



Government  
Actuary's  
Department

## **Firefighters' Pension Schemes (Northern Ireland)**

# **Membership data**

**Actuarial valuation as at 31 March 2020**

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**13 February 2024**



# Highlights

## Firefighters' Pension Schemes (Northern Ireland) valuation data

This report details the membership data for the members of the 2007 Schemes and FPS 2015 Scheme, referred to collectively as Firefighters' Pension Scheme (Northern Ireland).



**3,242**

Members as at  
31 March 2020

**+ 12.6% vs. 2016**

## Initial data quality

**98.9%**

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

**Deterioration vs. 99.1% in 2016**

## Key headlines

Overall, the quality of the Firefighters' Pension Scheme (Northern Ireland) valuation data as at 31 March 2020 is high with a slight deterioration 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 decreased slightly since the last valuation.

## Data quality after checks and 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 Schemes (Northern Ireland) 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 Department of Health (Northern Ireland). The Public Service Pensions (Valuations and Employer Cost Cap) Directions (Northern Ireland) 2014 (as amended) (‘the Directions’) 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 (Northern Ireland) as at 31 March 2020, in accordance with the Directions. 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 the Northern Ireland Fire and Rescue Service annual accounts.



## 2. Data as at 31 March 2020

### Who provided the data?

This data was wholly provided by the administrators, Northern Ireland Fire and Rescue Service (NIFRS).

### What is the data used for?

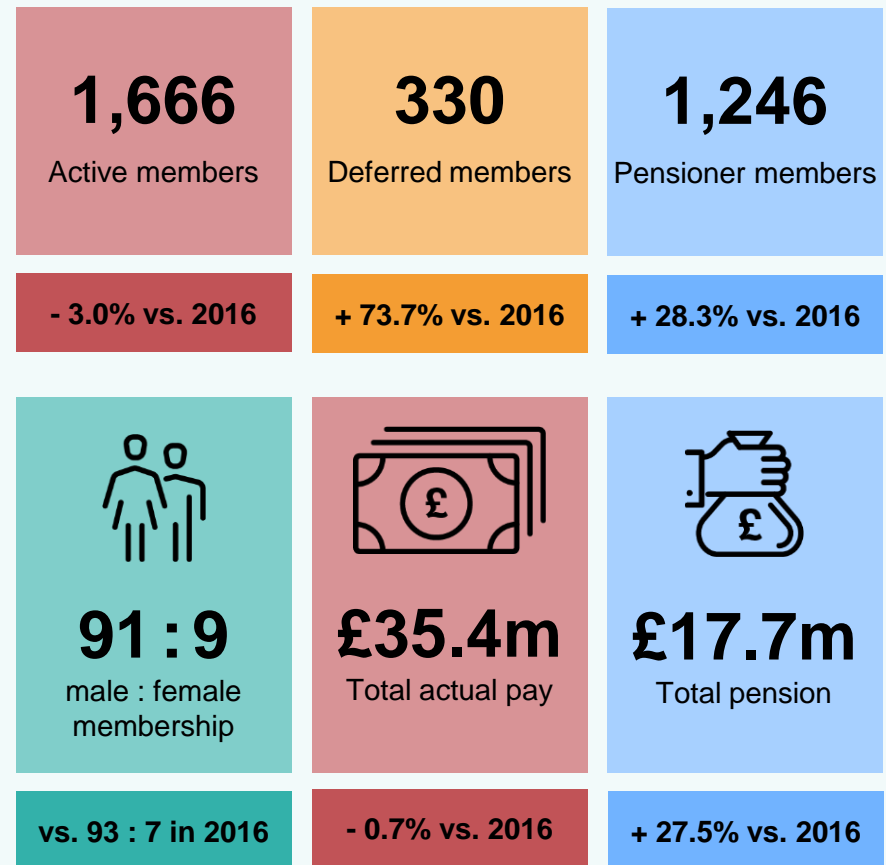
It will be used to calculate the results of the 2020 Firefighters' Pension Scheme (Northern Ireland) valuation, specifically:

- 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 Matthews, unless stated otherwise.

A separate data summary relating specifically to Matthews 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 directly to GAD by the administrators, NIFRS.

### 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

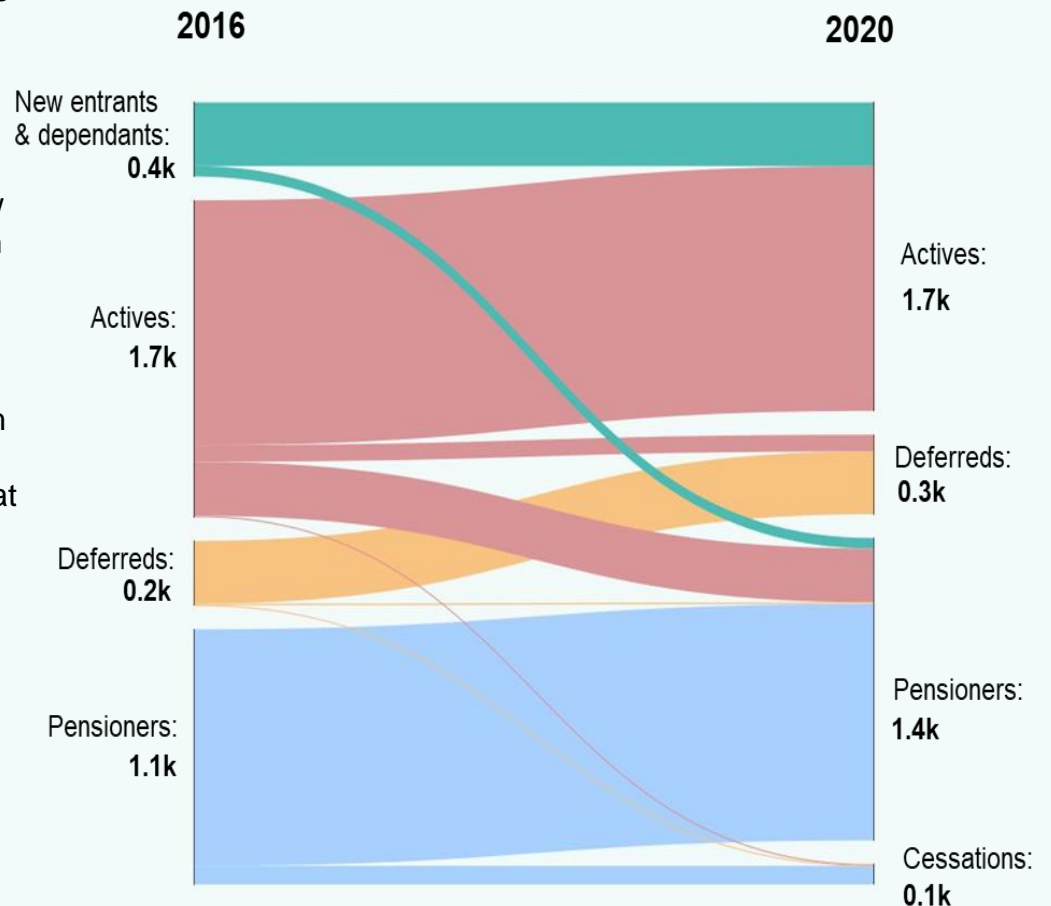
This movements data is used to perform a reconciliation which compares data as at 31 March 2016 and 31 March 2020 against movements occurring between this period to check that membership figures are in agreement.

### Where can I find out more?

Detailed data summaries are included in [Appendix B – Detailed summaries: movements data](#).

### 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 professional actuarial requirement.

### 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.

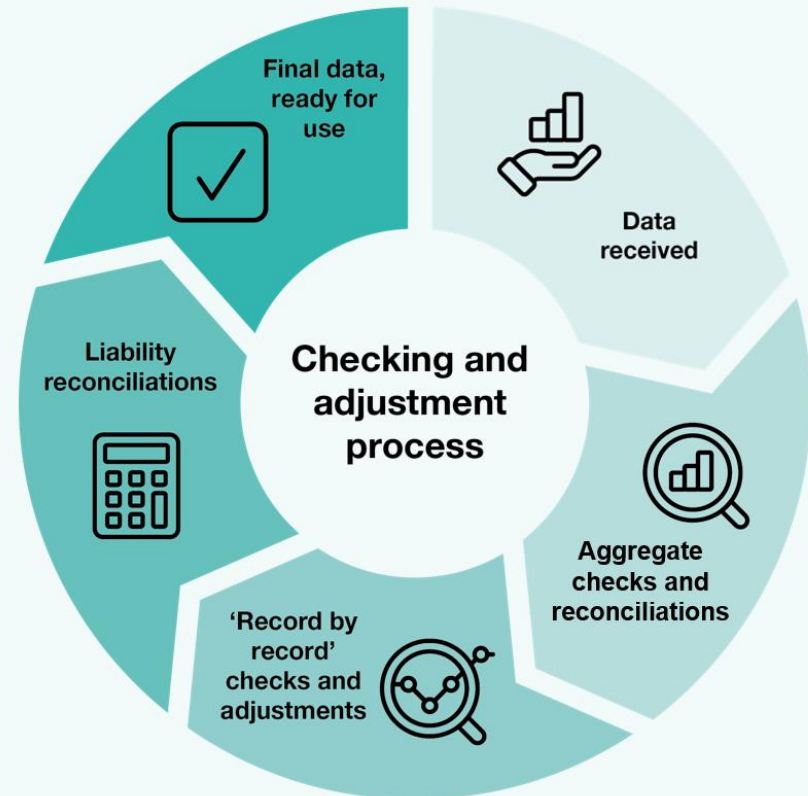
### What happens to unreliable data?

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

It is the scheme manager’s 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.

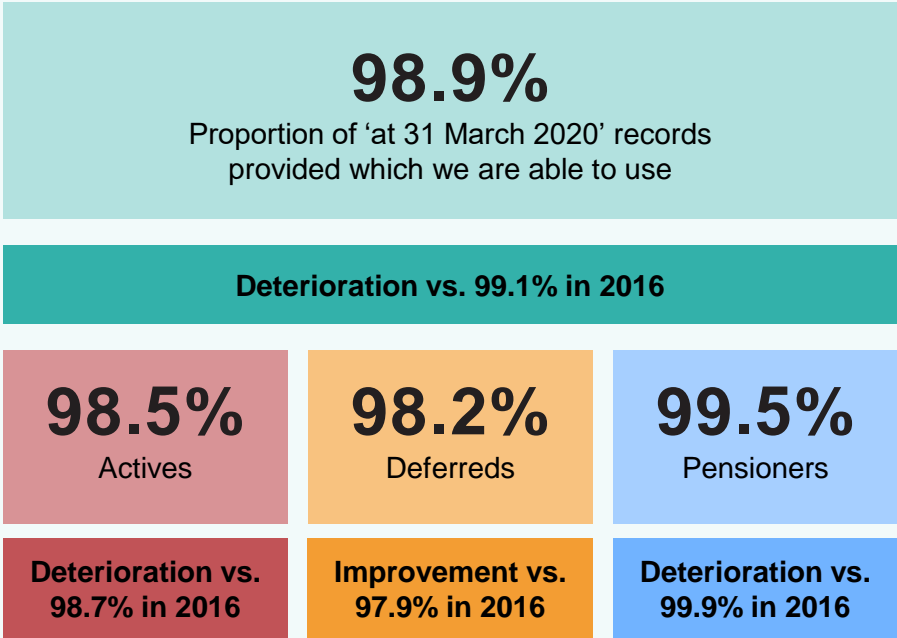
In terms of the proportion of the records we are able to use, 98.9% is a slight deterioration on the 99.1% used for the 2016 valuation.

Further information on the data quality of the Matthews data is detailed in [Appendix E - Matthews](#).

## 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



## Data quality after checks & adjustments





## 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 cost cap cost 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 NIFRS.

GAD has not sought independent verification around the general completeness and accuracy of the data (beyond our comparisons with the relevant Accounts).

Separately, GAD has relied on data collated from NIFRS regarding the members who will be eligible for Matthews. More information on the limitations regarding this data is detailed in [Appendix E - Matthews](#).

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.

### Directions

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

### Sharing

This report has been prepared for the use of the Department of Health (Northern Ireland). We are content for the Department of Health (Northern Ireland) 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 Department of Health (Northern Ireland), 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

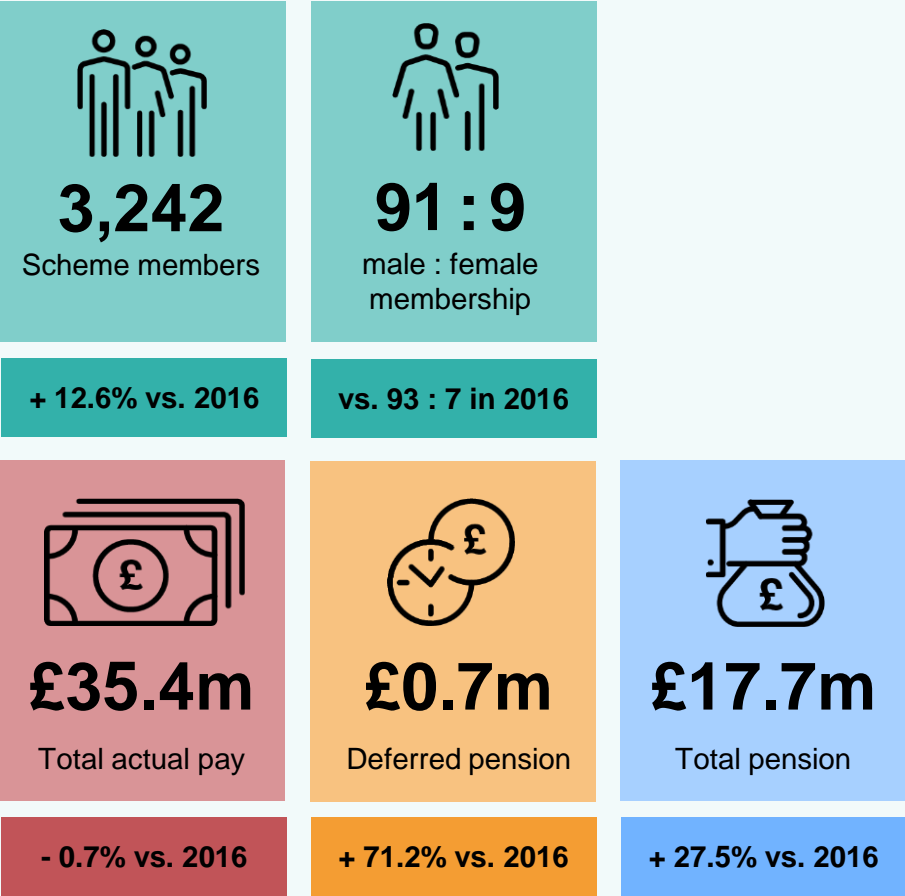
Detailed summaries: Data as at 31 March 2020



# Scheme data

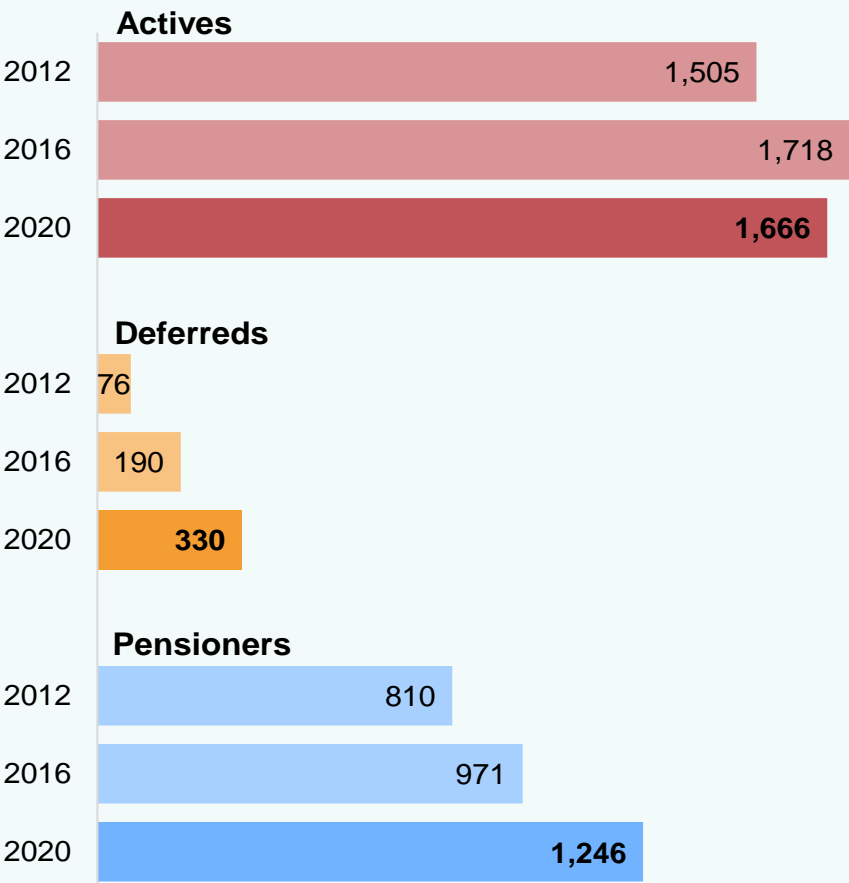
As at 31 March 2020

## Summary statistics



Pension amounts includes the April 2020 [pension increase](#)

## Membership over time



# Scheme membership

As at 31 March 2020

Overall, the membership 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 age 50 and 55 as expected.

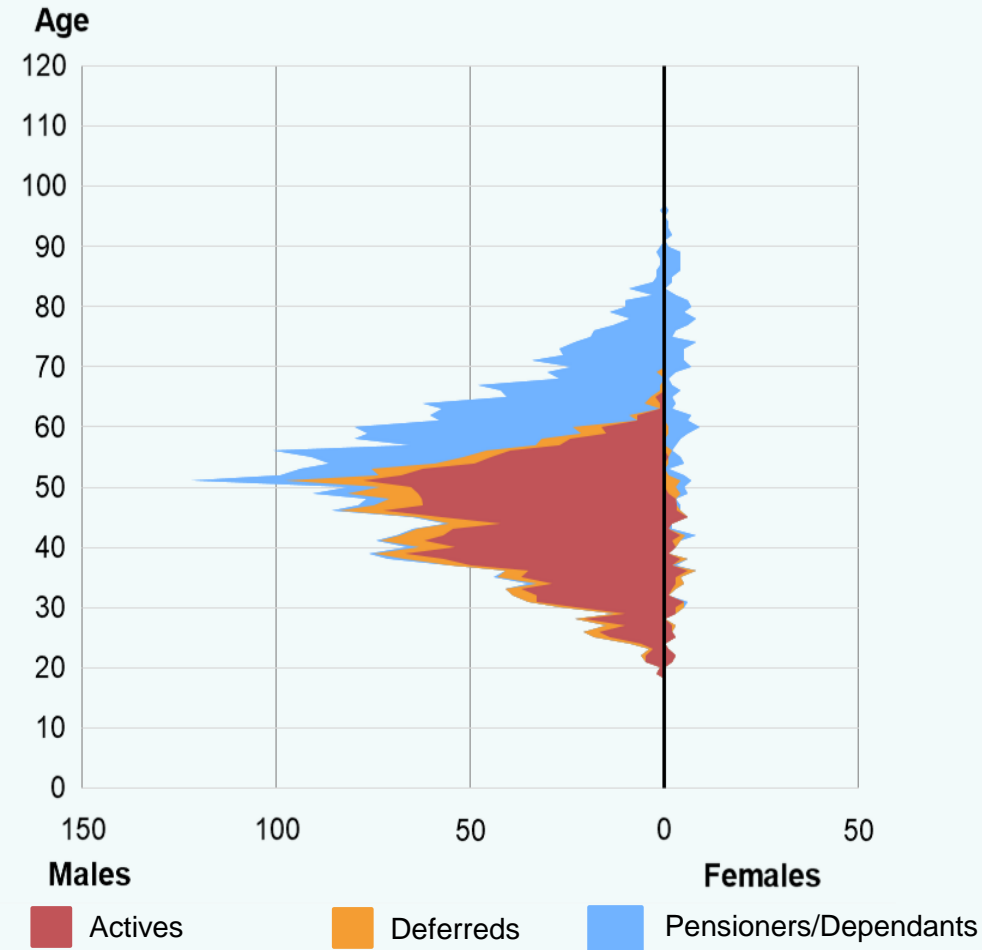
This corresponds with declining numbers of active members and deferred members, particularly over the latter half of this age range.

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

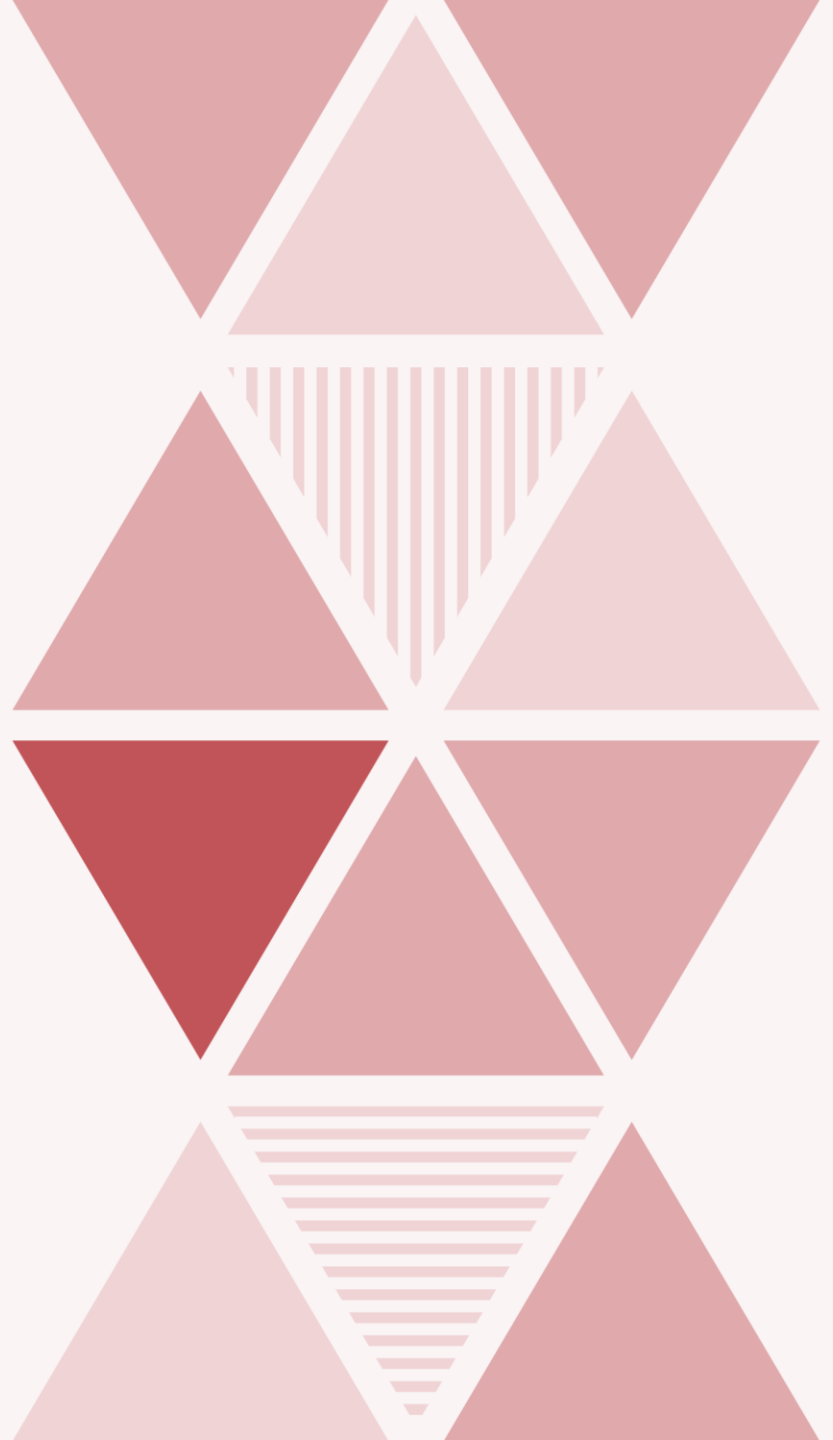
## Where can I see more?

[Appendix D – Tables of summary statistics](#)

## Membership distribution



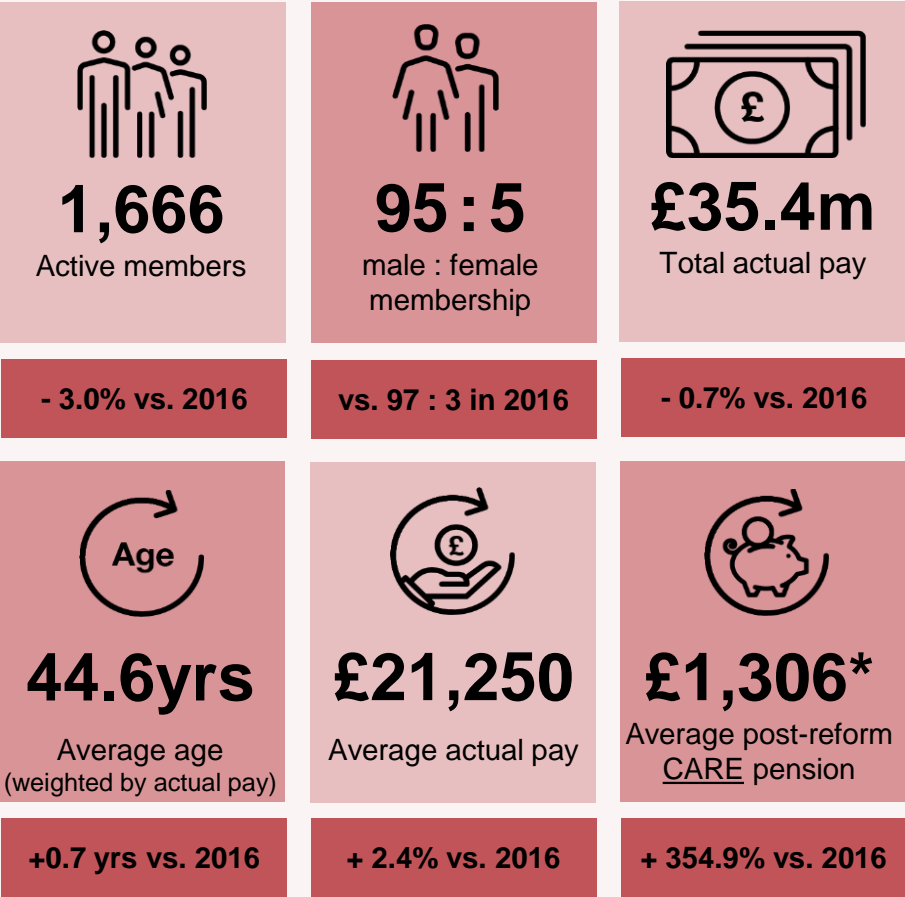
**Actives**



# Actives data

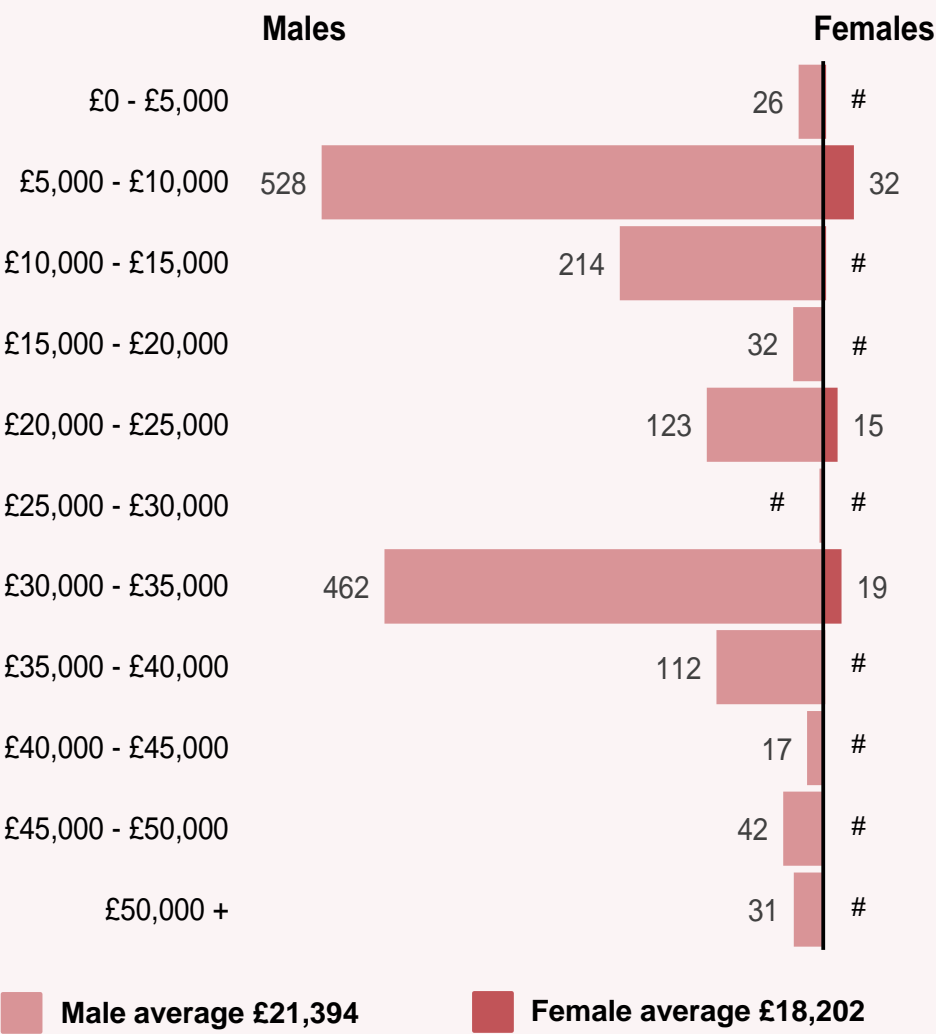
As at 31 March 2020

## Summary statistics



\*Average is only for members who have post reform CARE pension  
Post reform CARE pension includes pension revaluation 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:

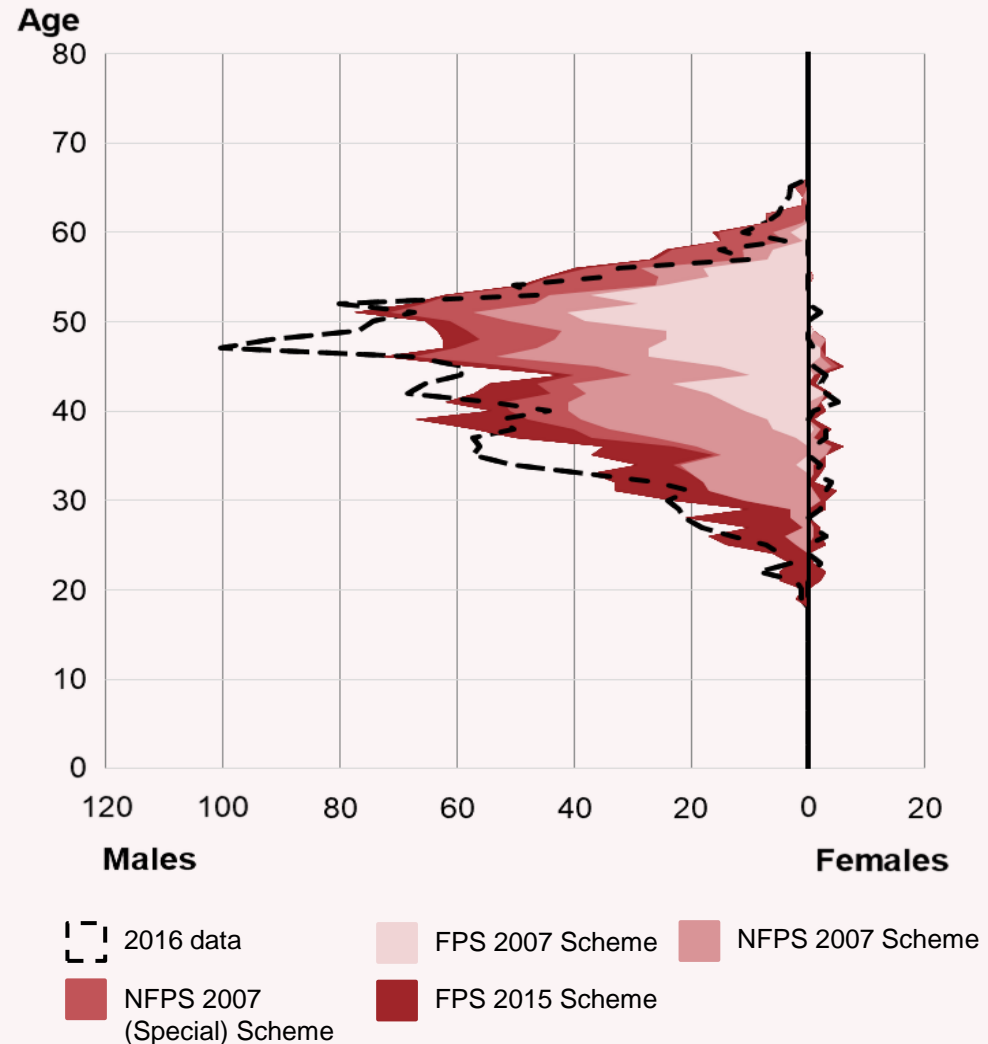
- The vast majority of younger members are in the FPS 2015 Scheme.
- In general, between ages 32 and 38, there are more members in 2016 compared with 2020 (as can be seen by the darkest shade of red falling inside of the dotted line). A similar comment can be made between the ages 45 and 50.
- As the membership ages, the proportion of members with legacy scheme membership increases (as shown by the three lighter shades).
- There are a similar number of members aged 50 onwards at 2020 compared with 2016.

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

## Where can I see more?

[Appendix D – Tables of summary statistics](#)

## Membership distribution






**Deferreds**



# Deferreds data


As at 31 March 2020

## Summary statistics




**330**  
Deferred members

+ 73.7% vs. 2016




**91 : 9**  
male : female membership

vs. 92 : 8 in 2016




**£0.7m**  
Total deferred pension

+ 71.2% vs. 2016



**49.5 yrs**  
Average age (weighted by pension)

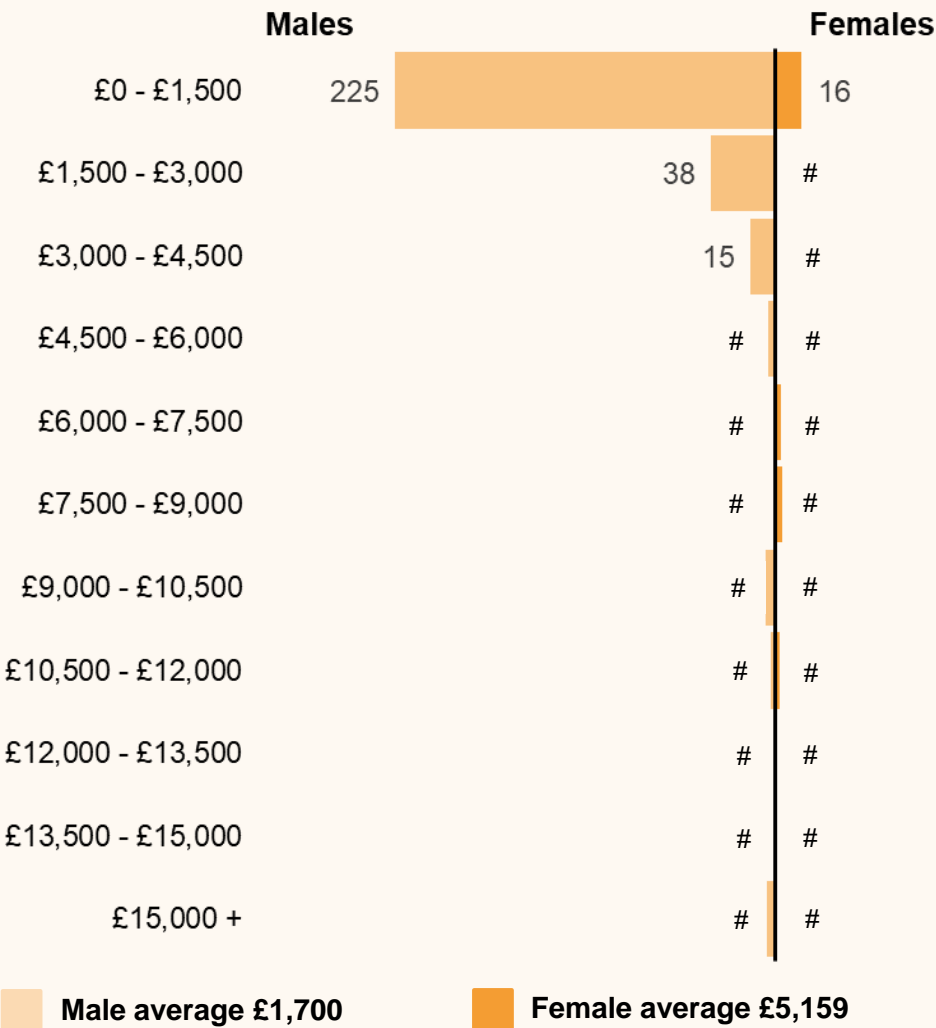
+0.9 yrs vs. 2016



**£2,028**  
Average pension

- 1.4% vs. 2016

## Deferred pension distribution



Pension amount includes the April 2020 pension increase

# represents groups of 5 or fewer individuals.

# Deferred membership

As at 31 March 2020

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

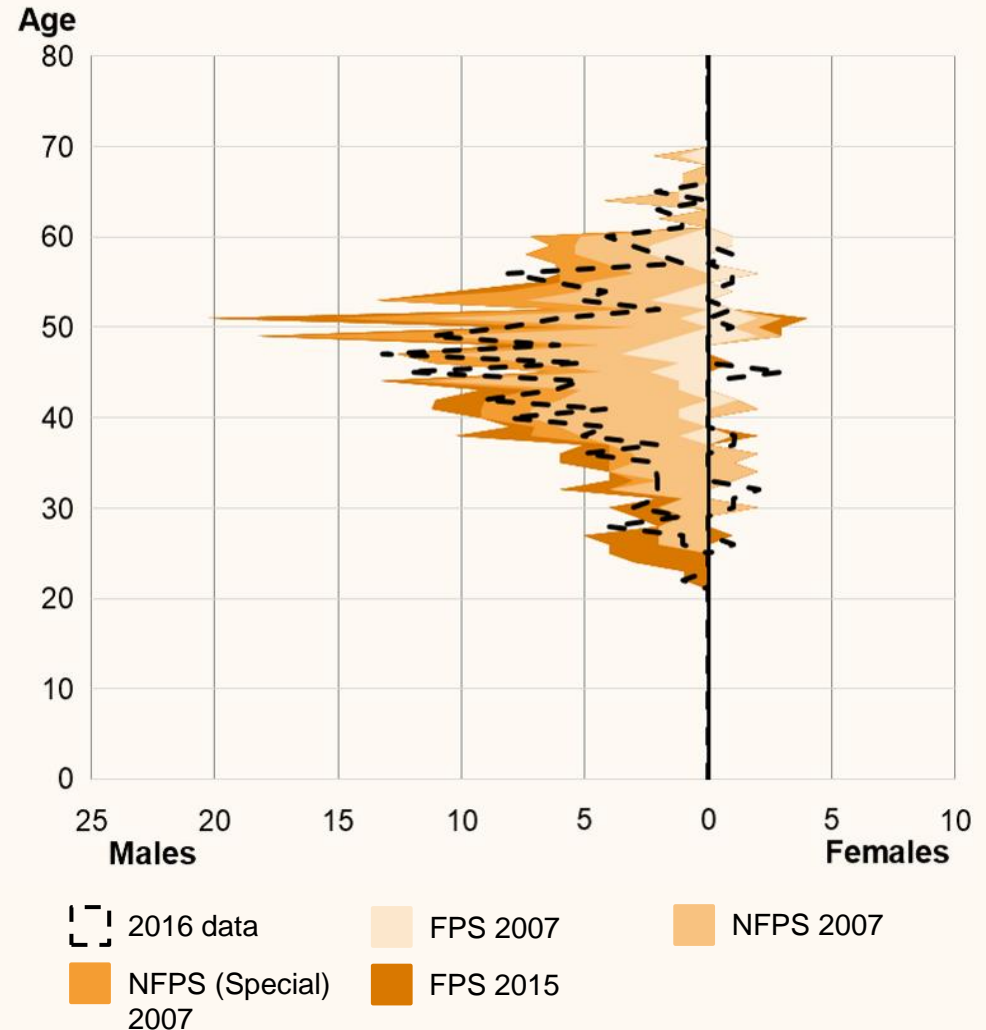
There are significantly more male than female deferred members at all ages, with the majority of members having legacy scheme benefits (shown by the three mid-orange shades).

There are significantly more deferred members in 2020 compared to 2016 (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.

## Membership distribution



## Where can I see more?

[Appendix D – Tables of summary statistics](#)


# Pensioners



# Pensioner data


As at 31 March 2020

## Summary statistics




**1,081**  
Pensioners  
(retired members)

**+ 29.5% vs. 2016**




**165**  
Dependants

**+ 21.3% vs. 2016**




**86 : 14**  
male : female  
membership

**vs. 86 : 14 in 2016**




**64.8 yrs**  
Average age  
(weighted by pension)

**+0.9 yrs vs. 2016**



**£17.7m**  
Total pension

**+ 27.5% vs. 2016**

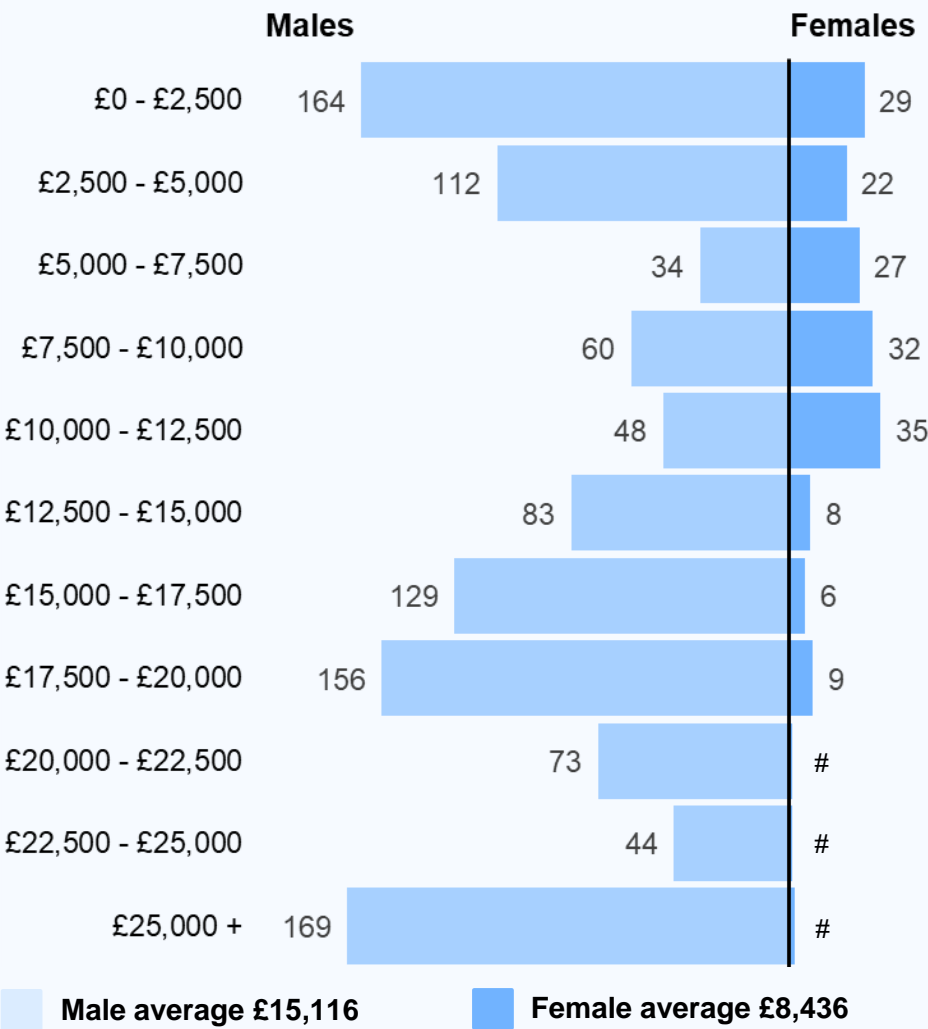


**£14,194**  
Average pension

**- 0.7% vs. 2016**

Pension amount includes the April 2020 pension increase

## Pensioner data pension distribution



# Pensioner membership

As at 31 March 2020

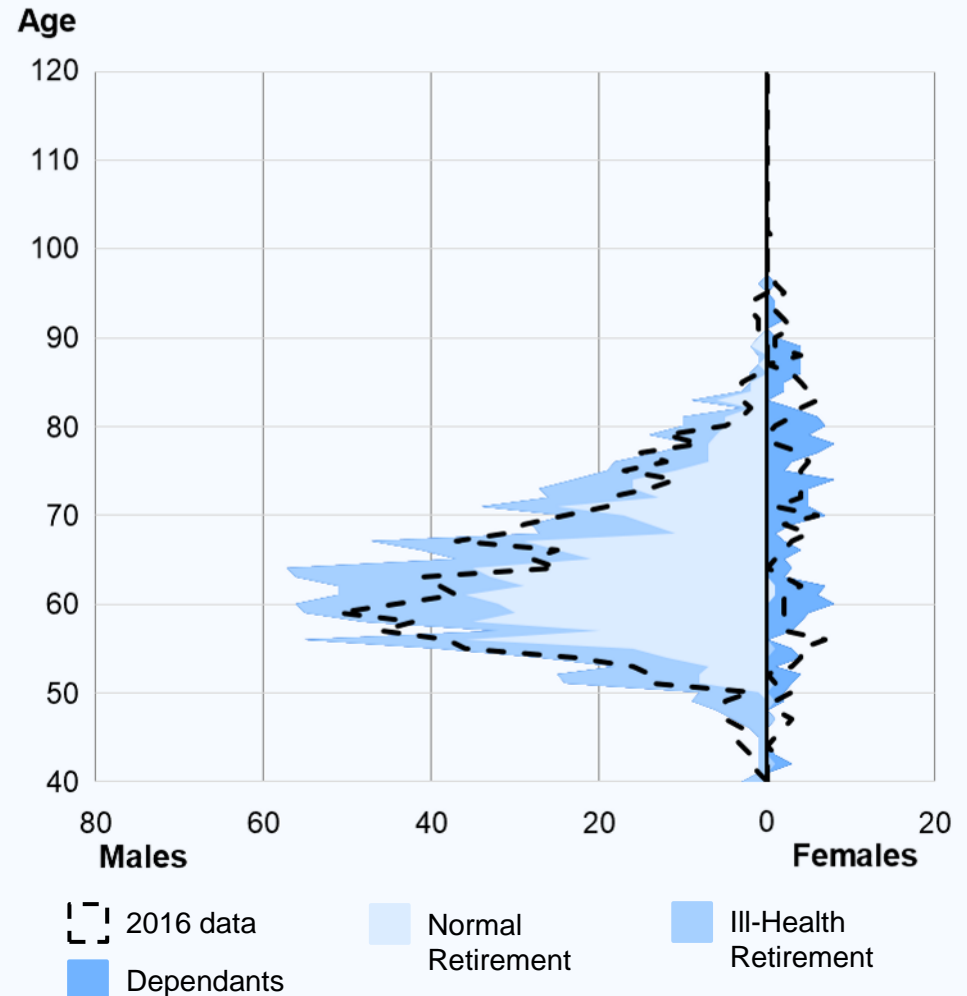
There are significantly more male than female pensioners at most ages.

The largest group of pensioners are males who retired in normal health (shown by the lightest blue shade), however, there is a significant group of male members who retired in ill-health.

Female pensioners are predominantly dependants of former male members, with only seven females who have retired after having been members of the scheme. There are no male dependants.

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

## Membership distribution\*



**Where can I see more?**

[Appendix D – Tables of summary statistics](#)

\*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

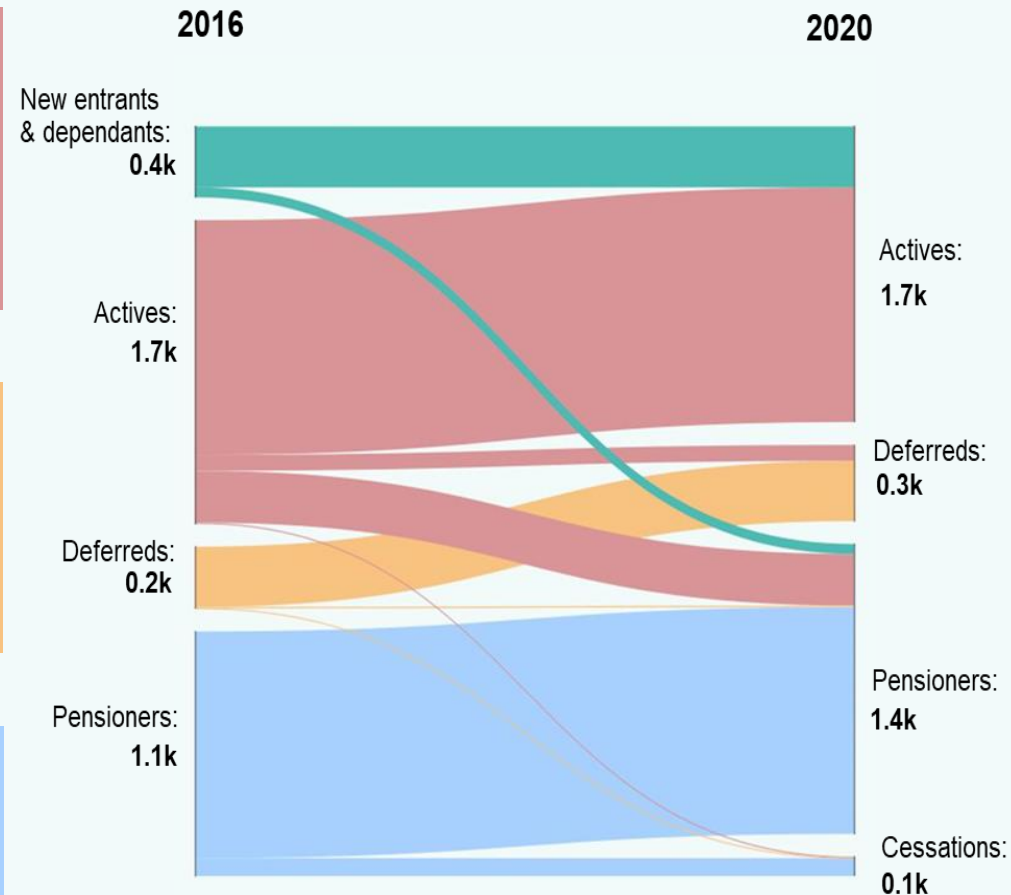
There were more movements from active status to deferred or pensioner status than the number of new entrants to active service, resulting in a decrease in the active population since 2016 (see next slide for more information).

## 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 the Firefighters' Pension Scheme (Northern Ireland) – 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: **-12** members
- Deferreds: **-10** members
- Pensioners: **22** members.

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

~0 means the figure is too small to report

Figures in intermediate rows are rounded to the nearest 10

	Actives	Deferreds	Pensioners
<b>Number at start of period:</b>	<b>1,718</b>	<b>190</b>	<b>1,100</b>
New members:			
New entrants	340	-	-
New dependants	-	-	60
Movements between categories:			
Leavers from active service*	-90	160	-
Re-joiners and re-employed	-	-	-
Age related retirements	-170	-10	180
Ill-health retirements	-110	~0	110
Cessations with no ongoing liability:			
Member deaths	-10	-	-70
Dependant deaths	-	-	-30
Other exits	~0	~0	-
Exclusion adjustment	-	-	-
<b>Number expected at end of period:</b>	<b>1,678</b>	<b>340</b>	<b>1,350</b>
<b>Valuation data at end of period:</b>	<b>1,666</b>	<b>330</b>	<b>1,372</b>
Difference:	-12	-10	22

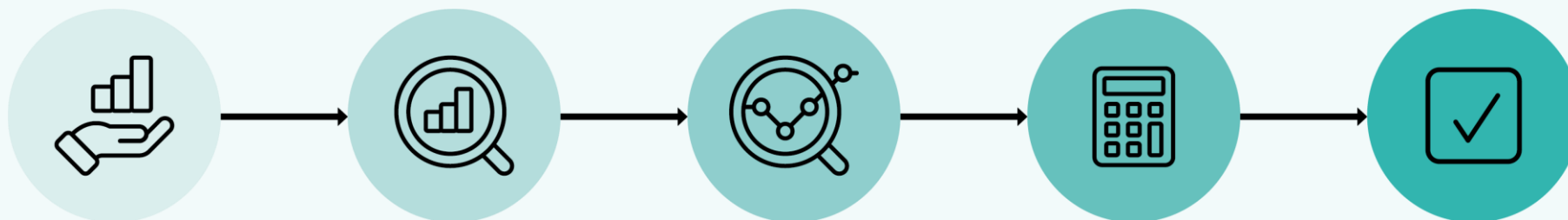
\* There are ~70 deferred records which we have classified as 'leavers from active service' in the deferreds column who have no date of leaving to indicate when they left the Scheme. Therefore, as part of the data processing, we classified these as 'leavers from active service' in the deferred column in the absence of any other information.

# Appendix C

Checks, adjustments and uncertainties



# Checking and adjustment process



## 1. Data received

Our work starts when schemes provide data. This is 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 directly by NIFRS.

## 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. scheme 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-by-record 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 actuarial liabilities and reconcile them against those calculated in 2016, adjusted for cashflow information.

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

## 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.

# ‘Record by record’ checks and adjustments

## Process, limitations & uncertainty

We exclude individual records that have missing or unreliable key data and rate up 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 Matthews. A separate summary relating specifically to Matthews 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\*

12	Final salary member full time equivalent salary not in correct range ( <u>rate up</u> applied)
9	Age of member not in correct range ( <u>rate up</u> applied to four records)
6	Member final pension not in 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

25 Actives excluded 1.5% of total records	6 Deferreds excluded 1.8% of total records	3 Pensioners excluded 0.5% of total records
Deterioration vs. the 1.3% 2016 exclusion	Improvement vs. the 2.1% 2016 exclusion	Deterioration vs. the 0.1% 2016 exclusion

Overall 1.1% of total records were excluded (deterioration compared with the 0.9% excluded in 2016).

## Further information

After finalising our checks and adjustments we will consider potential data improvements. We will engage with the scheme manager 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 actuarial liability as at 31 March 2020. The expected liability is calculated by adjusting the 2016 liabilities for cashflow information from the scheme's accounts, allowing for known pension increases 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 information contained in the NIFRS's published 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 NIFRS's 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 the Firefighters' Pension Scheme (Northern Ireland) are detailed below.

### Actives:

- 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.
- Records were classified as protected / taper protected / unprotected by referring back to those calculated items in the 2016 valuation data.

### Pensioners:

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

- Where spouse pension was not provided, this was calculated based on the member pension and estimated spouse pension proportions.
- The data file provided initially included compensation scheme payments in the pension amounts. We understand that these are non-pension benefits, for example amounts payable in respect of injury benefits. The Department have indicated that this scheme is a completely separate arrangement from the Firefighters' Pension Scheme (Northern Ireland) and so is not within the scope of the valuation under Directions. NIFRS provided additional data which enabled us to exclude compensation payment amounts from the pension amounts provided.

Any non-standard adjustments specifically to Matthews are detailed in [Appendix E - Matthews](#).

## 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 Matthews second option exercise (or 'M2') is a programme to enable certain members to elect to buy historic service in the NFPS 2007 Scheme (Special). M2 began on 31 October 2023 in accordance with [The Firefighters' Pension Schemes \(Amendment\) Regulations \(Northern Ireland\) 2023](#).

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 option exercise.

Directions 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  $\pm 2\%$  of pensionable pay.

Member Outcomes: No impact expected

The potential impact on the employer contribution rate 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 (Northern Ireland) excluding the data for the Matthews would be of the order of  $\pm 0.25\%$  of pensionable pay on the employer contribution rate.



After making necessary adjustments detailed in this report, we conclude that the data is appropriate for the purpose of the 2020 Firefighters' Pension Scheme (Northern Ireland) 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 legacy scheme that they have already accrued benefits in, even if they have now started to accrue benefits in the reformed scheme. This means that:

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

The summary statistics in this appendix exclude the data in relation to Matthews. A separate data summary relating specifically to Matthews is detailed in [Appendix E - Matthews](#).

## 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	<b>100</b> +10	<b>100</b> +10	<b>200</b> +20
Legacy scheme 2	<b>100</b> +10	<b>100</b> +10	<b>200</b> +20
Reformed scheme	<b>100</b> +10	<b>100</b> +10	<b>200</b> +20
All schemes	<b>300</b> +30	<b>300</b> +30	<b>600</b> +60

# Summary statistics – actives

As at 31 March 2020

## Number of members

Scheme	Males	Females	Total
FPS 2007 Regular	<b>433</b> - 154	<b>10</b> - 1	<b>443</b> - 155
NFPS 2007 Regular	<b>226</b> - 5	<b>12</b> 0	<b>238</b> - 5
NFPS 2007 Retained	<b>301</b> - 45	<b>15</b> - 6	<b>316</b> - 51
NFPS 2007 (Special) Retained	<b>319</b> - 155	<b>2</b> 0	<b>321</b> - 155
FPS 2015 Regular	<b>124</b> + 124	<b>15</b> + 15	<b>139</b> + 139
FPS 2015 Retained	<b>188</b> + 155	<b>21</b> + 20	<b>209</b> + 175
<b>All members</b>	<b>1,591</b> - 80	<b>75</b> + 28	<b>1,666</b> - 52

## Average age\* (years)

Scheme	Males	Females	Total
FPS 2007 Regular	<b>48.9</b> + 2.4	<b>44.3</b> + 3.1	<b>48.8</b> + 2.4
NFPS 2007 Regular	<b>39.6</b> + 3.9	<b>39.9</b> + 4.0	<b>39.6</b> + 3.9
NFPS 2007 Retained	<b>44.2</b> + 3.9	<b>37.6</b> + 3.3	<b>43.9</b> + 4.0
NFPS 2007 (Special) Retained	<b>50.4</b> + 2.3	<b>45.4</b> + 4.0	<b>50.4</b> + 2.3
FPS 2015 Regular	<b>34.4</b> -	<b>30.0</b> -	<b>33.9</b> -
FPS 2015 Retained	<b>36.5</b> - 0.6	<b>33.0</b> + 10.0	<b>36.2</b> - 0.5
<b>All members</b>	<b>44.8</b> + 0.8	<b>37.6</b> - 0.1	<b>44.6</b> + 0.7

\* 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 (£000's pa)

Scheme	Males	Females	Total
FPS 2007 Regular	16,169 - 19.7%	341 + 1.1%	16,510 - 19.4%
NFPS 2007 Regular	7,273 + 8.9%	383 + 7.9%	7,657 + 8.8%
NFPS 2007 Retained	9,511 - 3.2%	471 - 17.7%	9,982 - 4.0%
NFPS 2007 (Special) Retained	10,314 - 28.8%	62 + 5.3%	10,376 - 28.6%
FPS 2015 Regular	- -	- -	- -
FPS 2015 Retained	- -	- -	- -
<b>All members</b>	<b>43,268</b> - 15.4%	<b>1,257</b> - 5.0%	<b>44,525</b> - 15.1%

## Total actual pay (£000's pa)

Scheme	Males	Females	Total
FPS 2007 Regular	16,169 - 20.3%	341 - 0.7%	16,510 - 20.0%
NFPS 2007 Regular	7,273 + 8.3%	383 + 7.4%	7,657 + 8.2%
NFPS 2007 Retained	2,968 - 1.7%	124 - 27.5%	3,092 - 3.0%
NFPS 2007 (Special) Retained	3,123 - 30.9%	20 - 9.0%	3,142 - 30.8%
FPS 2015 Regular	3,016 -	355 -	3,371 -
FPS 2015 Retained	1,484 + 568.2%	147 + >1000%	1,631 + 614.6%
<b>All members</b>	<b>34,034</b> - 2.1%	<b>1,369</b> + 52.3%	<b>35,403</b> - 0.7%

\*The total full-time equivalent pay is calculated only in respect of members with final salary benefits

# Summary statistics – actives

As at 31 March 2020

## Average full-time equivalent pay (£ pa)

Scheme	Males	Females	Total
FPS 2007 Regular	37,347 + 8.8%	33,940 + 11.0%	37,270 + 8.8%
NFPS 2007 Regular	32,182 + 11.3%	31,948 + 7.9%	32,170 + 11.1%
NFPS 2007 Retained	31,600 + 11.2%	31,333 + 15.4%	31,588 + 11.5%
NFPS 2007 (Special) Retained	32,333 + 5.9%	30,835 + 5.3%	32,324 + 5.8%
FPS 2015 Regular	- -	- -	- -
FPS 2015 Retained	- -	- -	- -
<b>All members</b>	<b>33,831</b> + 8.4%	<b>32,167</b> + 12.1%	<b>33,782</b> + 8.5%

## Average actual pay (£ pa)

Scheme	Males	Females	Total
FPS 2007 Regular	37,347 + 8.0%	33,940 + 9.2%	37,270 + 8.0%
NFPS 2007 Regular	32,182 + 10.7%	31,948 + 7.4%	32,170 + 10.5%
NFPS 2007 Retained	9,862 + 13.0%	8,228 + 1.7%	9,785 + 12.6%
NFPS 2007 (Special) Retained	9,789 + 2.7%	9,867 - 9.0%	9,789 + 2.7%
FPS 2015 Regular	24,336 -	23,536 -	24,249 -
FPS 2015 Retained	7,898 + 17.0%	6,956 + 26.4%	7,803 + 16.3%
<b>All members</b>	<b>21,394</b> + 2.8%	<b>18,202</b> - 4.3%	<b>21,250</b> + 2.4%

\*The average full-time equivalent pay is calculated only in respect of members with final salary benefits

# Summary statistics – actives

As at 31 March 2020

## Average reckonable service (years)\*

Scheme	Males	Females	Total
FPS 2007 Regular	20.2 - 0.3	13.4 - 1.3	20.0 - 0.3
NFPS 2007 Regular	6.0 + 0.0	6.7 + 0.1	6.1 + 0.0
NFPS 2007 Retained	1.7 + 0.2	1.4 + 0.2	1.7 + 0.2
NFPS 2007 (Special) Retained	5.7 + 0.7	5.4 - 0.1	5.7 + 0.7
FPS 2015 Regular	- -	- -	- -
FPS 2015 Retained	- -	- -	- -
<b>All members</b>	<b>9.7</b> - 0.2	<b>6.3</b> + 0.3	<b>9.6</b> - 0.2

\*Unweighted (shown for final salary sections only).

## Total post-reform CARE pension\*\* (£000's)

Scheme	Males	Females	Total
FPS 2007 Regular	702 + 537.7%	26 + 490.7%	729 + 535.9%
NFPS 2007 Regular	557 + 461.1%	28 + 469.0%	586 + 461.5%
NFPS 2007 Retained	212 + 435.7%	10 + 286.0%	222 + 426.4%
NFPS 2007 (Special) Retained	120 + 431.9%	2 + 413.5%	121 + 431.6%
FPS 2015 Regular	63 -	6 -	69 -
FPS 2015 Retained	55 + >1000%	6 + >1000%	61 + >1000%
<b>All members</b>	<b>1,709</b> + 525.1%	<b>78</b> + 530.5%	<b>1,787</b> + 525.4%

\*\*Pension amount includes the April 2020 pension revaluation

# Summary statistics – deferreds

As at 31 March 2020

## Number of members

Scheme	Males	Females	Total
<b>FPS 2007</b>	<b>32</b> + 7	<b>13</b> + 5	<b>45</b> + 12
<b>NFPS 2007</b>	<b>154</b> + 34	<b>13</b> + 6	<b>167</b> + 40
<b>NFPS 2007 (Special)</b>	<b>62</b> + 32	<b>0</b> -	<b>62</b> + 32
<b>FPS 2015</b>	<b>51</b> + 51	<b>5</b> + 5	<b>56</b> + 56
<b>All members</b>	<b>299</b> + 124	<b>31</b> + 16	<b>330</b> + 140

## Average age\* (years)

Scheme	Males	Females	Total
<b>FPS 2007</b>	<b>51.1</b> + 1.9	<b>53.1</b> + 2.1	<b>51.8</b> + 2.0
<b>NFPS 2007</b>	<b>45.5</b> - 1.7	<b>40.2</b> + 7.1	<b>45.2</b> - 1.6
<b>NFPS 2007 (Special)</b>	<b>49.1</b> + 2.6	<b>-</b> -	<b>49.1</b> + 2.6
<b>FPS 2015</b>	<b>40.0</b> -	<b>43.5</b> -	<b>41.9</b> -
<b>All members</b>	<b>48.8</b> + 0.7	<b>51.6</b> + 1.2	<b>49.5</b> + 0.9

\* 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 (£000's pa)

Scheme	Males	Females	Total
FPS 2007	247 + 63.4%	138 + 67.0%	385 + 64.7%
NFPS 2007	143 + 23.7%	8 + 153.6%	151 + 27.3%
NFPS 2007 (Special)	105 + 170.8%	- -	105 + 170.8%
FPS 2015	13 -	15 -	29 -
All members	508 + 66.4%	161 + 88.3%	669 + 71.2%

## Average deferred pension (£000's pa)

Scheme	Males	Females	Total
FPS 2007	7,756 + 28.0%	10,449 + 2.5%	8,544 + 20.8%
NFPS 2007	928 - 3.6%	623 + 37.9%	904 - 3.2%
NFPS 2007 (Special)	1,696 + 31.0%	- -	1,696 + 31.0%
FPS 2015	259 -	3,080 -	510 -
All members	1,700 - 2.6%	5,159 - 8.5%	2,028 - 1.4%

Pension amount includes the April 2020 pension increase

# Summary statistics – pensioners

As at 31 March 2020

## Number of members

Type	Males	Females	Total
Normal Health Retirement	<b>589</b> + 149	<b>2</b> + 2	<b>591</b> + 151
III-Health Retirement	<b>485</b> + 94	<b>5</b> + 1	<b>490</b> + 95
Dependants	<b>0</b> -	<b>165</b> + 29	<b>165</b> + 29
All members	<b>1,074</b> + 243	<b>172</b> + 32	<b>1,246</b> + 275

## Average age\* (years)

Type	Males	Females	Total
Normal Health Retirement	<b>64.1</b> + 0.9	<b>61.4</b> -	<b>64.1</b> + 0.8
III-Health Retirement	<b>64.2</b> + 1.3	<b>53.4</b> + 8.6	<b>64.2</b> + 1.2
Dependants	- -	<b>72.3</b> - 0.5	<b>72.3</b> - 0.5
All members	<b>64.1</b> + 1.0	<b>72.0</b> - 0.7	<b>64.8</b> + 0.9

\*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 – pensioners

As at 31 March 2020

## Total pension (£000's pa)

Type	Males	Females	Total
Normal Health Retirement	10,169 + 34.7%	13 -	10,182 + 34.9%
III-Health Retirement	6,066 + 16.6%	22 + 320.8%	6,088 + 16.9%
Dependants	- -	1,416 + 26.6%	1,416 + 26.6%
All members	16,234 + 27.3%	1,451 + 29.1%	17,685 + 27.5%

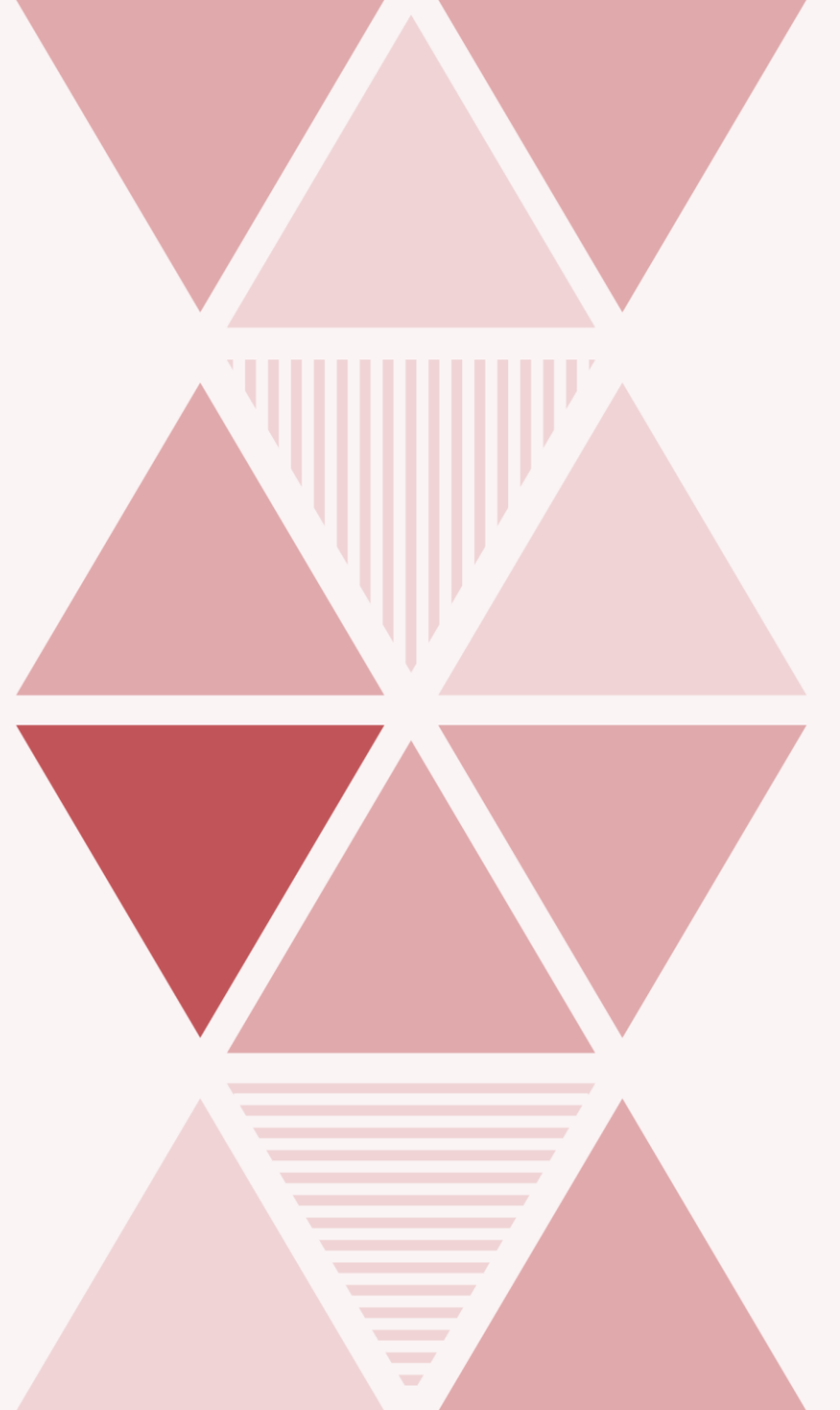
## Average pension (£ pa)

Type	Males	Females	Total
Normal Health Retirement	17,264 + 0.6%	6,531 -	17,228 + 0.4%
III-Health Retirement	12,507 - 6.0%	4,365 + 236.0%	12,424 - 5.7%
Dependants	- -	8,583 + 4.4%	8,583 + 4.4%
All members	15,116 - 1.5%	8,436 + 5.1%	14,194 - 0.7%

Pension amount includes the April 2020 pension increase

# Appendix E

Matthews



# Matthews data

## Data provided

The dataset we have been provided with consists of the individual data used by NIFRS to administer the first Matthews options exercise ('M1') undertaken during 2014 and 2015.

The data included information about individuals who were eligible to make a choice at M1. Of these individuals, those with employment before 1 July 2000 are the majority of members eligible for M2. There were 820 such individuals. Data was provided in two datasets:

- Firefighters "Still in post" at M1 - 549 records
- Firefighter "Leavers" prior to M1 - 271 records

The "Still in post" M1 data contained dates of birth (needed to estimate when any benefits purchased will be paid). The data had not been updated since M1 to include members' M1 choices. Therefore, we used the Scheme membership data summarised earlier in this report to append more recent service dates, scheme section and full-time equivalent pay for firefighters who had joined the Scheme (either as part of M1 or otherwise). This combined "Still in post" data was used in the actuarial liability calculations.

Although 158 "Leavers" records corresponded with the Scheme membership data, we focussed on the combined "Still in post" data for the actuarial liability calculations, with some reference to the "Leavers" records. We do not believe that extending the dataset would materially impact the accuracy of the calculation. The actuarial liability result is subsequently scaled up to reflect the whole population.



Data on the 549 "Still in post" eligible firefighters 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 professional actuarial requirement. 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.

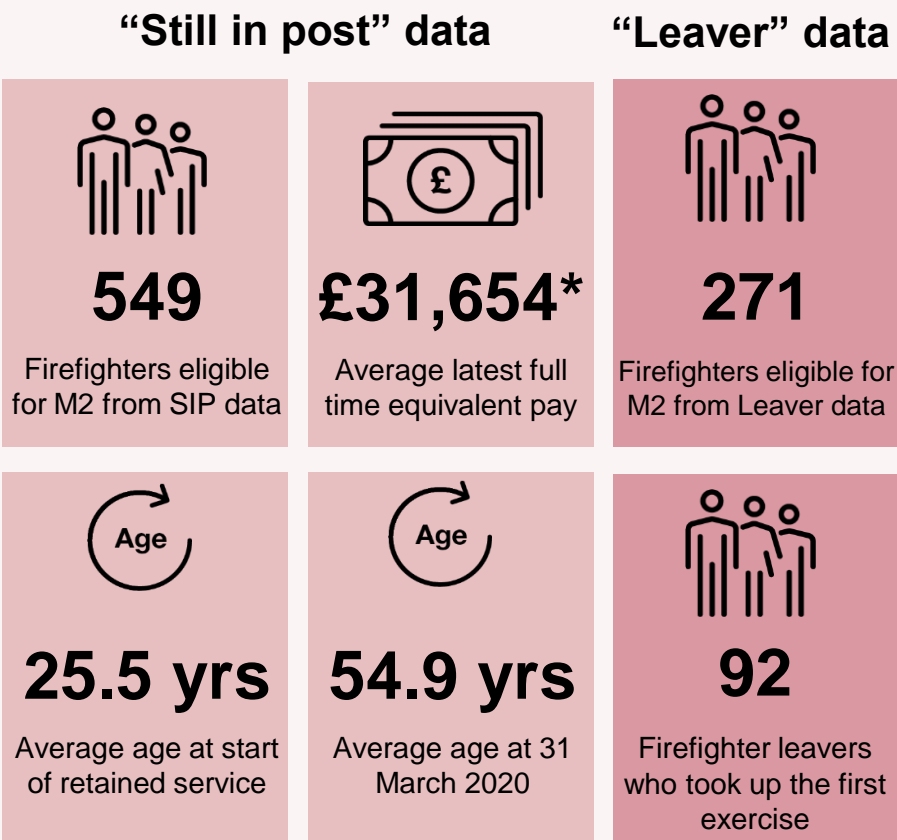
More information on the adjustments we have made to the data received are on page 47.

Since members are yet to make their decisions:

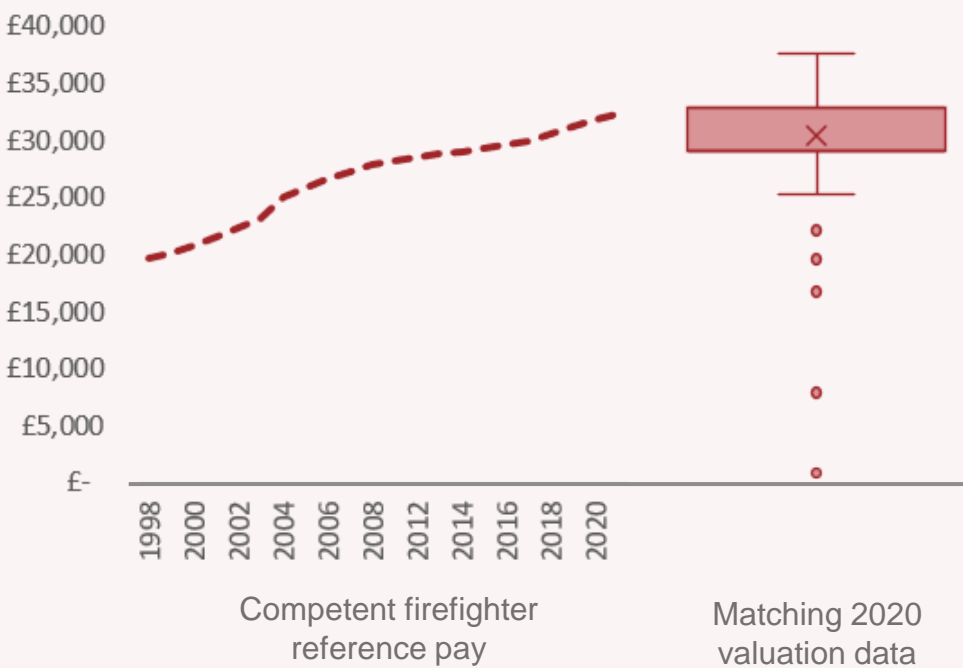
- there are no independent sources of data which can be used to validate this data
- overall, the quality of the data is relatively poor by comparison to the Scheme membership data.

# Matthews data: summary statistics

## Summary statistics



## Full time equivalent pay\*



\*This is the full-time equivalent pay (at valuation date) from the active valuation membership data for the 290 firefighters eligible for M2 who had joined the Scheme.

The M1 data did not include consistent information on sex. However, in the context of the Firefighters’ scheme, it is reasonable to treat all individuals as male.

# Matthews data: employment start date

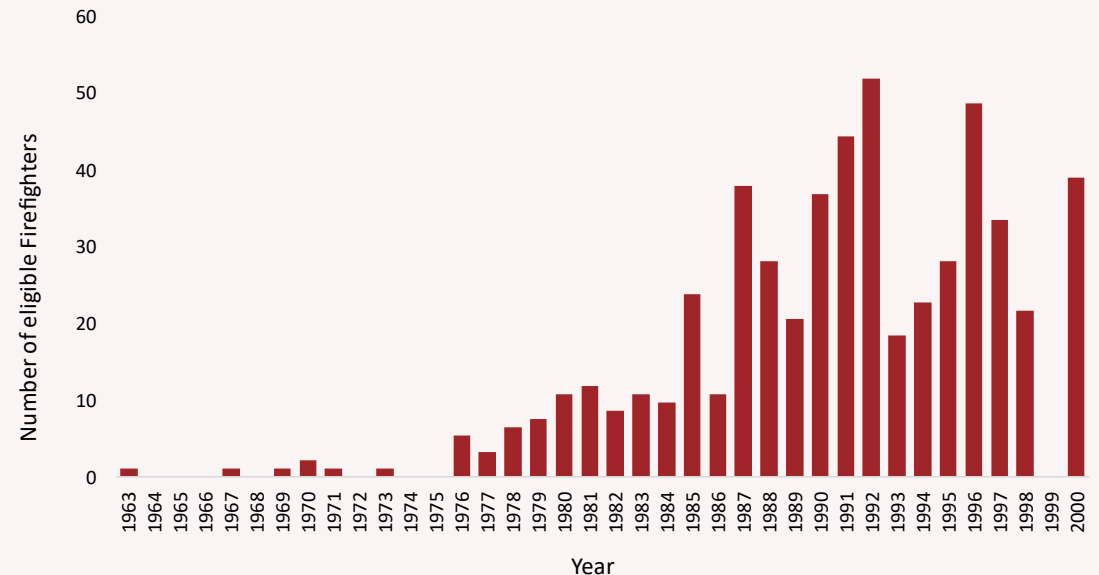
## Employment start dates

The chart to the right shows the distribution of employment start dates for the 549 eligible firefighters in the “Still in post” data. Dates range from 1963 to 2000.

The majority of the eligible firefighters have employment start dates in the 1980's and 1990's.

The data shows that the average employment start date for an eligible firefighter is 1990.

## “Still in post” Employment start date distribution



# Matthews data: age

## Age as at 31 March 2020

The chart to the right shows the distribution of ages as at 31 March 2020 for the 549 firefighters eligible for M2 included in the M1 “Still in post” data ([Scheme](#) members and non-members).

513 of these firefighters correspond to the [Scheme](#) membership data (shown in darker red) and 36 do not. We understand that only the former are members of the [Scheme](#). Of the [Scheme](#) members, 347 are NFPS 2007 Special members that opted to purchase service during M1 (“M1 Optants”).

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

The average age for these eligible firefighters, and for the “M1 Optants” within this group, is 55 years.

“Leaver” data did not include information about member’s age and is not shown to the right.

## “Still in post” Age distribution



# Matthews data: processing and adjustments

## Data processing

The dataset 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.

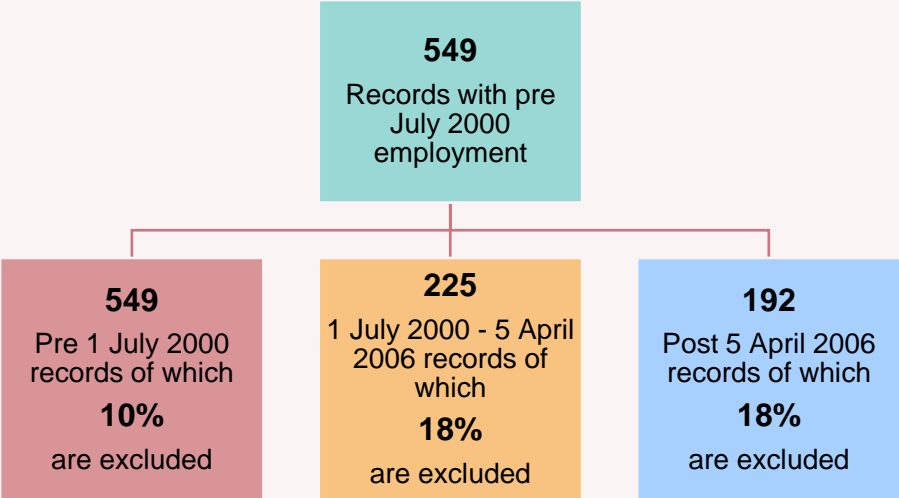
## Data adjustments

We exclude individual records that have missing or unreliable key data and rate up 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



The records in each later tranche are a subset of those for the preceding tranche

## Top 3 reasons for excluding records\*

33	Firefighters who are not in the valuation data and are aged 60 or above ( <u>rate up</u> applied)
15	Pensioners with no service end date ( <u>rate up</u> applied)
6	Overlap of records ( <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.

# Matthews data: impact of data limitations

## What limitations exist in the M2 data?

- Data for those eligible firefighters “Still in post” was used for the calculations and scaled up, in part with reference to “leaver” data. This may not be representative of the entire eligible population across Northern Ireland.
- 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 employer contribution rate which is in respect of the Matthews exercise (approximately 6.2% of pensionable pay as set out in our report titled 'Firefighters' Pension Scheme (Northern Ireland): Valuation Results' dated 13 February 2024).

There is no impact on member outcomes since Matthews is not included in the cost cap cost 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 option exercise. Data regarding the outcome of the option exercise is expected to be available at the time of the 2024 valuation of the scheme.

It is a requirement of Directions that there is an allowance for a best estimate assessment of the potential liabilities in respect of Matthews in the 2020 valuation. This requires us to use a subset of the M1 dataset provided by NIFRS.



After making necessary adjustments detailed in this report, we conclude that the M2 data is appropriate for the purpose of estimating the additional M2 actuarial liability in the Firefighters' Pension Scheme (Northern Ireland) 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

<b>Actuarial liability</b>	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.
<b>CARE</b>	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 FPS 2015 Scheme in this report).
<b>Cost cap cost</b>	<p>A way of measuring the cost of benefits being provided from the FPS 2015 Scheme, which is then compared to a 'target cost'. The Firefighters' Pension Scheme (Northern Ireland) target cost is set at 18.3% of pay.</p> <p>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 FPS 2015 Scheme (e.g., to the benefits provided) to bring the cost cap cost back to the target cost.</p>
<b>Directions</b>	<p>A document published by Department of Finance, The Public Service Pensions (Valuations and Employer Cost Cap) Directions (Northern Ireland) 2014 as amended, which sets out the process and requirements for carrying out valuations, including the results which need to be disclosed.</p> <p>Directions were first published in 2014 and have been updated several times since then.</p>
<b>Employer contribution rates</b>	<p>The percentage of scheme members' salaries which employers are required to pay in order to:</p> <ul style="list-style-type: none"><li>• meet the costs of benefits currently being built up by active members</li><li>• make good any shortfall in the notional amounts set aside to cover benefits already built up.</li></ul> <p>The result is heavily dependent on assumptions about future financial conditions and membership changes.</p>
<b>Matthews</b>	The Matthews second option exercise (or "M2") is a programme to enable certain members to elect to buy historic service in the NFPS 2007 Scheme (Special). M2 began on 31 October 2023 in accordance with <a href="#">The Firefighters' Pension Schemes (Amendment) Regulations (Northern Ireland) 2023</a> . 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 option exercise.

# Glossary

<b>McCloud</b>	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 <u>reformed and legacy sections</u> of the scheme.
<b>Normal pension age</b>	<p>The age at which a member in normal health is entitled to unreduced benefits. This age varies in different schemes:</p> <ul style="list-style-type: none"><li>• <b>FPS 2007 Scheme:</b> Age 55 (or age 50 after completion of 25 years of service); Deferred pension age is 60.</li><li>• <b>NFPS 2007 Scheme (Standard):</b> Age 60; Deferred pension age is 65.</li><li>• <b>NFPS 2007 Scheme:</b> Age 55; Deferred pension age is 60.</li><li>• <b>FPS 2015 Scheme:</b> Age 55; Deferred pension age equal to State Pension Age (‘SPA’).</li></ul>
<b>Pension increase</b>	Public service pensions are increased under the provisions of the Pensions (Increase) Act (Northern Ireland) 1971 and Section 59 of the Social Security Pensions (Northern Ireland) Order 1975.
<b>Pension revaluation</b>	The rate at which the <u>CARE</u> pension is revalued each year a member is an active member.
<b>Professional actuarial requirements</b>	<p>The professional requirements that we have complied with when completing this actuarial valuation include:</p> <ol style="list-style-type: none"><li>1. Technical Actuarial Standards: TAS 100 and TAS 300, issued by the FRC.</li><li>2. The Actuaries’ Code, issued by the Institute and Faculty of Actuaries (‘IFoA’)</li><li>3. The Civil Service Code.</li></ol> <p>GAD is also accredited under the IFoA’s Quality Assurance Scheme. More details can be found in our terms of reference.</p>

# Glossary

<b>Rate up</b>	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.
<b>Reformed and legacy schemes</b>	The reformed scheme that was set up in line with The Public Service Pensions Act (Northern Ireland) 2014, and which came into force on 1 April 2015 (referred to as the FPS 2015 Scheme in this report). All non-reformed sections are known as legacy schemes. This terminology is used in the <u>McCloud</u> judgment.
<b>Regular Firefighter</b>	Regular firefighters are full-time firefighters.
<b>Retained Firefighter</b>	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.
<b>Scheme</b>	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 FPS 2015 Scheme.
<b>Special member</b>	<p>An amendment to the NFPS 2007 Scheme regulations made in April 2015 introduced a modified section of the NFPS 2007 Scheme for retained firefighters who were employed in Northern Ireland during the period 1 July 2000 to 5 April 2006 to provide them with access to a pension scheme (known as 'Special' members).</p> <p>The modified section of the NFPS 2007 Scheme is called the NFPS 2007 Scheme (Special) in this report.</p> <p><a href="#">The New Firefighters' Pension Scheme (Amendment) Order (Northern Ireland) 2015 (legislation.gov.uk)</a></p>