

## **Government Employees Pension Fund**

Actuarial Interest Factor Report: as at 31 March 2018

Prepared by Alexander Forbes Financial Services and African Origins Actuarial Solutions

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**Government Employees Pension Fund** Actuarial Interest Factor Report as at 31 March 2018

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## **EXECUTIVE SUMMARY**

#### Introduction

- 1. The purpose of this report is to provide the Government Employees Pension Fund ("GEPF" or "Fund") with the actuarial interest factors (per Rule 14.4.2) resulting from the statutory valuation of the Fund as at 31 March 2018.
- 2. We have also set out the methodology applied in the determining these actuarial interest factors, and have proposed a set of F(Z) and A(X) factors using the 31 March 2018 statutory valuation basis.

#### Background

- 3. Actuarial interest (which represents "the value of a member's benefits in the Fund") and the actuarial interest factors should move in line with any changes in the value of members' benefits. Typically such changes occur when there are any changes to the actuarial valuation basis used at each statutory actuarial valuation of the Fund.
- 4. The actuarial interest factors which are derived from the valuation results should thus be reviewed as part of each statutory actuarial valuation. This has been the case at each statutory actuarial valuation since 31 March 2010.
- 5. We note that the actuarial interest factors from the 31 March 2016 valuation have not been applied due to pending litigation over the effect on the members' values caused by changes in valuation assumptions. For this reason, we have also shown the actuarial interest factors currently in force, namely the **31 March 2014 actuarial interest factors**, for comparative purposes.

#### Results

6. The tables below show a summary of the proposed actuarial interest factors. A full listing of the actuarial interest factors is provided in Appendix 1 of this report.

	Services	Members	Other Members		
Age	Current F(z)Proposed F(z)31 March 201431 March 2018		Current F(z) 31 March 2014	Proposed F(z) 31 March 2018	
20	0.2251	0.20971	0.1677	0.20423	
25	0.2259	0.20971	0.1735	0.20610	
30	0.2271	0.21087	0.1818	0.20511	
35	0.2291	0.21191	0.1917	0.20337	
40	0.2323	0.21116	0.2027	0.20360	
45	0.2385	0.21774	0.2150	0.20892	
50	0.2514	0.22903	0.2294	0.21767	
55	-	-	-	-	

#### F(z) factors (for members under age 55):



	Services Members			Other Members		
Age	Current A(x)Proposed A(x)31 March 201431 March 2018			Current A(x) 31 March 2014	Proposed A(x) 31 March 2018	
55	13.7030	14.3131		12.3302	13.2402	
60	12.0244	12.9415		11.5293	12.4376	
65	11.6517	11.3961		11.6517	11.3961	
70	10.4312	10.1574		10.4312	10.1574	
75	9.1217	8.8055		9.1217	8.8055	
80	7.8259	7.4396		7.8259	7.4396	

#### A(x) factors (for members age 55 and older):

7.

The tables below show a summary of the comparison between the proposed actuarial interest factors and the pending 2016 factors.

	Services	Members	Other Members		
Age	Pending F(z)Proposed F(z)31 March 201631 March 2018		Pending F(z) 31 March 2016	Proposed F(z) 31 March 2018	
20	0.2210	0.20971	0.2142	0.20423	
25	0.2211	0.20971	0.2173	0.20610	
30	0.2235	0.21087	0.2174	0.20511	
35	0.2258	0.21191	0.2167	0.20337	
40	0.2262	0.21116	0.2181	0.20360	
45	0.2345	0.21774	0.2250	0.20892	
50	0.2480	0.22903	0.2357	0.21767	
55	-	-	-	-	

#### F(z) factors (for members under age 55):

A(x) factors (for members age 55 and older):

	Services Members			Other Members		
Age	Pending A(x) 31 March 2016	Proposed A(x) 31 March 2018		Pending A(x) 31 March 2016	Proposed A(x) 31 March 2018	
55	14.4818	14.3131		13.3962	13.2402	
60	12.1287	12.9415		11.7847	12.4376	
65	11.7046	11.3961		11.7046	11.3961	
70	10.4709	10.1574		10.4709	10.1574	
75	9.1494	8.8055		9.1494	8.8055	
80	7.8436	7.4396		7.8436	7.4396	



The proposed 2018 factors overall are on average approximately 5-7% higher than the 2014 actuarial interest factors.

#### Comparison of valuation liabilities to actuarial interest

8. The total valuation liabilities and the actuarial interest numbers calculated using the proposed factors differ by 0,3%.

Thus, there is a reasonable match between the two sets of numbers.



## 1. INTRODUCTION

#### Introduction

- 1.1 Actuarial interest is defined in the rules of the Fund as being "an amount representing the value of a member's benefits in the Fund based on his or her pensionable service, calculated in terms of rule 14.4.2".
- 1.2 Rule 14.4.2 sets out two formulae for the calculation of actuarial interest for benefit payment purposes, namely:
  - A formula for those members younger than 55 years incorporating an F(Z) factor; and
  - A formula for those members over the age of 55 years incorporating an A(X) factor.

F(Z) and A(X) are both defined as: "a factor determined by the Board acting on the advice of the actuary, and after consultation with the Minister [of Finance] and the employee organisations." No further guidance on the derivation of the actuarial interest factors is provided in the GEP Law or the Rules.

#### When is actuarial interest paid?

- 1.3 Our understanding is that payment of a member's actuarial interest can occur on any of the following types of exit:
  - retirement of members with less than 10 years of pensionable service (per Rule 14.3.2);
  - resignation or discharge of a member (per Rule 14.4.1);
  - death of a member with less than 10 years of pensionable service (per Rule 14.5.2);
  - benefits in terms of a severance package (per Rule 14.8); and
  - transfer of members the rule refers to the member's "accrued interest", which has been taken to be the member's actuarial interest (*per Rule 21*).
- 1.4 Furthermore, the rules were amended (General Notice 775 of 2017) such that any gratuity payable in accordance with Rule 14.1.1 or 14.1.2 would be subject to a minimum of the benefit in terms of Rule 14.4.1 (i.e. resignation or discharge of a member).

#### What does the actuarial interest represent?

- 1.5 As noted above, actuarial interest is only defined as "an amount representing the value of a member's benefits in the Fund". This can be interpreted in two ways, namely:
  - the member's actuarial reserve value ("ARV") in the Fund, being the valuator's best estimate of the current amount required to pay benefits (in respect of service accrued to the calculation date) on the future exit from the Fund for any reason; or
  - the present value of the member's accrued pension (in respect of service accrued to the calculation date).



#### Approach 1: Actuarial Reserve Value

- 1.6 The Fund's actuarial interest factors have always been calculated as a simplified approximation of each member's actuarial reserve value in the statutory actuarial valuation of the Fund.
- 1.7 It is important to note that a member can exit the Fund for various reasons, including resignation, retrenchment, normal, early or ill-health retirement or death. A different benefit becomes payable in terms of the Rules of the Fund in respect of each mode of exit. Actuarial reserve values calculated as part of the statutory actuarial valuation cater for all those possible modes of exit, the respective benefits and the probability of each mode of exit occurring.

For example, suppose a member can only exit the fund via retirement, resignation or death, and that the probability of each exit mode occurring is 50%, 30% and 20% respectively (assuming no other modes of exit). Furthermore let's say that the total value of benefits available to the member/spouse at the date of exit is R20 000, R10 000 and R30 000 on retirement, resignation and death respectively.

The member's actuarial reserve value at the date of exit is then equal to: (R20 000 x 50%) + (R10 000 x 30%) + (R30 000 x 20%) = R10 000 + R3 000 + R6 000 = R19 000.

It should be noted that the figures stated in the above example are for illustrative purposes only and that the actuarial reserve values are subject to other factors such as salaries, pensionable service, the economic assumptions used in the valuation and other factors listed in section 2.1 to 2.3 of this report.

- 1.8 Actuarial reserve values can thus change if the assumptions used in the valuation basis change, even if the member's age, pensionable salary and pensionable service remain unchanged. Such changes may result in an increase or a decrease in the member's actuarial reserve value depending on the change to the valuation assumptions. Actuarial interest values should change on a consistent basis to reflect the changed value of the member's benefits in the Fund.
- 1.9 It is important that the actuarial interest factors are updated following each statutory actuarial valuation, especially when there is a significant change in the valuation basis. For example, if the valuation basis is strengthened and the factors are not adjusted accordingly, the Fund may end up paying benefits that are lower than the value of the member's benefits in the Fund, and vice versa.

For example, let's take a 56 year old Services member. A(x) factors are applicable in calculating the member's actuarial interest (since actuarial interest is G + A\*A(x) for members over 55 years). The G (gratuity) and A (annuity) portions of the member's actuarial interest were calculated, say, to be R60 000 and R5 000 respectively.

Let's say that the applicable actuarial interest factor for a 56 year old Services member is A(56) = 13. The member's actuarial interest is then R60 000 + R5 000 x 13 = R60 000 + R65 000 = R125 000.



Now suppose that the valuation basis changed at the latest valuation such that the Fund's total liability increased, say due to lower expected interest rates going forward; i.e. on average, the liability in respect of each member increased. Since the actuarial interest factors are derived from the valuation liability, the factors would increase as well. Let's say that A(56) is now 14 so that the member's actuarial interest is now:

R60 000 + R5 000 x 14 = R60 000 + R70 000 = R130 000.

If the actuarial interest factors had not been updated for the latest valuation basis then the Fund would have still ended up paying R125 000 to the member, and not the R130 000 that the member should have received following the revised factors i.e. the member would be underpaid.

Again it should be noted that the figures in the above example are intended for illustrative purposes only.

#### Approach 2: Accrued Pension

- 1.10 Actuarial interest could be calculated as the value of the member's accrued pension at a point in time, without reference to the other benefits the member would have become entitled to. This would be consistent with the "statutory minimum benefit" determined under the Pension Funds Act, which controls the practice of private sector retirement funds. This minimum benefit is discussed in more detail below.
- 1.11 Previously, members withdrawing from some defined benefit funds may have only received a return of their contributions plus some interest in terms of their fund's rules, with no value in respect of the employer contributions to the fund on their behalf (or the value of their benefits in the fund).
- 1.12 The Pension Funds Second Amendment Act (Act No 39 of 2001, gazetted in the Government gazette No. 22891 on 7 December 2001) introduced a provision for a "statutory minimum benefit". The rationale for this minimum was to ensure that members receive a fair benefit on exit prior to retirement. We understand that this minimum was also one of the motivations for introducing the payment of Actuarial Interest on withdrawal from the GEPF.
- 1.13 It should be noted that while the Fund does not fall under the Pension Funds Act (as it is governed by its own legislation), the National Treasury has stated that it would like the Fund to fall under the Pension Funds Act eventually. The Trustees take cognisance of the Pension Funds Act requirements where appropriate consideration can be given to the statutory minimum benefit when considering the methodology for determining the actuarial interest factors
- 1.14 The statutory minimum benefit is calculated as the present value of the member's accrued pension (and gratuity if this approach is applied to the Fund) at the date of exit, deferred between the date of exit and the member's normal retirement date. That is, the value of the accrued pension (based on service and final average salary at the date of exit) that will ultimately become payable at normal retirement age.



#### 1.15 The statutory minimum benefit can be expressed as follows:

Accrual rate × FAS × Service ×  $a_{NRA}$  × (1 + discount rate)<sup>NRA-x</sup>

Where:

	Accrual rate FAS	: percentage of salary accruing as pension for each year of service : final average salary
•	Service	: service accrued to the date of exit (adjusted as appropriate)
•	NRA	: normal retirement age
•	<b>a</b> (NRA)	: present value of R1 of pension at NRA
•	x	: age at exit

The discount rate is based on market conditions each month.

1.16 The formula leads to a steadily increasing benefit as the period to retirement (and thus the discounting period) gets shorter. Most elements of the statutory minimum benefit are fixed in relation to the particular fund's valuation basis, but the discount rate (applicable for the period between the date of exit and the normal retirement date) fluctuates based on market conditions each month. Statutory minimum calculations for funds that fall under the Pension Funds Act thus change each month, compared to the actuarial interest factors for the Fund which only change every two years after each statutory actuarial valuation.

#### Approach used in this valuation

- 1.17 In this investigation, the same principle as adopted in the previous report has been used to derive the "implied" Actuarial Interest factors (the factors prior to any adjustments) at the current valuation date, i.e. the actuarial interest factors are based on a simplified approximation of the member's actuarial reserve value.
- 1.18 The approach followed to derive the factors at young ages has been improved to remove the subjectivity inherent in the previous approach. Adjustments to the implied factors have been kept to a minimum in this investigation



## 2. CONSIDERATIONS

There are a number of principles that can be considered in calculating the actuarial interest factors. We have considered these below.

#### Factors influencing actuarial interest

- 2.1 As noted previously, actuarial interest is a simplified approximation of the member's actuarial reserve value. Actuarial reserve values for valuation purposes include assumptions regarding the following:
  - investment returns (the discount rate) both before and after retirement;
  - salary increases before retirement, including allowance for promotional increases;
  - pension increases after retirement; and
  - demographic assumptions (e.g. probabilities of dying, retiring, etc...) both before and after retirement.
- 2.2 The investment return and pension increase assumptions are applied consistently to all members and pensioners. Different salary increase and demographic assumptions are used for different groups of members. For example:
  - Female members exhibit different mortality experience to male members females have lighter mortality. In other words, given a male member and a female member of the same age, the male is expected to die earlier than the female i.e. the female has a longer life expectancy.
  - Female pensioners exhibit different mortality experience to male pensioners (females again have lighter mortality).
  - The promotional salary experience of "Other" members and "Services" members differs.
  - The pre-retirement decrement experience (in terms of mortality, retirement, etc.) also differs between "Other" and "Services" members. Examples of the different pre-retirement decrement experience include:
    - Services members experience a higher level of physical exertion than Other members. This can result in higher retirement and mortality rates as their body can no longer handle the physical strain as they get older.
    - Injuries incurred while in the line of duty may also result in a Services member having to retire earlier than expected due to ill-health and disability to a more frequent extent than Other members since Services members have a higher exposure to risk than Other members.
    - Members in the field (Services members) are at risk of being killed in combat and generally encounter criminal activity more frequently than members not in the field (Other members) and can therefore experience higher mortality rates.



#### Simple Administration

- 2.3 In order to "match" each member's actuarial reserve value in the Fund, actuarial interest factors would need to take a number of factors into account, including:
  - the member's age;
  - the member's gender;
  - the member's normal retirement age;
  - whether the member is a Services member or an Other member; and
  - the member's service (as this may affect the format of the benefits that are payable on exit).
- 2.4 Multi-dimensional tables could be derived taking each of these factors into account, but the Trustees have historically used age based tables which only differentiate between Services and Other members, i.e. they are "gender-neutral" and don't take into account service related benefit differences.
- 2.5 The actuarial interest factors thus introduce an element of "averaging" between members, e.g. males and females with the same age, salary and service would receive the same actuarial interest benefit even though different actuarial reserve values would be calculated for them in the statutory actuarial valuation.
- 2.6 On the basis that gender differentiation is not deemed appropriate by the Trustees, we are comfortable that age and member category (Services or Other) remain the most important other differentiators and that the proposed actuarial interest factors are again calculated on this basis.

#### Benefits before and after age 55

- 2.7 The actuarial interest formula is materially different for members younger and older than age 55:
  - Members younger than age 55: N(adj) X FS X F(Z) X [1 + (0,04 X (60 Z))]
  - Members older than age 55: G + [A X A(X)]

As can be seen, the formulae depend on different variables and will give different results depending on each member's personal circumstances.

- 2.8 These differences can lead to apparent anomalies in the benefits payable to members just below and just above age 55, e.g. a step increase in benefits or a reduction in benefits.
- 2.9 We have refined the approach to blend the F(Z) and A(X) factors at age 55 to reduce such anomalies, but they can still occur depending on each member's personal circumstances. Further comment is provided on this issue in Section 3.



#### Other considerations

2.10 Consistency with previous factors:

Significant changes to the actuarial interest factors would result in significant changes in the benefits payable to members. Changes to the methodology should only be made if the existing methodology is considered unreasonable or if it can be refined to better reflect the intended outcome.

2.11 Consistency with valuation results:

The existing methodology (described in section 3) uses the valuation liabilities to derive the factors, i.e. the factors are set in such a way that if all members were paid their actuarial interest on the valuation date, the amount would be similar to the total valuation liability.

2.12 Smooth progression of the factors:

Emphasis should be placed on a smooth increasing progression of the factors across all ages, particularly at age 55 where the F(Z) factors merge into the A(X) factors. This ensures a benefit that gradually increases with age.

2.13 Overall reasonability of the factors:

Technically there is justification for applying smoothing and actuarial judgement in setting the factors and this has been applied in the past. This may, however, result in factors that do not tie back exactly to the underlying liability and can result in a different progression of factors being calculated by different actuaries. In this investigation, we have refined the methodology to keep the adjustments to the factors to a minimum.



## 3. METHODOLOGY

This section sets out the methodology adopted for the purposes of determining the actuarial interest factors. It is instructive to first look at the methodology used in the derivation of the existing factors (based on the 2014 statutory valuation of the Fund) and then to consider the derivation of the proposed factors.

#### **Derivation of the 2014 Actuarial Interest Factors**

3.1 Two sets of databases were supplied: The factors were derived by first considering the actuarial reserve values in the 31 March 2014 actuarial valuation for members at each age (split between Services and Other members). The factors were then set such that when multiplying the service and salary of the average member at each age by the number of members and by the factor, this achieved the total liability at that age. In formula terms, for each age:

Liability = Average Salary x Average Service x Number of members x Factor

- 3.2 Typically, actuarial reserve values increase with age (as the period of discounting up to normal retirement age decreases), with the exception of the early ages. This is due to the promotional salary scale applied at the early ages (where the net discount rate is in fact negative). The Trustees previously decided that the actuarial interest factors should increase with age at all times and there was thus a departure from the actuarial reserve values at the earlier ages.
- 3.3 Although the F(Z) factors were adjusted downwards at the younger ages (to ensure increasing factors), the extent of write-ups of the F(Z) factors in respect of the older members was limited to achieve a closer match between the cost neutral factors and the smoothed factors at the older ages where the F(Z) factors are used.
- 3.4 The progression of the F(Z) factors into the A(X) factors was smoothed by marginally writing up the F(Z) factors just prior to age 55, but at smaller increments than used in 2012.
- 3.5 The previous factors were set equal between "Services" and "Others" after age 65 and we have maintained that methodology.

#### Derivation of the 2018 Actuarial Interest Factors

- 3.6 In this investigation, the same principle as described in paragraph 3.1 was used to derive the implied Actuarial Interest factors (the factors prior to any adjustments).
- 3.7 In adjusting the implied factors:
  - The approach followed to derive the factors at early ages has been simplified to reduce the subjective element in the previous approach.
  - We have smoothed the progression of the F(Z) factors into the A(X) factors.
  - We have factored in the value of retirement benefits into the A(X) factors close to retirement.
  - We have kept any adjustments to the implied factors to a minimum to avoid any subjective distortions. These are explained in detail below.



#### Removal of promotional scale (prior to age 55)

- 3.8 At younger ages, the assumed rate of salary increases in the valuation basis exceeds the expected investment return due to the high promotional salary scale. This results in a "negative discount rate" and leads to a decreasing value of benefits as members get older up to a certain age (with that age differing between Services and Other members).
- 3.9 This is intuitively incorrect and difficult to explain to members who would expect older members to receive a higher benefit than younger members (with the same salary and service). In the 2016 investigation, subjective adjustments were made to remove the impact of this negative discount rate.

In this investigation, we have derived the factors by calculating a revised actuarial reserve value after reducing the promotional scale for affected ages. That is, the promotional scale for ages prior to age 37 were set equal to the promotional scale at age 37.

3.10 This change in methodology limits the subjective adjustments applied in previous investigations.

#### Refined progression between F(Z) and A(X) (at age 55)

- 3.11 Emphasis was placed on a smooth progression of factors across all ages, particularly at age 55 where the F(Z) factors up to that point are replaced with the A(X) factors.
- 3.12 The progression of the factors are reasonably smooth across all members except for members with a very low salary and service, where the fixed R360 supplementary pension included in actuarial interest calculation after age 55 is disproportionately high compared to the actuarial interest calculation under age 55.

#### Integration between the value of benefits and the actuarial reserve value (after age 55)

- 3.13 The actuarial interest factors are derived based on the actuarial reserve values held in the Fund for the members. Without knowing each member's true date of exit and exit mode, the actuarial reserve value is the reserve held that caters for all possible types of exit mode, including retirement, death, resignation etc. Therefore, the actuarial reserve value before age 65 (the latest age where all members are expected to be retired) is different from the capitalised value of retirement benefits payable from that age, i.e. the actuarial reserve value is not exactly equal to the value of the pension should the member retire at any age before age 65.
- 3.14 Should a member retire prior to age 65, the actuarial reserve may therefore be less than the capitalised value of retirement benefits payable from that age. To be fair to members in this instance, the actuarial interest factors have been adjusted upwards between ages 55 (the earliest age where a member could take normal retirement) and 65, using a weighted average between the implied A(X) factors and the annuity factors at each age, with weightings steadily increasing towards the annuity factors. This ensures greater alignment to the reserve held and the capitalised value of retirement benefits payable.
- 3.15 Note that in adopting this approach, the value of the actuarial interest benefit starts to decrease from about age 63 onwards as the capitalised value of the pension benefit decreases with age a pension payable to, say, a 68 year older is expected to be paid for fewer years than a pension to, say, a 65 year old.



#### Members over the normal retirement age (after age 65)

- 3.16 From age 65, when all members are expected to have retired already, the A(X) factors have been set equal to the annuity factors, i.e. they have not been derived from the valuation results. It is not expected that many members over age 65 will receive an actuarial interest benefit, but such members will thus receive the value of the benefit should they have retired and received a pension.
- 3.17 The factors are the same for Services and Others members after age 65 since the actuarial valuation basis assumes the same post-retirement mortality rates for both categories.

#### Smoothing

3.18 Factors were smoothed to follow a progression similar to that of the 2016 factors.

#### Comparison of valuation liabilities to actuarial interest

3.19 The total valuation liabilities and the actuarial interest numbers calculated using the proposed factors differ by 0,3%.

Thus, there is a reasonable match between the two sets of numbers.



## 4. SUMMARY AND RECOMMENDATIONS

#### Summary

4.1 The proposed 2018 factors overall are on average approximately 5-7% higher than the 2014 actuarial interest factors.

#### Recommendations

- 4.2 We recommend that the factors be implemented following approval by the Board of Trustees of the Fund and any required consultation with the Minister of Finance and the employee organisations.
- 4.3 We have set out a table of the proposed factors in Appendix 1. For comparative purposes, we have also reflected the 2014 factors as well as the pending 2016 factors.
- 4.4 We welcome a discussion with the Benefits and Administration Committee and the Trustees on the derivation of these factors.

#### **AR PIENAAR**

Fellow of the Actuarial Society of South Africa and the Institute of Actuaries in my capacity as the valuator to the GEPF and as an employee of Alexander Forbes Financial Services

#### S MBILI

Fellow of the Actuarial Society of South Africa in my capacity as peer review actuary and as a director of African Origins Actuarial Solutions

For the purposes of professional regulation the primary professional regulator of the signatories to this report is the Actuarial Society of South Africa.

#### October 2018



# APPENDIX 1: ACTUARIAL INTEREST FACTORS AS AT 31 MARCH 2018

The purpose of this appendix is to provide the full listing of the actuarial interest factors.

#### F(z) factors (for members under age 55):

The table below sets out the proposed F(z) factors following the 31 March 2018 statutory actuarial valuation.

	Services Members			Other Members		
Age	Current F(z) 31 March 2014	Pending F(z) 31 March 2016	Proposed F(z) 31 March 2018	Current F(z) 31 March 2014	Pending F(z) 31 March 2016	Proposed F(z) 31 March 2018
20	0.2251	0.2210	0.2097	0.1677	0.2142	0.2042
21	0.2252	0.2210	0.2097	0.1686	0.2147	0.2045
22	0.2254	0.2210	0.2097	0.1694	0.2160	0.2055
23	0.2255	0.2210	0.2097	0.1702	0.2169	0.2062
24	0.2257	0.2211	0.2099	0.1719	0.2171	0.2061
25	0.2259	0.2211	0.2097	0.1735	0.2173	0.2061
26	0.2260	0.2215	0.2099	0.1752	0.2175	0.2061
27	0.2262	0.2220	0.2101	0.1768	0.2175	0.2059
28	0.2264	0.2225	0.2104	0.1785	0.2176	0.2057
29	0.2268	0.2229	0.2105	0.1801	0.2175	0.2054
30	0.2271	0.2235	0.2109	0.1818	0.2174	0.2051
31	0.2275	0.2242	0.2113	0.1834	0.2173	0.2048
32	0.2279	0.2247	0.2116	0.1851	0.2171	0.2044
33	0.2282	0.2251	0.2117	0.1873	0.2170	0.2041
34	0.2286	0.2256	0.2119	0.1895	0.2168	0.2037
35	0.2291	0.2258	0.2119	0.1917	0.2167	0.2034
36	0.2296	0.2258	0.2117	0.1939	0.2165	0.2030
37	0.2301	0.2260	0.2116	0.1961	0.2164	0.2027
38	0.2308	0.2259	0.2113	0.1983	0.2166	0.2026
39	0.2316	0.2261	0.2113	0.2005	0.2173	0.2031
40	0.2323	0.2262	0.2112	0.2027	0.2181	0.2036
41	0.2331	0.2272	0.2119	0.2062	0.2191	0.2043
42	0.2339	0.2286	0.2129	0.2080	0.2203	0.2052
43	0.2348	0.2300	0.2140	0.2102	0.2217	0.2063
44	0.2366	0.2320	0.2156	0.2125	0.2231	0.2074
45	0.2385	0.2345	0.2177	0.2150	0.2250	0.2089
46	0.2406	0.2370	0.2198	0.2176	0.2268	0.2104
47	0.2432	0.2397	0.2221	0.2204	0.2289	0.2121
48	0.2458	0.2423	0.2243	0.2233	0.2310	0.2138
49	0.2485	0.2451	0.2266	0.2263	0.2333	0.2157
50	0.2514	0.2480	0.2290	0.2294	0.2357	0.2177
51	0.2545	0.2512	0.2317	0.2331	0.2381	0.2197



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52	0.2575	0.2544	0.2344	0.2369	0.2407	0.2218
53	0.2610	0.2578	0.2373	0.2410	0.2435	0.2241
54	0.2662	0.2612	0.2402	0.2451	0.2464	0.2266

#### A(x) factors (for members age 55 and older):

The table below sets out the proposed A(x) factors following the 31 March 2018 statutory actuarial valuation.

	Services Members			Other Members		
Age	Current A(x) 31 March 2014	Pending A(x) 31 March 2016	Proposed A(x) 31 March 2018	Current A(x) 31 March 2014	Pending A(x) 31 March 2016	Proposed A(x) 31 March 2018
55	13.7030	14.4818	14.3131	12.3302	13.3962	13.2402
56	13.5063	13.7942	14.0531	12.1524	12.9557	13.0978
57	13.1791	13.2715	13.7860	12.0555	12.5909	12.9467
58	12.8107	12.8694	13.5118	11.9641	12.2936	12.7865
59	12.4670	12.6033	13.2303	11.7526	12.0573	12.6168
60	12.0244	12.1287	12.9415	11.5293	11.7847	12.4376
61	12.0484	12.1926	12.6454	11.8003	11.9525	12.2484
62	12.0728	12.2199	12.3422	11.9488	12.0206	12.0493
63	11.9756	12.1549	12.0326	11.9136	11.9778	11.8407
64	11.8137	11.9330	11.7172	11.7826	11.8866	11.6230
65	11.6517	11.7046	11.3961	11.6517	11.7046	11.3961
66	11.4185	11.4682	11.1602	11.4185	11.4682	11.1602
67	11.1792	11.2261	10.9180	11.1792	11.2261	10.9180
68	10.9343	10.9790	10.6700	10.9343	10.9790	10.6700
69	10.6852	10.7268	10.4164	10.6852	10.7268	10.4164
70	10.4312	10.4709	10.1574	10.4312	10.4709	10.1574
71	10.1745	10.2111	9.8935	10.1745	10.2111	9.8935
72	9.9148	9.9491	9.6256	9.9148	9.9491	9.6256
73	9.6520	9.6840	9.3546	9.6520	9.6840	9.3546
74	9.3874	9.4172	9.0809	9.3874	9.4172	9.0809
75	9.1217	9.1494	8.8055	9.1217	9.1494	8.8055
76	8.8568	8.8822	8.5296	8.8568	8.8822	8.5296
77	8.5939	8.6171	8.2538	8.5939	8.6171	8.2538
78	8.3336	8.3546	7.9790	8.3336	8.3546	7.9790
79	8.0772	8.0965	7.7067	8.0772	8.0965	7.7067
80	7.8259	7.8436	7.4396	7.8259	7.8436	7.4396

