REPORT REFERENCE NO.	**CSC/23/2**
MEETING	**COMMUNITY SAFETY COMMITTEE**
DATE OF MEETING	**31 JANUARY 2023**
SUBJECT OF REPORT	**CHANGE TO KEY PERFORMANCE INDICATOR FOR RISK PRIORITY PUMPS**
LEAD OFFICER	**ACFO PETE BOND - DIRECTOR OF SERVICE IMPROVEMENT**
RECOMMENDATIONS	That the Committee notes the contents of this paper for future performance reports.
EXECUTIVE SUMMARY	The Service currently operates 56 risk priority pumps from 55 locations. The designation of risk priority was made using out of date modelling and prior to the implementation of the Service Delivery Operating Model and the new Community Risk Management Plan for 2022-2027. Up to date risk modelling software has been used to review the number and location of risk priority pumps across Devon and Somerset based on the new operating model, Home Office business continuity expectations and geographical area covered. This has resulted in the Executive Board approving a revised model of 34 Risk Priority Pumps as the Key Performance Indicator.
RESOURCE IMPLICATIONS	Reduced reliance on bank staff to support risk priority pumps. Ability to focus recruitment on risk priority stations.
EQUALITY RISKS AND BENEFITS ANALYSIS (ERBA)	Not applicable
APPENDICES	A. Current list of 56 Risk Priority Pumps
LIST OF BACKGROUND PAPERS	None

1. INTRODUCTION

1.1. The Service currently operates 112 front line appliances from 83 stations located across Devon and Somerset (not including Lundy Island).

1.2. In order to support the outcomes of the Integrated Risk Management Plan 2018-2022 the Service has maintained the availability of these fire engines on a risk priority basis such that 56 appliances based at 55 stations are designated as Risk Priority Pumps.

1.3. This designation has been in place for a number of years and the risk profiling to support it was based on the previous Home Office toolkit known as Fire Service Emergency Cover (FSEC).

1.4. Following the implementation of the Service Delivery Operating Model (SDOM) and the new Community Risk Management Plan (CRMP) for 2022 – 2027 the number and location of required Risk Priority Pumps has been reviewed. The results of this review and a subsequent recommendation have been approved by the Executive Board and this is now presented to the Community Safety Committee for information.

2. BACKGROUND

2.1. Devon & Somerset Fire & Rescue Service (the Service) has an objective to match resources to risk in relation to providing incident response across Devon and Somerset.

2.2. This objective was at the heart of the Service Delivery Operating Model approved by the Devon & Somerset Fire & Rescue Authority (the Authority) on 10 January 2020 (Minute DSFRA/32 refers) and culminated in a reduction in number of fire stations and fire engines required by the Service.

2.3. The current profile of fire engines in operation is as follows:

Cover Profile	P1 Fire Engine	P2 Fire Engine
Wholetime 24/7	12	1
On Call 24/7	71	17
On Call Night Only		11
TOTAL	83	29

2.4. Prior to the implementation of SDOM, the Service recognised that certain locations across both counties presented a higher risk than others. As such these locations required an incident response that was prioritised.

2.5. The assessment of this risk priority was carried out using the FSEC toolkit that was based on the likelihood of a dwelling fire occurring using historical and socio-economic data as the primary predictors.

2.6. The result of this work provided for 56 fire engines located at 55 stations to be designated as risk priority. A full list of these can be found at Appendix A.

2.7. In order to maintain the priority of these fire engines the Service also set a target of 98% availability for Risk Priority Pumps which is reported regularly to the Executive Board and the Authority's Community Safety Committee.

2.8. The implementation of SDOM included the introduction of a new On Call duty system for the Service known as Pay for Availability (P4A). This has been rolled out over an 18-month period and the majority of On Call Firefighters now work this duty system.

2.9. In April 2022, the Authority approved a new CRMP with a lifespan of 5 years until 2027.

2.10. It was anticipated that these changes impacted on the risk profile of the Service and therefore, a full review of the Risk Priority Pumps and the modelling used to determine risk was commissioned in May 2022.

2.11. During this period of analysis, the Service also undertook a business continuity planning process in regard to potential industrial action which would see a reduced number of fire engines being available.

2.12. The Home Office through the National Fire Chiefs Council's (NFCC) National Resilience requested that all Fire and Rescue Services model their business continuity to an absolute minimum of 25% of their fire engine resource.

2.13. On this basis, the Executive Board requested that the review and modelling of risk priority pumps be undertaken to reflect a business continuity baseline of 25% capability whilst being cognisant of risk mitigation and the geographical spread of cover.

3. RISK PRIORITY MODELLING

3.1. A range of operating models have been analysed using the CadCorp risk modelling tool. These include options based on our current operating model, our current list of risk critical appliances, a refreshed community risk profile and the locations at which Medium Rescue Pumps (MRPs) will be deployed in future.

3.2. The analysis was carried out using the Cadcorp workload modeller software to analyse five years of the Service's incidents (from Jan 2017 to Dec 2021) including all appliance attendances. This equates to 116,248 appliance callouts to 83,084 incidents.

3.3. Road speeds are calculated using the DSFRS Road network as per the national Ordnance Survey Highways data.

3.4. There are several possible limiting factors to the analysis:

3.5. The analysis does not consider call handling time so to calculate the performance of the emergency response standards the target arrival times have been reduced by the target call handling times, 90 seconds for dwelling fires (and non-domestic incidents) and 120 seconds for RTCs.

3.6. Performance figures for the emergency response standards are likely to be overstated as Cadcorp models the most likely road speed and therefore exceptional external factors (such as traffic or navigation issues) which could affect the travel time of an appliance on a particular callout are not taken into account.

3.7. The modelling evaluates attendances at incidents only and does not account for appliances that are mobilised to an incident but turned back before arrival.

3.8. The model is only as accurate as our travel time calculations and due to the size and complexity of the road network within Devon & Somerset it is almost impossible to assure the whole network is completely accurate.

3.9. The analysis is modelled on previous incident data which not necessarily a true reflection of the risk in the communities served by DSFRS. This is mitigated by using a five-year dataset and increasing the number of incidents in the sample.

3.10. It is unlikely we would ever operate with as few pumps on the run as are modelled in some of the scenarios in this report any sustained period, so performance is always likely to be in between the SDOM models and the models with restricted numbers of pumps.

3.11. Over the border appliances and incidents are excluded from the modelling. This may affect the demand and performance for some stations near the service boundaries.

3.12. The risk modelling methodology used the following parameters:

a. The Service currently operates a fleet of 112 front line pumps. All of these are available at night and 101 available in the day. This reflects the diurnal risk across Devon and Somerset which is higher for dwelling fires overnight.

b. On this basis to ensure highest risk is considered the Home Office requirement to model business continuity at 25% of pump capability means that the 112 overnight number of pumps has been used resulting 29 pumps being the 25% capability.

c. Whilst considering the business continuity plans for the Service consideration has also been made of the Incident Response Plans which determine the number and type of resources needed to deal with different incident types. As the number of fire engines available reduces then the ability to mobilise the ideal number of resources reduces and Fire Control will invoke business continuity rules. These rules provide some support when considering the geographical spread of pumps.

d. The baseline for initiating this work uses the highest risk areas in Devon and Somerset by way of actual incidents based on historical data. On this basis there are 17 pumps in the service which in normal operating conditions would make just over half of all attendances by pumping appliances within Devon and Somerset.

e. Locations were added to this scenario to build up the other models based on geography, risk and where the service was predicted to be failing to meet its response targets most often these were then tested, compared and refined through modelling to identify the most effective way to provide some cover to the risk within Devon and Somerset with very limited numbers of resources.

f. The recommended approach is to group stations into bands to help prioritise which locations should be maintained as a priority.

g. The stations are grouped into four bands, with the addition of each subsequent band building up a more complete set of resources. These bands do not include every station with Devon & Somerset and there are some locations outside the 4th band these could be considered lower priority. Note: Some stations are paired below (matching symbols) these pairs could be interchanged if required.

4. MODELLING OUTCOMES

Highest priority

4.1. These stations are the 17 busiest pumps within our normal operating conditions.

i. Barnstaple, Exmouth, Danes Castle, Middlemoor, Camels Head Crownhill, Greenbank (both pumps), Taunton, Bridgwater, Yeovil, Newton Abbot, Frome, Burnham on Sea, Bideford

ii. Important Note: Given the low numbers of appliances in these models the second appliance at Greenbank could be located at Plympton to improve cover along the A38. In all the models below this it is assumed that this is the case.

29 pump model

4.2. As per the model above but with the addition of pumps at:

i. Chard, Honiton, Okehampton, Tavistock, Kingsbridge+, South Molton*, Teignmouth, Tiverton, Minehead, Street^, Shepton Mallet, Wellington.

34 pump model

4.3. As per the model above but with the addition of pumps at:

i. Totnes+, Ilfracombe*, Seaton, Wells, Williton

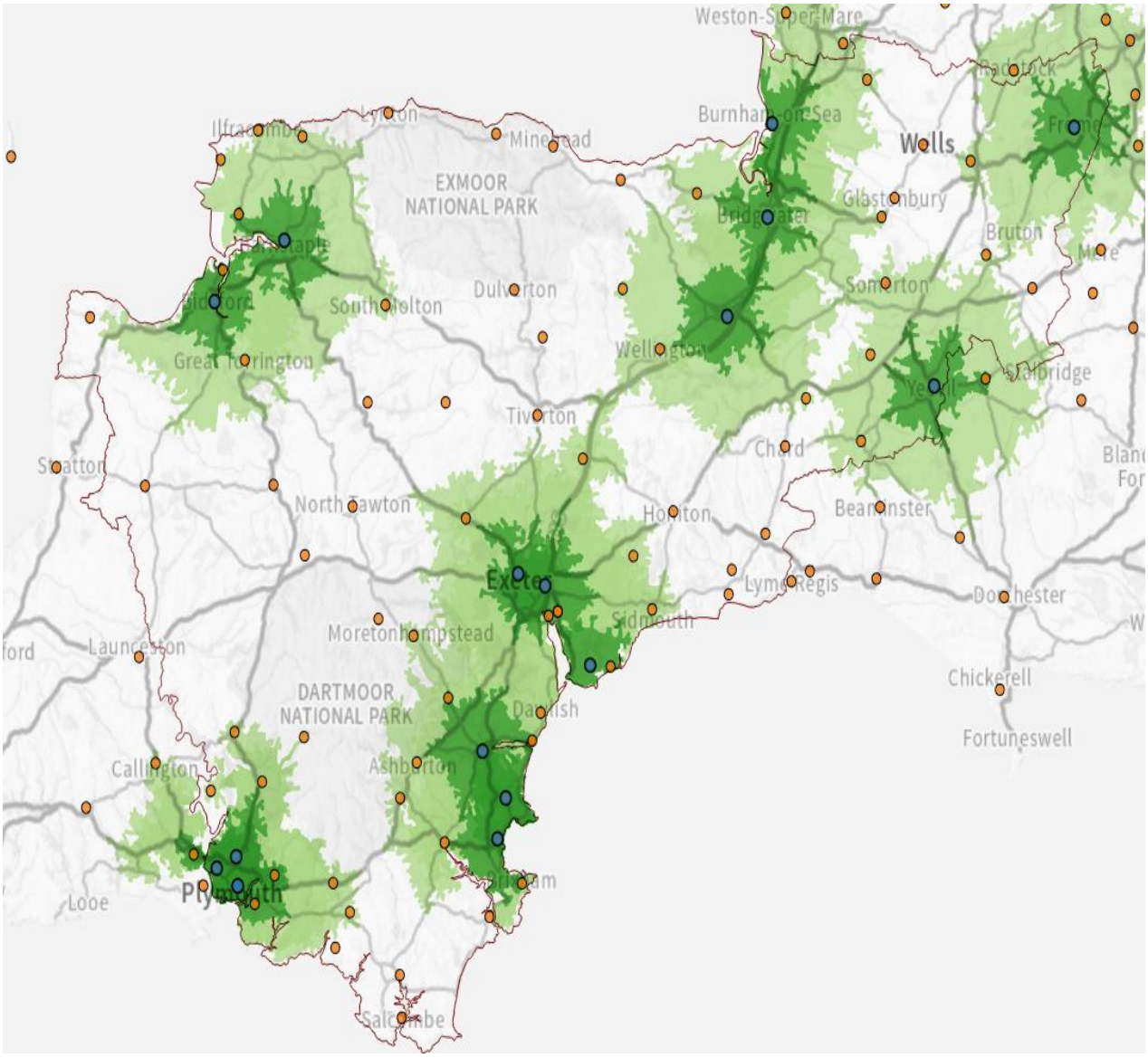
4.4. The comparison of options is as set out in the table below:

	Dwelling fire 1st pump ERS	**Dwelling fire 1st pump mean arrival time**	**RTC 1st pump ERS**	**RTC 1st pump mean arrival time**
Normal conditions (Base case)	75.80%	07:23	80.10%	09:39
Current 56 pumps	69.00%	08:21	74.7%	10:29
17 pump model	51.00%	14:30	41.80%	18:02
29 pump model	60.00%	10:11	55.40%	13:09
34 pump model	63.40%	09:27	59.50%	12:23

Model Response Zones

4.6 The maps overleaf show the areas within 10 or 20 minutes response time for each of the selected station locations in the models. These travel times are based on 90 seconds call handling time and the crew being on station (i.e. an equivalent to a WDS response).

Figure 1: 17 pump model 10 and 20 minute response zones



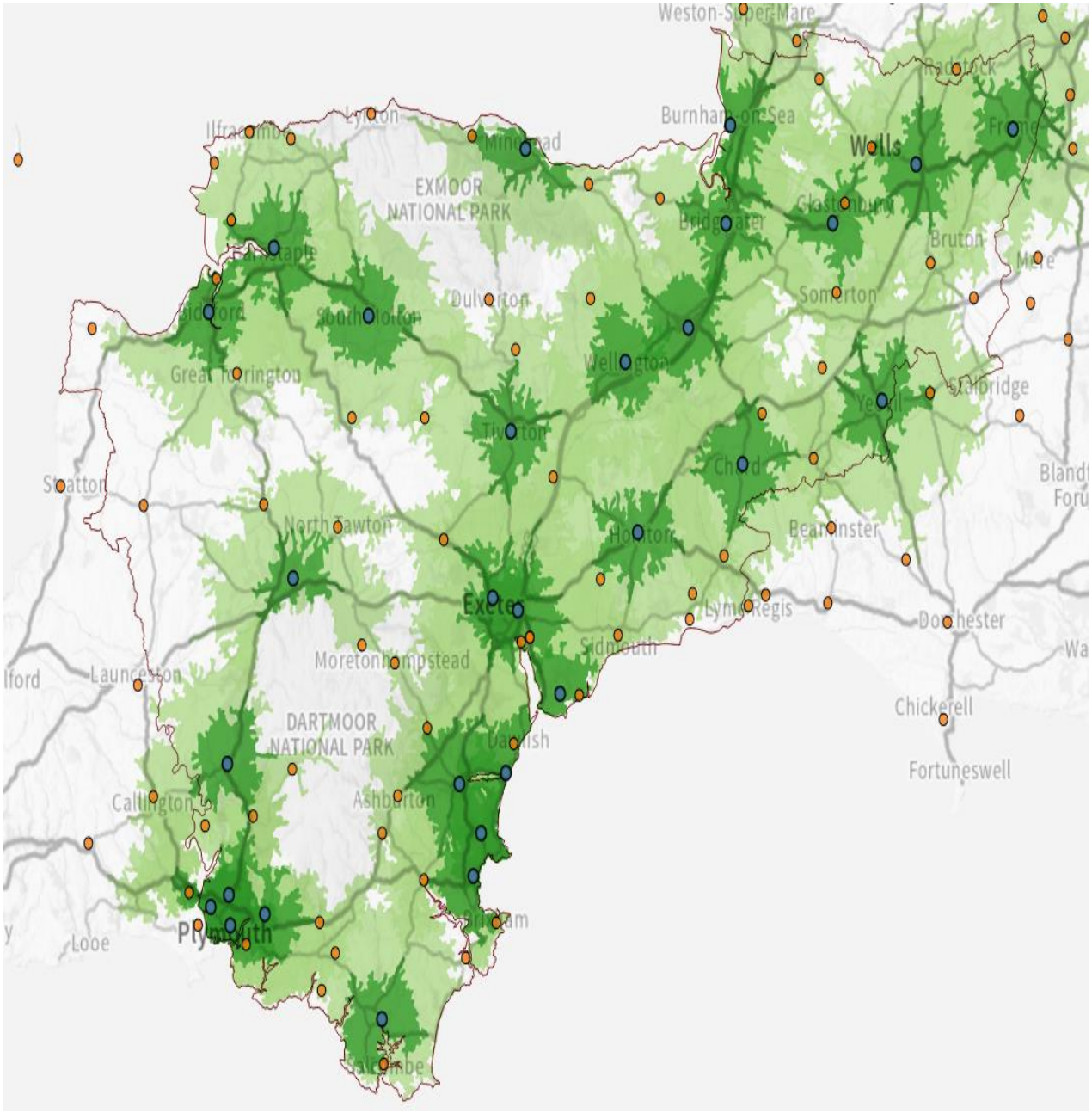


Figure 2: 29 pump model 10 and 20 minute response zones

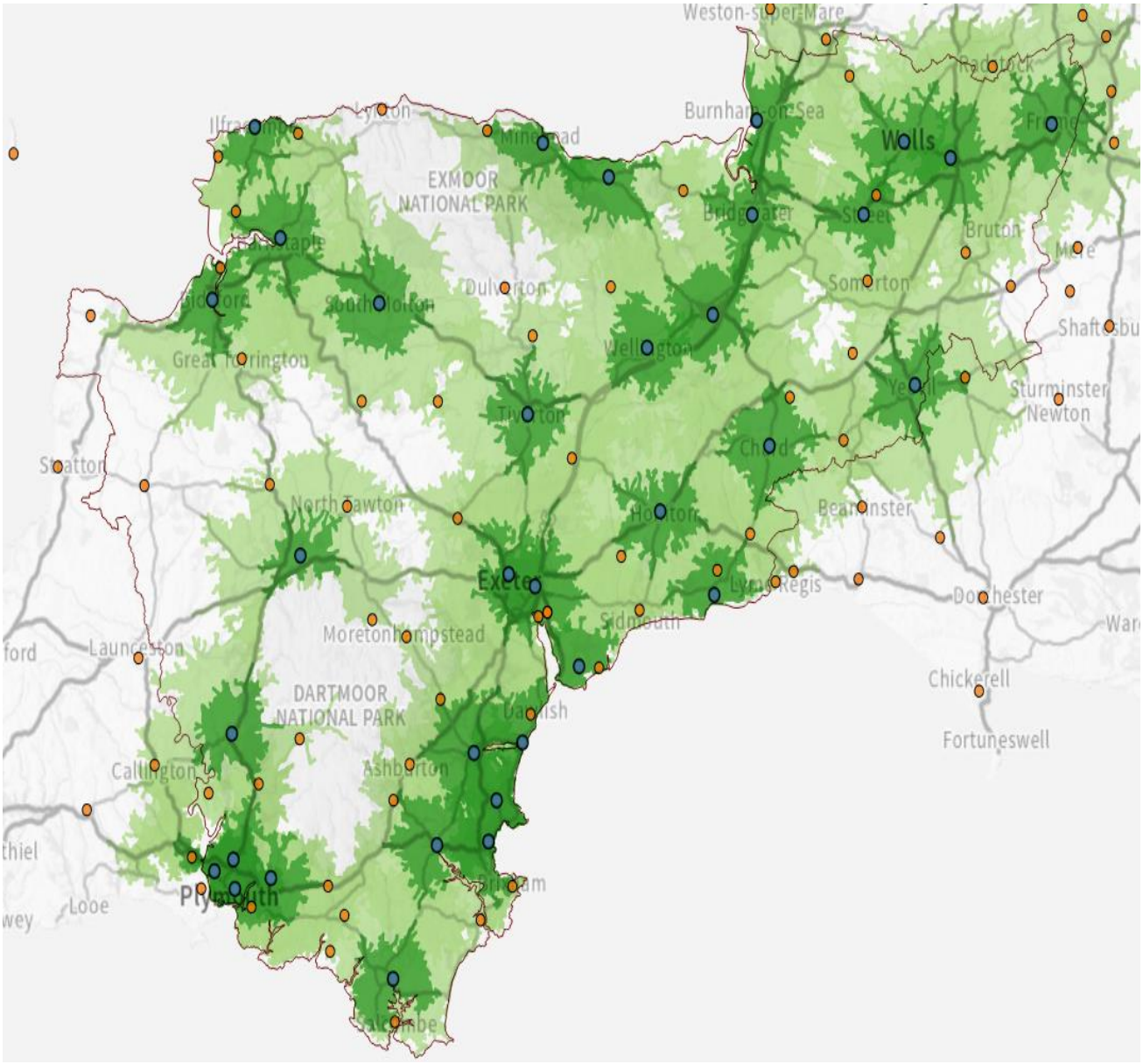


Figure 3: 34 pump model 10 and 20 minute response times

5. CONCLUSION

5.1. The results of the further analysis and subsequent modelling based on risk, historical data and geography indicate that over 50% of the Service response capability is delivered by 17 pumps.

5.2. In order to meet Home Office business continuity criteria a minimum of 29 pumps is required from the current full fleet of 112 (i.e. 25%) and this represents a significant improvement on ERS and attendance times based on the risk profile for the Service beyond the 17 pumps.

5.3. Due to the geographical area of the Service an increased number of pumps will provide an increase in performance up to the current level of 56 risk priority pumps. However, the further modelling carried out indicates that a satisfactory level of performance can be achieved with 34 pumps (see comparison table at paragraph 4.5).

5.4. On this basis, the Executive Board has approved a change in the Key Performance Indicator for Risk Priority Pumps in order to achieve:

- The minimum Home Office business continuity requirements;
- The highest level of risk mitigation; and
- The best geographical spread to remain within 15% of the ERS and achieve a mean first attendance of less than 10 minutes for a dwelling fire and 15 minutes for a road traffic collision.

5.5. Therefore, the 34 pump Risk Priority Pump model will be implemented from 1st April 2023.

ACFO PETER BOND
Director of Service Improvement

APPENDIX A TO REPORT CSC/23/2

CURRENT LIST OF RISK PRIORITY PUMPS

Station	Pump	**Callsign**
Barnstaple	P1	KV01P1
Bideford	P1	KV04P1
Chulmleigh	P1	KV06P1
Hatherleigh	P1	KV09P1
Holsworthy	P1	KV10P1
Lynton	P1	KV11P1
North Tawton	P1	KV12P1
Okehampton	P1	KV13P1
South Molton	P1	KV14P1
Torrington	P1	KV15P1
Torquay	P1	KV17P1
Paignton	P1	KV18P1
Bovey Tracey	P1	KV20P1
Chagford	P1	KV23P1
Dartmouth	P1	KV24P1
Newton Abbot	P1	KV28P1
Teignmouth	P1	KV30P1
Totnes	P1	KV31P1
Danes Castle	P1	KV32P1
Exmouth	P1	KV33P1
Axminster	P1	KV34P1
Crediton	P1	KV38P1
Cullompton	P1	KV39P1
Honiton	P1	KV40P1
Ottery St Mary	P1	KV41P1
Sidmouth	P1	KV43P1
Tiverton	P1	KV44P1
Plympton	P1	KV47P1
Camels Head	P1	KV48P1
Crownhill	P1	KV49P1
Greenbank	P1	KV50P1
Greenbank	P2	KV50P2
Plymstock	P1	KV51P1
Ivybridge	P1	KV53P1
Tavistock	P1	KV57P1
Middlemoor	P1	KV59P1
Taunton	P1	KV61P1
Bridgwater	P1	KV62P1
Burnham on Sea	P1	KV63P1

Glastonbury	P1	KV65P1
Minehead	P1	KV66P1
Street	P1	KV69P1
Wellington	P1	KV70P1
Williton	P1	KV71P1
Yeovil	P1	KV73P1
Castle Cary	P1	KV74P1
Chard	P1	KV75P1
Cheddar	P1	KV76P1
Crewkerne	P1	KV77P1
Frome	P1	KV78P1
Ilminster	P1	KV79P1
Martock	P1	KV80P1
Shepton Mallet	P1	KV81P1
Somerton	P1	KV82P1
Wells	P1	KV83P1
Wincanton	P1	KV84P1