

Firefighters' Pension Schemes (England)

Membership data

Actuarial valuation as at 31 March 2020

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19 December 2023



Highlights

Firefighters' Pension Schemes (England) valuation data

This report details the membership data for the members of the 1992 Scheme, 2006 Scheme and 2015 Scheme, referred to collectively as Firefighters' Pension Schemes (England).



97k

Members as at 31 March 2020

+ 12.4% vs. 2016

Initial data quality

98.8%

Proportion of 'at 31 March 2020' records provided which we are able to use

Improvement vs. 97.9% in 2016

Key headlines

Overall, the quality of the Firefighters' Pension Scheme (England) valuation data as at 31 March 2020 is high with a slight improvement in quality compared with the data used for the 2016 valuation.

In forming this opinion, we consider the proportion of individual records which passed our reasonableness checks and which could be used for the valuation. This proportion has increased since the last valuation.

Data quality after checks and adjustments



After the making the necessary adjustments detailed in this report, we conclude that the data is appropriate for the purpose of the 2020 Firefighters' Pension Scheme (England) valuation. However, a different approach to adjusting data could still lead to different valuation results.

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Any terms that appear in this report in underlined text are defined in the Glossary.

At the Government Actuary's Department ('GAD'), we seek to achieve a high standard in all our work. We are accredited under the Institute and Faculty of Actuaries' Quality Assurance Scheme. Our website describes the standards we apply.

1. Introduction

Who is this report for?

This report is addressed to the Home Office. HM Treasury's Directions ('the <u>Directions'</u>) require the scheme actuary to provide information about the scheme and data. The purpose of this report is to provide the data we will be using and to help readers be confident that the results of the valuation are fit for purpose.

Why has the data been collected?

This data is needed to carry out an actuarial valuation of the Firefighters' Pension Scheme (England) at 31 March 2020, in accordance with the <u>Directions</u>. This data will be used to set actuarial assumptions, and together the data and assumptions will be used to calculate valuation results.

Why is the data important?

The results of the valuation are critically dependent on the quality of the data used. Poor data could lead to employers making different decisions due to paying too high or too low a contribution rate, or to benefit changes being made unnecessarily.

This data is often used for other important work as well, including setting factors for the Firefighters' Pension Scheme (England).

Results **Assumptions** Data Data is the first and most important building block of an actuarial valuation.

2. Data as at 31 March 2020

Who provided the data?

This data was provided either directly by the individual Fire and Rescue Services ('FRSs') or via their appointed administrators.

What is the data used for?

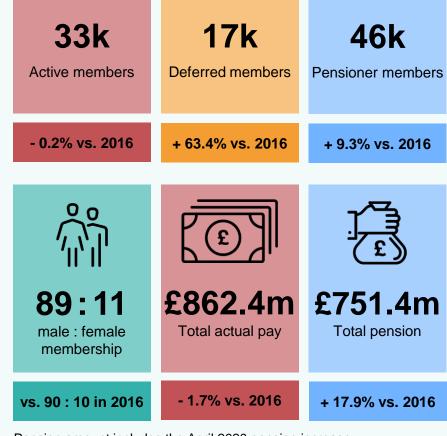
It will be used to calculate the results of the 2020 Firefighters' Pension Scheme (England) valuation, specifically:

- employer contribution rates due from 2024
- the cost cap cost of the scheme
- actuarial liabilities as at 31 March 2020.

Detailed data summaries are included in **Appendix A – Detailed** summaries: data as at 31 March 2020.

The data discussed in the 'Main report' on pages 5 to 10 and Appendices A to D excludes the data in relation to <u>Matthews</u>, unless stated otherwise.

A separate data summary relating specifically to <u>Matthews</u> is detailed in **Appendix E - Matthews**.



Pension amount includes the April 2020 pension increase.

3. Movements data

Where did the data come from?

This movements data for 2016 to 2020 was supplied to GAD either directly by the individual FRSs or via their appointed administrators.

What is movements data used for?

We requested movements data in order to review existing assumptions about the scheme membership and propose new assumptions where appropriate. Agreed assumptions are then used to carry out valuation calculations.

Membership reconciliation

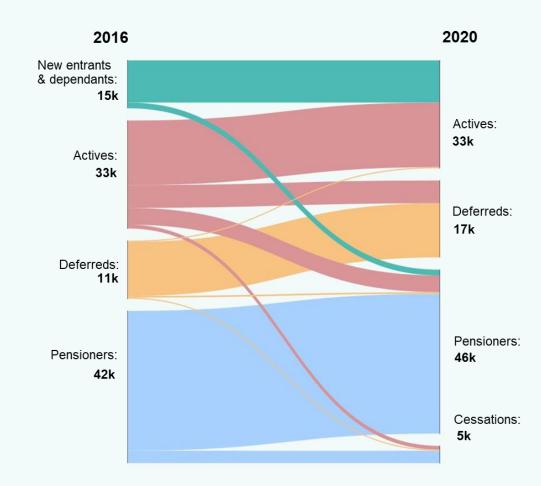
This movements data is used to perform a reconciliation which compares data as at 31 March 2016 and 31 March 2020 against movements occurring between this period to check that membership figures are in agreement.

Where can I find out more?

Detailed data summaries are included in <u>Appendix B – Detailed summaries: movements data</u>.

What does the chart show?

This chart summarises movements between member categories from 2016 to 2020. The thicker the line, the greater the number of member movements occurring.



4. Checks and adjustments

Why is this data checked?

We carry out checks to ensure this data is fit for purpose for the valuation. These checks also help us to understand and describe limitations on the valuation results due to data omissions. This is also a <u>professional actuarial requirement</u>.

What checks are carried out?

We carry out checks on aggregated statistics produced from the data, and on a record by record basis. A simplified process diagram is shown to the right.

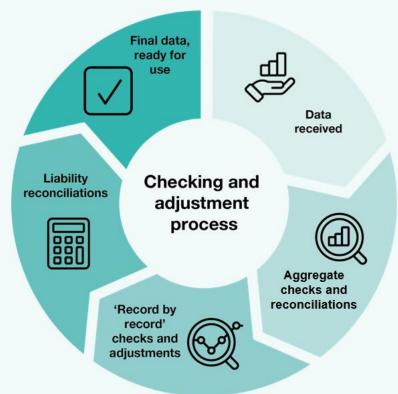
What happens to unreliable data?

Where our checks show that a data record seems to be unreliable, it is either excluded or adjusted. We do this to make sure the data is appropriate for calculating valuation results.

Where we exclude valid data records, we typically compensate for this by scaling up similar, included records.

Where can I find out more?

A detailed summary of what we've done is contained in **Appendix C – Checks, adjustments and uncertainty**.



After checks & adjustments:

After finalising our checks and adjustments we will consider potential data improvements. We will engage with scheme managers on any issues we have identified to improve future data submissions, where possible and as appropriate.

5. Data quality

Who is responsible for data quality?

The scheme managers are responsible for ensuring appropriate data is provided in order to support the legislative requirement to perform a valuation.

It is the scheme managers' responsibility to ensure that data that is provided is in line with our specifications.

Was the data provided of good quality?

The percentage of data which was able to be used and not subject to exclusion is shown to the right. High percentages suggest good quality data.

In terms of the proportion of the records we are able to use, 98.8% is an improvement on the 97.9% used for the 2016 valuation.

More detail on this improvement is described on page 25.

Further information on the data quality of the <u>Matthews</u> data is detailed in <u>Appendix E - Matthews</u>.

Can the data be used for the valuation?

Yes. After making the adjustments detailed in this report, we believe the data is appropriate for the purposes of the 2020 valuation.

Initial data quality

98.8%

Proportion of 'at 31 March 2020' records provided which we are able to use

Improvement vs. 97.9% in 2016

98.5%

Actives

Improvement vs. 95.0% in 2016

98.0%

Deferreds

Deterioration vs. 99.0% in 2016

99.3%

Pensioners

Deterioration vs. 99.8% in 2016

Data quality after checks & adjustments



After making the necessary adjustments detailed in this report, we conclude that the data is appropriate for the purpose of the 2020 Firefighters' Pension Scheme (England) valuation.

6. Impact of data limitations

Do data limitations cause uncertainty?

Yes. Our checks and adjustments aim to ensure that the data is appropriate for use in valuation calculations. However, our checks do not constitute a full audit of the data and our adjustments, although reasonable in our view, may not mean that the dataset adopted accurately reflects the true data of the scheme. This means that there is **residual data uncertainty**.

Is data uncertainty a significant issue?

Residual data uncertainty can potentially have an impact on valuation results, including for example on the <u>cost cap cost</u> of the scheme and any resulting impact on member benefits.

However, in large and complex data sets this uncertainty is normal and is not usually a cause for concern.

In our view, the residual uncertainty present in this data is not significant enough to dissuade users from taking actions recommended from this valuation.

Where can I find out more?

A more detailed summary of residual data uncertainty is set out in **Appendix C – Checks**, adjustments and uncertainty.



7. Limitations

Data

In preparing this report, GAD has relied on data and other information supplied by individual FRSs or via their appointed administrators.

GAD has not sought independent verification around the general completeness and accuracy of the data (beyond our comparisons with the cumulative cashflows recorded by individual FRSs in their accounts).

Separately, GAD has relied on data collated from individual FRSs or via their appointed administrators in response to surveys carried out by the Local Government Authority ('LGA') regarding <u>Matthews</u>. More information on the limitations regarding this data is detailed in <u>Appendix E - Matthews</u>.

Any checks that GAD has made are limited to those described in the report, including those relating to the overall reasonableness and consistency of the data. These checks do not represent a full independent audit of the data supplied.

Throughout this report, the totals given for summed data may not be exactly the same as the sum of the components shown due to rounding effects.

HM Treasury Directions

Throughout this report, in any place where we indicate the potential variability of valuation results - these take into account the HM Treasury <u>Directions</u> for the 2020 valuations.

Sharing

This report has been prepared for the use of the Home Office and Home Secretary. We are content for the Home Office to release this report to third parties, provided:

- It is released in full;
- The advice is not quoted selectively or partially;
- GAD is identified as the source of the report, and;
- GAD is notified of such release.

Other than the Home Secretary and the Home Office, no person or third party is entitled to place any reliance on the contents of this report, except to any extent explicitly stated herein. GAD has no liability to any person or third party for any action taken or for any failure to act, either in whole or in part, on the basis of this report.

This report will be published by GAD as part of completing the 2020 valuation of the scheme.

Compliance statement:

This report has been prepared in accordance with the applicable Technical Actuarial Standards: TAS 100 and TAS 300 issued by the Financial Reporting Council ('FRC'). The FRC sets technical standards for actuarial work in the UK.

Appendix A

Detailed summaries: Data as at 31 March 2020

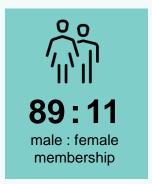


Scheme data

As at 31 March 2020

Summary statistics





+ 12.4% vs. 2016

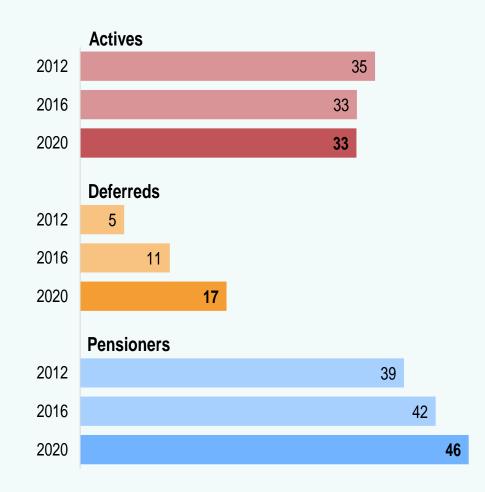
vs. 90 : 10 in 2016







Membership over time (000's)



Pension amounts include the April 2020 pension increase

Scheme membership

As at 31 March 2020

Overall, the headcount has increased from 2016 to 2020.

There are significantly more male than female members across all categories.

The numbers of pensioner/dependants begin increasing from around age 48 and peak between ages 50 and 55 as expected.

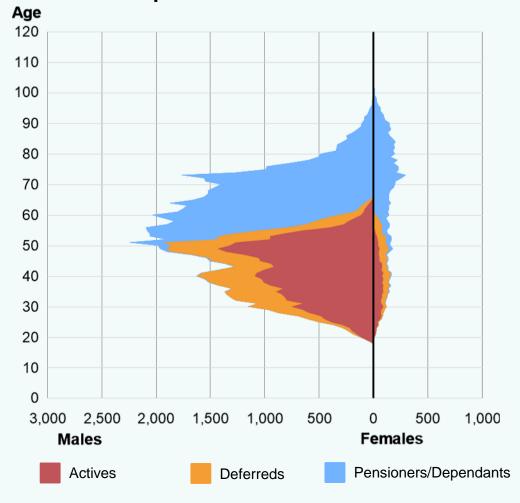
This corresponds with declining numbers of active members and deferred members over this age range.

Some active and deferred members have still not claimed their pensions, despite being over <u>normal pension age</u>.

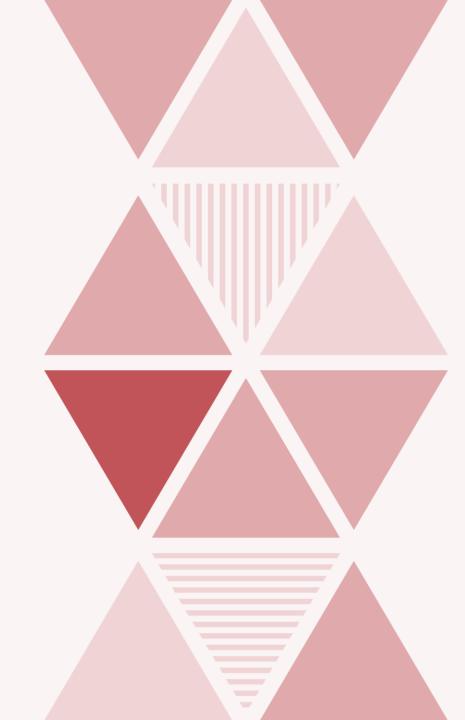
Where can I see more?

Appendix D – Tables of summary statistics

Membership distribution



Actives



Actives data

As at 31 March 2020

Summary statistics







£862.4m
Total actual pay

- 0.2% vs. 2016

vs. 95:5 in 2016

membership

- 1.7% vs. 2016



43.2yrs

Average age (weighted by actual pay)

+0.1 yrs vs. 2016



£26,185

Average actual pay

- 1.6% vs. 2016



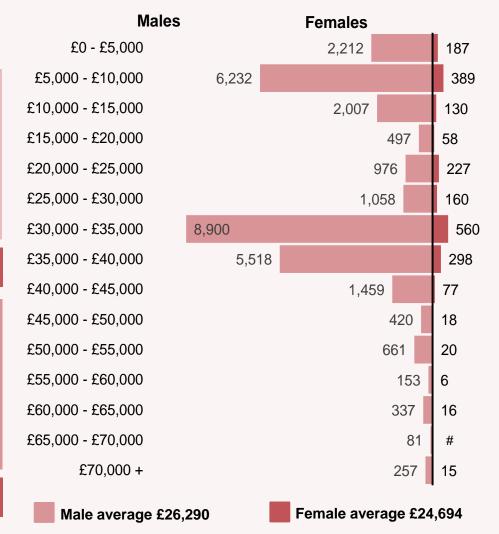
£1,709*

Average post-reform CARE pension

+ 356.7% vs. 2016

*Average is only for members who have post reform <u>CARE</u> pension Post reform <u>CARE</u> pension includes <u>pension revaluation</u> to April 2020

Actual pay distribution



represents groups of 5 or fewer individuals.

Active membership

As at 31 March 2020

For members with service before 2015, this shows the active members' legacy scheme at the valuation date.

There are significantly more male than female members across all ages.

In general, as you move from younger to older ages:

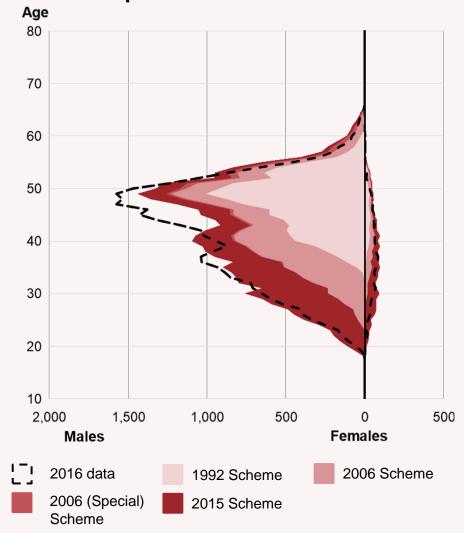
- The vast majority of younger members are in the 2015 Scheme.
- Between ages 30 and 50, there are more members in 2016 compared with 2020 (as can be seen by the darkest shade of red inside of the dotted line at the bottom of the chart):
- There are a similar number of members from aged 50 onwards at 2020 compared with 2016.
- As the membership ages, the proportion of members with <u>legacy scheme</u> membership increases (as shown by the three lighter shades).

From 1 April 2022, all future service will be in the 2015 Scheme.

Where can I see more?

Appendix D – Tables of summary statistics





Deferreds



Deferreds data

As at 31 March 2020

Summary statistics





89:11
male:female
membership



+ 63.4% vs. 2016

vs. 88: 12 in 2016

+ 39.5% vs. 2016



47.7 yrs

Average age (weighted by pension)

+1.0 yrs vs. 2016

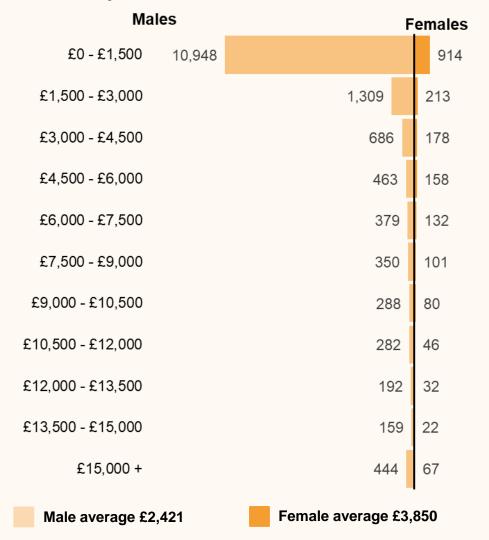


£2,580

Average pension

- 14.6% vs. 2016

Deferred pension distribution



Deferred membership

As at 31 March 2020

For members with service before 2015, this chart shows the members' <u>legacy scheme</u> at the valuation date.

There are more male than female deferred members at all ages, with the majority of members having legacy 2006 Scheme benefits (shown by the two mid-orange shades).

There are more deferred members in 2020 compared to 2016 at most ages (as can be seen by the dotted line inside the shades of orange).

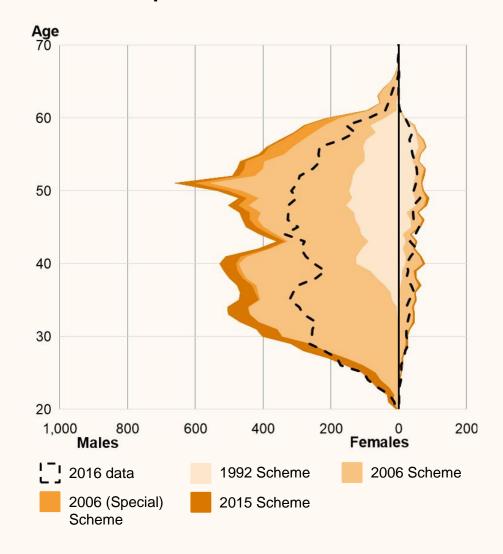
This is a result of increased withdrawals that have been seen over the inter-valuation period, and few deferred members reaching retirement age in the inter-valuation period (further details are shown on pages 24 and 25).

Some deferred members over deferred pension age have not yet claimed the pension that they are entitled to.

Where can I see more?

Appendix D – Tables of summary statistics

Membership distribution



Pensioners



Pensioner data

As at 31 March 2020

Summary statistics



40k

Pensioners (retired members)

+ 9.0% vs. 2016



6k

Dependants

+ 11.2% vs. 2016



85:15

male : female membership

vs. 86 : 14 in 2016



66.8 yrs

Average age (weighted by pension)

+1.5 yrs vs. 2016



£751.4m

Total pension

+ 17.9% vs. 2016

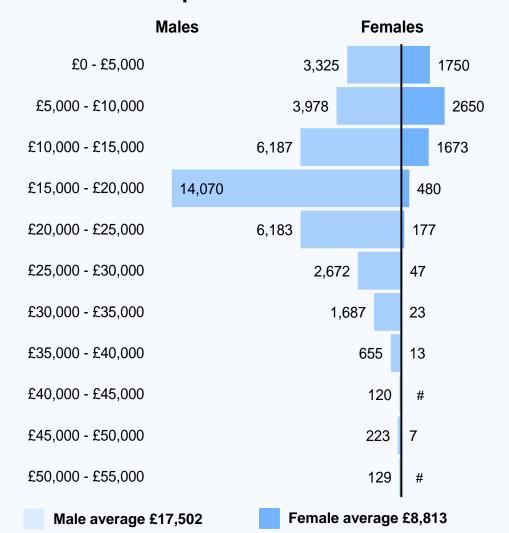


£16,221

Average pension

+ 7.9% vs. 2016

Pensioner data pension distribution



Pension amount includes the April 2020 pension increase

represents groups of 5 or fewer individuals.

Pensioner membership

As at 31 March 2020

There are more male than female pensioners at all ages.

The majority of pensioners are those who retired in normal health (shown by the lightest shade).

There are relatively small groups of male members who retired in ill-health and female dependants.

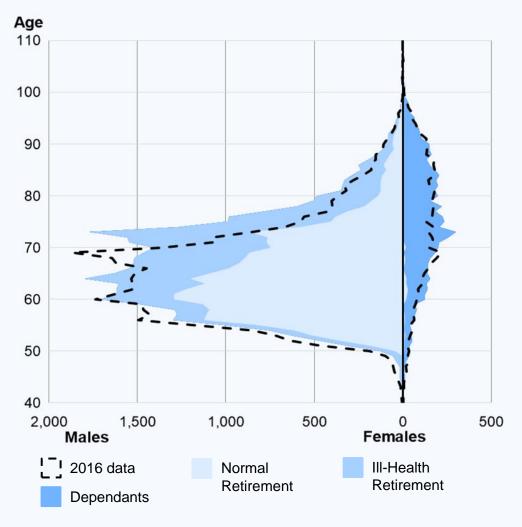
The male dependant population is very small.

Overall, compared with 2016 (shown by the dotted black line) the pensioner population in general has aged.

Where can I see more?

Appendix D - Tables of summary statistics

Membership distribution*



^{*}This chart does not show members aged below 40 years.

Appendix B

Detailed summaries: Movements data



Membership movements

31 March 2016 to 31 March 2020

Actives

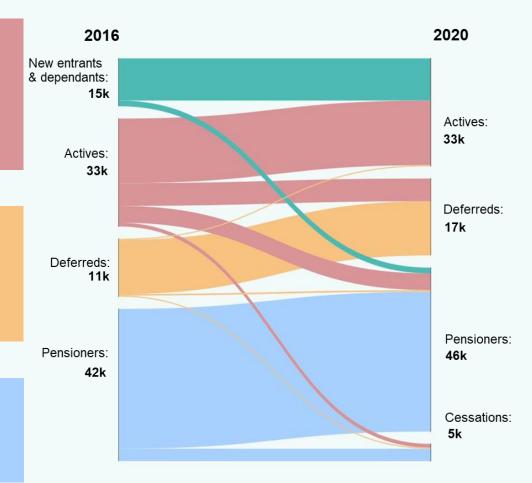
Although there were new entrants to active service, there were similar amounts of movements from active status to deferred or pensioner status resulting in the active population remaining stable since 2016 (see next slide for more information).

Deferreds

There has been a significant increase in the deferred population since 2016 (see next slide for more information).

Pensioners

Reasons for cessation from pensioner status include pensioner deaths and members no longer being eligible for a pension from Firefighters' Pension Scheme (England) – for example, child pensions ceasing at a certain age or on leaving education (see next slide for more information).



Membership movements

31 March 2016 to 31 March 2020

This table shows how the number of members in each category has changed over the period 31 March 2016 (top row) to 31 March 2020 (bottom row).

The intermediate rows summarise the membership movements provided over the period, as illustrated in the previous slide.

Reconciliation

The expected number of members in each category at 31 March 2020 is set out in the second last row of the table. This reflects the starting position at 31 March 2016 and the movements data provided.

There are a number of minor differentials between this expected position and the actual position at 31 March 2020.

Actives: -100 members

Deferreds: -300 members

■ Pensioners: <100 members.

These differences are within our tolerance levels for a scheme of this size, so no further action needs to be taken.

Figures are rounded to the nearest 100	Actives ('00s)		
Number at start of period:	330	107	424
New members:			
New entrants	129	-	-
New dependants	-	-	18
Movements between categories:			
Leavers from active service*	-70	82	-
Re-joiners and re-employed	3	-3	-
Age related retirements	-48	-5	55
Ill-health retirements	-3	~0	4
Cessations with no ongoing liability:			
Member deaths	~0	~0	-26
Dependant deaths	-	-	-12
Other exits	-11	-3	~0
Number expected at end of period:	330	177	463
Valuation data at end of period:	329	174	463
Difference:	-1	-3	~0

^{~0} means the figure is too small to report

^{*}The figure for 'Leavers from active service' in the actives column is calculated based on records of people who have left the actives population with 'deferral' given as the reason for leaving, whereas the corresponding figure in the deferreds column is calculated based on records of people who have entered the deferred population. Although these two calculations should in theory yield the same number, in practice there are inconsistencies between these two datasets as the numbers of members leaving active service may not equal the number of entrants to the deferred populations. The same is true for 'Age related retirements' and 'Ill-health retirements'. In addition, there was an apparent omission of ~1.6k deferred records in 2016 (more detail on page 30) which we have classified as leavers from active service in the deferreds column, but the members did not leave the actives population in the inter-valuation period therefore only contribute to the count of new deferreds and not active leavers.

Appendix C

Checks, adjustments and uncertainties



Checking and adjustment process



1. Data received

Our work starts when schemes provide data. This is collated and processed to remove any unnecessary personal information and to encrypt any personal information that needs to be retained.

All member data provided and discussed in this report was supplied to GAD either directly by the individual FRSs or via their appointed administrators.

2. Aggregate checks and reconciliations

Initial checks carried out on the data are at an overall level, as opposed to an individual record basis.

Any unexpected changes compared to previous datasets are identified.

The data provided is then reconciled against that from a separate source (e.g. annual accounts) to check for any potential issues.

3. 'Record by record' checks and adjustments

If the data passes our initial checks, we then undertake a series of automated, record-byrecord checks to remove records that are deemed unreliable. For example, duplicate records, or those with missing key data. Where individual records are excluded. remaining records with similar characteristics are typically rated up to compensate for this, where appropriate.

4. Liability reconciliation

At the final checking stage, we use the adjusted data to calculate <u>actuarial</u> <u>liabilities</u> and reconcile them against those calculated in 2016, adjusted for cashflow information.

5. Final data, ready for use

After completion of checks and adjustments, the dataset is ready for calculating valuation results. We then decide whether, in our opinion, it is fit for the purpose of making decisions based on the valuation results.

If we notice significant issues at any stage of our checking process, we will request new or additional data from the relevant FRS or scheme administrator in order to correct or make allowance for them.

'Record by record' checks and adjustments

Process, limitations & uncertainty

We exclude individual records that have missing or unreliable key data and <u>rate up</u> similar remaining records to replace them, where appropriate.

This process assumes that the membership profile of excluded records is consistent with the profile of the similar reliable records. However, to the extent that this is not the case, there is a degree of uncertainty in the valuation results. Further details are set out in the section of this appendix titled 'Residual Data uncertainty'.

This summary excludes the data in relation to <u>Matthews</u>. A separate summary relating specifically to <u>Matthews</u> is detailed in **Appendix E - Matthews**.

Overall, we believe this is a reasonable approach to take given the scarcity of alternative information.

Top 3 reasons for excluding records*

316	Pensioner/dependant total pension not in the expected range (<u>rate up</u> applied)
195	2015 Scheme pension for actives not in the correct range (<u>rate up</u> applied)
190	2015 Scheme actual pay is not in the correct range (<u>rate up</u> applied)

^{*} Some members may fail more than one exclusion check. Only one exclusion will apply in such cases. As a result, the total number of members failing a check can exceed the number of exclusions.

Summary of excluded records

500	355	331
Actives excluded	Deferreds excluded	Pensioners excluded
1.5% of total records	2.0% of total records	0.7% of total records
Improvement vs. the 5.0% 2016 exclusion	Deterioration vs. the 1.0% 2016 exclusion	Deterioration vs. the 0.2% 2016 exclusion

Overall 1.2% of total records were excluded (an improvement compared with the 2.1% of total records excluded in 2016).

Further information

After finalising our checks and adjustments we will consider potential data improvements. We will engage with scheme managers on any issues we have identified to improve future data submissions, where possible and as appropriate.

Liability reconciliation

Summarised results

At the final data checking stage we carry out the following reconciliation.

Reconciliation against 2016 valuation results

This step assesses the expected versus calculated value of the scheme's <u>actuarial liability</u> as at 31 March 2020. The expected liability is calculated by adjusting the 2016 liabilities for cashflow information provided by the Home Office and the sum of cashflows shown in the individual FRSs' annual accounts, allowing for known <u>pension increases</u> and salary awards since 2016. Differences between expected and calculated liabilities could imply missing or incorrect data.



This check is within our tolerance levels.

Tolerance levels and uncertainty

All reconciliations have a **tolerance level**, within which we accept any differences and move on. Our tolerance levels vary between checks, depending on the level of accuracy we believe appropriate.

If differences fall outside of the acceptable tolerance levels, further investigations are carried out before deciding whether to accept, adjust, or reject the data provided.

Limitations

The results of these checks are heavily dependent on the accuracy and completeness of the cashflow information provided by the Home Office and the individual FRSs' annual accounts as at 31 March 2017, 2018, 2019 and 2020.

If any of this information is materially inaccurate the results of our checks will also be inaccurate. We believe this is a low risk, as the FRSs' annual accounts have been audited.

Other non-standard adjustments

Summary

In addition, we sometimes make adjustments to data provided to correct known data issues.

We only do this when requested, and when it is more efficient for us to make simple changes than to request new data from administrators.

The key adjustments we have made for Firefighters' Pension Scheme (England) are detailed below.

Actives:

- After initial investigations on the data, it was discovered that some of the FRSs provided the average salary over the year or the salary at the valuation date. An adjustment was applied to take account of the inconsistent approach different administrators took to providing salary information.
- It was also discovered that some of the administrators provided the columns with final salary actual pay, pensionable pay and rate of pensionable pay in the wrong order. We therefore applied a simple column switch to correct this where appropriate.
- For some of the FRSs, the pro-rated actual salary was provided for those who joined in the last financial year before the valuation date ie after 31 March 2019. An adjustment was applied to annualise the salary.

• 20% of active retained members did not have a part-time proportion recorded. An adjustment was applied to allow for an average part time proportion for these members.

Deferreds:

 There were some members who were not included in the 2016 valuation data when their membership details would suggest that they should have been. We corresponded with the appropriate administrators to confirm that it was correct to include these members.

Pensioners:

 It was discovered that there where a number of members recorded as an 'unknown' pensioner type. Adjustments were made to reassign these members normal health retirement /illhealth retirement /dependants, depending on age at retirement.

Any non–standard adjustments relating specifically to <u>Matthews</u> are detailed in <u>Appendix E - Matthews</u>.

Limitations and uncertainty

The extent to which the true data differs from the adjusted data we use in our calculations creates a degree of **uncertainty** in the valuation results. More details are set out in the section of this appendix titled 'residual data uncertainty'.

Residual data uncertainty

Summary

The previous sections of this appendix have described the checks and adjustments made to the data to ensure it is fit for the purpose of calculating valuation results.

However, there are risks that the adjustments we have made do not truly represent the underlying data of the scheme, or that the data provided did not truly represent the underlying data of the scheme and we have not made the necessary adjustments to ensure that it does.

Matthews

The <u>Matthews</u> second option exercise (or 'M2') is a programme to enable certain members to elect to buy historic service in the 2006 (Special) Scheme. M2 began in October 2023 in accordance with <u>The Firefighters' Pension Schemes (England) (Amendment) Order 2023.</u>

It arises because of a November 2018 ruling in a legal case involving part-time judges ('O'Brien v MoJ') that effectively broadened the scope of an earlier ruling in the equivalent case for retained firefighters ('Matthews') and which had previously led to the first Matthews options exercise.

HM Treasury <u>Directions</u> require that all relevant liabilities are included within the valuation. Additional liabilities arising as a result of M2 are considered to be relevant.

More information on this is detailed in **Appendix E - Matthews**.

Potential impact on valuation results

We are comfortable that the checks and adjustments that have been made are reasonable and that the data is appropriate for the purpose of the 2020 valuation. In our opinion, the potential impact of data uncertainty on the employer contribution rate and member outcomes (via the cost control mechanism) is:

Employer contribution rate: The uncertainty will be captured together with other experience and changes through the 2024 (or subsequent) valuations and the impact could be of the order of ±2% of pensionable pay.

Member Outcomes: No impact expected

The potential impact on the <u>employer contribution rate</u> noted above is largely due to the uncertainty surrounding the data for M2. We anticipate that the uncertainty in the data for the Firefighters' Pension Scheme (England) excluding the data for the <u>Matthews</u> could be of the order of ±0.25% of pensionable pay on the <u>employer contribution rate</u>.



After making necessary adjustments detailed in this report, we conclude that the data is appropriate for the purpose of the 2020 Firefighters' Pension Scheme (England) valuation.

Appendix D

Tables of summary statistics



Summary statistics – introduction

Categorisation

The membership data in this appendix is categorised by scheme. Where applicable, members are assigned to the <u>legacy scheme</u> that they have already accrued benefits in, even if they have now started to accrue benefits in the <u>reformed scheme</u>. This means that:

- Members who have legacy benefits only as at 31 March 2020 will be categorised under their respective <u>legacy</u> <u>scheme</u>.
- Members who have a combination of legacy and reformed benefits as at 31 March 2020 having transitioned from a legacy to <u>reformed scheme</u> will be categorised under their respective <u>legacy scheme</u>.
- Members who have reformed benefits only as at 31 March 2020 will be categorised under the <u>reformed scheme</u>.

The summary statistics in this appendix exclude the data in relation to <u>Matthews</u>.

A separate data summary relating specifically to <u>Matthews</u> is detailed in <u>Appendix E - Matthews</u>.

Interpretation

The rest of this appendix summarises the scheme data, after adjustments, into a series of tables. An example is shown below.

The first number in each section of the table, in bold text, shows data as at 31 March 2020. The second number, in standard text, shows the change from data as at 31 March 2016 to data as at 31 March 2020.

Positive changes show increases between 2016 and 2020 and negative changes show decreases.

The totals given for summed data may not be exactly the same as the sum of the components shown due to rounding effects.

Example table

Scheme	Males	Females	Total
Legacy scheme 1	100	100	200
	+10	+10	+20
Legacy scheme 2	100	100	200
	+10	+10	+20
Reformed scheme	100	100	200
	+10	+10	+20
All schemes	300	300	600
	+30	+30	+60

Summary statistics – actives

As at 31 March 2020

Number of members

Scheme (type of member)	Males	Females	Total
1992 Scheme (Regular)	11,597 - 5,027	466 - 90	12,063 - 5,117
2006 Scheme (Regular)	4,320 - 686	408 - 64	4,728 - 750
2006 Scheme (Retained)	4,302 - 2,853	173 - 181	4,476 - 3,034
2006 Scheme (Special Retained)	879 - 553	13 - 16	893 - 569
2015 Scheme (Regular)	4,831 + 4,212	667 + 623	5,498 + 4,836
2015 Scheme (Retained)	4,837 + 4,197	441 + 386	5,278 + 4,584
All members	30,767 - 708	2,168 + 658	32,935 - 50

Average age* (years)

Scheme (type of member)	Males	Females	Total
1992 Scheme (Regular)	47.6 + 1.9	45.9 + 3.6	47.5 + 2.0
2006 Scheme (Regular)	40.1 + 3.4	39.3 + 3.7	40.1 + 3.4
2006 Scheme (Retained)	42.2 + 3.8	41.3 + 5.2	42.2 + 3.9
2006 Scheme (Special Retained)	51.4 + 2.8	53.3 + 6.3	51.5 + 2.8
2015 Scheme (Regular)	35.0 + 2.9	32.8 + 3.6	34.7 + 2.9
2015 Scheme (Retained)	35.8 - 1.4	33.8 + 2.3	35.6 - 1.2
All members	43.5 + 0.2	39.0 + 0.2	43.2 + 0.1

^{*} weighted by actual pay

The first number in each section, in bold text, shows the value as at 31 March 2020. The second number, in standard text, shows the change from data as at 31 March 2016 to data as at 31 March 2020. Positive changes show increases between 2016 and 2020 and negative changes show decreases.

Summary statistics – actives

As at 31 March 2020

Total full-time equivalent pay* (£m pa)

Scheme (type of member)	Males	Females	Total
1992 Scheme (Regular)	453 - 22.9%	18 - 4.9%	471 - 22.3%
2006 Scheme (Regular)	151 - 3.9%	14 - 4.3%	166 - 3.9%
2006 Scheme (Retained)	140 - 31.5%	6 - 43.2%	145 - 32.0%
2006 Scheme (Special Retained)	30 - 34.1%	~0 - 49.6%	30 - 34.4%
2015 Scheme (Regular)	-	-	-
2015 Scheme (Retained)	-	-	-
All members	774 - 22.2%	38 - 14.0%	812 - 21.8%

^{*}The total full-time equivalent pay is calculated only for those members where the information has been provided (only in respect of members with final salary benefits)

Total actual pay (£m pa)

Scheme (type of member)	Males	Females	Total
1992 Scheme (Regular)	443 - 24.9%	17 - 9.4%	460 - 24.4%
2006 Scheme (Regular)	146 - 5.3%	14 - 6.0%	160 - 5.3%
2006 Scheme (Retained)	44 - 28.6%	2 - 40.0%	45 - 29.1%
2006 Scheme (Special Retained)	11 - 30.6%	~0 - 26.1%	11 - 30.5%
2015 Scheme (Regular)	129 + 998%	17 >1000%	147 >1000%
2015 Scheme (Retained)	37 + 370%	3 + 498%	40 + 379%
All members	809 - 3.6%	54 + 40.4%	862 - 1.7%

^{~0} means the figure is too small to report

Summary statistics – actives

As at 31 March 2020

Average full-time equivalent pay* (£ pa)

Scheme (type of member) Males **Females** Total 39,071 38,690 39,056 1992 Scheme (Regular) + 10.5% + 13.5% + 10.6% 35,053 35,243 35,070 2006 Scheme (Regular) + 11.4% + 10.8% + 11.3% 32,494 31,995 32,475 2006 Scheme (Retained) + 14.0% + 16.2% + 14.1% 2006 Scheme (Special 33.771 33,562 33.768 + 7.4% Retained) + 7.4% + 10.9% 2015 Scheme (Regular) 2015 Scheme (Retained) 36,205 36,663 36,686 All members + 11.5% + 14.5% + 11.6%

Average actual pay (£ pa)

Average actual pay (2 pa)			
Scheme (type of member)	Males	Females	Total
1992 Scheme (Regular)	38,189 + 7.7%	36,755 + 8.1%	38,134 + 7.7%
2006 Scheme (Regular)	33,702 + 9.8%	34,270 + 8.9%	33,751 + 9.7%
2006 Scheme (Retained)	10,111 + 18.8%	9,543 + 22.7%	10,089 + 19.0%
2006 Scheme (Special Retained)	12,366 + 13.1%	11,843 + 62.5%	12,358 + 13.8%
2015 Scheme (Regular)	26,725 + 40.6%	26,071 + 32.9%	26,646 + 39.9%
2015 Scheme (Retained)	7,629 - 37.8%	7,357 - 26.2%	7,606 - 37.0%
All members	26,290 - 1.4%	24,694 - 2.2%	26,185 - 1.6%

^{*}The average full-time equivalent pay is calculated only for those members where the information has been provided (only in respect of members with final salary benefits)

Summary statistics – actives

As at 31 March 2020

Average reckonable service* (years)

Scheme (type of member)	Males	Females	Total
1992 Scheme (Regular)	18.7 - 1.6	15.5 - 0.4	18.5 - 1.6
2006 Scheme (Regular)	6.8 - 0.8	6.7 - 0.8	6.8 - 0.8
2006 Scheme (Retained)	1.5 - 0.8	1.2 - 1.0	1.5 - 0.8
2006 Scheme (Special Retained)	5.2 + 0.0	4.0 - 0.1	5.2 + 0.0
2015 Scheme (Regular)	-	-	-
2015 Scheme (Retained)	-	-	-
All members**	12.2 - 1.0	9.7 + 0.3	12.1 - 1.0

^{*}Unweighted (shown for final salary sections only)

Total post-reform <u>CARE</u> pension*** (£ m)

Scheme (type of member)	Males	Females	Total
1992 Scheme (Regular)	25.9 + 523.1%	1.2 + 456.6%	27.1 + 519.9%
2006 Scheme (Regular)	11.7 + 394.0%	1.1 + 380.4%	12.8 + 392.7%
2006 Scheme (Retained)	3.0 + 297.8%	0.1 + 216.5%	3.1 + 293.7%
2006 Scheme (Special Retained)	0.4 + 477.3%	~0 + 495.7%	0.4 + 477.6%
2015 Scheme (Regular)	4.6 >1000%	0.5 >1000%	5.1 >1000%
2015 Scheme (Retained)	1.4 >1000%	0.1 >1000%	1.5 >1000%
All members**	46.9 + 529.8%	3.1 + 525.9%	50.0 + 529.5%

^{***}Pension amount includes the April 2020 pension revaluation

^{**}The 2016 data report included the 2015 Scheme in the overall average reckonable service, meaning that differences will not reconcile with the 2016 report.

^{~0} means the figure is too small to report

Summary statistics – deferreds

As at 31 March 2020

Number of members

Scheme	Males	Females	Total
1992 Scheme	2,652 + 229	807 + 359	3,459 + 588
2006 Scheme	10,598 + 4,351	939 + 137	11,537 + 4,488
2006 Scheme (Special)	825 + 127	40 + 9	865 + 136
2015 Scheme	1,427 + 1,401	157 + 156	1,584 + 1,557
All members	15,502 + 6,109	1,943 + 661	17,445 + 6,770

Average age* (years)

Scheme	Males	Females	Total
1992 Scheme	49.0 + 1.8	51.4 + 2.1	49.4 + 1.9
2006 Scheme	42.5 + 1.7	42.8 - 6.5	42.5 - 1.2
2006 Scheme (Special)	52.1 + 1.1	51.7 + 5.0	52.1 + 1.2
2015 Scheme	37.7 + 2.2	41.8 + 8.8	38.5 + 3.1
All members	47.3 + 1.2	49.9 + 0.6	47.7 + 1.0

^{*} weighted by pension

The first number in each section, in bold text, shows the value as at 31 March 2020. The second number, in standard text, shows the change from data as at 31 March 2016 to data as at 31 March 2020. Positive changes show increases between 2016 and 2020 and negative changes show decreases.

Summary statistics – deferreds

As at 31 March 2020

Total deferred pension (£m pa)

Scheme	Males	Females	Total
1992 Scheme	26.3 + 27.8%	6.2 + 97.7%	32.5 + 37.0%
2006 Scheme	9.6 + 91.1%	1.2 - 53.9%*	10.8 + 41.9%
2006 Scheme (Special)	1.2 + 33.2%	~0 + 79.6%	1.3 + 34.5%
2015 Scheme	0.4 >1000%	0.1 >1000%	0.5 >1000%
All members	37.5 + 41.3%	7.5 + 30.9%	45.0 + 39.5%

Average deferred pension (£ pa)

Scheme	Males	Females	Total
1992 Scheme	9,932 + 16.7%	7,623 + 9.9%	9,393 + 13.7%
2006 Scheme	903 + 12.7%	1,264 - 60.7%*	932 - 13.3%
2006 Scheme (Special)	1,514 + 12.6%	1,232 + 38.9%	1,501 + 13.3%
2015 Scheme	260 + 200%	590 + 515%	293 + 237%
All members	2,421 - 14.4%	3,850 - 13.6%	2,580 - 14.6%

Pension amounts includes the April 2020 pension increase

^{~0} means the figure is too small to report

^{*}During our analysis of the data, it was discovered that some records which were recorded as females in the 2006 Scheme in the 31 March 2016 valuation data, were now recorded as being in the 1992 Scheme instead. These records have quite high pensions, and so the removal from the 2006 Scheme results in a higher than expected reduction in deferred pension.

Summary statistics – pensioners

As at 31 March 2020

Number of members

Туре	Males	Females	Total
Normal Health Retirement	24,453 + 3,946	242 + 198	24,695 + 4,143
III-Health Retirement	15,025 - 878	115 + 30	15,140 - 848
Dependants*	16 - 1	6,473 + 654	6,489 + 653
All members	39,494 + 3,066	6,830 + 882	46,324 + 3,948

^{*}Includes pension credit members

Average age** (years)

Туре	Males	Females	Total
Normal Health Retirement	64.5 + 1.3	62.1 + 2.6	64.5 + 1.3
III-Health Retirement	70.0 + 2.9	54.7 + 1.4	69.9 + 2.9
Dependants*	71.8 + 5.3	74.5 + 0.9	74.5 + 0.9
All members	66.2 + 1.6	73.7 + 0.4	66.8 + 1.5

^{**}weighted by pension

Summary statistics – pensioners

As at 31 March 2020

Total pension (£m pa)

Туре	Males	Females	Total
Normal Health Retirement	474 + 25%	3 + 537.3%	477 + 25.8%
III-Health Retirement	217 + 1%	1 + 56.2%	218 + 2%
Dependants*	~0 + 9.6%	57 + 29.7%	57 + 29.7%
All members	691 + 16.7%	60 + 34.5%	751 + 17.9%

Average pension (£ pa)

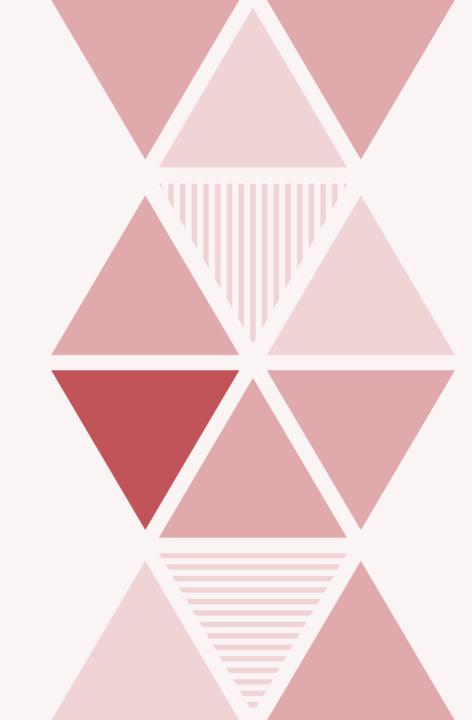
Туре	Males	Females	Total
Normal Health Retirement	19,389 + 5.0%	10,385 + 16.4%	19,301 + 4.7%
III-Health Retirement	14,441 + 7%	7,865 + 14.9%	14,391 + 7%
Dependants*	7,603 + 16.9%	8,771 + 16.6%	8,768 + 16.6%
All members	17,502 + 7.6%	8,813 + 17.2%	16,221 + 7.9%

Pension amounts includes the April 2020 pension increase

^{~0} means the figure is too small to report

^{*}Includes pension credit members

Appendix E Matthews



Matthews data





Data provided

The dataset we have been provided is from two surveys of FRSs carried out in July and December 2022 by LGA on behalf of GAD. The number of FRSs that responded to these surveys is shown on page 44.

The survey data collated in July 2022 was used solely to inform the assumption on the number of eligible firefighters.

The survey data collated in December 2022 is used in the <u>actuarial liability</u> calculations.

The data included:

- · those current scheme members who are still in service
- those members who have left service before retirement age
- · those members who have already retired
- those firefighters who did not join the Scheme at any point, however, are eligible to be given the opportunity to join the Scheme retrospectively ('non-members')
- those firefighters who would have been eligible for remedy but have since deceased before they were given the opportunity to purchase service. We have excluded these members from our analysis on to simplify the modelling and because the change to the <u>actuarial liability</u> would not be material.

The data in the December 2022 survey has been summarised in pages 44, 45 and 46.

Checks on data received

We carry out checks to ensure this data is fit for purpose for the valuation. These checks also help us to understand and describe limitations on the valuation results due to data omissions. This is also a <u>professional actuarial requirement</u>. Where our checks show that a data record seems to be unreliable, it is either excluded or adjusted. We do this to make sure the data is appropriate for calculating valuation results.

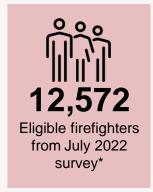
More information on the adjustments we have made in relation to the data received from LGA are on page 47.

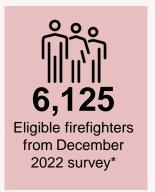
Since the FRSs are still in the process of collating data and because members are yet to make their decisions:

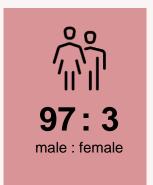
- there are no independent sources of data which can be used to validate this data
- overall, the quality of the data is relatively poor by comparison to the <u>Scheme</u> membership data.

Matthews data: summary statistics

Summary statistics





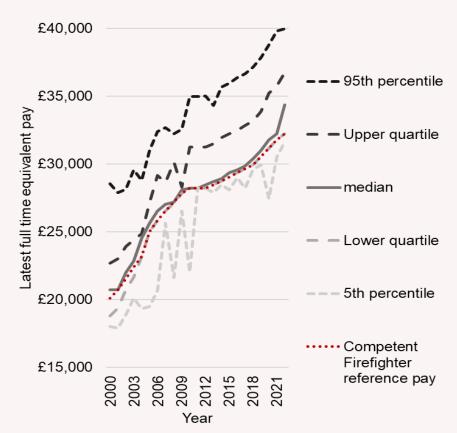








Full time equivalent pay**



^{*}The number of respondents from the July and December 2022 surveys were 34 and 15 respectively.

^{**}This is the latest full time equivalent pay provided (at date of leaving or December 2022, whichever is earliest) in the December 2022 survey.

Matthews data: employment start date

Employment start dates

The dataset collated as part of the December 2022 survey collected by LGA was used to determine the employment start date for eligible firefighters.

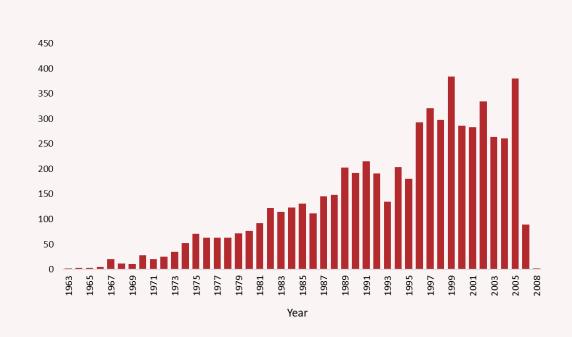
Those firefighters employed before 1 July 2000 are the main group eligible for M2.

The chart to the right shows the distribution of employment dates for eligible firefighters from 1963 to 2008.

The majority of the eligible firefighters have employment start dates in the 1990's and 2000's.

The data shows that the average employment start date for an eligible firefighter is 1994.

Employment start date distribution



Matthews data: age

Age as at 31 March 2020

This dataset collated as part of the December 2022 survey collected by LGA was used to determine age as at 31 March 2020 for eligible firefighters.

The chart to the right shows the distribution of ages as at 31 March 2020 for eligible firefighters (both non-member and members of the Scheme). The M1 optants shown only include those who are eligible for M2.

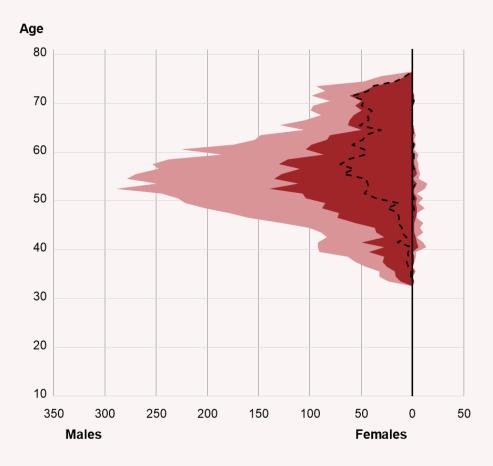
There are significantly more male than female eligible firefighters across all ages.

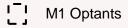
There are many eligible firefighters who are not currently members of the Scheme (as can be seen by the lighter shade of red on the chart).

The majority of the eligible firefighters are between ages 40 and 70.

The average age for those who opted into M1 is 59 years. This is older than those who are currently eligible for M2 who have an average age of 54 years.

Age distribution







Matthews data: processing and adjustments

Data processing

This dataset collated as part of the December 2022 survey collected by LGA was used to split the service that each eligible firefighter has into:

- pre 1 July 2000 service
- · 1 July 2000 to 5 April 2006 service and
- · post 5 April 2006 service

The numbers of records shown on the diagram on the right is the number of records in each tranche of service. For example, if a firefighter had joined employment prior to 1 July 2000 and left on 1 April 2005, this firefighter would have a record in both the pre 1 July 2000 and 1 July 2000 – 5 April 2006 tranches of service.

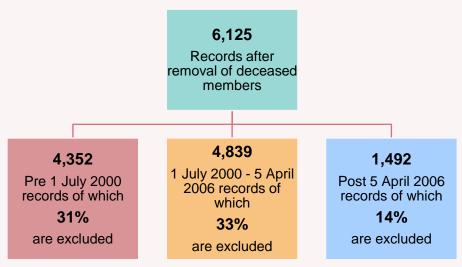
Data adjustments

We exclude individual records that have missing or unreliable key data and <u>rate up</u> similar remaining records to replace them, where appropriate.

This process assumes that the membership profile of the of the eligible firefighters which were excluded because of incomplete or inconsistent data is comparable to the profile of the similar reliable records. However, to the extent that this is not the case, there is a degree of uncertainty in the valuation results.

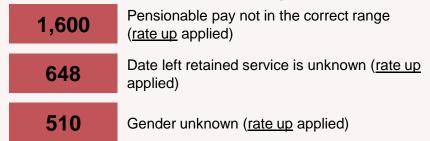
Overall, we believe this is a reasonable approach to take given the scarcity of alternative information on the eligible firefighters for M2.

Summary of excluded records



Overall, 32% of total records were excluded

Top 3 reasons for excluding records*



^{*} Some members may fail more than one exclusion check. Only one exclusion will apply in such cases. As a result, the total number of members failing a check can exceed the number of exclusions.

Matthews data: impact of data limitations

What limitations exist in the M2 data?

- Small sample dataset of eligible firefighters received from LGA scaled up which may not be representative of the entire eligible population across England.
- Some of the data received was incomplete and inconsistent.
 Exclusions and adjustments were made to the data. This process assumes that the membership profile of excluded records is consistent with the profile of the similar reliable records.
- There are no independent sources of data to verify the dataset received.

Do data limitations cause uncertainty?

Yes. Our checks and adjustments aim to ensure that the data is appropriate for use in valuation calculations. Although reasonable in our view, the dataset adopted may not accurately reflect the true data of those that choose to purchase benefits under M2. This means that there is **residual data uncertainty**.



Matthews data: residual data uncertainty

Is residual data uncertainty a significant issue?

Residual data uncertainty in relation to eligible firefighters could materially affect the valuation results.

With regards to the M2 data, data uncertainty can materially over or underestimate the part of the <u>employer contribution rate</u> which is in respect of the <u>Matthews</u> exercise (5.2% of pensionable pay as set out in our report titled 'Firefighters' Pension Scheme (England): Valuation Results' dated 19 December 2023).

There is no impact on member outcomes since <u>Matthews</u> is not included in the <u>cost cap cost</u> calculations.

Summary

The previous sections of this appendix have described the checks and adjustments made to the data to ensure it is fit for the purpose of calculating valuation results.

The cost of the benefits bought by members will only be known on conclusion of the options exercise. Data regarding the outcome of the options exercise is expected to be available at the time of the 2024 valuation of the scheme.

It is a requirement of <u>Directions</u> that there is an allowance for a best estimate assessment of the potential liabilities in respect of <u>Matthews</u> in the 2020 valuation. This requires us to use the available survey data.



After making necessary adjustments detailed in this report, we conclude that the M2 data is appropriate for the purpose of estimating the M2 <u>actuarial liability</u> in the Firefighters' Pension Scheme (England) 2020 valuation. Any surplus / deficit arising as a result of using this data will be recovered as part of the 2024 valuation.

Appendix F Glossary



Glossary

Actuarial liability	The monetary amount assessed, in today's terms, as being required to meet all future payments due in respect of current benefit entitlements. It is dependent on assumptions about future financial conditions and membership changes.
CARE	CARE stands for Career Average Revalued Earnings and refers to a methodology whereby earnings over a member's working lifetime in the scheme are used in the calculation of their benefits in the <u>reformed scheme</u> (referred to as the 2015 Scheme in this report).
	A way of measuring the cost of benefits being provided from the 2015 scheme, which is then compared to a 'target cost'. The Firefighters' Pension Scheme (England) target cost is set at 16.8% of pay.
Cost cap cost	If the results of the valuation show that the cost cap cost is more than 3% of pensionable pay away from the target cost, and the cost of the scheme still results in a breach once the impact of the economic check is taken into account, changes must be made to the 2015 scheme (e.g., to the benefits provided) to bring the cost cap cost back to the target cost.
Directions	A document published by HM Treasury and referred to in The Public Service Pensions Act 2013, which sets out the process and requirements for carrying out valuations, including the results which need to be disclosed.
	Directions were first published in 2014 and have been updated several times since then.
Employer contribution rates	 The percentage of scheme members' salaries which employers are required to pay in order to: meet the costs of benefits currently being built up by active members make good any shortfall in the notional amounts set aside to cover benefits already built up.
	The result is heavily dependent on assumptions about future financial conditions and membership changes.
Matthews	The Matthews second option exercise (or "M2") is a programme to enable certain members to elect to buy historic service in the 2006 (Special) Scheme. M2 began in October 2023 in accordance with the

Glossary

McCloud	McCloud refers to a legal judgment made in December 2018. The England and Wales Court of Appeal judgment upheld claims of age discrimination brought by some firefighters and members of the judiciary against 'transitional protection' rules. These rules determined the date on which some members would move between reformed and legacy schemes .
	The age at which a member in normal health is entitled to unreduced benefits. This age varies in different schemes:
	• 1992 Scheme: Age 55 (or age 50 after completion of 25 years of service); Deferred pension age is 60.
Normal pension age	2006 Scheme (Special): Age 55; Deferred pension age is 60.
Normal pension age	 2006 Scheme: Age 60 (with early retirement from age 55 subject to benefits being actuarially reduced); Deferred pension age is 65.
	 2015 Scheme: Age 60 (with early retirement from age 55 subject to benefits being actuarially reduced); Deferred pension age equal to State Pension Age ('SPA').
Pension increase	Public service pensions are increased under the provisions of the Pensions (Increase) Act 1971 and Section 59 of the Social Security Pensions Act 1975.
Pension revaluation	The rate at which the <u>CARE</u> pension is revalued each year a member is an active member.
	The professional requirements that we have complied with when completing this actuarial valuation include:
Professional actuarial	1. Technical Actuarial Standards: TAS 100 and TAS 300, issued by the FRC.
-	2. The Actuaries' Code, issued by the Institute and Faculty of Actuaries ('IFoA')
requirements	3. The Civil Service Code.
	GAD is also accredited under the IFoA's Quality Assurance Scheme. More details can be found in our terms of reference.

Glossary

Rate up	A term used to refer to any multiplicative adjustments made to data in order to correct for known issues. For example, if it appears that a group of members have been omitted from the data we've received and salaries are understated by 2% as a result, we might apply a 'rate up' of 2% to the salary data we actually hold as a correction. Although the term 'rate up' implies an increase, we might also 'rate down' if appropriate to do so.
Reformed and legacy schemes	The reformed scheme that was set up in line with The Public Service Pensions Act 2013, and which came into force on 1 April 2015 (referred to as the 2015 Scheme in this report). All non-reformed schemes are known as legacy schemes. This terminology is used in the McCloud judgment.
Regular Firefighter	Regular firefighters are full-time firefighters.
Retained Firefighter	Retained firefighters do not work as a firefighter full-time but operate 'on-call' and respond to emergency calls via a pager from their home or place of work at any time of the day or night.
Scheme	The membership data in Appendix D is categorised by scheme. Members who have legacy and reformed benefits, or legacy only benefits, will be categorised under the <u>legacy schemes</u> . Members who have reformed benefits only will be categorised under the <u>reformed scheme</u> .