

Future Armed Forces Pension Scheme Cost of final scheme design

Date: 16 October 2012

Authors: Joanne Rigby FIA, Alan Dorn FIA

UNCLASSIFIED

Future Armed Forces Pension Scheme – Cost of final scheme design

Table of Contents

1	Introduction	1
2	Statement of assessed cost	2
3	Data	3
4	Methodology	4
5	Assumptions	5
6	Appendix A: FAFPS design – post 2015 benefit structure	7
7	Appendix B: Data	9
8	Appendix C: Assumptions	10

UNCLASSIFIED

Future Armed Forces Pension Scheme – Cost of final scheme design

1 Introduction

- 1.1 This report has been prepared by the Government Actuary's Department ('GAD') in its capacity as actuarial adviser to the Ministry of Defence ('MoD') in connection with the Future Armed Forces Pension Scheme ('FAFPS').
- 1.2 The Outline Scheme Design of the FAFPS was published by MoD on 31 July 2012 (<http://www.mod.uk/DefenceInternet/AboutDefence/CorporatePublications/ConsultationandCommunications/PublicConsultations/TheNewArmedForcesPensionSchemeFinalConsultation.htm>) and comments were sought from Service personnel and interested external organisations. This followed an extensive initial consultation period earlier in the year. After consideration of the responses, the final FAFPS design has now been set out by MoD.
- 1.3 This report contains our costing of the final FAFPS design and describes the data, methodology and assumptions used.
- 1.4 This report has been prepared for MoD. We understand that MoD will forward this report to HM Treasury (HMT). We are content for MoD to release this report to third parties (including HMT, other public service schemes and parliament), provided that:
 - > it is released in full
 - > the advice is not quoted selectively or partially, and
 - > GAD is identified as the source of the report.
- 1.5 Third parties whose interests may differ from those of MoD should be encouraged to seek their own actuarial advice where appropriate. All parties should recognise that this note has been prepared on behalf of MoD, and no other person or third party other than HMT is entitled to place any reliance on the contents of this note. GAD has no liability to any other person or third party for any act or omission taken, in whole or in part, on the basis of this report.
- 1.6 This report follows our normal quality processes for work conducted on public service pension matters.¹

¹ GAD seeks to achieve a high standard in all our work. Please go to our [website](#) for details of the standards we apply.

UNCLASSIFIED

Future Armed Forces Pension Scheme – Cost of final scheme design

2 Statement of assessed cost

- 2.1 The MoD has set out the final scheme design for the FAFPS for service from 1 April 2015 (please see the following link <http://www.mod.uk/DefenceInternet/AboutDefence/CorporatePublications/PersonnelPublications/Pensions/FutureAFPS/FinalAgreement.htm>). A summary of the scheme design is attached at Appendix A.
- 2.2 We have assessed the cost of the FAFPS design set out in Appendix A as 31.4% of Pensionable Pay. This conclusion is subject to the comments below.
- 2.3 The conclusion is dependent on the data, methodology and assumptions adopted. These are discussed in sections 3-5.
- 2.4 The data, methodology and assumptions described in this report have been set after consideration of HMT guidance on public sector scheme costings, based on advice from the Government Actuary's Department in its capacity as adviser to HMT. MoD and HMT have agreed the data, methodology and assumptions adopted.
- 2.5 For the avoidance of doubt, whilst the assessed cost is expressed in the form of a contribution rate, it is not comparable to the current or future employer contribution rates that may be payable in respect of the scheme. The future employer contribution rates payable within the scheme will only become known once a formal actuarial valuation has been carried out in accordance with the FAFPS's governing regulations.
- 2.6 The cost assessment in this note is not intended to be used to set 'employer contribution caps' due to be introduced under the Public Service Pensions Bill for the FAFPS going forward.
- 2.7 The costs of the FAFPS will change over time. The cost assessed for this report will inevitably differ from the ultimate cost of the FAFPS for reasons such as the following:
- > The membership data used to calculate the cost will differ from the actual scheme membership to which the new scheme will apply in future. The relative weighting of older and younger members in future may impact on the cost of the FAFPS in the longer term.
 - > The actual experience of the scheme will differ from the assumptions made.
- The above list is not exhaustive.

UNCLASSIFIED

Future Armed Forces Pension Scheme – Cost of final scheme design

3 Data

- 3.1 This section sets out the data used for our assessment.
- 3.2 The membership data used to assess the cost of the FAFPS design outlined in Appendix A is the most recent full extract of membership data for the armed forces pension arrangements as at 31 March 2009. The data is summarised in Appendix B.
- 3.3 While it is recognised that structural changes within the Armed Forces (e.g. redundancies, increased use of reserves) will cause the profile to change, the details of the new structures are not yet known and therefore MoD and HMT agreed to use the 2009 data without adjustment.
- 3.4 We carried out checks on the 31 March 2009 active membership data. These checks included cross-referencing the number of members (and similar summary statistics) with other available sources of data, such as the scheme resource accounts. We also performed general reasonableness and consistency checks on the individual data items provided.
- 3.5 We note that these checks do not represent a full independent audit of the data supplied. In particular we have relied upon the general completeness and accuracy of the information supplied by MoD without independent verification. We are not aware of any problems with this data which we consider would have a material impact on the outcome of the cost assessment.
- 3.6 The membership information used includes data for those full-time reservists who are members of the Reserve Forces Pension Scheme (RFPS) and Full-Time Reserve Service Pension Scheme (FTRS). The data excludes other reservists including members of the Non-Regular Permanent Staff Pension Scheme (NRPS).

UNCLASSIFIED

Future Armed Forces Pension Scheme – Cost of final scheme design

4 Methodology

- 4.1 The methodology used to assess the cost of the FAFPS is the standard actuarial methodology known as the Projected Unit Method with a one year control period.
- 4.2 The cost shown is expressed as a percentage of Pensionable Pay, and solely reflects the cost of the benefits that members would accrue during the year following the implementation date (i.e. only includes costs attributable to future service). No allowance has been made for any costs / savings which may arise from behavioural changes affecting the value of benefits earned prior to the introduction of a new scheme (i.e. past service costs / savings are not allowed for). In addition, no allowances have been made for any future changes in demographic assumptions.
- 4.3 The cost of the protection announced within *Public Service Pensions: good pensions that last* (Cm8214), as described in Appendix A, for members within 10 years (or less) of their Normal Pension Age at 1 April 2012, has not been allowed for in these calculations, as agreed with HMT. We have retained those expected to be affected by this protection within the membership data used for the cost assessment.
- 4.4 No allowance has been made for the value of any other transitional benefit arrangements.
- 4.5 No allowance has been made for the possibility of any further future changes in State Pension Age beyond those already incorporated in legislation or policy (for example the possible bringing forward of the increase to age 67). Any future changes in policy on the State Pension Age will affect the assessed costs of the FAFPS. The changes allowed for are:
- > the Government proposals for bringing forward the increase to age 66; and
 - > the existing legislation to increase State Pension Age to 67 and 68.
- 4.6 The data, methodology and assumptions in this note do not reflect the potential impact of the Armed Forces New Employment Model ('NEM').

UNCLASSIFIED

Future Armed Forces Pension Scheme – Cost of final scheme design

5 Assumptions

- 5.1 This section describes the main assumptions adopted for the cost assessment. Further details of the demographic assumptions can be found in Appendix C.

Financial assumptions

- 5.2 HMT set the following financial assumptions for the FAFPS costings:

Nominal Discount Rate	5.00% pa
Earnings Increases	4.25% pa
CPI Increases	2.00% pa

Improvements in life expectancy

- 5.3 We have adopted improvements in life expectancy in line with the Office of National Statistics 2008-based principal population projections for the UK, as instructed by HMT.

Commutation of pension for lump sum

- 5.4 Both AFPS75 and AFPS05 offer fixed lump sums at retirement. Whilst some AFPS75 members are also given the opportunity to give up some of their pension payable for an additional lump sum (resettlement commutation or life commutation), the nature and age of members offered these options is quite different to those likely to be electing for commutation in any new scheme. For this reason we do not believe there is credible evidence to support any particular scheme-specific assumption.
- 5.5 After consideration of the FAFPS design which states that adult dependants' pensions paid after death in retirement are based on the member pension after commutation, HMT and MoD agreed that members will be assumed to commute 65% of the HMRC maximum.

Conversion of EDP lump sum to EDP income

- 5.6 This conversion is assumed to be offered at actuarially neutral rates and so no explicit allowance has been made in our calculations.

Other demographic assumptions

- 5.7 At this time we do not believe that we have sufficient information about the proposed future schemes and the NEM to be able to give a definitive view on the best estimate of demographics following the introduction of a future AFPS and EDP scheme.
- 5.8 For the purpose of these costings, the demographic career profile assumptions, the baseline mortality rates and the family statistics have been derived from those adopted for the latest formal actuarial valuation of the AFPS as at 31 March 2005. A consistent approach has been used for all members of AFPS and full-time reservists, reflecting the benefits provided by AFPS05. There are no differences in assumptions for any groups of members (e.g. medical and dental officers). This approach was agreed by MoD and HMT.

UNCLASSIFIED

Future Armed Forces Pension Scheme – Cost of final scheme design

- 5.9 The AFPS05 assumptions were derived from the AFPS75 actuarial assumptions adopted for the 31 March 2005 actuarial valuation (and have been used when designing AFPS05 and in subsequent resource accounting exercises).
- 5.10 Sufficient data is not available to support a gender specific analysis of experience and so the assumptions (with the exception of mortality and the age difference between spouses) are identical for males and females.
- 5.11 HMT requested that the demographic assumptions described above should be amended to allow for all members still in service to retire at age 60 rather than age 55 (reflecting the normal retirement age from active service of 60 in the FAFPS design rather than 55 in AFPS05). In our opinion, there is not sufficient comparable scheme-specific experience to support any particular choice of demographic assumptions between age 55 and 60.
- 5.12 The approach taken for the FAFPS cost assessment is to use the same assumptions for age retirement, death in service, withdrawal, ill health retirement, salary scale and spouse's age difference for each age from 55 to 59 as those adopted for age 54 (or for age 55 where available) in the 2005 valuation. The use of these assumptions does not imply that we view them as best estimate. This approach was agreed by MoD and HMT.
- 5.13 Further details of the demographic assumptions adopted for the cost assessment are set out in Appendix C.



Joanne Rigby
Alan Dorn

Government Actuary's Department
16 October 2012

UNCLASSIFIED

Future Armed Forces Pension Scheme – Cost of final scheme design

6 Appendix A: FAFPS design – post 2015 benefit structure

- 6.1 The FAFPS design is a Career Average Revalued Earnings (CARE) pension scheme which includes the following features:
- a) Pensions accrue at a rate of 1/47th of pensionable earnings for each year of service.
 - b) Revaluation of past CARE service for active members in line with average earnings.
 - c) A normal pension age of 60 and a deferred pension age of State Pension Age.
 - d) Pensions in payment and deferment indexed in line with prices.²
 - e) No member contributions.
 - f) No fixed lump sums; optional commutation at retirement with a 12:1 factor for converting pension to lump sum.
 - g) Ancillary benefits (ill-health, death and survivors' benefits) that are based on the provisions that are currently available to new members (e.g. a partner receives same proportion of a member's pension as they do now).
 - h) Members rejoining after a period of deferment of less than 5 years can link new service with previous service, as if they had always been an active member (so previous accruals are indexed by average earnings for that period of deferment).
 - i) Members transferring between public service schemes would be treated as having continuous active service (which would include those transferring between schemes who had rejoined public service after a gap of less than 5 years).
 - j) Early retirements from a minimum of age 55, with benefits to be actuarially reduced by reference to deferred pensions payable from SPA.
 - k) An Early Departure Payment (EDP) scheme defined as follows:
 - 1. Eligibility: members leaving service after age 40 with at least 20 years of service (but before normal pension age);
 - 2. Tax-free lump sum of 2.25 times preserved annual pension;
 - 3. Annual EDP income from leaving to SPA. Members retiring immediately on qualifying for EDP receive 34% of preserved annual pension, rising by 0.85% for each extra year worked up to normal pension age;
 - 4. Increases to EDP income come into payment from age 55;
 - 5. Members can choose to convert their total EDP lump sum into additional EDP income.
- 6.2 Transitional protection is limited to the following: Members of the armed forces pension arrangements on 1 April 2012 who are within 10 years of their normal pension age on that date (in most cases aged 45 or over but for some schemes aged 50 or over) receive protection and will continue accruing benefits in their current scheme.

² Pensions in payment and deferment are indexed in line with the Pensions Increase Act 1971 and increases in line with this Act are assumed to be in line with the CPI.

UNCLASSIFIED

Future Armed Forces Pension Scheme – Cost of final scheme design

6.3 Further details of the benefits are provided in the MoD's "Final Scheme Agreement" document

(<http://www.mod.uk/DefenceInternet/AboutDefence/CorporatePublications/PersonnelPublications/Pensions/FutureAFPS/FinalAgreement.htm>).

UNCLASSIFIED

Future Armed Forces Pension Scheme – Cost of final scheme design

7 Appendix B: Data

7.1 This appendix contains summary statistics of the data used to value the FAFPS design.

7.2 The table below contains the number of members in the scheme, their pensionable salaries and their average ages, weighted by salary. These figures include members of the Armed Forces Pension Scheme 1975, the Armed Forces Pension Scheme 2005, the Reserve Forces Pension Scheme and the Full-Time Reserve Service Pension Scheme 1997. They do not include members of the Non-Regular Permanent Staff Pension Scheme or any other military personnel.

Table B1 – Active members as at 31 March 2009

	Number	Total Salaries (£ million)	Average Age (salary weighted)
Regular Officers	31,735	1,620	39.60
Regular Other Ranks	163,473	4,344	31.53
Reserve Officers	1,061	51	47.50
Reserve Other Ranks	2,602	70	39.01
All Officers	32,796	1,671	39.85
All Other Ranks	166,075	4,414	31.64
All Members	198,871	6,085	33.90

7.3 No adjustment was made to the data in order to estimate the likely membership of the scheme as at 2015.

UNCLASSIFIED

Future Armed Forces Pension Scheme – Cost of final scheme design

8 Appendix C: Assumptions

- 8.1 This Appendix contains a summary of the demographic assumptions. These are based on an analysis of the scheme experience that was carried out as part of the last formal actuarial valuation of the AFPS as at 31 March 2005. As requested by HMT the assumptions have been extended from age 55 to age 60 by simply using the same assumptions for ages 55-59 as for age 54 (or for age 55 where appropriate).
- 8.2 The assumptions provided in this Appendix do not reflect any redundancy exercises since 2009 or the New Employment Model project in the Armed Forces which are anticipated to change the membership profile in the future.
- 8.3 The assumptions provided in this Appendix are to be applied on the basis of members' ages in a given year. Underpinning these demographic profiles is an assumption that Officers will typically begin service at age 24 and that Other Ranks will typically begin service at age 19.
- 8.4 Table C1 details the baseline mortality assumptions for male members of AFPS. Corresponding assumptions have been used for female members. The life expectancies are for members who are aged 55 or 60 in 2015 or 2040 allowing for improvements in the post-retirement life expectancy in line with the ONS 2008-based principal population projections for the UK (as instructed by HM Treasury). Improvements in mortality between the base year of the mortality tables – 1992 – and 2006 are in line with the published PA92 series table. Improvements after 2006 are in line with UK population improvements (actual up to 2008 and projected thereafter).

Table C1 – Male Member Mortality Assumptions and Life Expectancies

	Mortality Table	Age Rating	Life expectancy when retiring			
			At age 55 in 2015	At age 60 in 2015	At age 55 in 2040	At age 60 in 2040
<i>Male Post Retirement Mortality</i>						
Officers	PMA92-08	-1	34.8	29.6	37.3	32.0
Other Ranks	PMA92-08	+1	32.7	27.5	35.1	29.9
<i>Male Ill Health Mortality</i>						
Officers	PMA92-08	+4	29.9	24.6	32.0	26.9
Other Ranks	PMA92-08	+6	27.5	22.6	29.9	24.9
<i>Female Surviving Partners' Mortality</i>						
Officers	PFA92-08	-1	38.2	32.9	40.8	35.5
Other Ranks	PFA92-08	+1	36.0	30.8	38.6	33.4

UNCLASSIFIED

Future Armed Forces Pension Scheme – Cost of final scheme design

8.5 Table C2 outlines the assumptions for rates of withdrawal from active service.

8.6 No withdrawals are assumed after a member reaches age 39.

Table C2 – Rates of withdrawal from active service

Age (exact) at start of year	Withdrawal	
	Officers	Other Ranks
19	0.0000	0.2500
24	0.0700	0.1250
29	0.0450	0.0800
34	0.0400	0.0450
39	0.0075	0.0075
44	0.0000	0.0000
49	0.0000	0.0000
54	0.0000	0.0000
59	0.0000	0.0000

8.7 Table C3 outlines the assumptions for rates of death in service and ill health retirement.

8.8 No ill-health retirements are assumed once a member reaches normal pension age. When ill-health retirement occurs, 50% of members are assumed to receive Tier 3 benefits, 30% to receive Tier 2 benefits and 20% to receive Tier 1 benefits.

Table C3 – Assumed rates of death-in-service and ill health retirement

Age (exact) at start of year	Death-in-service		Ill health retirement	
	Officers	Other Ranks	Officers	Other Ranks
19	0.0000	0.0008	0.0000	0.0050
24	0.0011	0.0010	0.0014	0.0065
29	0.0012	0.0008	0.0019	0.0065
34	0.0012	0.0008	0.0019	0.0068
39	0.0012	0.0010	0.0019	0.0072
44	0.0014	0.0014	0.0025	0.0080
49	0.0021	0.0020	0.0039	0.0095
54	0.0051	0.0051	0.0047	0.0105
59	0.0051	0.0051	0.0047	0.0105

UNCLASSIFIED

Future Armed Forces Pension Scheme – Cost of final scheme design

- 8.9 Table C4 outlines the assumptions for rates of age retirement. Where members leave after EDP point but before they are entitled to an immediate unreduced pension, they may retire with EDP benefits. The rates of age retirement include retirements with EDP benefits. The assumptions have been extended to age 60 in accordance with HMT's instructions.
- 8.10 All normal retirements are assumed to occur when a member first reaches their normal pension age.

Table C4 – Assumed rates of age retirement

Age (exact) at start of year	Age retirement (extended to age 60)	
	Officers	Other Ranks
40	0.0000	0.5000
41	0.0000	0.2000
42	0.0000	0.2000
43	0.0000	0.2000
44	0.3068	0.2000
45	0.0500	0.1500
46	0.0500	0.1500
47	0.0500	0.1500
48	0.0500	0.1500
49	0.1000	0.1500
50	0.1500	0.1500
51	0.1500	0.2000
52	0.1500	0.1500
53	0.1500	0.1500
54	0.2000	0.2000
55	0.2000	0.2000
56	0.2000	0.2000
57	0.2000	0.2000
58	0.2000	0.2000
59	0.2000	0.2000
60	1.0000	1.0000

UNCLASSIFIED

Future Armed Forces Pension Scheme – Cost of final scheme design

8.11 Table C5 outlines the promotional salary scale assumptions.

Table C5 – Assumed salary scale for active members

Age (exact) at start of year	Salary Scale	
	Officers	Other Ranks
19		1.00
24	1.00	1.45
29	1.78	1.88
34	2.24	2.01
39	2.51	2.22
44	3.11	2.39
49	3.32	2.59
54	3.40	2.78
59	3.40	2.84

UNCLASSIFIED

Future Armed Forces Pension Scheme – Cost of final scheme design

8.12 Table C6 outlines the assumptions for family statistics (proportions married and the age difference between member and spouse) for male members. There are no remarriage rates, since pensions payable to dependants are payable for life regardless of remarriage or cohabitation. The rates for female members are identical to those for males with the exception that the age difference between spouses is assumed to be the opposite of that for a male member.

Table C6 – Assumed family statistics (male members)

Age (exact) at start of year	Proportion Married (Males)	
	Officers	Other Ranks
19	0.0000	0.0000
24	0.1571	0.5075
29	0.7225	0.8452
34	0.9319	0.9548
39	0.9843	0.9849
44	0.9990	0.9978
49	1.0000	1.0000
54	1.0000	1.0000
59	0.9979	0.9971

Age (exact) at start of year	Age difference between male member and female spouse	
	Officers	Other Ranks
19	0	0
24	2	2
29	2	2
34	2	2
39	2	2
44	2	2
49	2	2
54	3	3
59	3	3