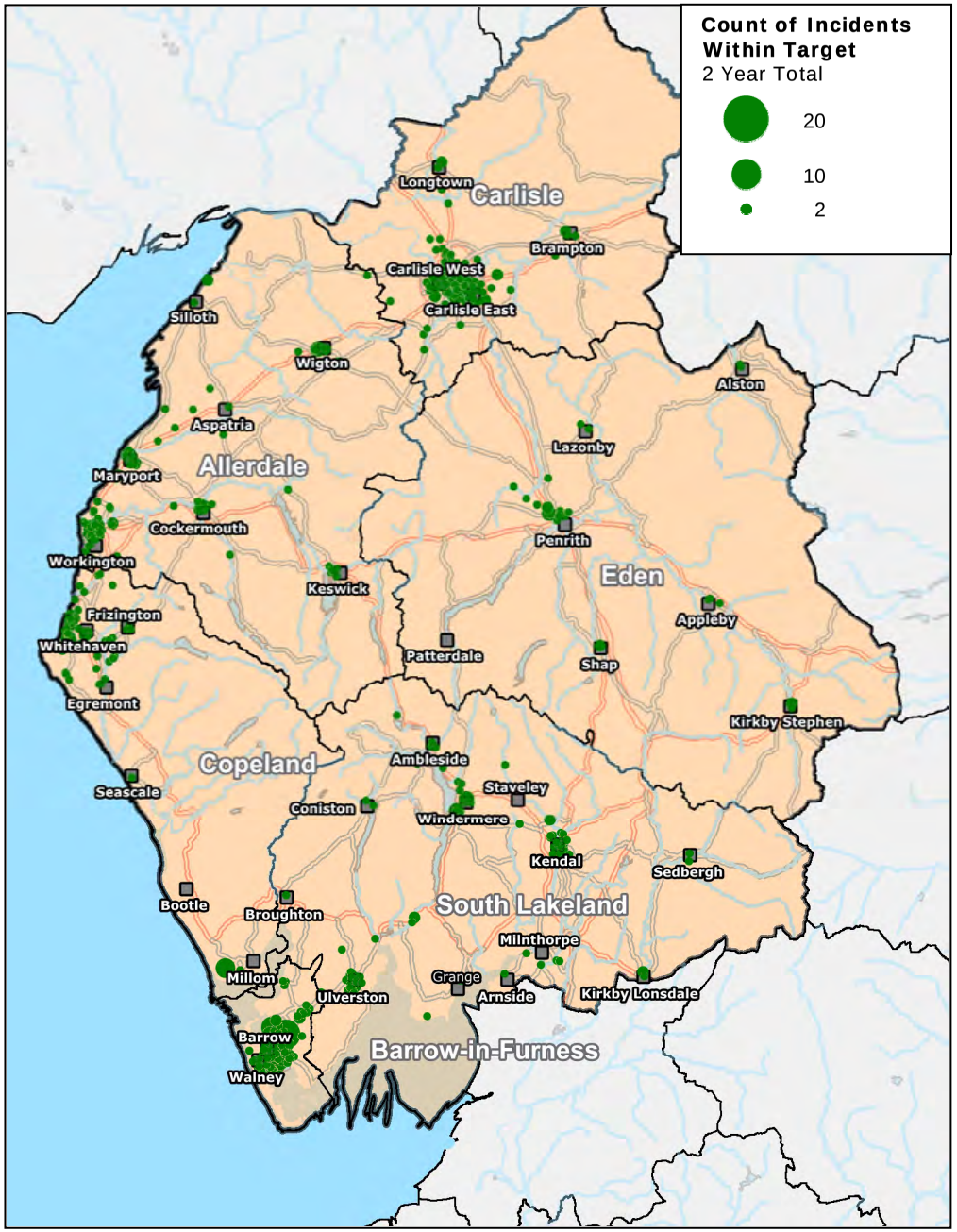
Average 1st Response Performance

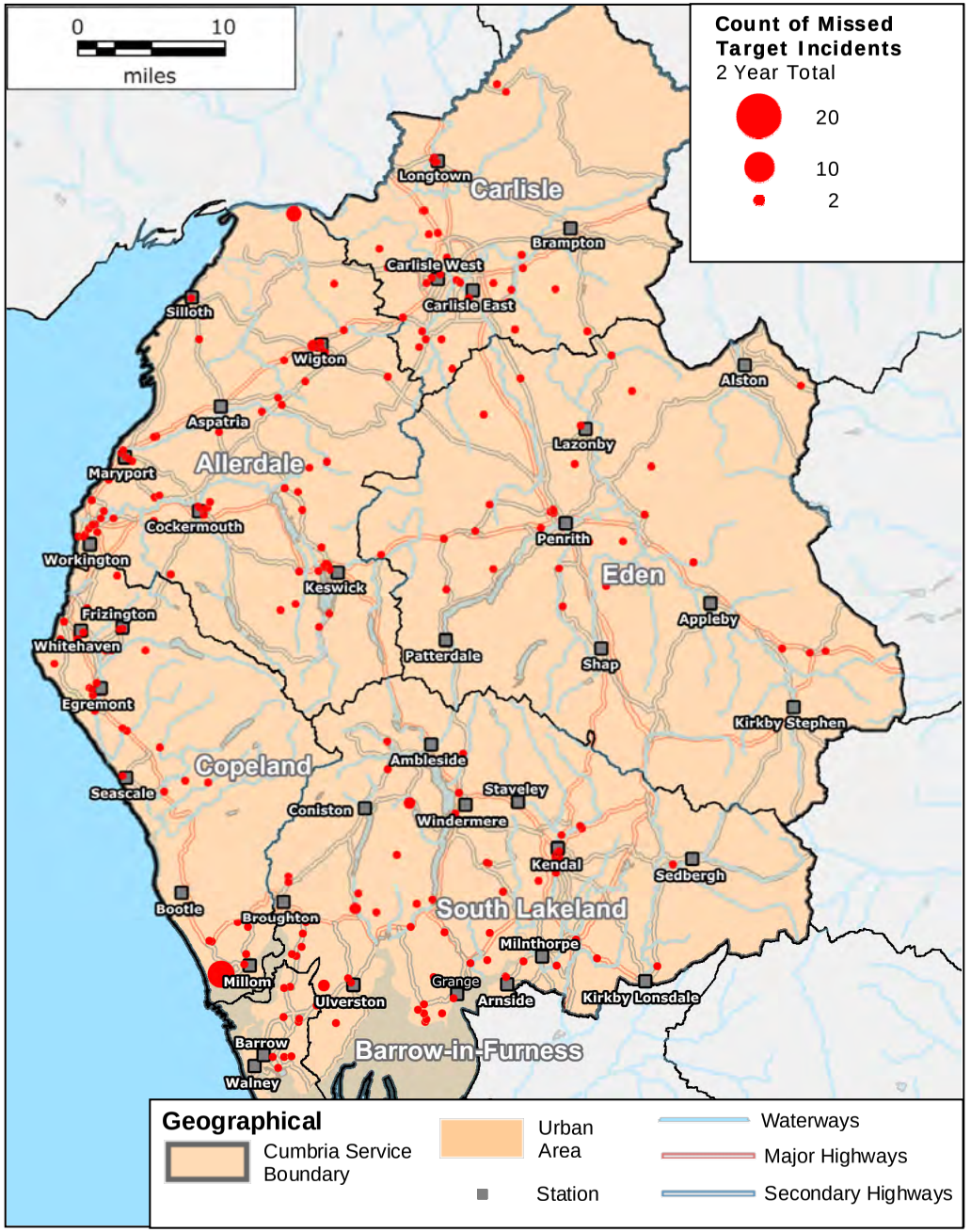
2-Year Sample (October 2014 to September 2016)



Geographical Location of Primary Building Fires within and Outside of 10 Minute Target

2 Year Sample (October 2014 to September 2016)

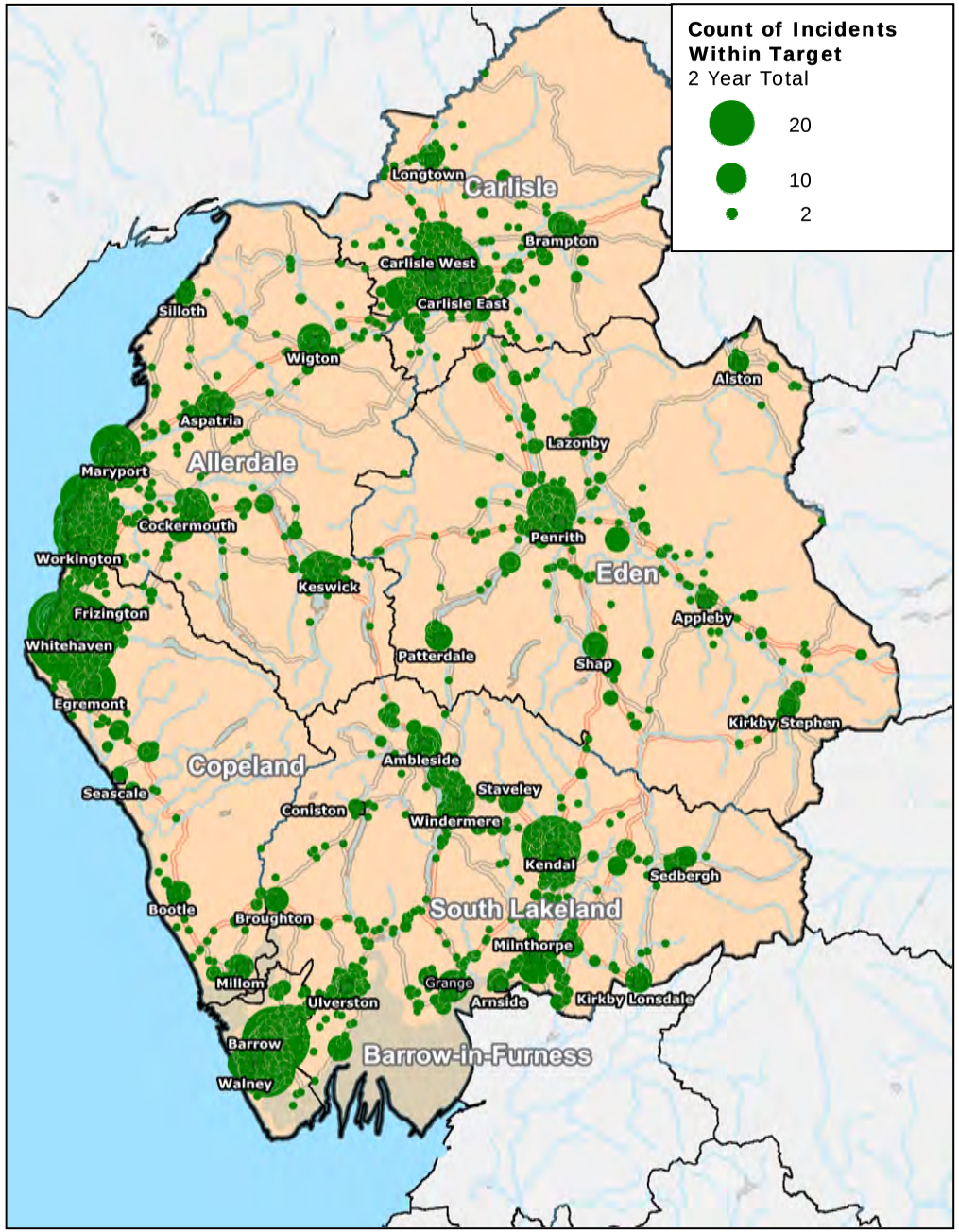


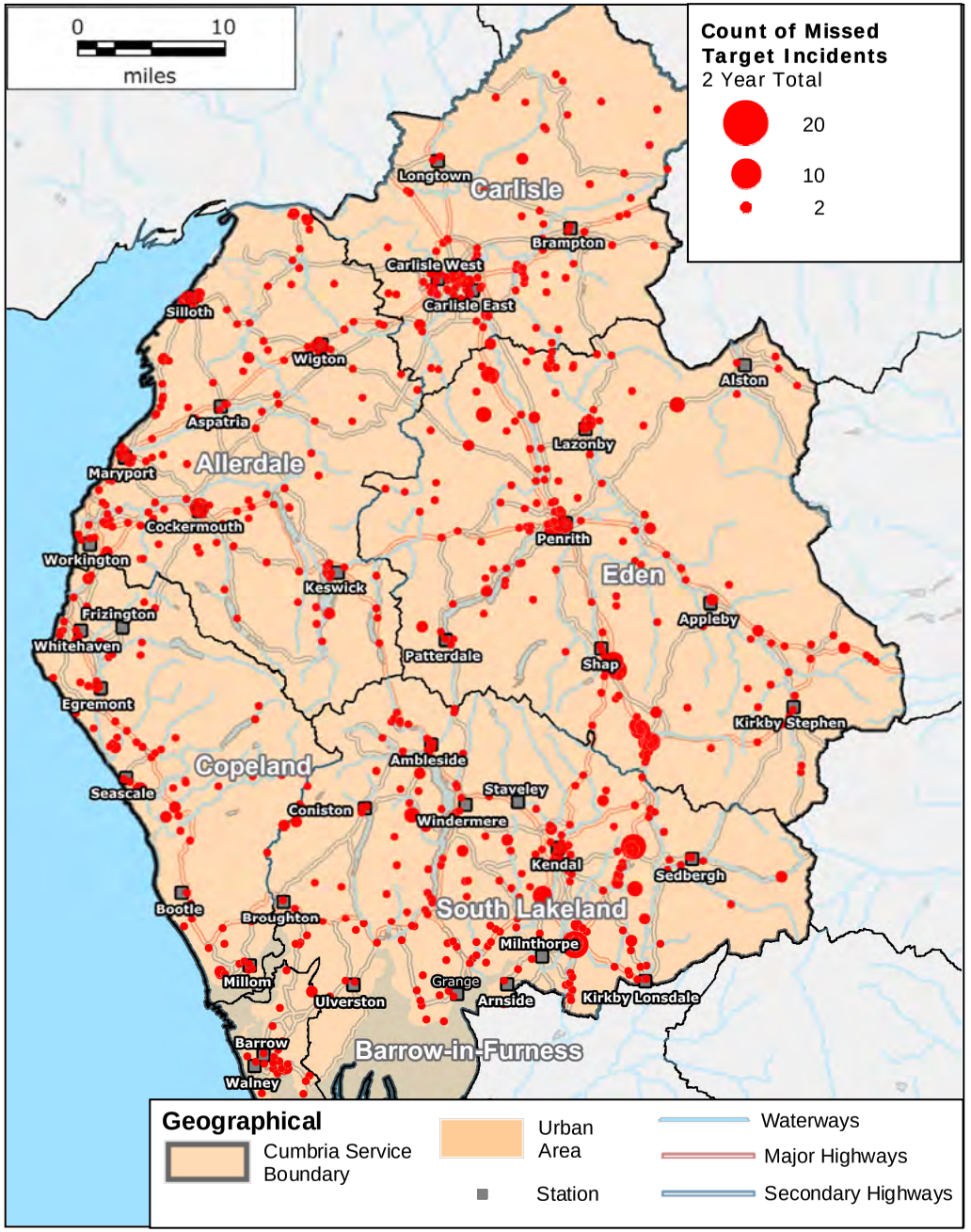


D6b

Geographical Location of All Incidents (Exc. Primary Building Fires) Within and Outside of 15 Minute Target

2 Year Sample (October 2014 to September 2016)





D6c

E Appliance Removal Modelling

E1 Appliance Removal Results

E1a Response Performance Results
E1b Impacts

E2 Average Response Performance

E3 Proportion of 1st Responses within Target

Remove Appliance Modelling: Summary

24-Hour Position

Performance Results

Station	Station Type	Call Sign	Crew Type	Average Response Performance to All Incidents		Primary Building Fires	All Other Incidents
				Average 1st	Average 2nd	%1st in 10 Mins	%1st in 15 Mins
Modelled Base				**08:56**	**13:51**	**71.9%**	**87.1%**
Alston	On-Call	C22P1	On-Call	09:03	13:51	71.7%	86.9%
Ambleside	On-Call	C61P1	On-Call	09:06	13:56	71.3%	86.0%
Appleby	On-Call	C62P1	On-Call	09:03	14:00	71.5%	86.6%
Arnside	On-Call	C63P1	On-Call	08:59	13:58	71.7%	86.7%
Aspatria	On-Call	C03P1	On-Call	09:04	13:59	71.4%	86.2%
Barrow	Wholetime	C40P1	Wholetime	09:52	14:39	60.0%	83.7%
Bootle	On-Call	C41P1	On-Call	08:59	13:54	71.8%	86.8%
Brampton	On-Call	C23P1	On-Call	09:05	13:57	71.2%	86.0%
Broughton	On-Call	C42P1	On-Call	08:59	13:55	71.7%	86.8%
Carlisle East	Wholetime	C20P1	Wholetime	09:32	15:27	66.1%	85.0%
Carlisle West	Wholetime	C21P1	Wholetime	09:31	15:26	66.8%	85.1%
Cockermouth	On-Call	C04P1	On-Call	09:10	14:00	70.4%	85.4%
Coniston	On-Call	C43P1	On-Call	08:59	13:53	71.8%	86.8%
Egremont	On-Call	C05P1	On-Call	09:00	13:58	71.1%	86.7%
Frizington	On-Call	C06P1	On-Call	08:58	13:56	71.4%	86.9%
Grange	On-Call	C45P1	On-Call	09:13	13:55	71.5%	85.9%
Kendal	Day-Crewed/On-Call	C60P1	Day-Crewed	09:11	14:16	70.0%	86.1%
Kendal	Day-Crewed/On-Call	C60P2	On-Call	08:57	14:11	71.8%	87.0%
Keswick	On-Call	C07P1	On-Call	09:16	13:57	71.1%	85.4%
Kirkby Lonsdale	On-Call	C64P1	On-Call	09:02	13:52	71.6%	86.6%
Kirkby Stephen	On-Call	C65P1	On-Call	09:05	13:59	71.5%	86.5%
Lazonby	On-Call	C24P1	On-Call	08:59	13:53	71.7%	86.8%
Longtown	On-Call	C25P1	On-Call	09:02	13:55	71.2%	86.5%
Maryport	2 On-Call	C08P1	On-Call	09:12	14:00	69.9%	85.0%
Maryport	2 On-Call	C08P2	On-Call	08:56	13:53	71.9%	87.1%
Millom	On-Call	C46P1	On-Call	09:04	13:54	71.3%	86.2%
Milnthorpe	On-Call	C66P1	On-Call	09:02	14:03	71.4%	86.3%
Patterdale	On-Call	C26P1	On-Call	08:59	13:51	71.8%	86.9%
Penrith	Day-Crewed/On-Call	C27P1	Day-Crewed	09:13	14:31	70.0%	86.0%
Penrith	Day-Crewed/On-Call	C27P2	On-Call	08:57	14:24	71.8%	87.0%
Seascale	On-Call	C09P1	On-Call	09:00	13:54	71.7%	86.6%
Sedbergh	On-Call	C67P1	On-Call	09:03	13:54	71.5%	86.5%
Shap	On-Call	C68P1	On-Call	09:01	13:54	71.8%	86.8%
Silloth	On-Call	C10P1	On-Call	08:59	13:52	71.5%	86.8%
Staveley	On-Call	C69P1	On-Call	08:58	13:58	71.7%	86.9%
Ulverston	Wholetime/On-Call	C47P1	Wholetime	09:06	14:24	70.7%	86.5%
Ulverston	Wholetime/On-Call	C47P2	On-Call	08:57	14:05	71.8%	87.0%
Walney	On-Call	C48P1	On-Call	08:59	14:18	71.7%	86.9%
Whitehaven	Wholetime/On-Call	C02P1	Wholetime	09:29	14:15	66.4%	84.1%
Whitehaven	Wholetime/On-Call	C02P2	On-Call	08:56	13:56	71.8%	87.0%
Wigton	On-Call	C11P1	On-Call	09:04	13:57	70.8%	86.2%
Windermere	On-Call	C70P1	On-Call	09:10	14:00	70.2%	85.5%
Workington	Wholetime/On-Call	C01P1	Wholetime	09:32	14:11	66.6%	83.9%
Workington	Wholetime/On-Call	C01P2	On-Call	08:57	14:00	71.8%	87.0%

Remove Appliance Modelling: Summary

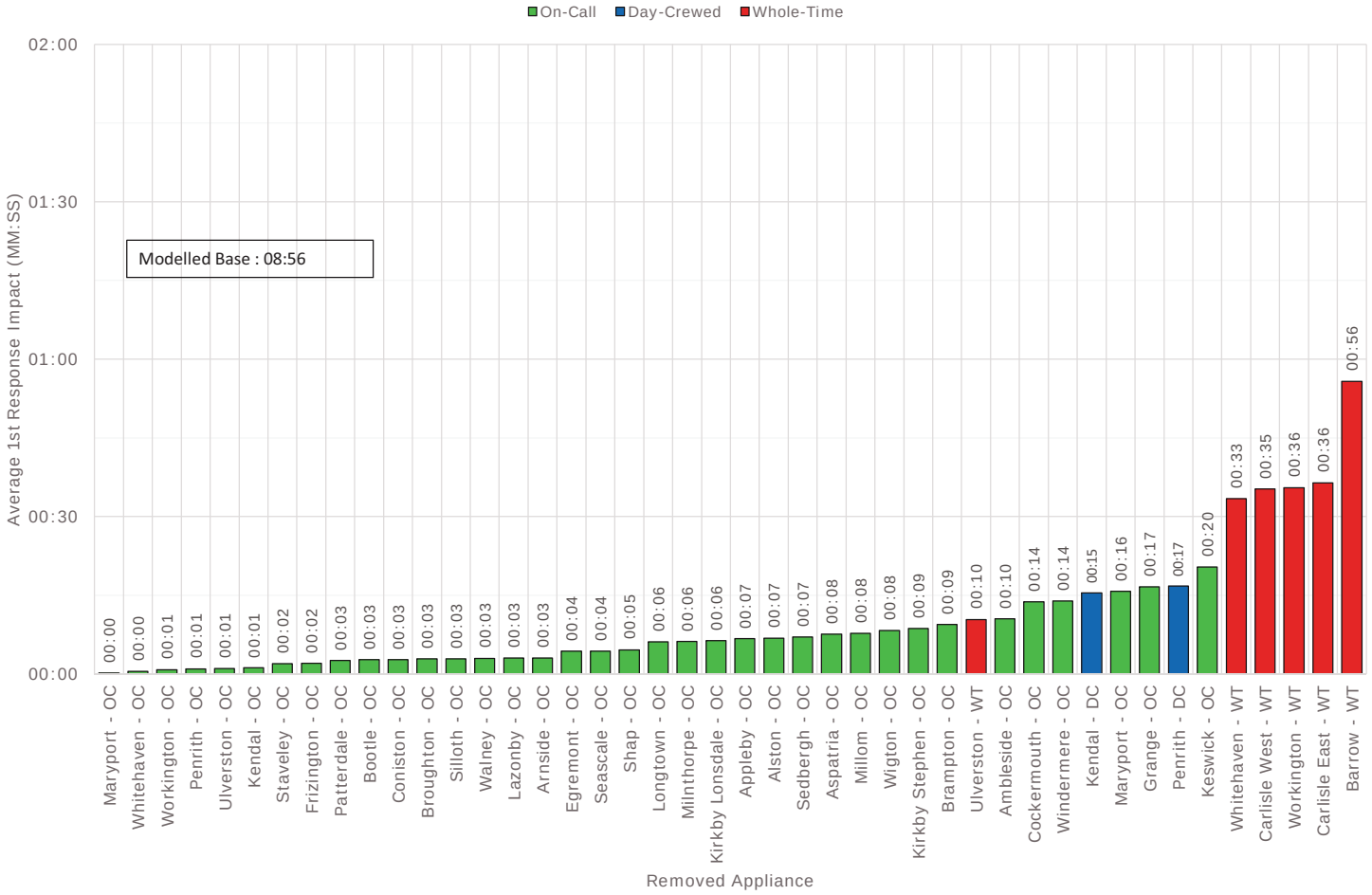
24-Hour Position

Impacts

Station	Station Type	Call Sign	Crew Type	Average Response Performance to All Incidents		Primary Building Fires	All Other Incidents
				Average 1st	Average 2nd	%1st in 10 Mins	%1st in 15 Mins
Modelled Base (Performance)				**08:56**	**13:51**	**71.9%**	**87.1%**
Alston	On-Call	C22P1	On-Call	00:07	00:00	-0.2%	-0.2%
Ambleside	On-Call	C61P1	On-Call	00:10	00:05	-0.6%	-1.1%
Appleby	On-Call	C62P1	On-Call	00:07	00:09	-0.4%	-0.5%
Arnside	On-Call	C63P1	On-Call	00:03	00:07	-0.2%	-0.4%
Aspatria	On-Call	C03P1	On-Call	00:08	00:08	-0.5%	-0.9%
Barrow	Wholetime	C40P1	Wholetime	00:56	00:48	-11.8%	-3.4%
Bootle	On-Call	C41P1	On-Call	00:03	00:03	0.0%	-0.3%
Brampton	On-Call	C23P1	On-Call	00:09	00:06	-0.7%	-1.1%
Broughton	On-Call	C42P1	On-Call	00:03	00:04	-0.2%	-0.3%
Carlisle East	Wholetime	C20P1	Wholetime	00:36	01:36	-5.8%	-2.1%
Carlisle West	Wholetime	C21P1	Wholetime	00:35	01:35	-5.1%	-2.0%
Cockermouth	On-Call	C04P1	On-Call	00:14	00:10	-1.5%	-1.7%
Coniston	On-Call	C43P1	On-Call	00:03	00:03	-0.1%	-0.3%
Egremont	On-Call	C05P1	On-Call	00:04	00:08	-0.8%	-0.4%
Frizington	On-Call	C06P1	On-Call	00:02	00:05	-0.5%	-0.2%
Grange	On-Call	C45P1	On-Call	00:17	00:04	-0.4%	-1.2%
Kendal	Day-Crewed/On-Call	C60P1	Day-Crewed	00:15	00:26	-1.9%	-1.0%
Kendal	Day-Crewed/On-Call	C60P2	On-Call	00:01	00:20	-0.1%	-0.2%
Keswick	On-Call	C07P1	On-Call	00:20	00:07	-0.8%	-1.7%
Kirkby Lonsdale	On-Call	C64P1	On-Call	00:06	00:02	-0.3%	-0.5%
Kirkby Stephen	On-Call	C65P1	On-Call	00:09	00:08	-0.3%	-0.6%
Lazonby	On-Call	C24P1	On-Call	00:03	00:03	-0.2%	-0.3%
Longtown	On-Call	C25P1	On-Call	00:06	00:04	-0.7%	-0.6%
Maryport	2 On-Call	C08P1	On-Call	00:16	00:09	-2.0%	-2.1%
Maryport	2 On-Call	C08P2	On-Call	00:00	00:02	0.0%	0.0%
Millom	On-Call	C46P1	On-Call	00:08	00:04	-0.6%	-0.9%
Milnthorpe	On-Call	C66P1	On-Call	00:06	00:12	-0.5%	-0.8%
Patterdale	On-Call	C26P1	On-Call	00:03	00:00	-0.1%	-0.3%
Penrith	Day-Crewed/On-Call	C27P1	Day-Crewed	00:17	00:41	-1.9%	-1.1%
Penrith	Day-Crewed/On-Call	C27P2	On-Call	00:01	00:33	0.0%	-0.1%
Seascale	On-Call	C09P1	On-Call	00:04	00:03	-0.2%	-0.5%
Sedbergh	On-Call	C67P1	On-Call	00:07	00:03	-0.4%	-0.6%
Shap	On-Call	C68P1	On-Call	00:05	00:03	-0.1%	-0.3%
Silloth	On-Call	C10P1	On-Call	00:03	00:02	-0.4%	-0.3%
Staveley	On-Call	C69P1	On-Call	00:02	00:07	-0.2%	-0.2%
Ulverston	Wholetime/On-Call	C47P1	Wholetime	00:10	00:34	-1.2%	-0.6%
Ulverston	Wholetime/On-Call	C47P2	On-Call	00:01	00:14	-0.1%	-0.1%
Walney	On-Call	C48P1	On-Call	00:03	00:27	-0.2%	-0.2%
Whitehaven	Wholetime/On-Call	C02P1	Wholetime	00:33	00:24	-5.5%	-3.0%
Whitehaven	Wholetime/On-Call	C02P2	On-Call	00:00	00:06	0.0%	-0.1%
Wigton	On-Call	C11P1	On-Call	00:08	00:06	-1.1%	-0.9%
Windermere	On-Call	C70P1	On-Call	00:14	00:09	-1.7%	-1.6%
Workington	Wholetime/On-Call	C01P1	Wholetime	00:35	00:20	-5.3%	-3.2%
Workington	Wholetime/On-Call	C01P2	On-Call	00:01	00:09	-0.1%	-0.1%

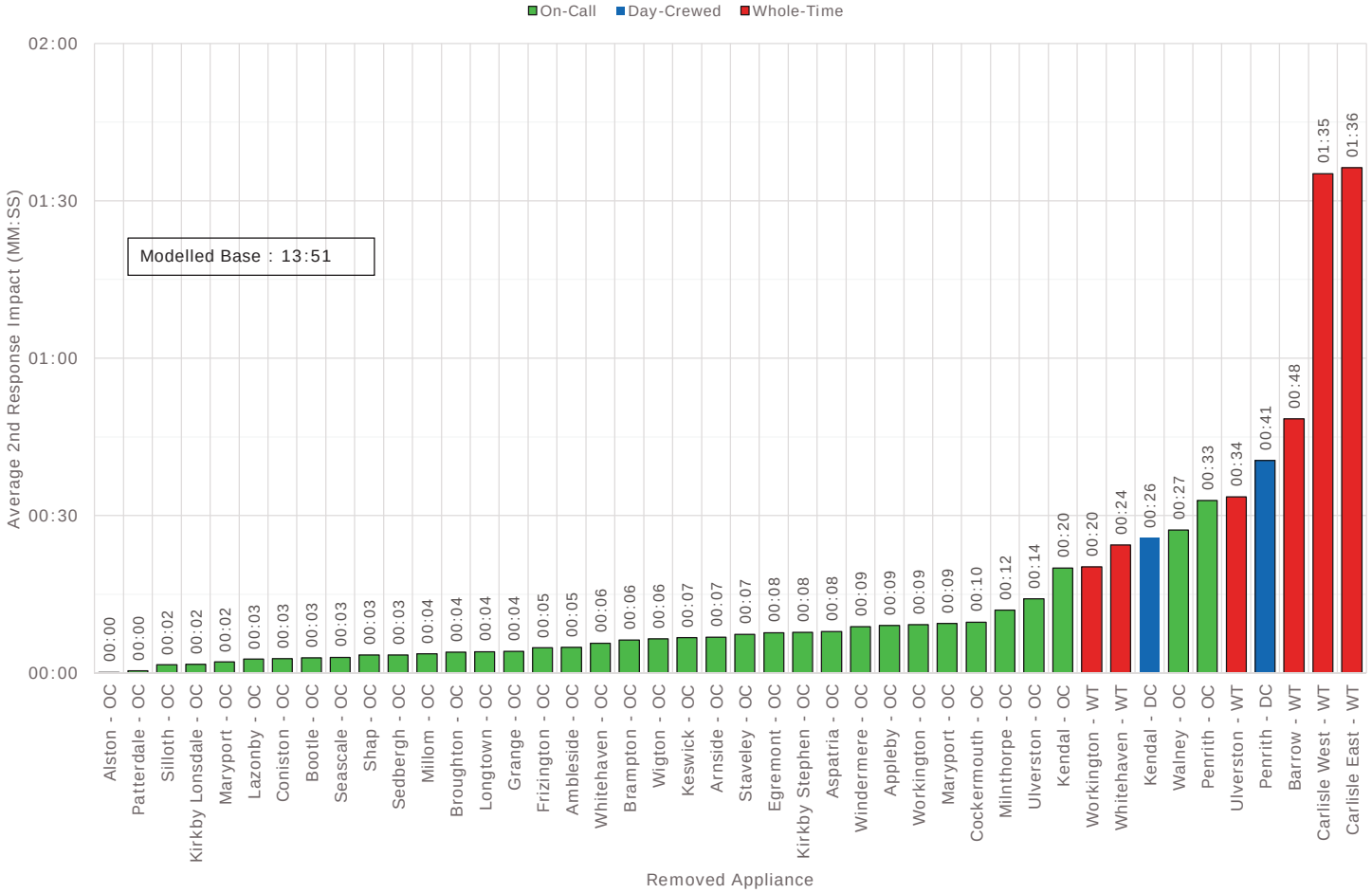
Individual Appliance Removal Modelling

Service-Wide Impact on Average 1st Responses Time to All Incidents



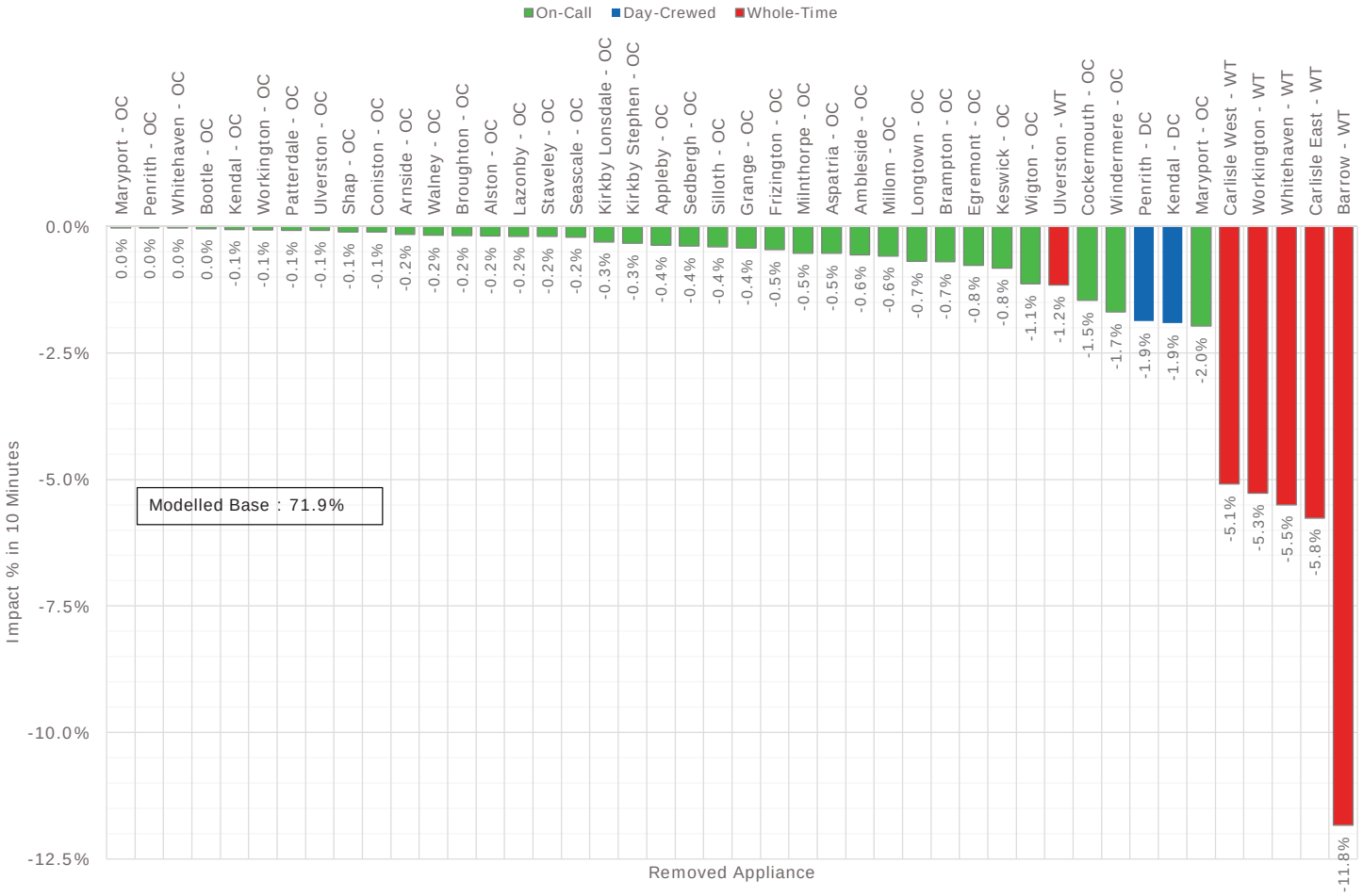
Individual Appliance Removal Modelling

Service-Wide Impact on Average 2nd Response Time to All Incidents



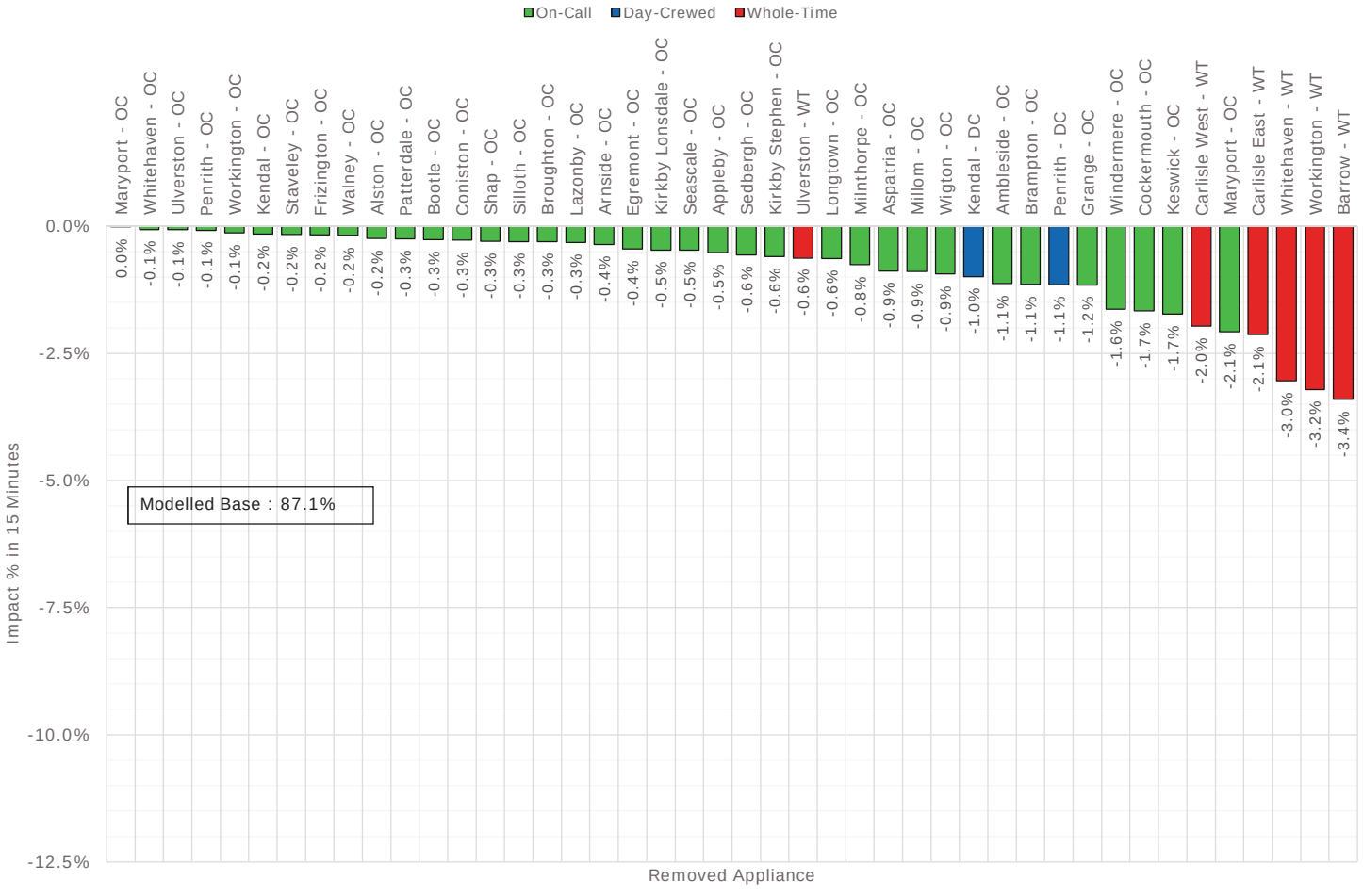
Individual Appliance Removal Modelling

Impact on Service-Wide Proportion of 1st Responses to Primary Building Fires in 10 minutes



Individual Appliance Removal Modelling

Impact on Service-Wide Proportion of 1st Responses to All Other Incidents in 15 minutes



F Station Closure Modelling

F1 Station Closure Results

F1a Response Performance Results
F1b Impacts

F2 Average Response Performance

F3 Proportion of 1st Responses within Target

Remove Station Modelling: Summary

24-Hour Position

Performance Results

Station	Station Type	Average Response Performance to All Incidents		Primary Building Fires	All Other Incidents
		Average 1st	Average 2nd	%1st in 10 Mins	%1st in 15 Mins
Modelled Base		**08:56**	**13:51**	**71.9%**	**87.1%**
Alston	On-Call	09:03	13:51	71.7%	86.9%
Ambleside	On-Call	09:07	13:56	71.3%	86.0%
Appleby	On-Call	09:03	14:00	71.5%	86.6%
Arnside	On-Call	08:59	13:58	71.7%	86.7%
Aspatria	On-Call	09:04	13:59	71.4%	86.2%
Barrow	Wholetime	09:52	14:39	60.0%	83.7%
Bootle	On-Call	08:59	13:54	71.8%	86.8%
Brampton	On-Call	09:05	13:57	71.2%	86.0%
Broughton	On-Call	08:59	13:55	71.7%	86.8%
Carlisle East	Wholetime	09:32	15:27	66.1%	85.0%
Carlisle West	Wholetime	09:31	15:26	66.8%	85.1%
Cockermouth	On-Call	09:10	14:00	70.4%	85.4%
Coniston	On-Call	08:59	13:53	71.8%	86.8%
Egremont	On-Call	09:00	13:58	71.1%	86.7%
Frizington	On-Call	08:58	13:56	71.4%	86.9%
Grange	On-Call	09:13	13:55	71.5%	85.9%
Kendal	Day-Crewed/On-Call	09:44	14:41	68.1%	81.4%
Keswick	On-Call	09:16	13:57	71.1%	85.4%
Kirkby Lonsdale	On-Call	09:02	13:52	71.6%	86.6%
Kirkby Stephen	On-Call	09:05	13:59	71.5%	86.5%
Lazonby	On-Call	08:59	13:53	71.7%	86.8%
Longtown	On-Call	09:02	13:55	71.2%	86.5%
Maryport	2 On-Call	09:15	14:02	69.5%	84.6%
Millom	On-Call	09:04	13:54	71.3%	86.2%
Milnthorpe	On-Call	09:02	14:03	71.4%	86.3%
Patterdale	On-Call	08:59	13:51	71.8%	86.9%
Penrith	Day-Crewed/On-Call	09:50	15:00	69.0%	82.5%
Seascale	On-Call	09:00	13:54	71.7%	86.6%
Sedbergh	On-Call	09:03	13:54	71.5%	86.5%
Shap	On-Call	09:01	13:54	71.8%	86.8%
Silloth	On-Call	08:59	13:52	71.5%	86.8%
Staveley	On-Call	08:58	13:58	71.7%	86.9%
Ulverston	Wholetime/On-Call	09:25	15:07	68.7%	84.4%
Walney	On-Call	08:59	14:18	71.7%	86.9%
Whitehaven	Wholetime/On-Call	09:40	14:24	65.8%	82.3%
Wigton	On-Call	09:04	13:57	70.8%	86.2%
Windermere	On-Call	09:10	14:00	70.2%	85.5%
Workington	Wholetime/On-Call	09:55	14:20	65.2%	79.7%

Remove Station Modelling: Summary

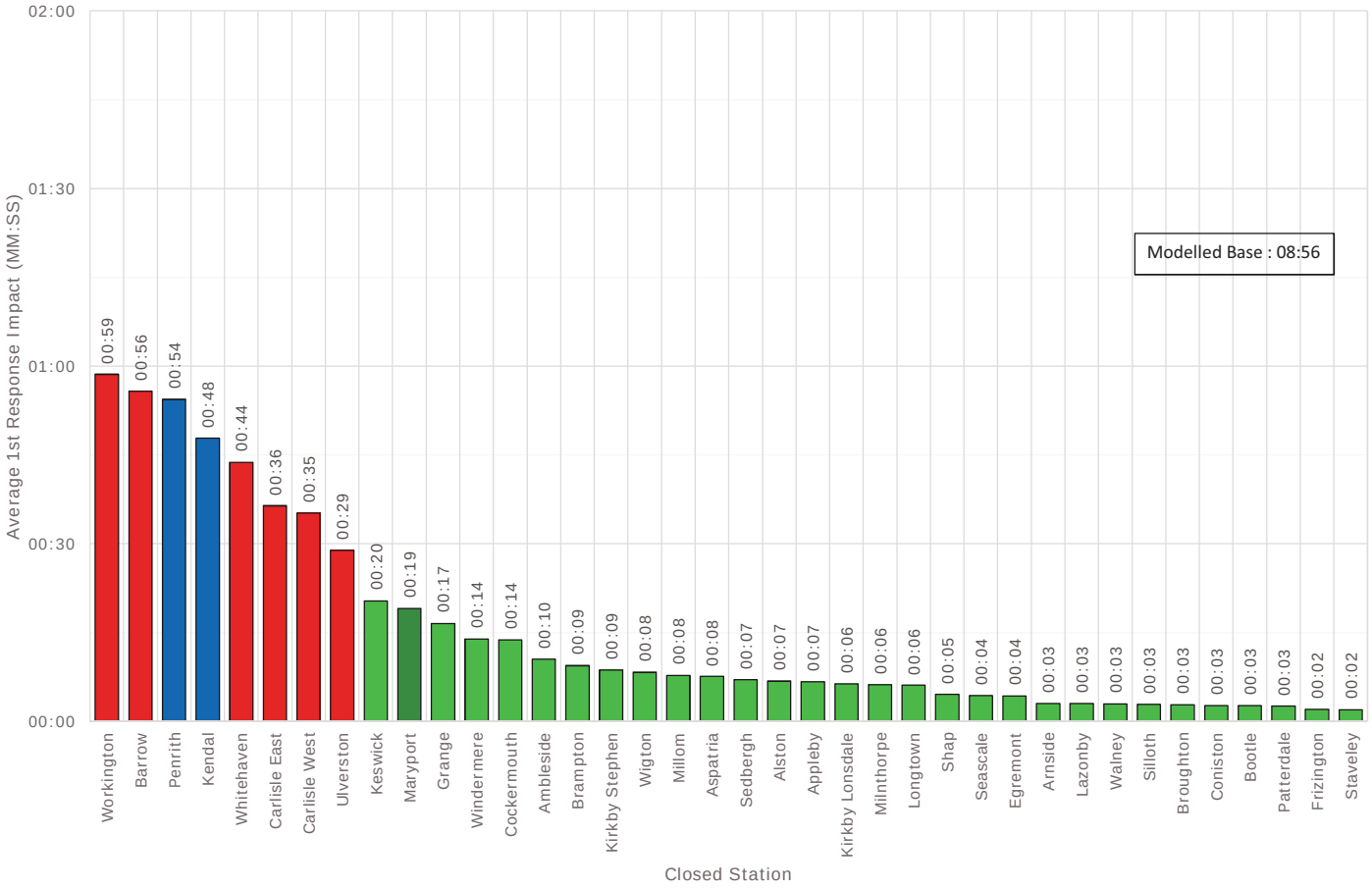
24-Hour Position

Impacts

Station	Station Type	Average Response Performance to All Incidents		Primary Building Fires	All Other Incidents
		Average 1st	Average 2nd	%1st in 10 Mins	%1st in 15 Mins
Modelled Base (Performance)		**08:56**	**13:51**	**71.9%**	**87.1%**
Alston	On-Call	00:07	00:00	-0.2%	-0.2%
Ambleside	On-Call	00:10	00:05	-0.6%	-1.1%
Appleby	On-Call	00:07	00:09	-0.4%	-0.5%
Arnside	On-Call	00:03	00:07	-0.2%	-0.4%
Aspatria	On-Call	00:08	00:08	-0.5%	-0.9%
Barrow	Wholetime	00:56	00:48	-11.8%	-3.4%
Bootle	On-Call	00:03	00:03	0.0%	-0.3%
Brampton	On-Call	00:09	00:06	-0.7%	-1.1%
Broughton	On-Call	00:03	00:04	-0.2%	-0.3%
Carlisle East	Wholetime	00:36	01:36	-5.8%	-2.1%
Carlisle West	Wholetime	00:35	01:35	-5.1%	-2.0%
Cockermouth	On-Call	00:14	00:10	-1.5%	-1.7%
Coniston	On-Call	00:03	00:03	-0.1%	-0.3%
Egremont	On-Call	00:04	00:08	-0.8%	-0.4%
Frizington	On-Call	00:02	00:05	-0.5%	-0.2%
Grange	On-Call	00:17	00:04	-0.4%	-1.2%
Kendal	Day-Crewed/On-Call	00:48	00:50	-3.8%	-5.7%
Keswick	On-Call	00:20	00:07	-0.8%	-1.7%
Kirkby Lonsdale	On-Call	00:06	00:02	-0.3%	-0.5%
Kirkby Stephen	On-Call	00:09	00:08	-0.3%	-0.6%
Lazonby	On-Call	00:03	00:03	-0.2%	-0.3%
Longtown	On-Call	00:06	00:04	-0.7%	-0.6%
Maryport	2 On-Call	00:19	00:11	-2.4%	-2.6%
Millom	On-Call	00:08	00:04	-0.6%	-0.9%
Milnthorpe	On-Call	00:06	00:12	-0.5%	-0.8%
Patterdale	On-Call	00:03	00:00	-0.1%	-0.3%
Penrith	Day-Crewed/On-Call	00:54	01:09	-2.8%	-4.6%
Seascale	On-Call	00:04	00:03	-0.2%	-0.5%
Sedbergh	On-Call	00:07	00:03	-0.4%	-0.6%
Shap	On-Call	00:05	00:03	-0.1%	-0.3%
Silloth	On-Call	00:03	00:02	-0.4%	-0.3%
Staveley	On-Call	00:02	00:07	-0.2%	-0.2%
Ulverston	Wholetime/On-Call	00:29	01:17	-3.2%	-2.7%
Walney	On-Call	00:03	00:27	-0.2%	-0.2%
Whitehaven	Wholetime/On-Call	00:44	00:33	-6.1%	-4.8%
Wigton	On-Call	00:08	00:06	-1.1%	-0.9%
Windermere	On-Call	00:14	00:09	-1.7%	-1.6%
Workington	Wholetime/On-Call	00:59	00:29	-6.7%	-7.4%

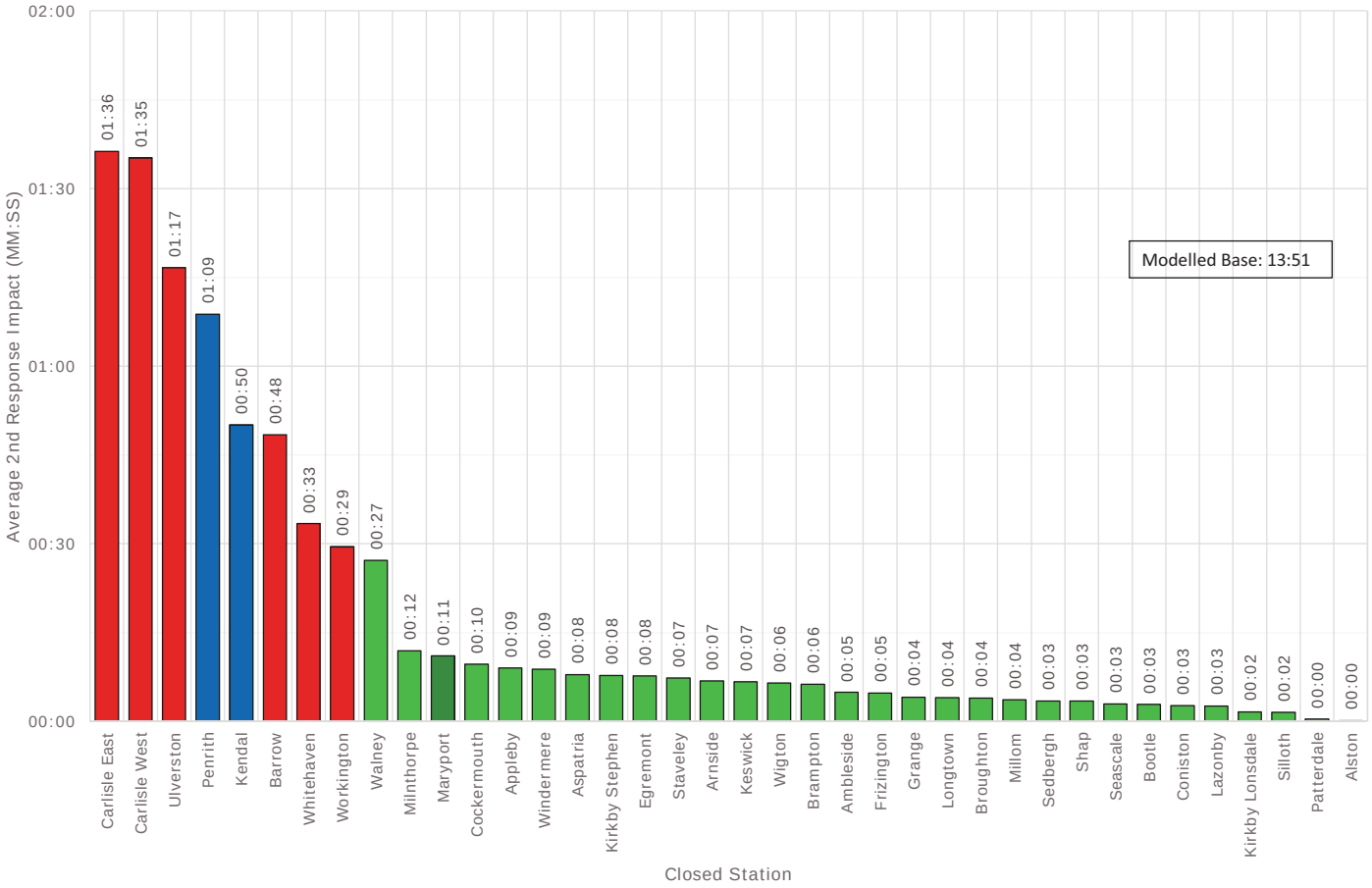
Station Removal Modelling

Service-Wide Impact on Average 1st Responses Time to All Incidents



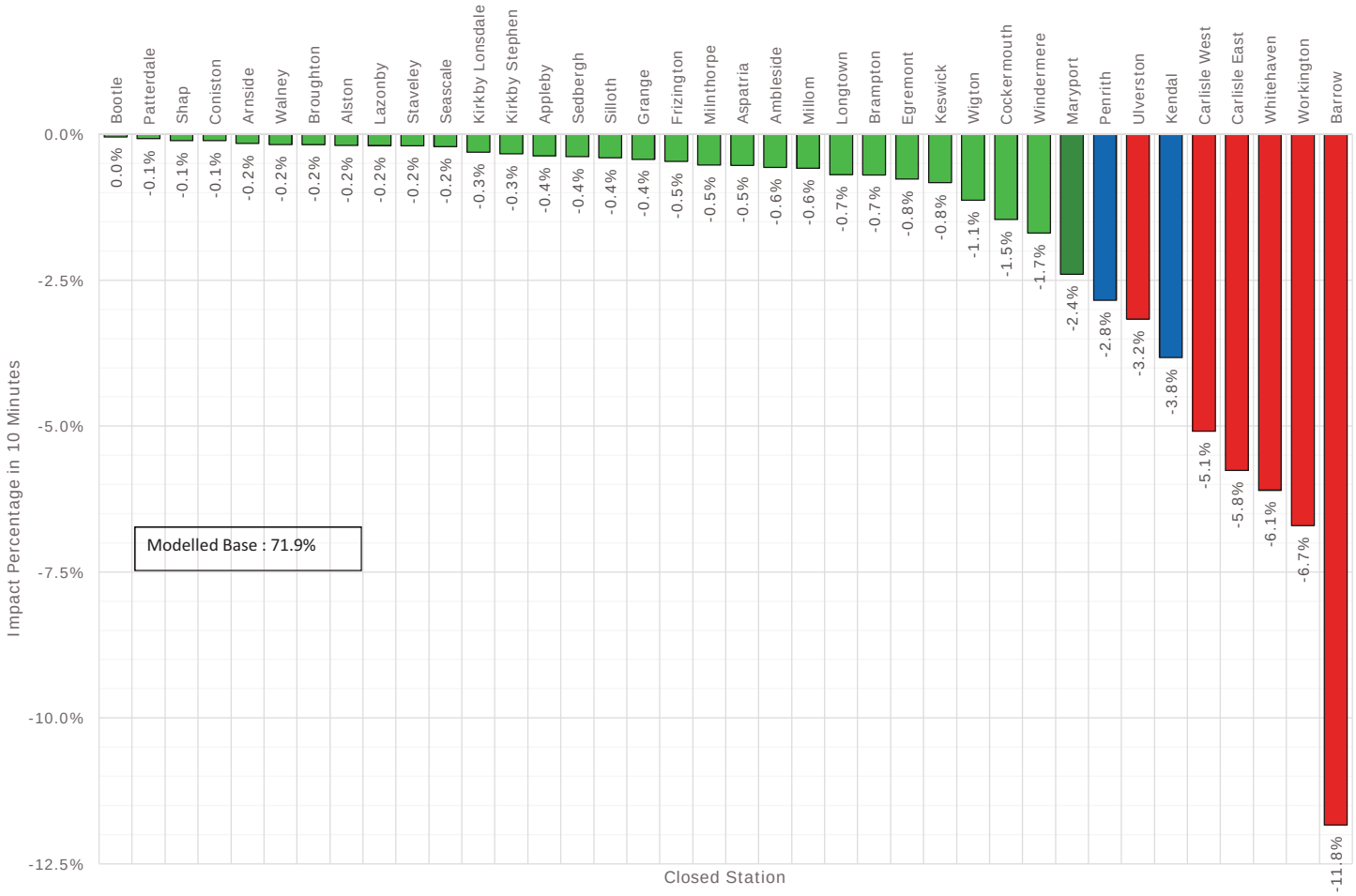
Station Removal Modelling

Service-Wide Impact on Average 2nd Response Time to All Incidents



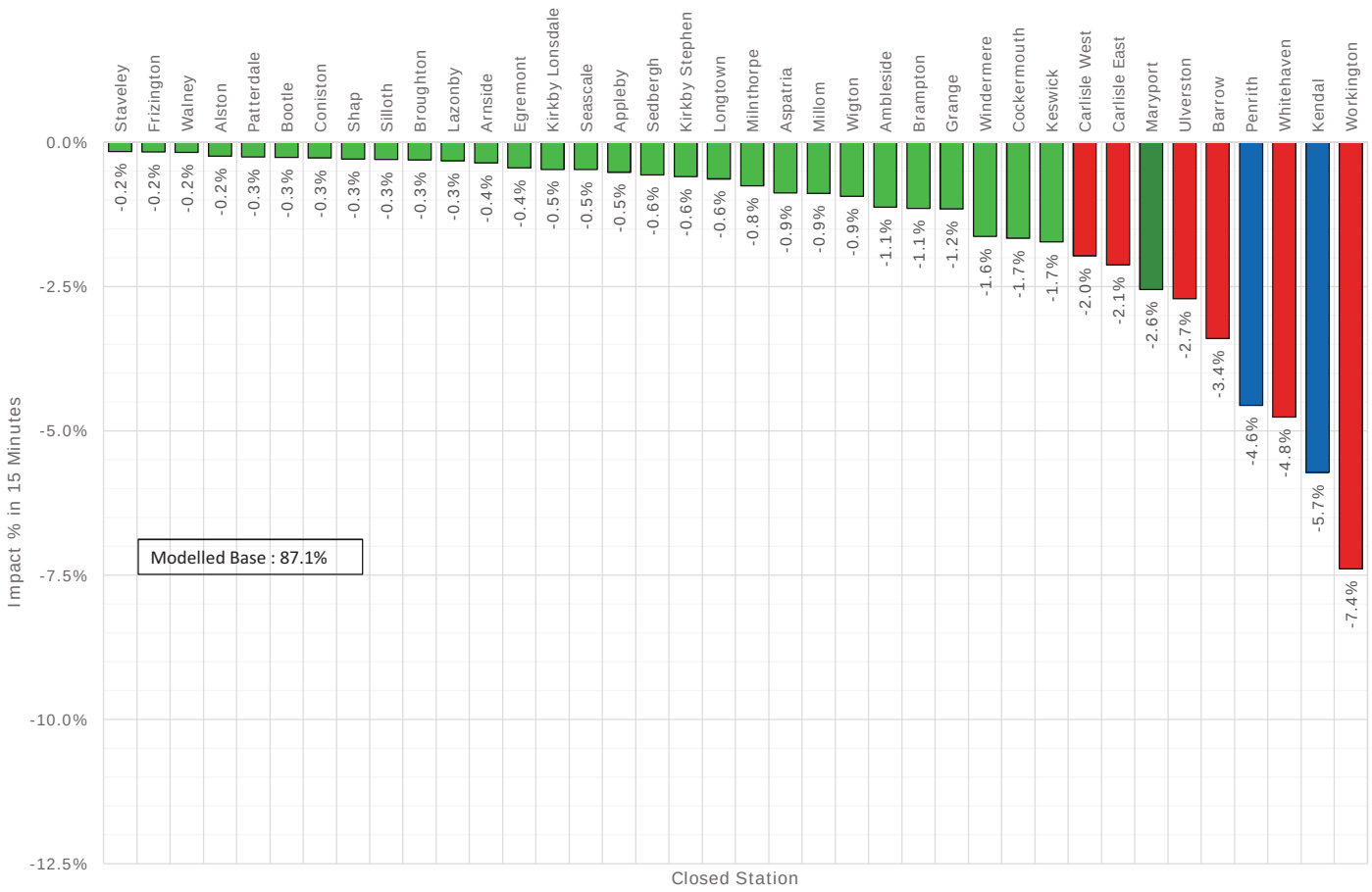
Station Removal Modelling

Impact on Service-Wide Proportion of 1st Responses to Primary Building Fires in 10 Minutes



Station Removal Modelling

Impact on Service-Wide Proportion of 1st Responses to All Other Incidents in 15 minutes



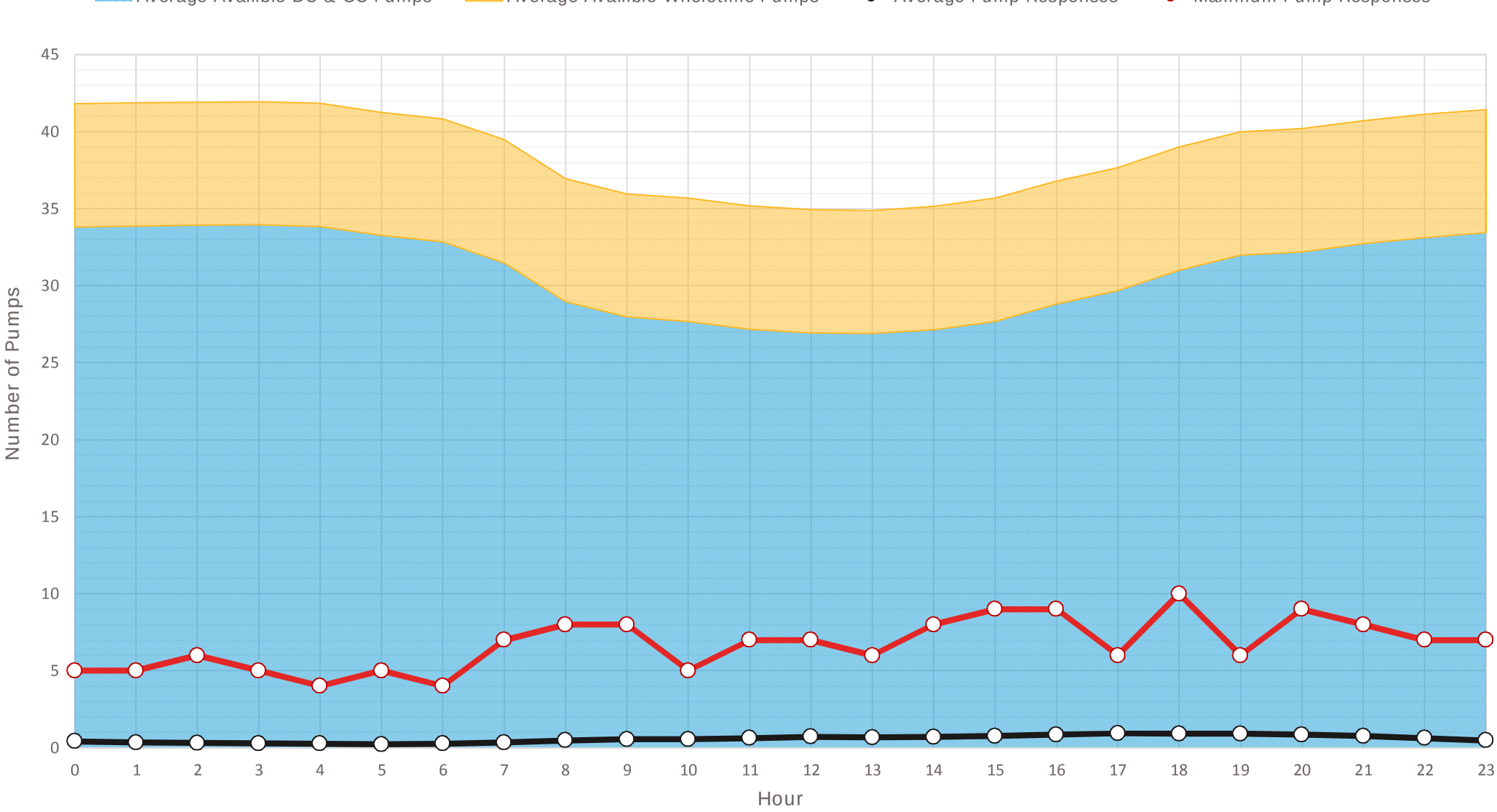
G Optimal Day-Crew Shift Times

G1 Service-Wide Availability and Demand Hourly Profiles

G2 Response Impact By Station Hourly Profiles

Average Availible Pumps against Number of Pump Responses by Hour

2-Year Sample Period (October 2014 to September 2016) Excluding 1st December to 7th December 2015



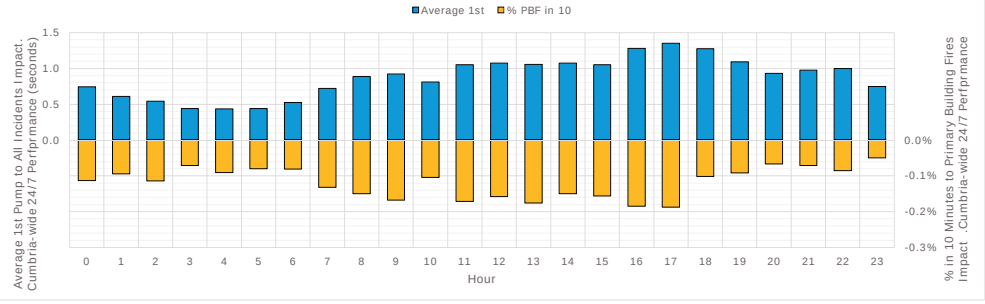
G1

Optimal Day-Crew Shift Times

Wholetime and Day-Crew Stations Considered

Day-Crewing at Barrow Station

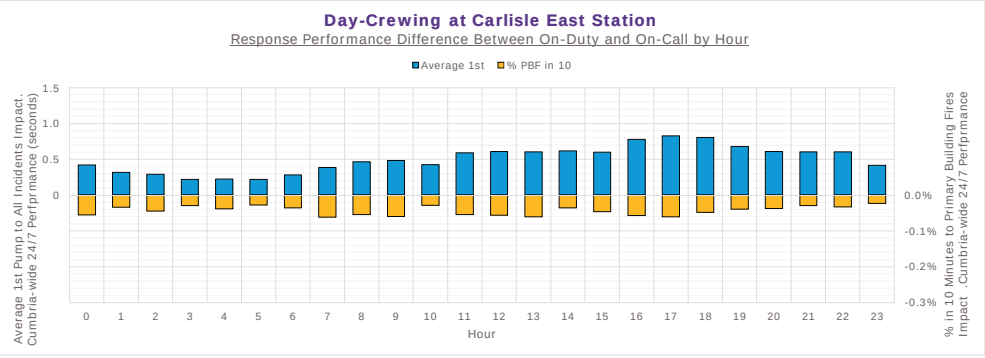
Response Performance Difference Between On-Duty and On-Call by Hour



Minimise Impact to Response Measure	Optimal 8 Hour Shift	Optimal 12 Hour Shift
Average Response to All Incidents	1200 to 2000	1100 to 2300
% of Primary Building Fires in 10 Minutes	1000 to 1800	0700 to 1900

Day-Crewing at Carlisle East Station

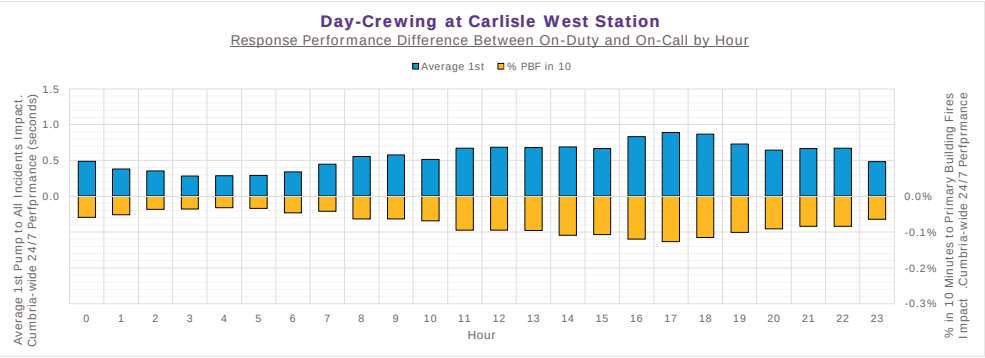
Response Performance Difference Between On-Duty and On-Call by Hour



Minimise Impact to Response Measure	Optimal 8 Hour Shift	Optimal 12 Hour Shift
Average Response to All Incidents	1200 to 2000	1100 to 2300
% of Primary Building Fires in 10 Minutes	1100 to 1900	0700 to 1900

Day-Crewing at Carlisle West Station

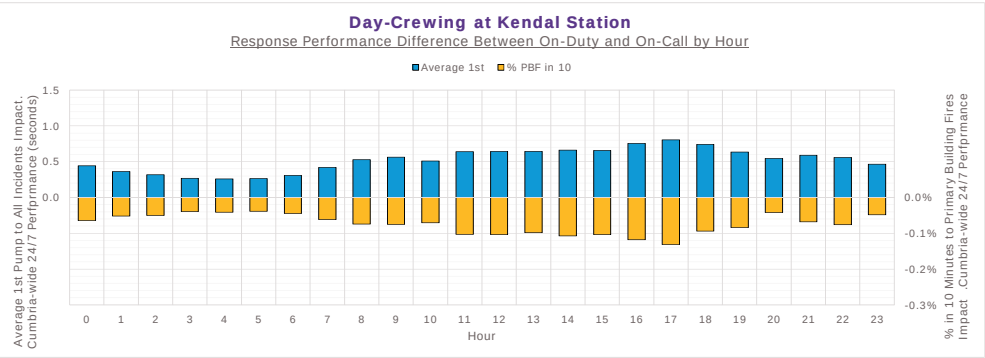
Response Performance Difference Between On-Duty and On-Call by Hour



Minimise Impact to Response Measure	Optimal 8 Hour Shift	Optimal 12 Hour Shift
Average Response to All Incidents	1200 to 2000	1100 to 2300
% of Primary Building Fires in 10 Minutes	1200 to 2000	1100 to 2300

Day-Crewing at Kendal Station

Response Performance Difference Between On-Duty and On-Call by Hour



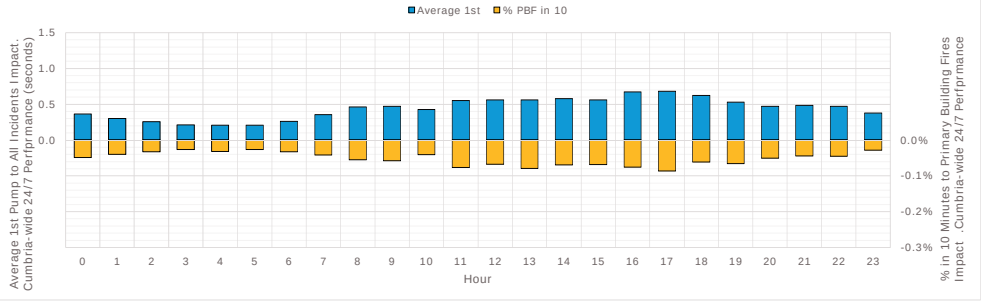
Minimise Impact to Response Measure	Optimal 8 Hour Shift	Optimal 12 Hour Shift
Average Response to All Incidents	1100 to 1900	1100 to 2300
% of Primary Building Fires in 10 Minutes	1100 to 1900	0800 to 2000

Optimal Day-Crew Shift Times

Wholetime and Day-Crew Stations Considered

Day-Crewing at Penrith Station

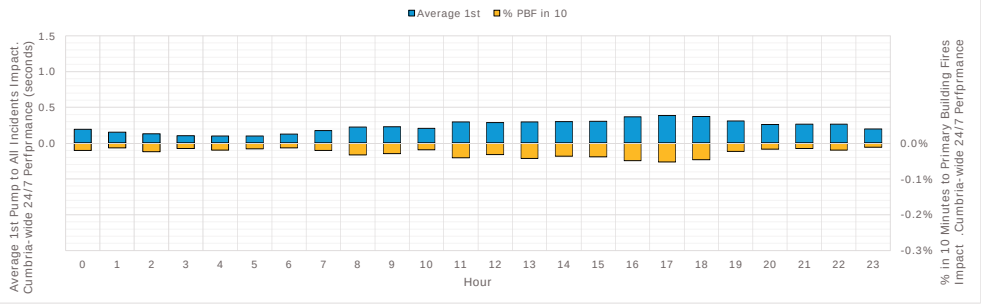
Response Performance Difference Between On-Duty and On-Call by Hour



Minimise Impact to Response Measure	Optimal 8 Hour Shift	Optimal 12 Hour Shift
Average Response to All Incidents	1100 to 1900	1100 to 2300
% of Primary Building Fires in 10 Minutes	1100 to 1900	0800 to 2000

Day-Crewing at Ulverston Station

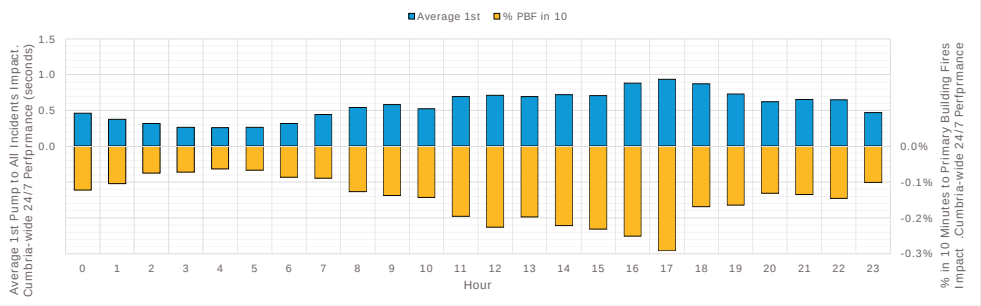
Response Performance Difference Between On-Duty and On-Call by Hour



Minimise Impact to Response Measure	Optimal 8 Hour Shift	Optimal 12 Hour Shift
Average Response to All Incidents	1200 to 2000	1100 to 2300
% of Primary Building Fires in 10 Minutes	1100 to 1900	0800 to 2000

Day-Crewing at Whitehaven Station

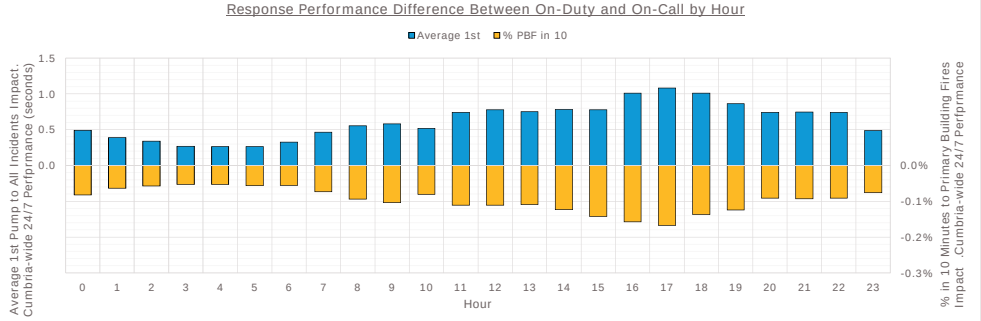
Response Performance Difference Between On-Duty and On-Call by Hour



Minimise Impact to Response Measure	Optimal 8 Hour Shift	Optimal 12 Hour Shift
Average Response to All Incidents	1200 to 2000	1100 to 2300
% of Primary Building Fires in 10 Minutes	1100 to 1900	1100 to 2300

Day-Crewing at Workington Station

Response Performance Difference Between On-Duty and On-Call by Hour



Minimise Impact to Response Measure	Optimal 8 Hour Shift	Optimal 12 Hour Shift
Average Response to All Incidents	1200 to 2000	1100 to 2300
% of Primary Building Fires in 10 Minutes	1200 to 2000	0800 to 2000

H On-Call Availability Changes

H1 Duty System Change Results

H1a Response Performance Results
H1b Impacts

H2 Average Response Performance

H3 Proportion of 1st Responses within Target

H4 Suitable Population within Alternate Turn-In Time Catchments

H4a Total ONS Population
H4c Mosaic Suitable Population Estimate

On Call Appliances with 100% Availability

24-Hour Position

Performance Results

Station	Station Type	Call Sign	Crew Type	Current Availability	Average Response Performance to All Incidents		Primary Building Fires	All Other Incidents
					Average 1st	Average 2nd	%1st in 10 Mins	%1st in 15 Mins
Modelled Base					**08:56**	**13:51**	**72%**	**87%**
Alston	On-Call	C22P1	On-Call	97.3%	**08:56**	**13:50**	72%	87%
Ambleside	On-Call	C61P1	On-Call	94.4%	**08:55**	**13:50**	72%	87%
Appleby	On-Call	C62P1	On-Call	92.6%	**08:55**	**13:50**	72%	87%
Arnside	On-Call	C63P1	On-Call	86.5%	**08:55**	**13:49**	72%	87%
Aspatria	On-Call	C03P1	On-Call	95.3%	**08:56**	**13:50**	72%	87%
Bootle	On-Call	C41P1	On-Call	87.8%	**08:56**	**13:50**	72%	87%
Brampton	On-Call	C23P1	On-Call	92.3%	**08:55**	**13:50**	72%	87%
Broughton	On-Call	C42P1	On-Call	95.6%	**08:56**	**13:50**	72%	87%
Cockermouth	On-Call	C04P1	On-Call	90.3%	**08:54**	**13:49**	72%	87%
Coniston	On-Call	C43P1	On-Call	78.7%	**08:55**	**13:50**	72%	87%
Egremont	On-Call	C05P1	On-Call	73.3%	**08:54**	**13:47**	72%	87%
Frizington	On-Call	C06P1	On-Call	86.8%	**08:56**	**13:49**	72%	87%
Grange	On-Call	C45P1	On-Call	95.5%	**08:55**	**13:50**	72%	87%
Kendal	Day-Crewed / On-Call	C60P2	On-Call	93.7%	**08:56**	**13:49**	72%	87%
Keswick	On-Call	C07P1	On-Call	98.4%	**08:56**	**13:50**	72%	87%
Kirkby Lonsdale	On-Call	C64P1	On-Call	92.7%	**08:56**	**13:50**	72%	87%
Kirkby Stephen	On-Call	C65P1	On-Call	95.0%	**08:55**	**13:50**	72%	87%
Lazonby	On-Call	C24P1	On-Call	70.7%	**08:55**	**13:49**	72%	87%
Longtown	On-Call	C25P1	On-Call	81.4%	**08:54**	**13:49**	72%	87%
Maryport	2 On-Call	C08P1	On-Call	94.0%	**08:55**	**13:50**	72%	87%
Maryport	2 On-Call	C08P2	On-Call	19.8%	**08:56**	**13:47**	72%	87%
Millom	On-Call	C46P1	On-Call	94.9%	**08:56**	**13:50**	72%	87%
Milnthorpe	On-Call	C66P1	On-Call	94.1%	**08:56**	**13:50**	72%	87%
Patterdale	On-Call	C26P1	On-Call	88.5%	**08:56**	**13:50**	72%	87%
Penrith	Day-Crewed / On-Call	C27P2	On-Call	90.3%	**08:56**	**13:47**	72%	87%
Seascale	On-Call	C09P1	On-Call	89.5%	**08:55**	**13:50**	72%	87%
Sedbergh	On-Call	C67P1	On-Call	96.3%	**08:56**	**13:50**	72%	87%
Shap	On-Call	C68P1	On-Call	78.9%	**08:55**	**13:49**	72%	87%
Silloth	On-Call	C10P1	On-Call	60.7%	**08:54**	**13:49**	72%	87%
Staveley	On-Call	C69P1	On-Call	79.3%	**08:55**	**13:48**	72%	87%
Ulverston	Wholetime / On-Call	C47P2	On-Call	90.2%	**08:56**	**13:49**	72%	87%
Walney	On-Call	C48P1	On-Call	74.0%	**08:55**	**13:40**	72%	87%
Whitehaven	Wholetime / On-Call	C02P2	On-Call	57.6%	**08:56**	**13:45**	72%	87%
Wigton	On-Call	C11P1	On-Call	79.2%	**08:54**	**13:48**	72%	87%
Windermere	On-Call	C70P1	On-Call	97.9%	**08:56**	**13:50**	72%	87%
Workington	Wholetime / On-Call	C01P2	On-Call	72.7%	**08:56**	**13:47**	72%	87%

On Call Appliances with 100% Availability

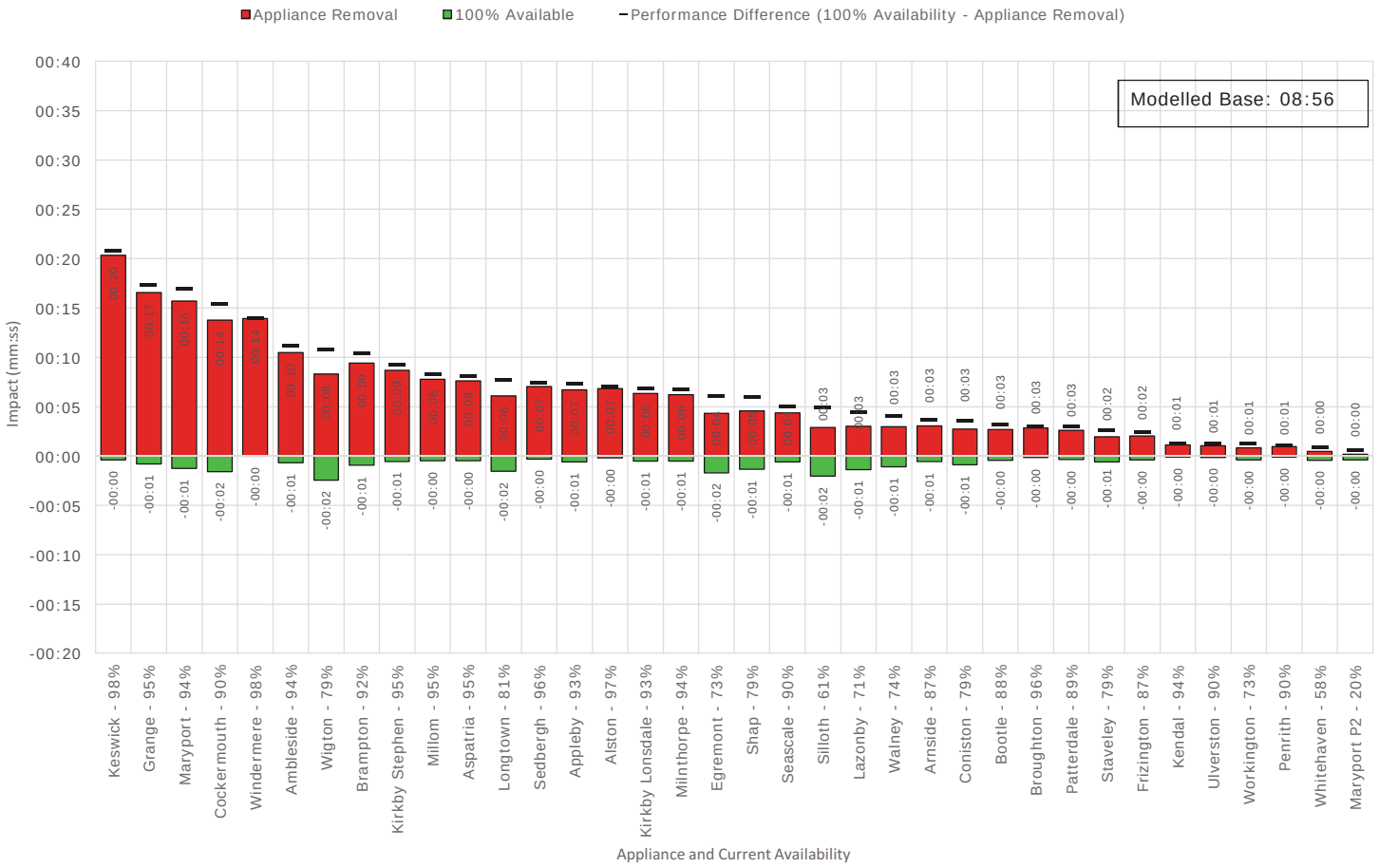
24-Hour Position

Modelled Impact

Station	Station Type	Call Sign	Crew Type	Current Availability	Average Response Performance to All Incidents		Primary Building Fires	All Other Incidents
					Average 1st	Average 2nd	%1st in 10 Mins	%1st in 15 Mins
Modelled Base					**08:56**	**13:51**	**72%**	**87%**
Alston	On-Call	C22P1	On-Call	97.3%	-00:00	-00:00	0.0%	0.0%
Ambleside	On-Call	C61P1	On-Call	94.4%	-00:01	-00:01	0.0%	0.1%
Appleby	On-Call	C62P1	On-Call	92.6%	-00:01	-00:01	0.0%	0.1%
Arnside	On-Call	C63P1	On-Call	86.5%	-00:01	-00:01	0.0%	0.1%
Aspatria	On-Call	C03P1	On-Call	95.3%	-00:00	-00:01	0.0%	0.1%
Bootle	On-Call	C41P1	On-Call	87.8%	-00:00	-00:01	0.0%	0.0%
Brampton	On-Call	C23P1	On-Call	92.3%	-00:01	-00:01	0.1%	0.1%
Broughton	On-Call	C42P1	On-Call	95.6%	-00:00	-00:01	0.0%	0.0%
Cockermouth	On-Call	C04P1	On-Call	90.3%	-00:02	-00:02	0.2%	0.2%
Coniston	On-Call	C43P1	On-Call	78.7%	-00:01	-00:01	0.0%	0.1%
Egremont	On-Call	C05P1	On-Call	73.3%	-00:02	-00:04	0.3%	0.2%
Frizington	On-Call	C06P1	On-Call	86.8%	-00:00	-00:01	0.1%	0.0%
Grange	On-Call	C45P1	On-Call	95.5%	-00:01	-00:01	0.0%	0.1%
Kendal	Day-Crewed / On-Call	C60P2	On-Call	93.7%	-00:00	-00:02	0.0%	0.0%
Keswick	On-Call	C07P1	On-Call	98.4%	-00:00	-00:00	0.0%	0.0%
Kirkby Lonsdale	On-Call	C64P1	On-Call	92.7%	-00:01	-00:00	0.0%	0.0%
Kirkby Stephen	On-Call	C65P1	On-Call	95.0%	-00:01	-00:01	0.0%	0.0%
Lazonby	On-Call	C24P1	On-Call	70.7%	-00:01	-00:02	0.1%	0.1%
Longtown	On-Call	C25P1	On-Call	81.4%	-00:02	-00:01	0.2%	0.2%
Maryport	2 On-Call	C08P1	On-Call	94.0%	-00:01	-00:01	0.2%	0.2%
Maryport	2 On-Call	C08P2	On-Call	19.8%	-00:00	-00:04	0.0%	0.1%
Millom	On-Call	C46P1	On-Call	94.9%	-00:00	-00:01	0.0%	0.1%
Milnthorpe	On-Call	C66P1	On-Call	94.1%	-00:01	-00:01	0.0%	0.1%
Patterdale	On-Call	C26P1	On-Call	88.5%	-00:00	-00:00	0.0%	0.0%
Penrith	Day-Crewed / On-Call	C27P2	On-Call	90.3%	-00:00	-00:04	0.0%	0.0%
Seascale	On-Call	C09P1	On-Call	89.5%	-00:01	-00:01	0.0%	0.1%
Sedbergh	On-Call	C67P1	On-Call	96.3%	-00:00	-00:01	0.0%	0.0%
Shap	On-Call	C68P1	On-Call	78.9%	-00:01	-00:02	0.0%	0.1%
Silloth	On-Call	C10P1	On-Call	60.7%	-00:02	-00:02	0.3%	0.2%
Staveley	On-Call	C69P1	On-Call	79.3%	-00:01	-00:02	0.1%	0.0%
Ulverston	Wholetime / On-Call	C47P2	On-Call	90.2%	-00:00	-00:02	0.0%	0.0%
Walney	On-Call	C48P1	On-Call	74.0%	-00:01	-00:10	0.1%	0.1%
Whitehaven	Wholetime / On-Call	C02P2	On-Call	57.6%	-00:00	-00:06	0.0%	0.1%
Wigton	On-Call	C11P1	On-Call	79.2%	-00:02	-00:02	0.3%	0.3%
Windermere	On-Call	C70P1	On-Call	97.9%	-00:00	-00:00	0.0%	0.0%
Workington	Wholetime / On-Call	C01P2	On-Call	72.7%	-00:00	-00:04	0.0%	0.1%

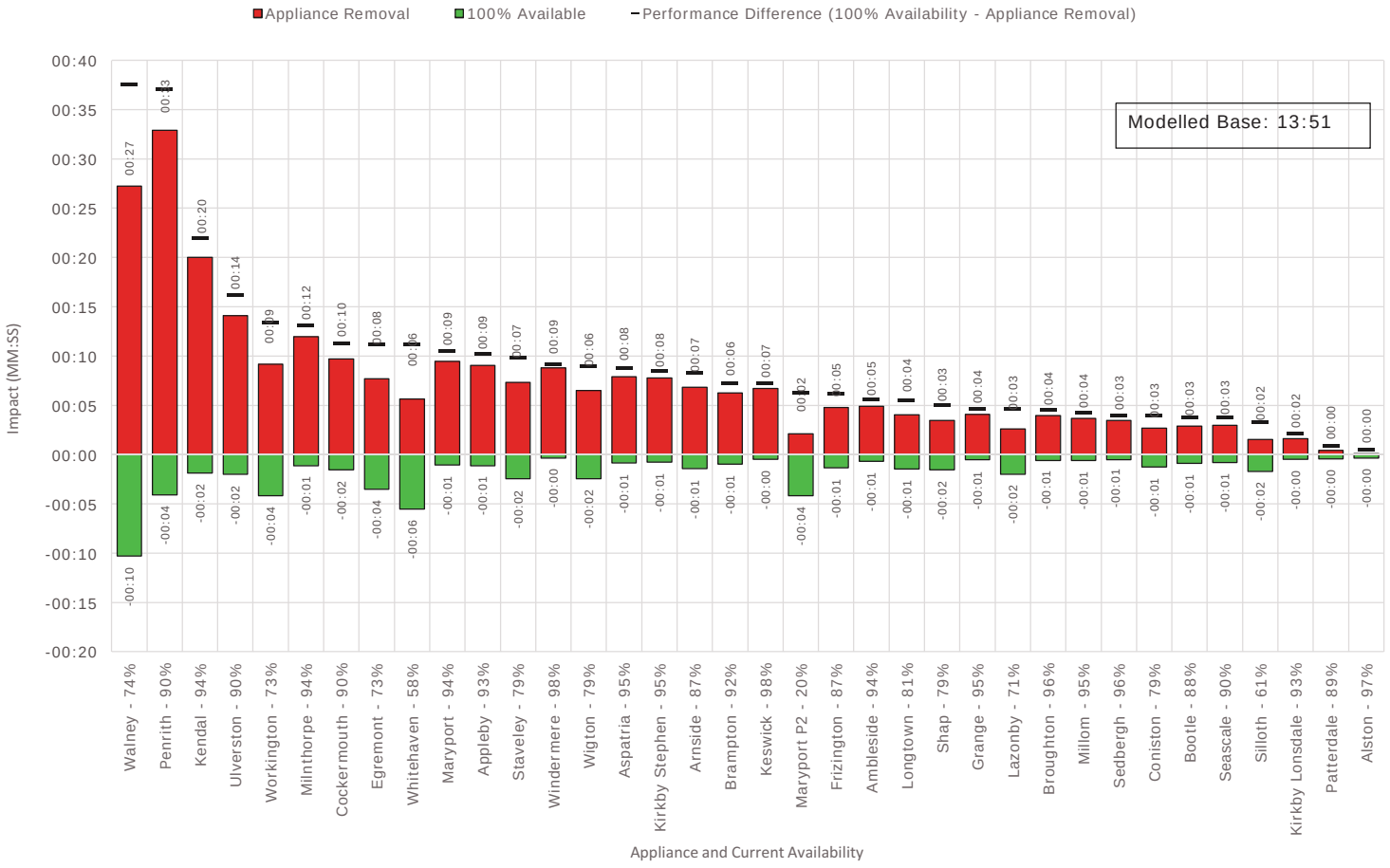
On-Call Availability Changes

Impact on Service-Wide Average 1st Response



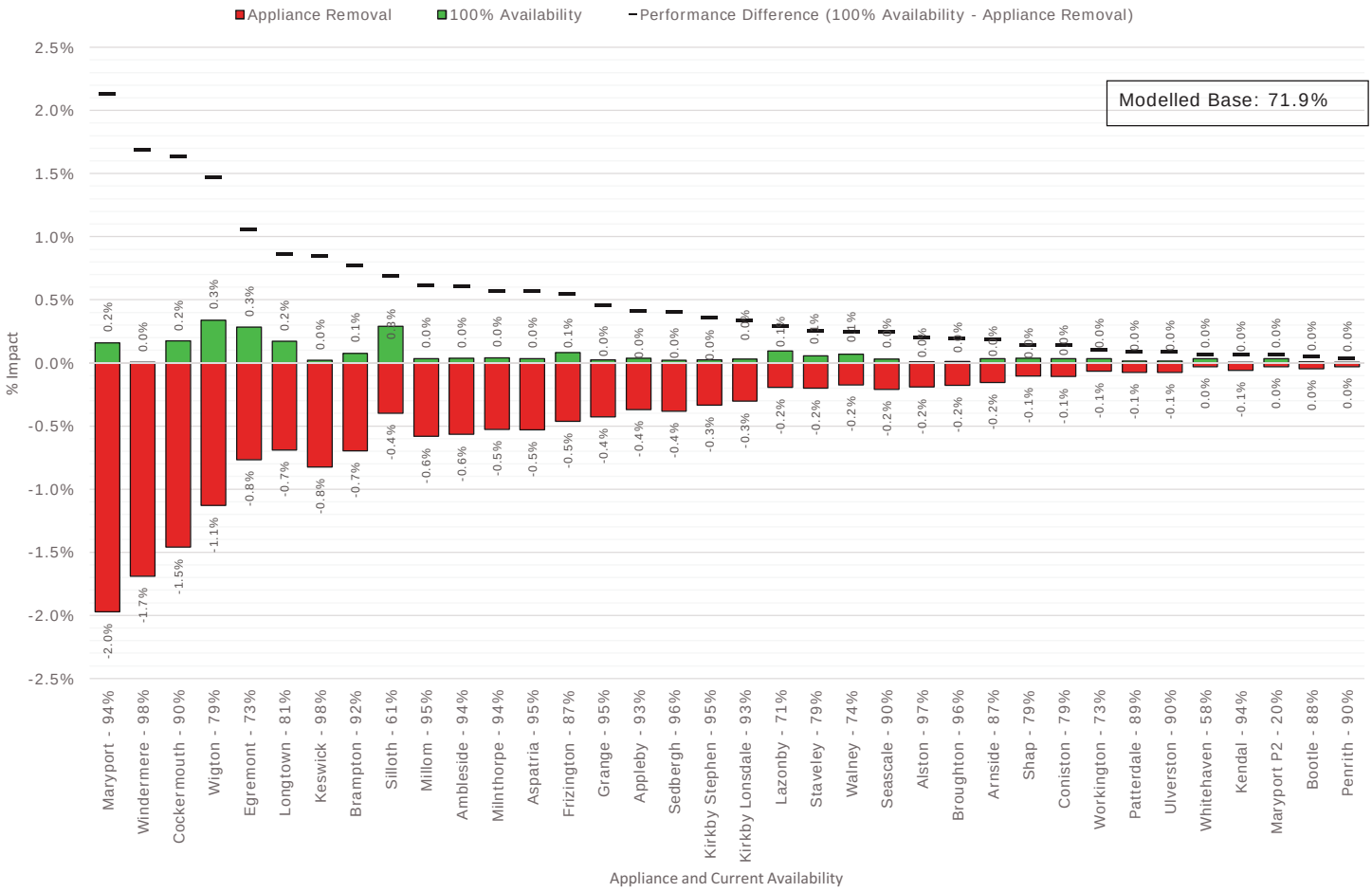
On-Call Availability Changes

Impact on Service-Wide Average 2nd Response



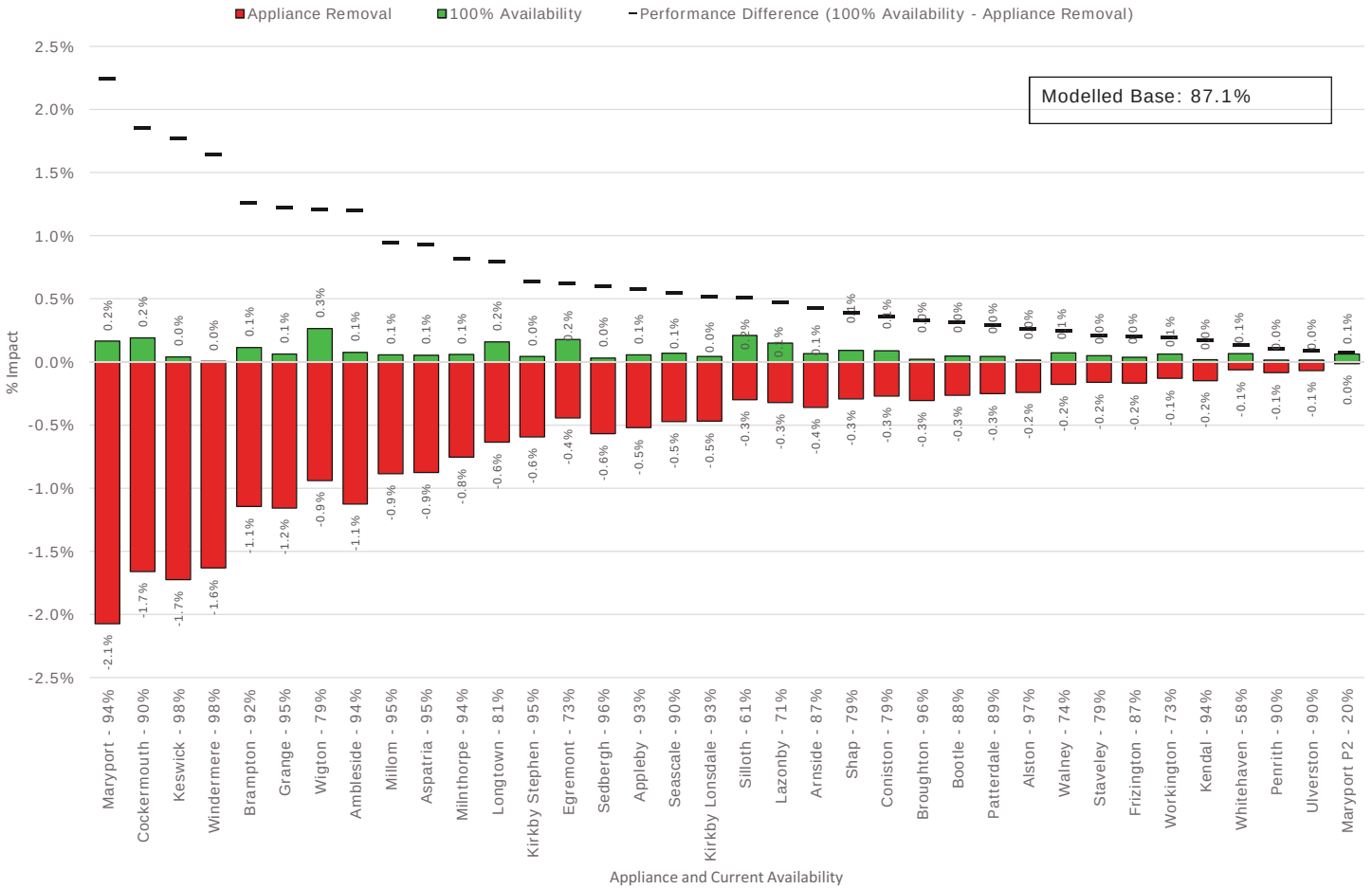
On-Call Availability Changes

Impact on Service-Wide Proportion of 1st Responses to Primary Building Fires in 10 Minutes



On-Call Availability Changes

Impact on Service-Wide Proportion of 1st Responses to Other Incidents in 15 Minutes



Estimated Total Population Within Selected Turn-in Time Catchments

ONS 2015 Mid-Year Population Estimates

Station	Station Type	Time Catchment (Minutes)											Current On Call Appliance Availability
		5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	
Barrow	Wholetime	14,387	15,517	16,480	17,389	18,958	20,274	21,935	22,727	23,090	24,979	27,564	N/A
Carlisle East	Wholetime	15,612	21,269	26,023	28,307	29,111	30,324	30,961	31,102	31,313	31,469	31,615	N/A
Carlisle West	Wholetime	11,780	13,434	16,416	18,351	19,941	22,843	26,149	29,250	31,298	32,109	32,902	N/A
Ulverston	Wholetime / On-Call	18,563	18,958	19,249	19,408	19,791	20,407	21,287	22,167	22,708	23,193	23,479	90.2%
Whitehaven	Wholetime / On-Call	9,833	12,481	14,044	14,900	15,869	16,318	17,103	18,366	19,197	19,635	19,839	57.6%
Workington	Wholetime / On-Call	6,111	7,347	8,411	9,018	9,482	9,956	10,710	11,262	12,142	12,576	13,213	72.7%
Kendal	Day-Crewed / On-Call	38,342	40,867	43,100	44,805	46,641	48,790	51,050	51,590	52,698	52,936	53,031	93.7%
Penrith	Day-Crewed / On-Call	20,134	22,534	23,620	23,806	23,939	24,048	24,376	25,111	25,922	26,081	26,185	90.3%
Maryport P1	2 On-Call	3,359	3,502	4,656	5,540	6,336	7,051	7,575	7,578	7,800	7,998	8,107	94.0%
Maryport P2	2 On-Call	3,359	3,502	4,656	5,540	6,336	7,051	7,575	7,578	7,800	7,998	8,107	19.8%
Alston	On-Call	1,172	1,172	1,179	1,181	1,188	1,197	1,215	1,244	1,249	1,249	1,249	97.3%
Ambleside	On-Call	4,293	4,304	4,312	4,332	4,345	4,401	4,475	4,604	4,656	4,708	4,769	94.4%
Appleby	On-Call	2,557	2,557	2,560	2,560	2,562	2,565	2,575	2,579	2,809	2,851	2,860	92.6%
Arnside	On-Call	1,841	1,850	1,859	1,859	1,859	1,859	1,859	1,859	1,859	1,859	1,859	86.5%
Aspatria	On-Call	3,498	3,525	3,602	3,778	3,865	3,868	4,205	4,660	4,670	4,679	4,698	95.3%
Bootle	On-Call	45	48	54	59	59	59	59	59	59	59	65	87.8%
Brampton	On-Call	4,748	4,851	4,942	5,213	5,467	5,581	5,658	5,900	6,426	6,718	6,906	92.3%
Broughton	On-Call	740	757	766	777	844	914	922	922	922	931	987	95.6%
Cockermouth	On-Call	13,094	13,524	14,228	15,107	16,506	17,127	17,308	17,769	18,508	19,234	19,579	90.3%
Coniston	On-Call	710	710	710	733	892	989	1,087	1,125	1,177	1,189	1,189	78.7%
Egremont	On-Call	10,270	10,911	11,071	11,202	11,297	11,389	12,190	12,510	12,616	12,706	12,932	73.3%
Frizington	On-Call	2,605	3,815	4,381	4,604	4,637	4,708	4,730	4,742	5,119	5,124	5,214	86.8%
Grange	On-Call	3,123	3,372	3,724	3,836	4,378	5,013	5,305	6,160	6,492	6,506	6,604	95.5%
Keswick	On-Call	6,400	6,418	6,700	6,753	6,840	6,909	7,003	7,045	7,061	7,064	7,076	98.4%
Kirkby Lonsdale	On-Call	2,388	2,391	2,669	2,850	2,915	2,937	2,939	2,969	2,997	2,997	2,997	92.7%
Kirkby Stephen	On-Call	2,147	2,153	2,153	2,153	2,169	2,379	2,566	2,628	2,628	2,634	2,649	95.0%
Lazonby	On-Call	1,048	1,095	1,229	1,240	1,267	1,276	1,297	1,318	1,340	1,375	1,379	70.7%
Longtown	On-Call	2,351	2,390	2,448	2,487	2,515	2,588	2,672	2,716	2,727	2,761	2,862	81.4%
Millom	On-Call	2,343	2,497	2,620	2,974	3,243	3,838	4,085	4,085	4,085	4,088	4,088	94.9%
Milnthorpe	On-Call	2,587	2,667	2,716	3,042	3,713	4,588	5,702	6,781	6,920	6,990	7,247	94.1%
Patterdale	On-Call	167	167	167	167	167	167	167	167	167	179	190	88.5%
Seascale	On-Call	793	812	819	819	852	896	896	896	896	896	896	89.5%
Sedbergh	On-Call	2,710	2,713	2,743	2,743	2,783	2,783	2,783	2,788	2,796	2,803	2,805	96.3%
Shap	On-Call	450	463	500	502	525	527	675	705	733	766	766	78.9%
Silloth	On-Call	2,666	2,755	2,833	2,838	2,854	2,860	2,860	2,865	2,877	2,918	3,029	60.7%
Staveley	On-Call	1,552	1,595	1,680	1,701	1,701	1,701	1,701	1,701	1,701	1,701	1,701	79.3%
Walney	On-Call	5,870	6,392	7,004	7,027	7,034	7,038	7,038	7,038	7,038	7,038	7,038	74.0%
Wigton	On-Call	5,806	5,831	5,876	5,902	6,023	6,060	6,124	6,347	6,586	6,765	6,801	79.2%
Windermere	On-Call	11,074	11,120	11,166	11,172	11,226	11,303	11,364	11,364	11,364	11,371	11,375	97.9%

Suitable Population Within Selected Turn-in Time Catchments

CFRS Identified Suitable Population From Mosaic Data

Station	Station Type	Time Catchment (Minutes)											Current On Call Appliance Availability
		5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	
Barrow	Wholetime	2,616	2,860	3,092	3,291	3,648	3,888	4,292	4,496	4,579	4,957	5,500	N/A
Carlisle East	Wholetime	3,568	4,695	5,661	6,140	6,314	6,571	6,713	6,756	6,817	6,864	6,918	N/A
Carlisle West	Wholetime	2,252	2,658	3,444	3,967	4,283	4,901	5,563	6,346	6,831	7,042	7,261	N/A
Ulverston	Wholetime / On-Call	4,311	4,417	4,502	4,541	4,645	4,789	4,957	5,124	5,246	5,374	5,457	90.2%
Whitehaven	Wholetime / On-Call	2,365	2,980	3,365	3,568	3,802	3,905	4,064	4,326	4,543	4,658	4,706	57.6%
Workington	Wholetime / On-Call	1,453	1,791	2,014	2,176	2,297	2,423	2,610	2,764	3,083	3,214	3,401	72.7%
Kendal	Day-Crewed / On-Call	7,868	8,490	9,009	9,429	9,911	10,359	10,797	10,929	11,234	11,299	11,331	93.7%
Penrith	Day-Crewed / On-Call	4,637	5,294	5,594	5,649	5,697	5,733	5,837	6,062	6,326	6,381	6,422	90.3%
Maryport P1	2 On-Call	653	681	941	1,145	1,340	1,522	1,688	1,689	1,736	1,784	1,815	94.0%
Maryport P2	2 On-Call	653	681	941	1,145	1,340	1,522	1,688	1,689	1,736	1,784	1,815	19.8%
Alston	On-Call	260	260	263	264	267	271	279	291	293	293	293	97.3%
Ambleside	On-Call	1,192	1,198	1,201	1,209	1,214	1,238	1,264	1,311	1,330	1,350	1,371	94.4%
Appleby	On-Call	595	595	596	596	598	599	603	604	670	683	686	92.6%
Arnside	On-Call	435	438	441	441	441	441	441	441	441	441	441	86.5%
Aspatria	On-Call	806	816	845	878	895	896	983	1,071	1,074	1,077	1,083	95.3%
Bootle	On-Call	15	16	18	20	20	20	20	20	20	20	22	87.8%
Brampton	On-Call	1,171	1,201	1,233	1,329	1,415	1,454	1,479	1,554	1,672	1,756	1,815	92.3%
Broughton	On-Call	208	214	217	221	244	270	273	273	273	276	294	95.6%
Cockermouth	On-Call	3,155	3,281	3,479	3,708	4,061	4,212	4,267	4,413	4,604	4,807	4,924	90.3%
Coniston	On-Call	222	222	222	232	289	322	355	371	393	397	397	78.7%
Egremont	On-Call	2,022	2,149	2,199	2,240	2,272	2,295	2,495	2,585	2,614	2,640	2,701	73.3%
Frizington	On-Call	597	841	967	1,008	1,019	1,045	1,053	1,057	1,145	1,146	1,177	86.8%
Grange	On-Call	795	876	983	1,011	1,145	1,286	1,362	1,564	1,650	1,654	1,685	95.5%
Keswick	On-Call	1,656	1,661	1,722	1,742	1,777	1,801	1,833	1,849	1,856	1,857	1,862	98.4%
Kirkby Lonsdale	On-Call	648	649	659	678	700	707	708	718	727	727	727	92.7%
Kirkby Stephen	On-Call	523	525	525	525	530	573	613	631	631	634	638	95.0%
Lazonby	On-Call	345	358	394	397	404	407	415	422	430	443	444	70.7%
Longtown	On-Call	556	570	588	601	610	634	662	678	682	693	731	81.4%
Millom	On-Call	535	586	621	713	763	818	838	838	838	839	839	94.9%
Milnthorpe	On-Call	562	587	604	702	890	1,125	1,397	1,671	1,711	1,732	1,806	94.1%
Patterdale	On-Call	68	68	68	68	68	68	68	68	68	73	78	88.5%
Seascale	On-Call	232	239	242	242	252	267	267	267	267	267	267	89.5%
Sedbergh	On-Call	615	616	627	627	640	640	640	642	646	649	650	96.3%
Shap	On-Call	125	130	145	146	156	157	199	208	218	231	231	78.9%
Silloth	On-Call	516	549	578	580	585	587	587	589	593	606	634	60.7%
Staveley	On-Call	397	407	428	433	433	433	433	433	433	433	433	79.3%
Walney	On-Call	1,197	1,319	1,403	1,406	1,407	1,408	1,408	1,408	1,408	1,408	1,408	74.0%
Wigton	On-Call	1,437	1,446	1,461	1,470	1,509	1,521	1,544	1,619	1,705	1,757	1,768	79.2%
Windermere	On-Call	2,909	2,924	2,942	2,944	2,962	2,992	3,016	3,016	3,016	3,020	3,022	97.9%

Note: CFRS used Mosaic data to estimate suitable population based on the individual having a suitable expected age and not being in either bad health or very bad health

I Current Station Optimisation

I1 Current Station Optimisation Deployment

I2 Response Performance Results

Current Station Optimisation

Minimise Average First Response Times to Primary Builing Fires, RTC Extrications & Releases, and All Other Incidents

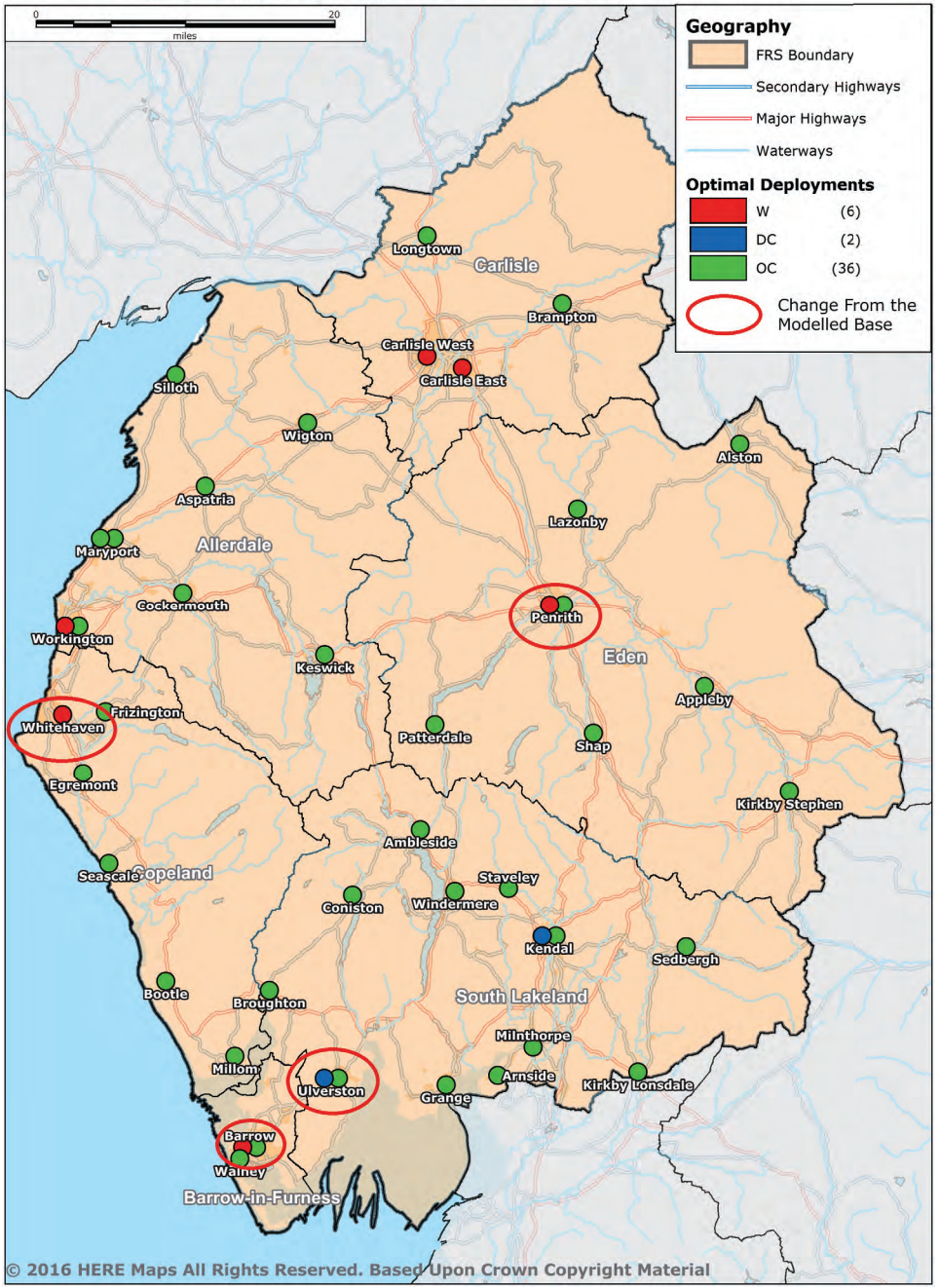
Station	Current Deployment	Optimal Deployment
Alston	1OC	1OC
Ambleside	1OC	1OC
Appleby	1OC	1OC
Arnside	1OC	1OC
Aspatria	1OC	1OC
Barrow	1WT	1WT, 1OC
Bootle	1OC	1OC
Brampton	1OC	1OC
Broughton	1OC	1OC
Carlisle East	1WT	1WT
Carlisle West	1WT	1WT
Cockermouth	1OC	1OC
Coniston	1OC	1OC
Egremont	1OC	1OC
Frizington	1OC	1OC
Grange	1OC	1OC
Kendal	1DC (12 hour), 1OC	1DC (12 hour), 1OC
Keswick	1OC	1OC
Kirkby Lonsdale	1OC	1OC
Kirkby Stephen	1OC	1OC
Lazonby	1OC	1OC
Longtown	1OC	1OC
Maryport	2OC	2OC
Millom	1OC	1OC
Milnthorpe	1OC	1OC
Patterdale	1OC	1OC
Penrith	1DC (8 Hour), 1OC	1WT, 1OC
Seascale	1OC	1OC
Sedbergh	1OC	1OC
Shap	1OC	1OC
Silloth	1OC	1OC
Staveley	1OC	1OC
Ulverston	1WT, 1OC	1DC (8 Hour), 1OC
Walney	1OC	1OC
Whitehaven	1WT, 1OC	1WT
Wigton	1OC	1OC
Windermere	1OC	1OC
Workington	1WT, 1OC	1WT, 1OC

Incident Weightings for Optimisation

Incident Types	Actual Proportions	Weightings for Optimisation
Primary Building Fires and RTC Extrication & Release	14%	80%
All Other Incidents	86%	20%

Current Station Optimisation

Minimise Average 1st Reponse to:
Primary Bulding Fires, RTCs (Extrications & Releases) and All Other Incidents



Current Station Optimisation

Minimise Average First Response Times to:
Primary Builing Fires, RTCs (Extrications & Releases) and All Other Incidents
Response Performance 24-Hour Position

Modelled Base

District	Average Response Performance to All Incidents		Primary Building Fires	All Other Incidents
	Average 1st	Average 2nd	%1st in 10 Mins	%1st in 15 Mins
Allerdale	09:16	15:50	61.6%	86.6%
Barrow-in-Furness	06:10	10:36	84.7%	97.3%
Carlisle	07:21	10:23	82.0%	92.8%
Copeland	08:47	14:53	64.0%	89.5%
Eden	12:16	18:06	52.4%	70.8%
South Lakeland	10:16	15:17	63.3%	83.2%
Service-Wide	**08:56**	**13:51**	**71.9%**	**87.1%**

Modelled Option

District	Average Response Performance to All Incidents		Primary Building Fires	All Other Incidents
	Average 1st	Average 2nd	%1st in 10 Mins	%1st in 15 Mins
Allerdale	09:16	15:50	61.6%	86.5%
Barrow-in-Furness	06:07	08:47	84.3%	98.2%
Carlisle	07:21	10:23	82.0%	92.8%
Copeland	08:50	15:39	63.8%	89.0%
Eden	11:15	17:43	59.8%	73.6%
South Lakeland	10:31	15:27	62.5%	82.6%
Service-Wide	**08:53**	**13:39**	**72.4%**	**87.3%**

Impact

District	Average Response Performance to All Incidents		Primary Building Fires	All Other Incidents
	Average 1st	Average 2nd	%1st in 10 Mins	%1st in 15 Mins
Allerdale	-	-	-	-0.1%
Barrow-in-Furness	-00:03	-01:49	-0.4%	0.9%
Carlisle	-	-	-	-
Copeland	00:03	00:46	-0.2%	-0.5%
Eden	-01:01	-00:23	7.4%	2.8%
South Lakeland	00:15	00:10	-0.8%	-0.6%
Service-Wide	**-00:03**	**-00:12**	**0.5%**	**0.2%**

Note: Model validated against data from 01/10/2014 to 30/09/2016

J Day and Night Split of Regular 12-hour Shifts

J1 Optimal Deployments

J2 24-Hour Response Performance

J2a Results Tables
J2b Graphical Results

J3 Day Period Response Performance

J4 Night Period Response Performance

Optimal 12 Hour Shift Modelling

Stations Selected by scenario

Location of Optimal 12-Hour Day Shifts (08:00 to 20:00)

Station	Number of Optimal 12-Hour Shifts															Current Deployment
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Barrow		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Carlisle East			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Workington				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Carlisle West					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Whitehaven						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Penrith							✓	✓	✓	✓	✓	✓	✓	✓	✓	(8-hour)
Kendal								✓	✓	✓	✓	✓	✓	✓	✓	✓
Ulverston									✓	✓	✓	✓	✓	✓	✓	✓
Maryport										✓	✓	✓	✓	✓	✓	-
Wigton											✓	✓	✓	✓	✓	-
Windermere												✓	✓	✓	✓	-
Cockermouth													✓	✓	✓	-
Milnthorpe														✓	✓	-
Egremont															✓	-

Location of Optimal 12-Hour Night Shifts (20:00 to 08:00)

Station	Number of Optimal 12-Hour Shifts															Current Deployment
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Barrow		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Carlisle East			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Workington				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Carlisle West					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Whitehaven						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Penrith							✓	✓	✓	✓	✓	✓	✓	✓	✓	-
Kendal								✓	✓	✓	✓	✓	✓	✓	✓	-
Ulverston									✓	✓	✓	✓	✓	✓	✓	✓
Maryport										✓	✓	✓	✓	✓	✓	-
Wigton											✓	✓	✓	✓	✓	-
Windermere												✓	✓	✓	✓	-
Cockermouth													✓	✓	✓	-
Milnthorpe														✓	✓	-
Egremont															✓	-

Total 12-Hour Shifts Modelled

Number Optimal 12-Hour Day Shifts	Number of Optimal 12-Hour Night Shifts															Current Deployment
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
0	0															8 (7 12-Hour & 1 8-Hour)
1	1	2														
2	2	3	4													
3	3	4	5	6												
4	4	5	6	7	8											
5	5	6	7	8	9	10										
6	6	7	8	9	10	11	12									
7	7	8	9	10	11	12	13	14								
8	8	9	10	11	12	13	14	15	16							
9	9	10	11	12	13	14	15	16	17	18						
10	10	11	12	13	14	15	16	17	18	19	20					
11	11	12	13	14	15	16	17	18	19	20	21	22				
12	12	13	14	15	16	17	18	19	20	21	22	23	24			
13	13	14	15	16	17	18	19	20	21	22	23	24	25	26		
14	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	

Current Deployment	6	14*

* The current Deployment has the equivalent of 13 12-hour and 1 8-hour regular shifts
All other stations modelled as on-call

Optimal 12 Hour Shift Modelling

24 Hour Position

Average 1st Response To All Incidents

Optimal Day Shifts	Optimal Night Shifts 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
0	11:38														
1	11:24	11:06													
2	10:54	10:46	10:37												
3	10:36	10:28	10:20	10:13											
4	10:24	10:15	10:07	10:00	09:54										
5	10:10	10:01	09:53	09:47	09:40	09:34									
6	09:55	09:47	09:39	09:32	09:25	09:19	09:15								
7	09:41	09:32	09:24	09:18	09:11	09:05	09:00	08:55							
8	09:32	09:24	09:16	09:09	09:02	08:56	08:52	08:47	08:45						
9	09:26	09:18	09:10	09:04	08:57	08:51	08:47	08:41	08:39	08:36					
10	09:21	09:13	09:05	08:58	08:52	08:46	08:41	08:36	08:34	08:31	08:30				
11	09:19	09:10	09:02	08:56	08:49	08:43	08:39	08:34	08:31	08:29	08:27	08:25			
12	09:15	09:07	08:59	08:52	08:45	08:39	08:35	08:30	08:28	08:25	08:24	08:22	08:20		
13	09:11	09:03	08:55	08:48	08:42	08:36	08:31	08:26	08:24	08:21	08:20	08:18	08:16	08:15	
14	09:06	08:58	08:50	08:43	08:36	08:31	08:26	08:21	08:19	08:16	08:15	08:13	08:11	08:10	08:08

Modelled Base : 08:56

Average 2nd Response to All Incidents

Optimal Day Shifts	Optimal Night Shifts 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
0	17:27														
1	17:23	17:07													
2	16:54	16:50	16:42												
3	16:35	16:31	16:23	16:21											
4	16:13	16:09	16:01	15:58	15:47										
5	15:59	15:55	15:47	15:46	15:35	15:32									
6	15:19	15:15	15:07	15:05	14:54	14:51	14:49								
7	14:52	14:48	14:41	14:39	14:28	14:25	14:23	14:20							
8	14:22	14:19	14:12	14:10	13:59	13:56	13:54	13:51	13:45						
9	14:18	14:16	14:08	14:07	13:56	13:53	13:50	13:48	13:42	13:40					
10	14:15	14:12	14:05	14:03	13:52	13:49	13:47	13:44	13:38	13:37	13:36				
11	14:14	14:12	14:04	14:02	13:51	13:48	13:46	13:44	13:37	13:36	13:35	13:34			
12	14:10	14:08	14:00	13:58	13:47	13:44	13:42	13:40	13:33	13:32	13:31	13:30	13:28		
13	14:06	14:04	13:56	13:54	13:43	13:40	13:38	13:36	13:30	13:28	13:27	13:27	13:24	13:23	
14	13:57	13:55	13:47	13:46	13:34	13:31	13:29	13:27	13:21	13:19	13:18	13:18	13:15	13:13	13:10

Modelled Base: 13:51

%1st in 10 - Primary Building Fires

Optimal Day Shifts	Optimal Night Shifts 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
0	49.1%														
1	51.1%	53.7%													
2	55.5%	56.6%	58.2%												
3	57.7%	58.8%	60.4%	61.4%											
4	59.4%	60.6%	62.1%	63.1%	63.9%										
5	62.3%	63.4%	65.0%	65.9%	66.8%	68.1%									
6	63.5%	64.6%	66.1%	67.1%	68.0%	69.3%	69.8%								
7	65.1%	66.2%	67.8%	68.7%	69.6%	70.9%	71.4%	72.0%							
8	66.0%	67.2%	68.7%	69.7%	70.5%	71.9%	72.4%	73.0%	73.3%						
9	66.6%	67.8%	69.3%	70.3%	71.1%	72.5%	72.9%	73.6%	73.9%	74.1%					
10	67.1%	68.3%	69.8%	70.8%	71.6%	73.0%	73.4%	74.1%	74.4%	74.6%	74.7%				
11	67.3%	68.5%	70.0%	71.0%	71.8%	73.2%	73.6%	74.3%	74.6%	74.8%	74.9%	75.2%			
12	67.7%	68.9%	70.5%	71.4%	72.3%	73.6%	74.1%	74.7%	75.0%	75.3%	75.4%	75.6%	75.8%		
13	68.1%	69.3%	70.9%	71.8%	72.7%	74.0%	74.5%	75.1%	75.4%	75.6%	75.7%	76.0%	76.2%	76.3%	
14	69.0%	70.2%	71.7%	72.7%	73.5%	74.8%	75.3%	75.9%	76.2%	76.5%	76.6%	76.8%	77.0%	77.1%	77.4%

Modelled Base: 71.9%

Current Shifts: 13 - 12 hour shifts + 1 - 8 Hour Shift

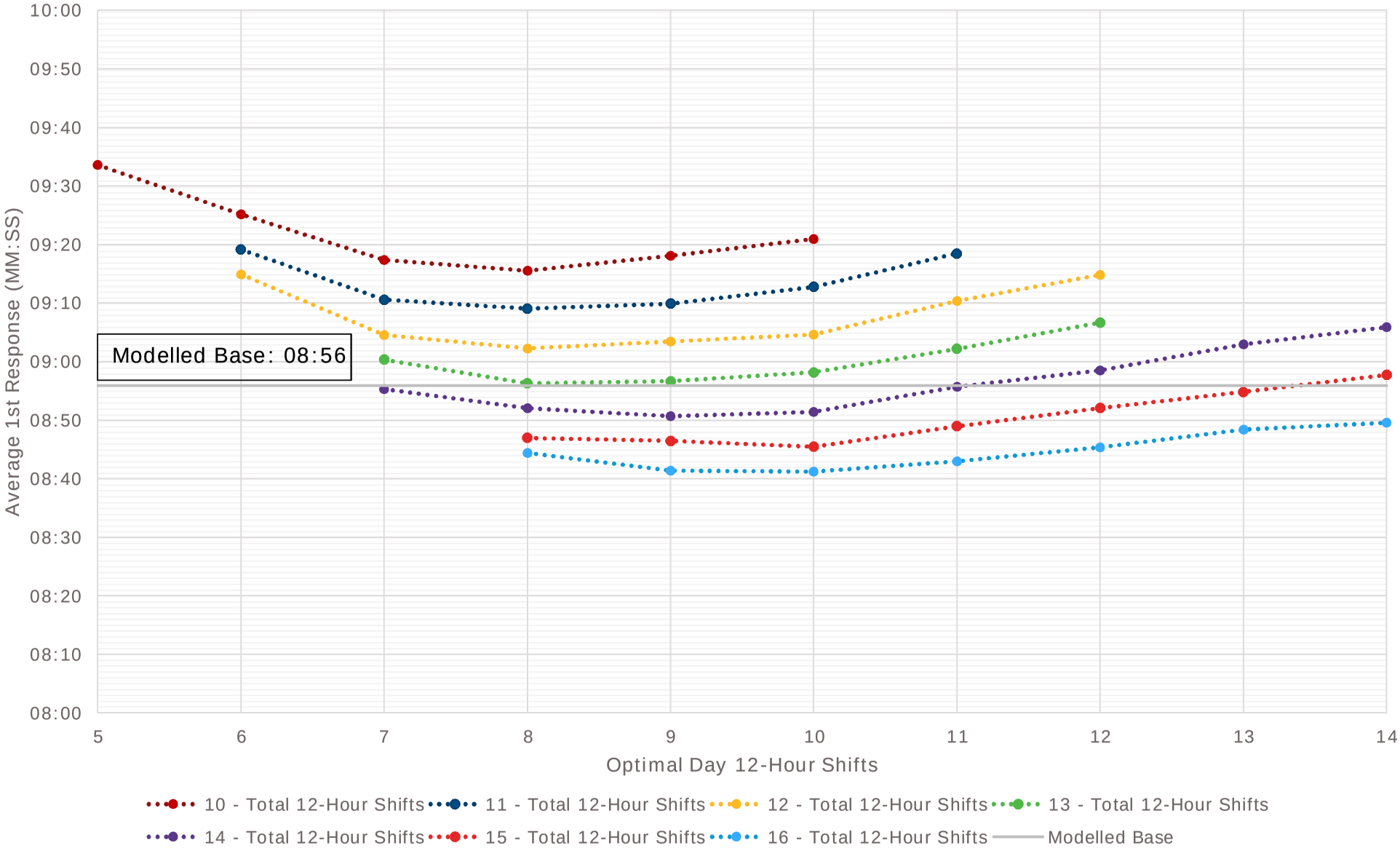
%1st in 15 - All Other Incidens

Optimal Day Shifts	Optimal Night Shifts 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
0	78.2%														
1	78.5%	79.3%													
2	80.4%	80.5%	80.7%												
3	81.9%	82.0%	82.3%	82.5%											
4	82.4%	82.6%	82.8%	83.0%	83.2%										
5	83.5%	83.6%	83.8%	84.0%	84.2%	84.4%									
6	84.5%	84.6%	84.8%	85.1%	85.2%	85.4%	85.7%								
7	85.6%	85.8%	85.9%	86.2%	86.4%	86.5%	86.8%	86.9%							
8	86.2%	86.3%	86.5%	86.8%	86.9%	87.1%	87.4%	87.5%	87.6%						
9	86.5%	86.6%	86.8%	87.1%	87.2%	87.4%	87.6%	87.8%	87.9%	88.0%					
10	86.9%	87.0%	87.2%	87.5%	87.6%	87.8%	88.0%	88.2%	88.3%	88.4%	88.4%				
11	87.0%	87.1%	87.3%	87.6%	87.7%	87.9%	88.1%	88.3%	88.4%	88.5%	88.5%	88.6%			
12	87.3%	87.4%	87.6%	87.8%	88.0%	88.2%	88.4%	88.6%	88.7%	88.7%	88.8%	88.9%	89.0%		
13	87.8%	87.9%	88.1%	88.4%	88.5%	88.7%	88.9%	89.1%	89.2%	89.3%	89.3%	89.4%	89.5%	89.7%	
14	88.1%	88.3%	88.4%	88.7%	88.9%	89.0%	89.2%	89.4%	89.5%	89.6%	89.6%	89.7%	89.8%	90.0%	90.0%

Modelled Base: 87.1%

Average 1st Response to All Incidents

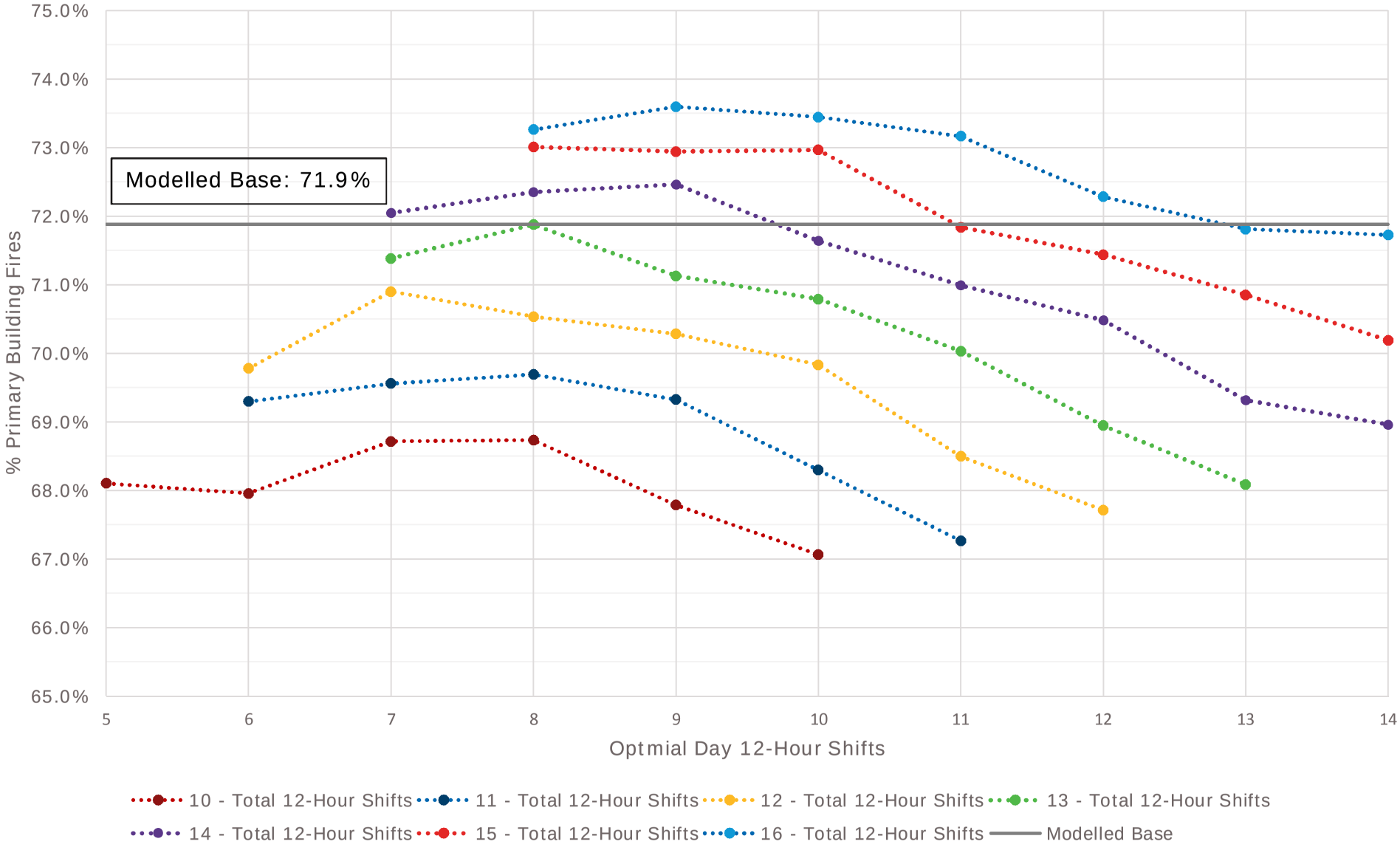
24 Hour Period



J2b

Primary Building Fires in 10 Minutes by Shift Configuration

24 Hour Period



J2b

Optimal 12 Hour Shift Modelling

Day (08:00 - 20:00)

Average 1st Response To All Incidents

Optimal Day Shifts \ Optimal Night Shifts	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
0	12:01														
1	11:40	11:28													
2	10:56	10:57	10:57												
3	10:30	10:31	10:31	10:31											
4	10:11	10:12	10:12	10:12	10:11										
5	09:50	09:51	09:51	09:51	09:50	09:50									
6	09:29	09:31	09:31	09:30	09:30	09:29	09:29								
7	09:08	09:10	09:10	09:09	09:09	09:08	09:08	09:08							
8	08:57	08:58	08:58	08:58	08:57	08:57	08:57	08:57	08:57						
9	08:48	08:49	08:49	08:49	08:48	08:48	08:48	08:48	08:48	08:48					
10	08:40	08:42	08:42	08:42	08:41	08:41	08:41	08:41	08:41	08:40	08:40				
11	08:36	08:37	08:37	08:37	08:37	08:36	08:36	08:36	08:36	08:36	08:36	08:36			
12	08:30	08:32	08:32	08:32	08:31	08:31	08:31	08:31	08:30	08:30	08:30	08:30	08:30		
13	08:25	08:26	08:26	08:26	08:25	08:25	08:25	08:25	08:25	08:25	08:25	08:25	08:25	08:25	
14	08:18	08:19	08:19	08:19	08:18	08:18	08:18	08:18	08:18	08:18	08:18	08:18	08:18	08:18	08:18

Modelled Base: 09:00

Average 2nd Response to All Incidents

Optimal Day Shifts \ Optimal Night Shifts	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
0	18:23														
1	18:15	18:00													
2	17:32	17:32	17:32												
3	17:11	17:11	17:11	17:11											
4	16:36	16:35	16:36	16:36	16:35										
5	16:19	16:19	16:19	16:19	16:18	16:18									
6	15:32	15:32	15:32	15:32	15:31	15:31	15:31								
7	15:00	15:00	15:00	15:00	14:59	14:59	14:59	14:59							
8	14:22	14:22	14:22	14:22	14:21	14:21	14:21	14:21	14:21						
9	14:17	14:17	14:17	14:17	14:16	14:16	14:16	14:16	14:15	14:15					
10	14:11	14:11	14:11	14:11	14:10	14:10	14:10	14:10	14:10	14:10	14:10				
11	14:10	14:10	14:10	14:10	14:09	14:09	14:09	14:09	14:08	14:08	14:08	14:08			
12	14:03	14:03	14:03	14:03	14:02	14:02	14:02	14:02	14:01	14:01	14:01	14:01	14:01		
13	13:57	13:57	13:57	13:57	13:56	13:56	13:56	13:56	13:56	13:56	13:56	13:56	13:56	13:56	
14	13:44	13:44	13:44	13:44	13:43	13:43	13:43	13:43	13:42	13:42	13:42	13:42	13:42	13:42	13:42

Modelled Base: 14:22

%1st in 10 - Primary Building Fires

Optimal Day Shifts \ Optimal Night Shifts	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
0	46.2%														
1	49.1%	50.8%													
2	55.2%	55.0%	55.0%												
3	58.3%	58.1%	58.1%	58.1%											
4	60.7%	60.5%	60.5%	60.6%	60.7%										
5	64.9%	64.7%	64.7%	64.7%	64.9%	64.9%									
6	66.6%	66.4%	66.4%	66.4%	66.6%	66.6%	66.6%								
7	68.9%	68.7%	68.7%	68.7%	68.8%	68.9%	68.9%	68.9%							
8	70.0%	70.0%	70.0%	70.0%	70.1%	70.2%	70.2%	70.2%	70.2%						
9	71.0%	70.9%	70.9%	71.0%	71.1%	71.2%	71.2%	71.2%	71.2%	71.2%					
10	71.7%	71.7%	71.7%	71.7%	71.8%	71.9%	71.9%	71.9%	71.9%	71.9%	71.9%				
11	72.1%	72.1%	72.1%	72.1%	72.2%	72.3%	72.3%	72.3%	72.3%	72.3%	72.3%	72.3%			
12	72.8%	72.8%	72.8%	72.8%	72.9%	73.0%	73.0%	73.0%	73.0%	73.0%	73.1%	73.1%	73.1%		
13	73.4%	73.4%	73.4%	73.4%	73.5%	73.6%	73.6%	73.6%	73.6%	73.6%	73.6%	73.6%	73.6%	73.6%	
14	74.6%	74.6%	74.6%	74.6%	74.8%	74.8%	74.8%	74.8%	74.8%	74.8%	74.8%	74.8%	74.8%	74.8%	74.8%

Modelled Base: 71.8%

Current Shifts: 13 - 12 hour shifts + 1 - 8 Hour Shift

%1st in 15 - All Other Incidens

Optimal Day Shifts \ Optimal Night Shifts	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
0	75.4%														
1	75.9%	76.7%													
2	78.4%	78.5%	78.5%												
3	80.5%	80.6%	80.5%	80.6%											
4	81.3%	81.3%	81.3%	81.3%	81.3%										
5	82.7%	82.7%	82.7%	82.7%	82.7%	82.7%									
6	84.1%	84.1%	84.1%	84.1%	84.1%	84.1%	84.1%								
7	85.6%	85.6%	85.6%	85.6%	85.6%	85.6%	85.6%	85.6%							
8	86.4%	86.4%	86.4%	86.4%	86.4%	86.4%	86.4%	86.4%	86.4%						
9	86.8%	86.8%	86.8%	86.8%	86.8%	86.8%	86.8%	86.8%	86.8%	86.8%					
10	87.3%	87.4%	87.4%	87.4%	87.4%	87.4%	87.4%	87.4%	87.4%	87.4%	87.4%				
11	87.5%	87.5%	87.5%	87.5%	87.5%	87.5%	87.5%	87.5%	87.5%	87.5%	87.5%	87.5%			
12	87.9%	87.9%	87.9%	87.9%	88.0%	87.9%	87.9%	87.9%	87.9%	88.0%	88.0%	88.0%	88.0%		
13	88.7%	88.7%	88.7%	88.7%	88.7%	88.7%	88.7%	88.7%	88.7%	88.7%	88.7%	88.7%	88.7%	88.7%	
14	89.1%	89.1%	89.1%	89.1%	89.1%	89.1%	89.1%	89.1%	89.1%	89.1%	89.1%	89.1%	89.1%	89.1%	89.1%

Modelled Base: 86.2%

Optimal 12 Hour Shift Modelling

Night (20:00 - 08:00)

Average 1st Response To All Incidents

Optimal Day Shifts \ Optimal Night Shifts	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
0	10:58														
1	10:59	10:30													
2	10:53	10:28	10:04												
3	10:49	10:24	10:01	09:43											
4	10:48	10:22	10:00	09:42	09:25										
5	10:45	10:20	09:58	09:40	09:23	09:07									
6	10:42	10:17	09:54	09:37	09:19	09:03	08:52								
7	10:38	10:13	09:51	09:33	09:16	09:00	08:48	08:35							
8	10:35	10:11	09:48	09:31	09:13	08:57	08:46	08:32	08:25						
9	10:35	10:10	09:48	09:30	09:13	08:57	08:45	08:32	08:25	08:18					
10	10:33	10:09	09:46	09:29	09:12	08:56	08:44	08:30	08:23	08:16	08:12				
11	10:34	10:10	09:47	09:30	09:12	08:57	08:45	08:31	08:24	08:17	08:13	08:08			
12	10:34	10:09	09:47	09:30	09:12	08:56	08:45	08:31	08:24	08:17	08:13	08:08	08:03		
13	10:33	10:09	09:46	09:29	09:12	08:56	08:44	08:30	08:24	08:17	08:12	08:07	08:03	07:59	
14	10:31	10:06	09:44	09:26	09:09	08:54	08:42	08:29	08:22	08:15	08:11	08:06	08:01	07:57	07:53

Modelled Base: 08:47

Average 2nd Response to All Incidents

Optimal Day Shifts \ Optimal Night Shifts	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
0	16:21														
1	16:21	16:06													
2	16:12	16:02	15:43												
3	15:58	15:48	15:29	15:23											
4	15:54	15:44	15:25	15:19	14:53										
5	15:45	15:35	15:15	15:11	14:46	14:38									
6	15:15	15:04	14:45	14:41	14:16	14:08	14:03								
7	14:56	14:45	14:26	14:22	13:56	13:49	13:44	13:38							
8	14:35	14:30	14:11	14:07	13:41	13:34	13:28	13:23	13:08						
9	14:35	14:30	14:10	14:06	13:41	13:33	13:28	13:22	13:08	13:04					
10	14:34	14:29	14:10	14:05	13:40	13:32	13:27	13:21	13:07	13:03	13:00				
11	14:34	14:29	14:10	14:06	13:40	13:33	13:28	13:22	13:07	13:03	13:01	13:00			
12	14:35	14:29	14:10	14:06	13:40	13:33	13:28	13:22	13:07	13:03	13:01	13:00	12:54		
13	14:34	14:28	14:09	14:05	13:39	13:32	13:27	13:21	13:06	13:03	13:00	12:59	12:53	12:49	
14	14:31	14:25	14:06	14:02	13:37	13:29	13:24	13:18	13:03	13:00	12:57	12:56	12:50	12:46	12:37

Modelled Base: 13:05

% 1st in 10 - Primary Building Fires

Optimal Day Shifts \ Optimal Night Shifts	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
0	51.7%														
1	51.7%	55.9%													
2	52.7%	56.4%	60.9%												
3	53.0%	56.7%	61.2%	63.8%											
4	53.3%	57.0%	61.4%	64.0%	66.2%										
5	53.5%	57.1%	61.5%	64.2%	66.4%	70.1%									
6	53.7%	57.3%	61.7%	64.4%	66.6%	70.3%	71.6%								
7	53.9%	57.5%	61.9%	64.6%	66.8%	70.5%	71.8%	73.7%							
8	54.3%	57.8%	62.3%	64.9%	67.1%	70.8%	72.2%	74.1%	74.8%						
9	54.3%	57.9%	62.3%	65.0%	67.2%	70.9%	72.2%	74.1%	74.8%	75.6%					
10	54.5%	58.1%	62.5%	65.1%	67.3%	71.0%	72.4%	74.3%	75.0%	75.8%	76.1%				
11	54.3%	57.9%	62.3%	65.0%	67.2%	70.9%	72.2%	74.1%	74.8%	75.6%	75.9%	76.6%			
12	54.4%	58.0%	62.4%	65.0%	67.2%	70.9%	72.3%	74.2%	74.9%	75.7%	76.0%	76.6%	77.2%		
13	54.4%	58.0%	62.4%	65.1%	67.3%	70.9%	72.3%	74.2%	74.9%	75.7%	76.0%	76.7%	77.2%	77.6%	
14	54.8%	58.4%	62.8%	65.4%	67.6%	71.2%	72.6%	74.5%	75.2%	76.0%	76.3%	76.9%	77.5%	77.9%	78.7%

Modelled Base: 75.8%

Current Shifts: 13 - 12 hour shifts + 1 - 8 Hour Shift

% 1st in 15 - All Other Incidens

Optimal Day Shifts \ Optimal Night Shifts	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
0	83.0%														
1	83.0%	83.7%													
2	83.6%	84.0%	84.6%												
3	84.2%	84.5%	85.2%	85.9%											
4	84.4%	84.8%	85.2%	86.0%	86.4%										
5	84.7%	85.1%	85.6%	86.3%	86.7%	87.2%									
6	85.1%	85.5%	85.9%	86.6%	87.0%	87.6%	88.2%								
7	85.6%	85.9%	86.4%	87.1%	87.5%	88.1%	88.7%	89.1%							
8	85.8%	86.2%	86.7%	87.4%	87.8%	88.3%	88.9%	89.4%	89.7%						
9	85.9%	86.3%	86.7%	87.4%	87.8%	88.4%	89.0%	89.4%	89.7%	89.9%					
10	86.1%	86.4%	86.9%	87.6%	88.0%	88.5%	89.1%	89.6%	89.9%	90.0%	90.2%				
11	86.0%	86.4%	86.9%	87.5%	87.9%	88.5%	89.1%	89.5%	89.8%	90.0%	90.2%	90.4%			
12	86.1%	86.4%	86.9%	87.6%	88.0%	88.5%	89.1%	89.6%	89.9%	90.0%	90.2%	90.4%	90.7%		
13	86.2%	86.5%	87.0%	87.7%	88.1%	88.6%	89.3%	89.7%	90.0%	90.2%	90.3%	90.5%	90.8%	91.3%	
14	86.5%	86.8%	87.3%	88.0%	88.4%	88.8%	89.4%	89.8%	90.1%	90.3%	90.5%	90.7%	90.9%	91.4%	91.6%

Modelled Base: 86.7%

K Targeted Response Vehicles

K1 Targeted Response Vehicle Response Assumptions

K2 Availability with Alternative Crewing Assumption

K3 Average Response Performance

K4 Proportion of First Responses within Target

Targeted Response Vehicles - Response Assumptions

Incident Types	Current PDA	Alternative Response Type	Notes
AFA's Casualty care Chimney fires Outdoor fires Small fires Late fire calls Locked in/out Petrol/Diesel spillage Vehicle fire small Flooding domestic	1 Pump	1 Pump or 1 TRV	TRVs can attend instead of a pump to these incidents
	2 Pump	2 Pumps or 2 TRVs or 1 Pump + 1 TRV	
RTC Large Animal Rescue CO Alarm Cylinder in the open Vehicle fire large	1 Pump	1 Pump	TRVs can form part of the PDA for 2+ appliance incidents
	2 Pump	2 Pumps or 1 Pump + 1 TRV	
Building Fires Collapsed structures Electricity Gas Hazmats, pipeline Ships Trains Tunnels	1 Pump	1 Pump	TRVs will only be considered for 2+ appliance incidents once the number of riders on other pumps attending is confirmed to meet the minimum required.
	2 Pump	2 Pumps or 1 Pump + 1 TRV	

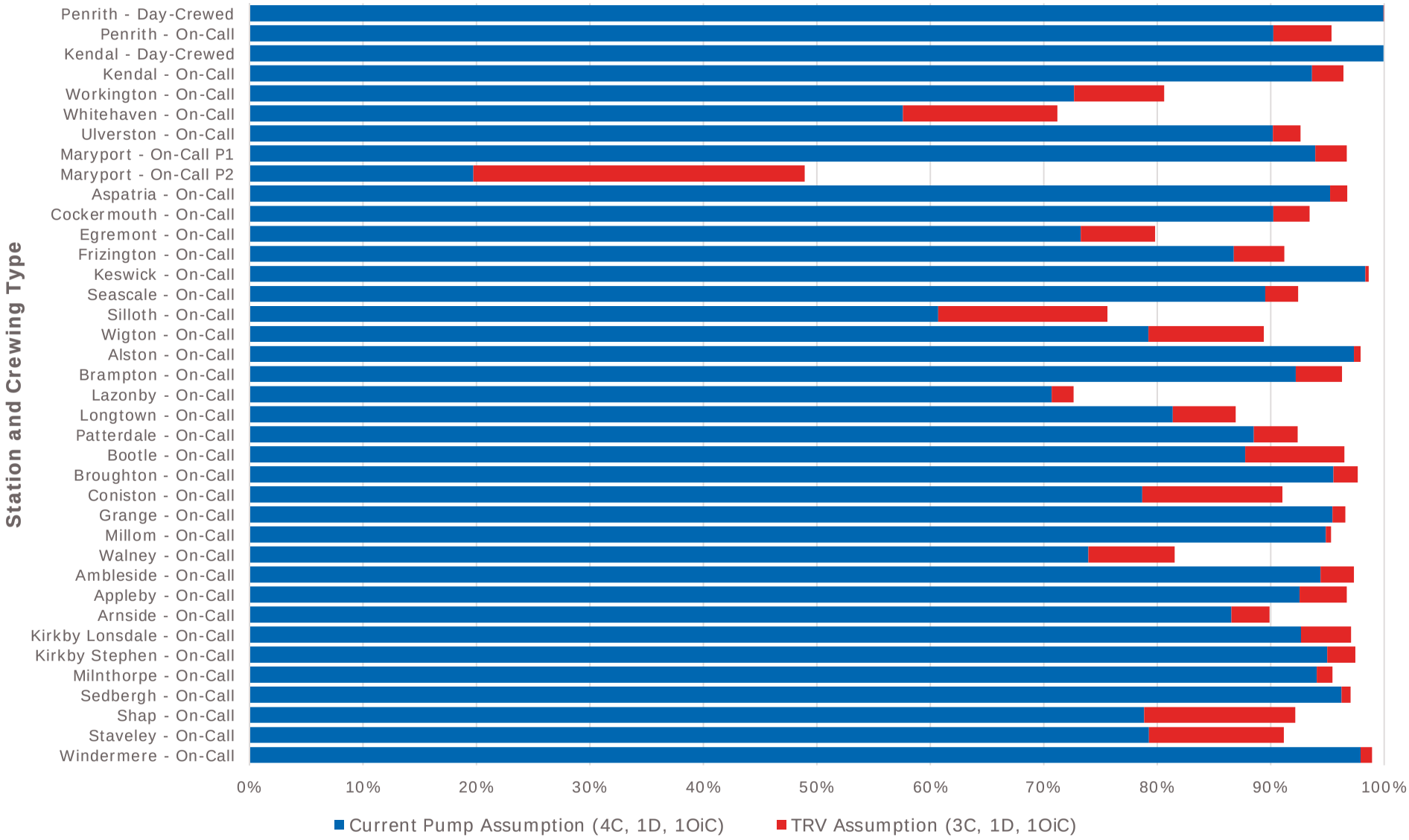
The same assumptions apply for incidents requiring 3 or more appliances

The minimum number of crew required for 2 and 3 Pump PDAs is 8 and 12 respectively

A TRV requires 3 crew, 1 of which is an officer in charge, and 1 of which is a driver

Availability by Crewing Assumption

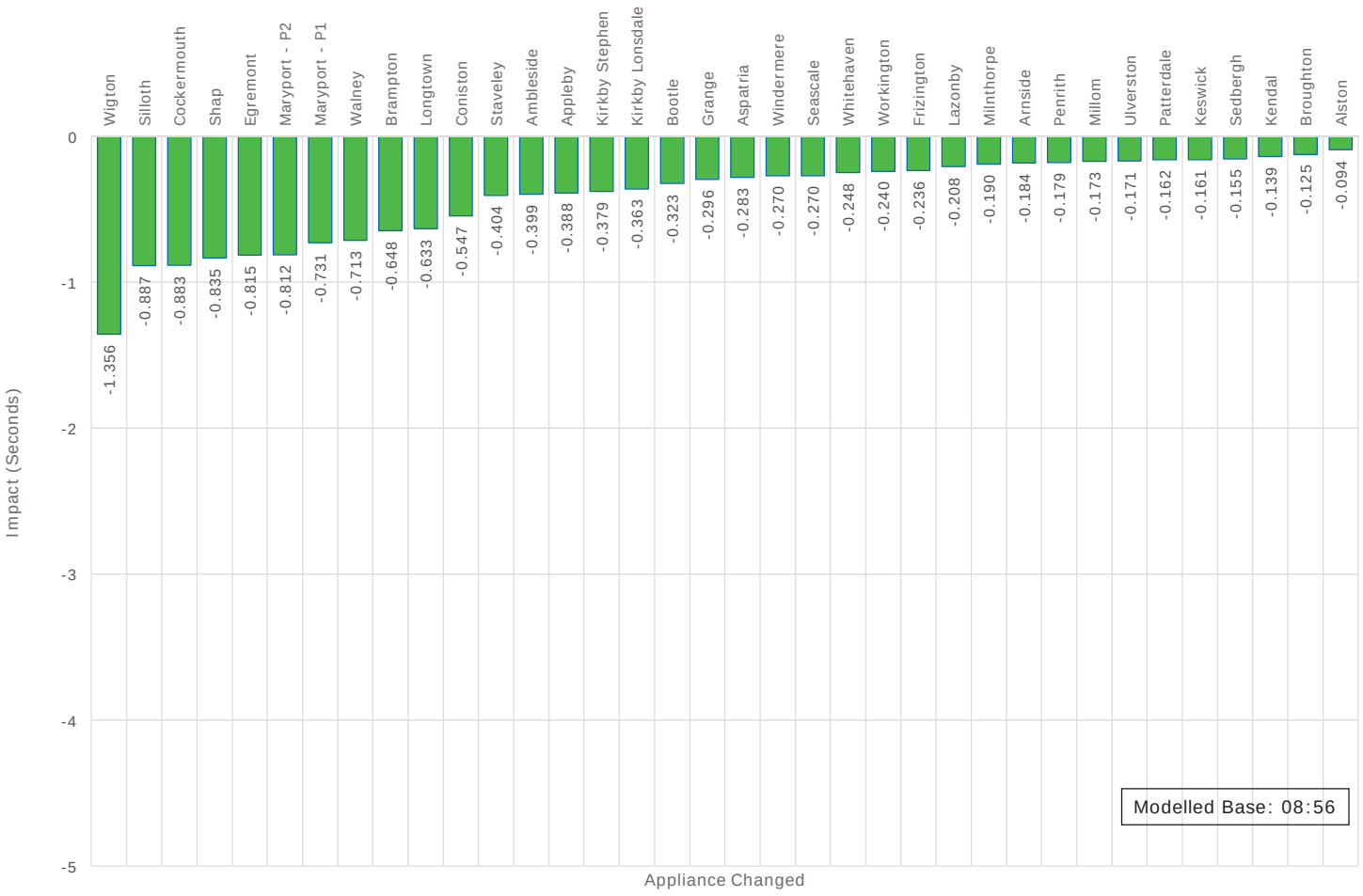
Two-Year Sample (October 2014 to September 2016)



K2

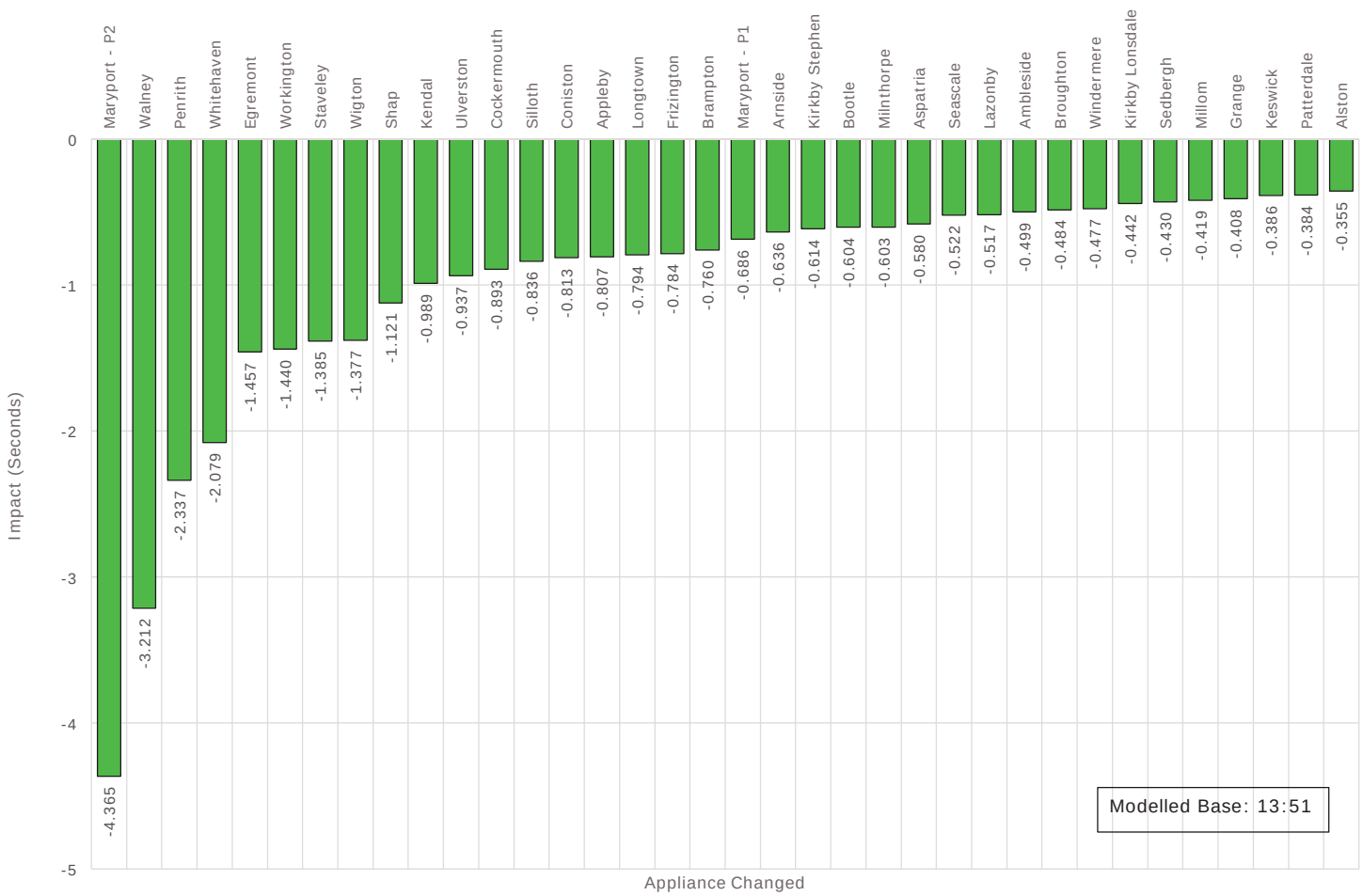
Targeted Response Vehicle Modelling

Service-Wide Average of Impact on 1st Response to All Incidents



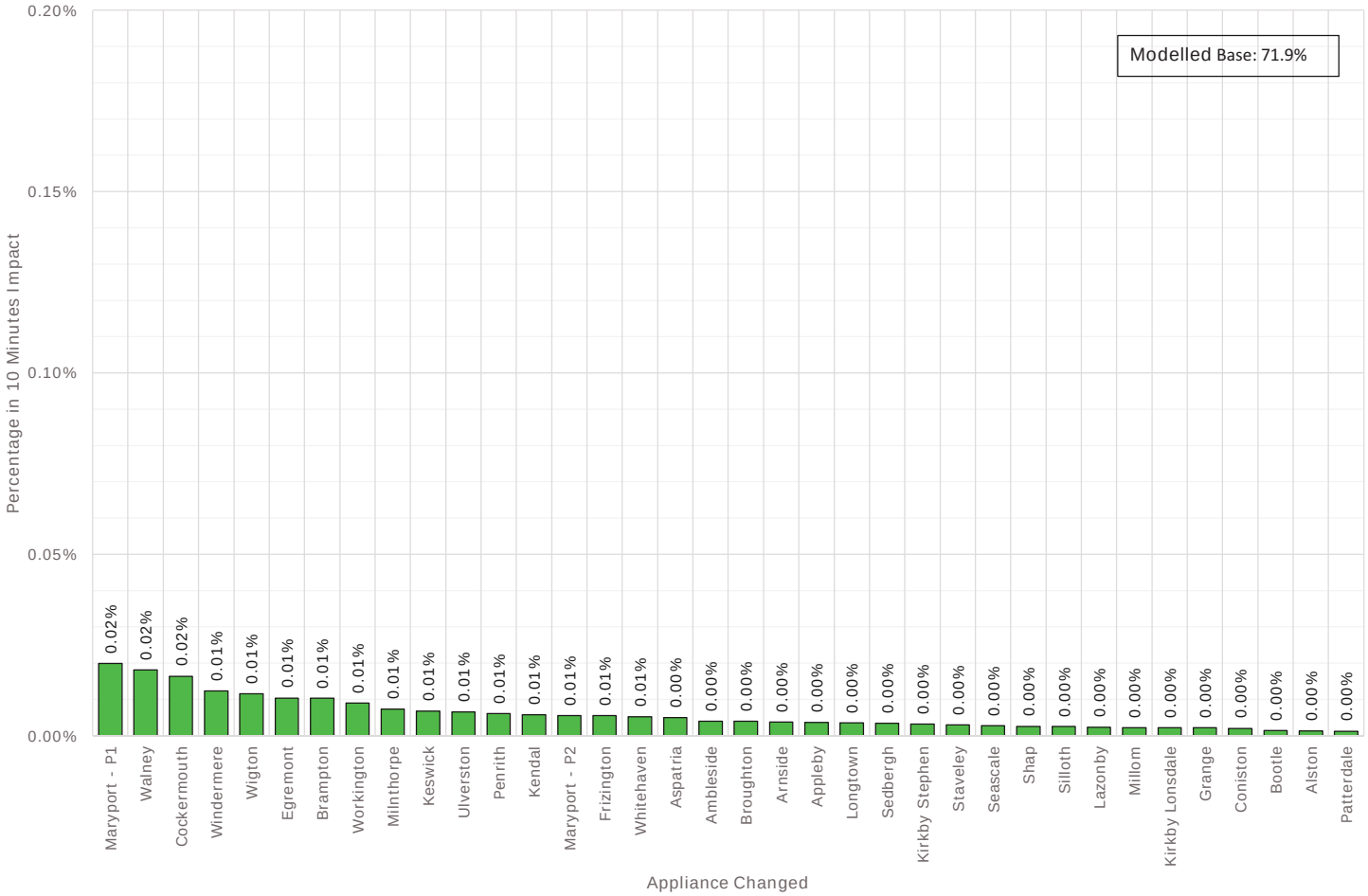
Targeted Response Vehicle Modelling

Service-Wide Average Impact on 2nd Resposne to All Incidents



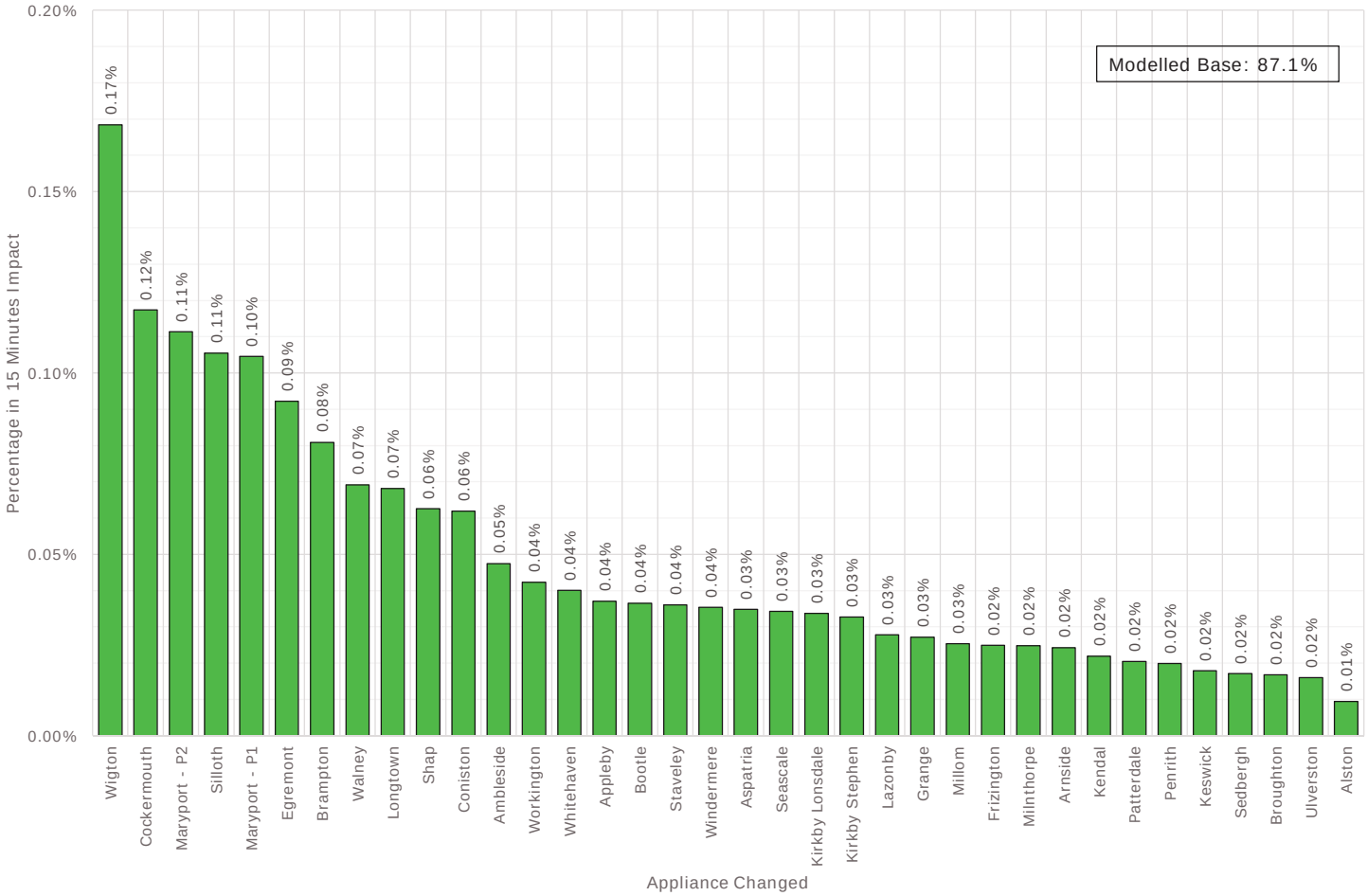
Targeted Response Vehicle Modelling

Service-Wide Proportion of 1st Responses to Primary Building Fires in 10 Minutes

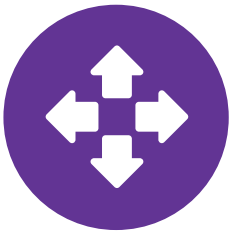


Targeted Response Vehicle Modelling

Service-Wide Proportion of 1st Responses to All Other Incidents



Emergency Service Planning



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