HYMANS # ROBERTSON

Isle of Man Public Sector Pensions Authority

Actuarial valuation as at 31 March 2019

Final valuation report

3 August 2021

Contents

Executive Summary

We have carried out an actuarial valuation of the Isle of Man Public Sector Pensions Authority ("PSPA") pension schemes ("the Schemes") as at 31 March 2019. The results are presented in this report and are briefly summarised below.

Unless otherwise noted, figures shown in this report relate to the combined PSPA pension schemes (being the sum of each pension scheme noted on page 3).

Past service liabilities

The table below summarises the past service liabilities of the Schemes as at 31 March 2019 (and the last formal valuation as at 31 March 2016 for comparison purposes) in respect of benefits earned by members up to each valuation date.

	Total PSPA	
Valuation Date	**31 March 2019**	**31 March 2016**
Past Service Liabilities	**(£000)**	**(£000)**
Employees	999,437	1,095,308
Deferred Pensioners	159,120	192,483
Pensioners	1,157,020	1,048,190
Total Liabilities	**2,315,577**	**2,335,981**

The total past service liabilities have broadly stayed the same over the period.

The Schemes are unfunded arrangements so there are no assets to compare against the past service liabilities.

Cost of accruing benefits

The table below shows the cost of accruing the benefits (the "future service rate") as at 31 March 2019 (and 31 March 2016), split by the amount paid by employees and the share of cost met by employers i.e. the Isle of Man Government.

	Total PSPA	
Valuation Date	**31 March 2019**	**31 March 2016**
Employer Future Service Rate	18.1%	20.3%
Employee Contribution Rate	9.4%	7.5%
Total Future Service Rate	**27.5%**	**27.8%**

There has been a very slight reduction in the total cost of accruing benefits since 2016. This is primarily due to the introduction of reforms in the Police, Teachers and Tynwald pension schemes and a higher proportion of the membership participating in the post-reform section of each scheme.

These rates do not directly affect the actual contribution rates payable by employers.

1 Introduction

Purpose

We have been commissioned by the Isle of Man Public Sector Pensions Authority (“the PSPA”) to carry out an actuarial valuation of the pension schemes listed below as at 31 March 2019.

- IOM Government Unified Scheme 2011 (GUS)
- IOM Police Pensions Scheme
- IOM Teachers’ Pension Scheme
- Superannuation Manual Workers No1 Scheme 1973
- IOM Judicial Pension Scheme

For the rest of this report, the above schemes will be collectively referred to as “the Schemes”.

The actuarial valuation is a risk management exercise with the purpose of reviewing the estimated long-term pension scheme costs of the Schemes and monitoring membership experience for the period 1 April 2016 to 31 March 2019. This report summarises the outcomes of the valuation and the underlying advice provided to the PSPA throughout the valuation process.

This summary report is the culmination of other communications in relation to the valuation, in particular:

- Our assumptions advice paper dated 2 December 2019
- Our demographic analysis report dated 25 March 2021
- The data report dated 26 April 2021
- The initial results report dated 26 April 2021

2 Valuation approach

It is important to realise that the actual cost of the Schemes (i.e. how much money they will ultimately have to pay out to the members in the form of benefits) is currently unknown. This cost will not be known with certainty until the last benefit is paid to the last pensioner. The core purpose of this valuation is to estimate what this cost will be and how it will develop in the future, so that the Government, assisted by the PSPA, can then develop a strategy to meet it.

Such a valuation can only ever be an estimate – as the future cannot be predicted with certainty. However, we can use our understanding of the Schemes and the factors that affect them to determine an anticipated cost which is as realistic as possible.

For this valuation our calculations identify separately the expected cost of members' benefits in respect of scheme membership completed before the valuation date ("past service") and that which is expected to be completed after the valuation date ("future service").

Past service

The principal measurement here is the value placed on the Schemes' liabilities. Our calculation of the Schemes' liabilities explicitly allows for expected future pay and pension increases.

Future service

In addition to benefits that have already been earned by members prior to the valuation date, employee members will continue to earn new benefits in the future. The cost of these new benefits is met by both employers and employees.

For the valuation results for each scheme, we have calculated the future service rate as the cost of benefits being earned by members over the year following the valuation, taking account of expected future salary increases until retirement. The funding method we have used is known as the Projected Unit Method.

Where a scheme, or a section of a scheme, admits new entrants, such that the overall membership profile remains broadly unchanged over time, the use of the Projected Unit Method leads to a relatively stable future service rate (subject to the actuarial assumptions being unchanged). If no new entrants are admitted e.g. a closed section of the scheme, then, over time, we would expect the future service rate to gradually increase as the age of the membership increases.

Assets

The Schemes are all unfunded arrangements with contributions used to meet the cost of benefits in payment and the balance of cost being met by the Isle of Man ("IoM") Treasury.

3 Assumptions

Due to the long term nature of the Schemes, assumptions must be made about the factors affecting the Schemes' finances in the future. Broadly speaking, our assumptions fall into two categories – financial and demographic.

Demographic assumptions typically try to forecast **when** benefits will come into payment and what form these will take. For example, when members will retire (e.g. at their normal retirement age or earlier), how long they will then survive and whether a dependant's pension will be paid.

Financial assumptions typically try to anticipate the **size** of these benefits. For example, how large members' final salaries will be at retirement and how their pensions will increase over time. In addition, the financial assumptions also help us to estimate how much all these benefits will cost in today's money.

Our approach to the assumptions used for this valuation is for each individual assumption to represent the "best estimate" of future experience. This effectively means there is a 50% chance that future experience will be better or worse than the chosen assumption. This is the same approach as the last valuation at 31 March 2016.

Financial assumptions

A summary of the main financial assumptions adopted for the valuation of members' benefits is set out in the following table (along with those adopted at the last valuation for comparison).

Valuation Date	31 March 2019	31 March 2016
Discount rate	4.5% p.a.	4.5% p.a.
General salary growth	4.0% p.a.	4.0% p.a.
Pension increases	2.0% p.a.	2.0% p.a.
Consumer Price Index Inflation	2.0% p.a.	2.0% p.a.

Discount rate

The sole purpose of the discount rate assumption is to express the expected future benefit payments in today's money.

Given that the Schemes are unfunded and any shortfall between benefits outgo and contribution income is met by the IoM Treasury, it has been agreed that the most suitable measure for assessing the future cost and affordability of public service pensions is the IoM Government's future expected income growth (derived from taxes and company profits).

At the 2016 valuation, it was assumed that the long term expected income growth of the IoM Government is 3.5% p.a. based on a flat population. This is supplemented by the IoM Government's net inwards long term migration target, meaning that long term income growth could be expected to increase by a further 1% p.a. due to population growth. Combining these two factors together gave an overall long term income growth figure of 4.5% p.a..

For the 2019 valuation, this assumption was reviewed by the IoM Treasury and was deemed to still be an appropriate and realistic long-term assumption.

CPI inflation and pension increases

The benefits provided by the Schemes are index-linked, with increases set by reference to the change in the UK Consumer Price Index (CPI) (instead of the IoM CPI). Therefore, the pension increase assumption, used to project the size of benefits expected to be paid in the future, should equal long-term UK CPI inflation expectations.

At the 2016 valuation of the PSPA Schemes, the CPI assumption was set at 2% p.a., which was consistent with the UK Government's long-term target at that time[1]. This has not changed since the 2016 valuation, so the 2019 valuation assumption is unchanged.

Salary growth

In many areas of the Public Sector, annual pay growth in recent years has been lower than the rate of inflation. Given the current pandemic and potential impact on Government finances, the level of salary increases in the short to medium term is uncertain. However, the pay growth assumption should reflect what is expected in the long term, and be consistent with the other assumptions adopted.

The discount rate is set relative to the IoM Government's expected income growth. In the event of a high level of income growth, it can be expected that workers, who will ultimately generate this growth, will share in the benefits of this. Therefore, a high salary growth assumption is consistent with a high income growth assumption and vice versa.

Given that the 2019 valuation discount rate is the same as that used at 2016, it would be appropriate to keep the long term salary growth assumption the same as at 2016. Furthermore, analysis on historic salary growth within the IoM public sector found that annual growth has been between 4.0% to 4.5% p.a.. As such, there has been no change to the salary growth assumption.

Note that we also make a separate allowance for expected salary growth as a result of promotion, which is included under 'other demographic assumptions'.

Demographic assumptions

Longevity

Of all the demographic factors, longevity is the one that presents the greatest uncertainty.

Baseline Longevity

As the PSPA is a member of Club Vita, the baseline longevity assumptions are a bespoke set of Vita Curves that are tailored to fit the membership profile of the Schemes. These curves are based on the data the PSPA has provided us with for the purposes of this valuation.

Future improvement to longevity

For the 2019 valuation we have used the latest available version of the CMI longevity improvements model (CMI 2019) with an allowance for smoothing of recent mortality experience and a long-term rate of improvement of 1.5% p.a. for both women and men.

The longevity assumptions give the following sample average future life expectancies for members at age 65 (compared to the assumptions made for the 2016 valuation):

[1] OBR Economic and fiscal outlook: March 2017

	Active & Deferred		Current Pensioners	
	Male	Female	Male	Female
2016 valuation	24.9 years	27.1 years	22.7 years	24.3 years
2019 valuation	23.5 years	26.0 years	22.2 years	24.1 years

Note that the figures for actives and deferreds assume that they are aged 45 at the respective valuation dates.

Age retirements

The age retirement assumption is based on the earliest age at which members are able to retire from their respective schemes with no reduction to their benefits. For the non-GUS schemes, this is as defined in the rules. For the Unified Scheme, members are able to retire at any age between 55 and 75, with their benefits based on a variable accrual rate (except Section 7). The assumed retirement age for Unified Scheme members is as follows;

- Sections 1 to 6, 8a and all existing deferred members – age 60
- Section 7 – age 55
- Section 8 – age 65

Commutation

It is assumed that members elect to exchange pension for additional for additional tax-free cash up to 90% of the maximum amount permitted.

Other demographic assumptions

We have analysed actual membership experience over the inter-valuation period for the purpose of reviewing these assumptions. Unless stated below, we have used the same assumption as per the 2016 valuation.

- Withdrawals – 75% of 2016 valuation assumption
- Ill health retirement, lower tier – 50% of 2016 valuation assumption
- Death before retirement – 200% of 2016 valuation assumption

For further details on the other demographic assumptions, please see Appendix 2.

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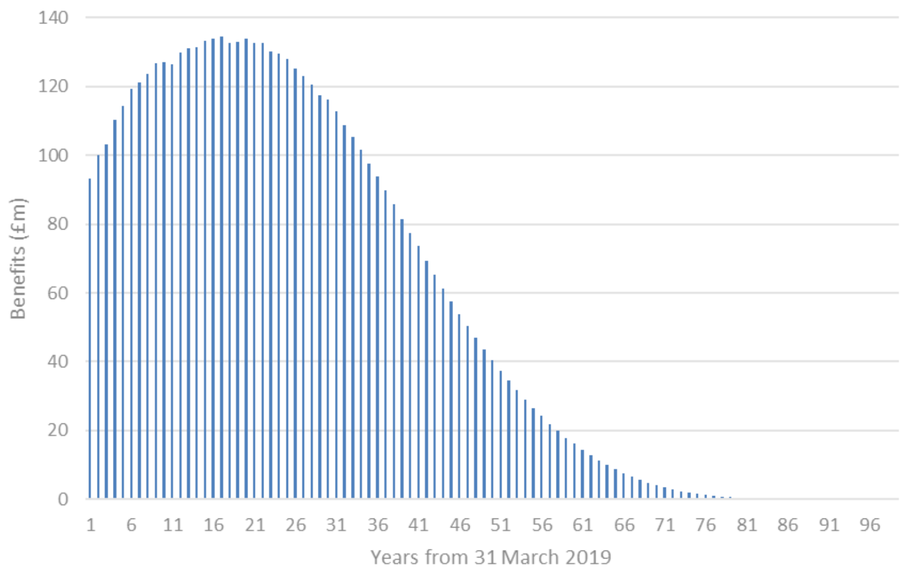
4 Valuation results

Past service

In assessing the value of the past service liabilities at the valuation date, we have used the actuarial assumptions and the funding method described in the previous section of this report and the membership data set out in Appendix 1. The chart below details the projected future benefit payments in respect of all service accrued up to 31 March 2019.



Discounting these projected benefit payments back to 31 March 2019 at a rate of 4.5% p.a. provides the past service liabilities. The tables below compare the value of the liabilities at 31 March 2019 with those as at 31 March 2016.

Total PSPA

	Total PSPA	
Valuation Date	**31 March 2019**	**31 March 2016**
	(£000)	**(£000)**
Employees	999,437	1,095,308
Deferred Pensioners	159,120	192,483
Pensioners	1,157,020	1,048,190
Total Liabilities	**2,315,577**	**2,335,981**

Breakdown at individual scheme level

	GUS		Teachers	
Valuation Date	**2019**	**2016**	**2019**	**2016**
	(£000)	**(£000)**	**(£000)**	**(£000)**
Employees	796,068	875,654	157,420	165,411
Deferred Pensioners	128,673	164,503	24,858	21,887
Pensioners	815,892	730,383	205,570	194,555
Total Liabilities	**1,740,633**	**1,770,540**	**387,848**	**381,853**

	Police		Judges		MW No.1	
Valuation Date	**2019**	**2016**	**2019**	**2016**	**2019**	**2016**
	(£000)	**(£000)**	**(£000)**	**(£000)**	**(£000)**	**(£000)**
Employees	42,276	49,305	3,673	4,752	0	186
Deferred Pensioners	5,328	5,902	0	0	261	191
Pensioners	123,589	112,293	7,015	5,270	4,954	5,689
Total Liabilities	**171,193**	**167,500**	**10,688**	**10,022**	**5,215**	**6,066**

There is a further breakdown of the liabilities between the sections of each scheme in Appendix 3.

Summary of changes to the past service liabilities

The table below details the primary causes for changes in the liability values for each scheme. Note that we have not prepared such analysis at individual scheme for the small non-GUS schemes due to their relevant magnitude.

Scheme	GUS	Teachers	Police	Other	All Schemes
	(£m)	(£m)	(£m)	(£m)	(£m)
31 March 2016 (£m)	**1,771***	**382**	**168**	**16**	**2,336**
Benefits paid out	(214)	(44)	(21)	(3)	(282)
Interest on liabilities	250	54	24	2	330
Accrual of new benefits	181	31	11	1	224
Change in assumptions					
- Pre-retirement demographics	(7)	1	(0)	(0)	(7)
- Baseline mortality	(19)	(2)	(1)	(0)	(22)
- Future longevity improvements	(15)	(4)	(3)	(0)	(23)
- Financials	-	-	-	-	-
Other experience	(206)	(30)	(7)	(0)	(241)
31 March 2019	**1,741**	**388**	**171**	**16**	**2,316**

*Includes Tynwald liabilities which were not included within the reported 2016 valuation GUS figures

- There is an overall interest cost of £330m. This is broadly three years of interest at 4.5% p.a. applied to the past service liabilities at 31 March 2016 (£2,336m).
- The impact of benefit accrual (net of benefits paid) has led to a decrease to the liabilities of around £58m.
- The change in pre-retirement demographic assumptions has led to a small decrease in the liabilities of £7m.
- The change in mortality assumptions (baseline and improvements) has given rise to a decrease to the liabilities of £45m.
- Other experience items have served to decrease the value of the past service liabilities at this valuation by around £241m. This item includes changes in membership data and actual experience (e.g. death, pay increases, level of ill health retirements etc.) being different from that assumed at the 2016 valuation. A large proportion of this item is attributable to salary increases in the intervaluation period being less than expected.

Future service – cost of accruing benefits

We have calculated the average contribution rate that employers would need to pay to meet the estimated cost of members' benefits earned after 31 March 2019 (the 'future service contribution rate'). We have used actuarial assumptions and the funding method described in the previous section of this report and the membership data set out in Appendix 1.

The tables below compare the future service contribution rates as at 31 March 2019 with those at 31 March 2016. Note, all figures are percentages of pensionable payroll.

Total PSPA

	Total PSPA	
Valuation Date	**31 March 2019**	**31 March 2016**
Employer Future Service Rate	18.1%	20.3%
Employee Contribution Rate	9.4%	7.5%
Total Future Service Rate	**27.5%**	**27.8%**

Breakdown at individual scheme level

	GUS		Teachers	
Valuation Date	**2019**	**2016***	**2019**	**2016**
Employer Future Service Rate	17.5%	20.3%	16.8%	17.1%
Employee Contribution Rate	9.2%	6.8%	9.5%	10.0%
Total Future Service Rate	**26.7%**	**27.1%**	**26.3%**	**27.1%**

	Police		Judges	
Valuation Date	**2019**	**2016**	**2019****	**2016**
Employer Future Service Rate	34.5%	33.7%	48.6%	42.4%
Employee Contribution Rate	13.6%	13.8%	3.0%	3.0%
Total Future Service Rate	**48.1%**	**47.5%**	**51.6%**	**45.4%**

*These rates have not been adjusted to allow for Tynwald members (which are included in the 2019 figures). Given the relative size of the Tynwald membership, this is immaterial.

** No allowance for phasing up of member contribution rate from 1 April 2020.

At 31 March 2019 there were no active members in the Manual Workers No.1 scheme.

The above contribution rates do not include any allowance for expenses. We have assumed that these are paid by the IOM Treasury as and when they arise.

There is a further breakdown of the future service costs between the sections of each scheme in Appendix 3.

Summary of changes to the employer future service rate

The tables below illustrates the factors that caused the employer future service rates to change between 31 March 2016 and 31 March 2019. All figures are percentages of pensionable payroll. Some figures may not sum due to rounding.

Scheme	GUS	Teachers	Police	Judges	All Schemes
31 March 2016	**27.1%**	**27.1%**	**47.5%**	**45.4%**	**27.8%**
Impact of reform*	-*	(1.0%)	-	-	(0.1%)
Change in membership data**	(0.1%)	0.4%	0.9%	8.9%	0.1%
Change in assumptions					
-Pre-retirement demographics	0.2%	0.4%	0.7%	(0.9%)	0.2%
-Baseline mortality	(0.3%)	(0.5%)	(0.8%)	(1.2%)	(0.3%)
-Future longevity improvements	(0.2%)	(0.2%)	(0.2%)	(0.6%)	(0.2%)
-Financials	-	-	-	-	-
31 March 2019	**26.7%**	**26.3%**	**48.1%**	**51.6%**	**27.5%**

* GUS reform was allowed for in the 2016 valuation and is therefore included in the 31 March 2016 figures.

** This item will also capture the change from 2016 to 2019 in the distribution of members between sections.

As can be seen from the table, the change in assumptions have only had a small impact on the cost of benefit accrual. The November 2018 reform of the Teachers Pension Scheme has reduced the cost of benefits as expected. There is no similar saving impact for the Police Pension Scheme reforms because it only applies to members who join from 1 April 2018 onwards (the Teacher reforms applied to all members).

5 Sensitivity Analysis

The valuation results depend critically on the actuarial assumptions that are made about the future of the Schemes. If all of the assumptions made at this valuation were exactly borne out in practice, then the results presented in this document would represent the true cost of the Schemes as at 31 March 2019.

However, no one can predict the future with certainty, and it is unlikely that future experience will exactly match all of our assumptions. The future therefore presents a variety of risks to the PSPA which should be identified and, where possible, the financial significance should be quantified. Thereafter, the PSPA can assess how (or if) these risks can then be controlled or mitigated and, if appropriate, put in place monitoring to assess whether any mitigation is actually working.

This section investigates the potential implications of the actuarial assumptions not being borne out in practice. Set out below is a brief assessment of the main risks and their effect on the valuation results.

Financial risks

The liabilities values are expressed in today's money by discounting future benefit payments at a rate of 4.5% p.a. (equal to the expected income growth of the Isle of Man Treasury). To help the PSPA understand the impact of this growth rate being different from assumed, we have shown the effects on the total PSPA liabilities and future service cost of reducing the discount rate by 0.5% p.a.

	Impact	
Change	Liabilities	Future service cost
Decreases by 0.5%	Increases by £187m	Increases by 3.2% of pay

Considering sensitivity to assumptions in isolation alone provides limited insight. For example, if the Treasury's income growth was less than expected, then it may be reasonable to assume that the level of future pay growth would also fall (as the Government has less funds to award pay increases). To help the PSPA understand the interactions of the assumptions, we have also shown the effects on the total PSPA liabilities and future service cost of reducing both the discount rate and salary growth assumption by 0.5% p.a..

	Impact	
Change	Liabilities	Future service cost
Decreases by 0.5%	Increases by £147m	Increases by 1.7% of pay

Demographic risks

The main area of demographic risk is people living longer than expected. We have shown below the high level impact of people living longer than currently expected by using a more prudent assumption for future longevity improvements. The more prudent assumption assumes that the long-term rate of future improvements is 1.75% p.a. (instead of the 1.5% p.a. assumed).

	Impact	
Change	Liabilities	Future service cost
Increase long-term rate to 1.75%	Increases by £22m	Increases by 0.3% of pay

Other demographic risks to consider

There are other risk factors which would have an impact on the funding position. Examples of these include the level of ill health retirements and withdrawals from the Schemes. These are probably unlikely to change in such a way that would rank them as amongst the highest risks facing the PSPA and therefore we have not sought to provide further quantification of their risk.

Comment on sensitivity analysis

Note that the tables above show the effect of changes to each assumption in isolation. In reality, it is perfectly possible for experience to deviate from more than one of the assumptions simultaneously and so the precise effect on the funding position is therefore more complex. Furthermore, the range of assumptions shown here is by no means exhaustive and should not be considered as the limits of how extreme experience could actually be.

Other risks to consider

Regulatory, Administration and Governance risks

As well as financial and demographic risks, the PSPA also faces:

- Regulatory risks –government legislation could significantly change the cost of the Schemes in the future; and
- Administration and governance risk – failures in administration processes could lead to incorrect data and inaccuracies in the actuarial calculations.

These risks are considered and monitored by the PSPA as part of its ongoing risk management framework.

Resource and environment risks

The Schemes are exposed to risks relating to future resource constraints and environmental changes. These risks may prove to be material. We have not sought to quantify the potential impact of these risks for the purpose of the results shown in this report. We would be happy to discuss these risks further with the PSPA or, given their potential impact, the PSPA may wish to seek direct advice on resource and environment risks.

6 Post valuation events

Regulatory changes

Since the valuation date of 31 March 2019, I am aware of the following material events:

- A cost sharing mechanism for the GUS and Teachers Schemes was introduced in June 2020. This first cost sharing valuation will not take place until 31 March 2022, therefore there will be no impact on the results presented in this report.
- The Judicial Pension Scheme 2004 was closed to new members on 1 April 2020. All new eligible members will now participate in GUS in a newly created Section 9. Existing active members will remain in the Judicial Pension Scheme 2004. This will not affect the results presented in this report but the future service rate for new Judges may be different from that detailed in this report. Given the relative size of the Judicial scheme compared to the Schemes, I do not expect there to be a material impact on the overall liabilities or future benefit cost of the Schemes.
- The employee contribution rate for the Judicial Pension Scheme 2004 will gradually increase from 1 April 2020 by 1.6% of pay p.a. from the current 3.0% of pay to 11.0%. This will not affect the total cost of benefit accrual for this scheme, but it will alter the split of costs between employee and employer.

Covid-19 pandemic

The Covid-19 pandemic that has taken place since early 2020 may have an impact in the long-term on the results in this report. Specifically:

- There may long-term macro-economic effects of the pandemic which may affect the level of future growth of the IoM Treasury's income and the level of future UK CPI inflation (which will affect future benefit increases).
- There may be long-term health implications as a result of Covid-19. The implications could be both positive and negative. For example, the pandemic causes a shift in people's lifestyles resulting in a reduction in smoking or an increase in regular exercise. Alternatively, there may be long-term side effects from 'long Covid'. This may cause life expectancy to be higher or lower than assumed in this valuation.

At the time of writing, it is too early to ascertain what the long-term impact may be and make any allowance in the valuation. These factors will be monitored ahead of the next valuation at 31 March 2022.

I am not aware of any other material events which may affect the results in this report. The PSPA should inform me if they believe that other such events have taken place to understand if there is a material impact on the results and advice in this report.

7 Reliances and limitations

This report is addressed to the Isle of Man PSPA. It has been prepared in our capacity as Scheme Actuary and is solely for the purpose of providing an actuarial valuation of the Schemes as required under the relevant regulations governing each of the Schemes. It has not been prepared for any other purpose and should not be used for any other purpose. In particular, none of the figures should be used for accounting purposes (e.g. under FRS102 or IAS19).

The PSPA are the only user of this advice. We make no representation or warranties to any third party as to the accuracy or completeness of this report, no reliance should be placed on this report by any third party and we accept no responsibility or liability to any third party in respect of it.

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PSPA schemes regulations

The projection of benefits from each PSPA pension arrangement has been carried out based on our understanding of the benefits payable under each scheme. The following regulations govern the benefit entitlement of the main PSPA schemes:

- Rules of the Isle of Man Government Unified Scheme 2011
- Police Pensions Regulations 1991
- Police Pensions Regulations 2010
- Public Sector Pensions Act 2011
- The Teachers Superannuation Order 2007 (formerly the Superannuation Act 1984)
- Judicial Pensions and Retirement Act 1993

Technical Actuarial Standards

The following Technical Actuarial Standards[2] are applicable in relation to this report and have been complied with where material:

- TAS 100; and
- TAS 300

Robert Bilton Steven Law

Fellows of the Institute and Faculty of Actuaries

For and on behalf of Hymans Robertson LLP

3 August 2021

[2] Technical Actuarial Standards (TASs) are issued by the Financial Reporting Council (FRC) and set standards for certain items of actuarial work.

Appendices

Appendix 1 – Data

This section contains a summary of the membership data provided by the PSPA for the purposes of this valuation (the corresponding membership from the 2016 valuation is also shown for reference).

Employee members

	Membership numbers		FTE salary (£000)		Actual salary (£000)		Average Age (unweighted)		Average Service (unweighted)	
	2019	2016	2019	2016	2019	2016	2019	2016	2019	2016
GUS	8,378	8,002	259,692	237,005	241,960	209,391	45	45	9.3	9.6
Teachers	1,268	1,183	44,191	42,485	43,038	39,298	43	43	11.6	12.1
Police	203	200	7,615	7,224	7,422	7,206	38	39	12.3	14.7
Judicial	7	9	1,095	1,381	1,095	1,381	60	58	6.5	7.6
Manual Workers (No.1)	-	1	-	*	-	*	-	*	-	*
Total	**9,856**	**9,395**	**312,593**	*****	**293,515**	*****	**47**	**46**	**9.6**	**12.1**

* removed for data protection reasons

Deferred pensioners

	Membership numbers		Revalued deferred pension (£000)		Average Age (unweighted)	
	2019	2016	2019	2016	2019	2016
GUS	4,231	2,841	7,026	7,462	46	47
Teachers	469	363	1,430	1,380	46	47
Police	64	55	371	344	44	43
Judicial	1	-	*	-	*	-
Manual Workers (No.1)	6	8	18	11	66	62

Total	**4,771**	**3,267**	*	**9,197**	**46**	**47**

* removed for data protection reasons

Current pensioners (including spouses and children)

	Membership numbers		Pension (£000)		Average Age (unweighted)	
	2019	**2016**	**2019**	**2016**	**2019**	**2016**
GUS	5,824	5,262	50,074	42,046	69	69
Teachers	1,098	1,018	13,798	12,327	70	70
Police	287	258	6,407	5,463	63	62
Judicial	9	8	514	420	74	77
Manual Workers (No.1)	64	67	370	362	75	74
Total	**7,282**	**6,613**	**71,163**	**60,618**	**70**	**69**

Note that the membership numbers in the table above refer to the number of records provided to us and so will include an element of double-counting in respect of any members who are in receipt (or potentially in receipt) of more than one benefit.

Comment on data quality

The results of the valuation are dependent on the quality of the data provided to us by the PSPA for the specific purpose of this valuation. We have carried out validations on the membership data provided to ensure it is fit for the purpose of the valuation. Further details can be found in our report issued to the PSPA entitled “Data report for 2019 valuation”, dated 26 April 2021. We believe the membership data is fit for the purposes of this valuation. If any material issues with the data provided are identified at a later date, then the results in this report may change.

Appendix 2 – Assumptions

Financial Assumptions

Financial Assumptions	31 March 2019	31 March 2016
Discount rate	4.5% p.a.	4.5% p.a.
General salary growth	4.0% p.a.	4.0% p.a.
Pension increases	2.0% p.a.	2.0% p.a.
CPI Inflation	2.0% p.a.	2.0% p.a.

Mortality assumptions

As a member of Club Vita, the baseline longevity assumptions that have been adopted at this valuation are a bespoke set of VitaCurves that are specifically tailored to fit the membership profile of the Schemes. These curves are based on the data provided for the purposes of this valuation. Full details of these are available on request.

We have used a longevity improvement assumption based on the Continuous Mortality Investigation (CMI) model calibrated with information from our longevity experts in Club Vita as summarised below:

Longevity Assumptions	31 March 2019	31 March 2016
Baseline Longevity	Club Vita	Club Vita
Future improvements	CMI 2013, Peaked, 1.25% p.a. long term	CMI 2019, Smoothed, 1.5% p.a. long term

Further details are available on request.

Other demographic valuation assumptions

Demographic assumptions	
Age retirements	The age retirement assumption is based on the earliest age at which members are able to retire from the scheme with no reduction to their benefits. For the non-GUS schemes, this is as defined in the rules. The assumed retirement age for Unified Scheme members is as follows; • Sections 1 to 6, 8a and all existing deferred members – age 60 • Section 7 – age 55 • Section 8 – age 65
Retirements in ill health	Allowance has been made for ill-health retirements before Normal Pension Age (see table below).
Withdrawals	Allowance has been made for withdrawals from service (see table below).
Family details	A varying proportion of members are assumed to be married (or have an adult dependant) at retirement or on earlier death. For example, at age 60 this is assumed to be 80% for males and 75% for females. Husbands are assumed to be 3 years older than wives.
Commutation	Future pensioners are assumed to elect to exchange pension for additional tax-free cash up to 90% of the maximum amount permitted.

The tables below show details of the assumptions actually used for specimen ages. The promotional pay scale is an annual average for all employees at each age. It is in addition to the allowance for general pay inflation described above. For membership movements, the percentages represent the probability that an individual at each age leaves service within the following twelve months.

Male

Age	Incidence for 1,000 active members per annum				
	Salary Scale	Death Before Retirement	Withdrawals	Ill Health	
				Upper Tier	Lower Tier
20	107	0.60	91.80	0.00	0.00
25	142	0.60	60.64	0.00	0.00
30	175	0.72	43.01	0.24	0.23
35	196	0.84	33.60	0.32	0.30
40	210	1.44	27.04	0.56	0.53
45	225	2.40	22.13	1.28	1.20
50	239	3.84	17.14	3.52	3.30
55	239	6.00	14.85	7.20	6.75
60	239	10.80	9.00	14.40	13.50

Female

Age	Incidence for 1,000 active members per annum				
	Salary Scale	Death Before Retirement	Withdrawals	Ill Health	
				Upper Tier	Lower Tier
20	107	0.32	87.08	0.00	0.00
25	142	0.32	58.58	0.19	0.18
30	175	0.48	49.09	0.32	0.30
35	196	0.80	42.34	0.64	0.60
40	210	1.28	35.21	0.83	0.78
45	225	2.08	28.99	1.34	1.26
50	239	3.04	22.09	2.62	2.46
55	239	4.00	17.03	6.91	6.48
60	239	5.12	7.91	0.00	0.00

Appendix 3 – Sectional level results

Past service

GUS

	Section 1		Section 2		Section 3		Section 4		Section 5		Section 6		Section 7		Section 8		Section 8a	
Valuation Date	**2019**	**2016**	**2019**	**2016**	**2019**	**2016**	**2019**	**2016**	**2019**	**2016**	**2019**	**2016**	**2019**	**2016**	**2019**	**2016**	**2019**	**2016**
	(£000)	**(£000)**	**(£000)**	**(£000)**	**(£000)**	**(£000)**	**(£000)**	**(£000)**	**(£000)**	**(£000)**	**(£000)**	**(£000)**	**(£000)**	**(£000)**	**(£000)**	**(£000)**	**(£000)**	**(£000)**
Employees	189,516	144,705	471,459	590,205	83,047	82,584	10,221	8,315	14,818	20,057	180	95	20,859	19,936	836	-	5,131	9,757
Deferred Pensioners	96,805	130,172	23,322	26,462	4,632	5,181	1,202	1,122	2,027	1,008	5	5	335	300	-	-	345	253
Pensioners	438,874	468,614	303,718	212,852	27,595	15,942	935	674	13,762	7,341	-	-	17,290	13,957	-	-	13,719	11,003
Total Liabilities	**725,195**	**743,491**	**798,499**	**829,519**	**115,274**	**103,707**	**12,538**	**10,111**	**30,607**	**28,406**	**185**	**100**	**38,484**	**34,193**	**836**	**-**	**19,195**	**21,013**

Teachers' Pension Scheme

	Pre 2007 Scheme		Post 2007 Scheme	
Valuation Date	**2019**	**2016**	**2019**	**2016**
	(£000)	**(£000)**	**(£000)**	**(£000)**
Employees	116,433	144,654	40,987	20,757
Deferred Pensioners	23,177	20,578	1,681	1,309
Pensioners	203,952	194,034	1,618	521
Total Liabilities	**343,562**	**359,266**	**44,286**	**22,587**

Police Pension Schemes

	1991 Scheme		2010 Scheme		2018 Scheme	
Valuation Date	**2019**	**2016**	**2019**	**2016**	**2019**	**2016**
	(£000)	**(£000)**	**(£000)**	**(£000)**	**(£000)**	**(£000)**
Employees	38,194	48,040	4,007	1,265	75	-
Deferred Pensioners	5,220	5,845	107	57	-	-
Pensioners	123,474	112,293	115	-	-	-
Total Liabilities	**166,888**	**166,178**	**4,229**	**1,322**	**75**	**-**

Non-GUS Small Schemes

	Judicial 1992		Judicial 2004		Manual Workers (No.1)	
Valuation Date	2019	2016	2019	2016	2019	2016
	(£000)	(£000)	(£000)	(£000)	(£000)	(£000)
Employees	-	-	3,673	4,752	-	186
Deferred Pensioners	-	-	-	-	261	191
Pensioners	1,376	1,649	5,639	3,621	4,954	5,689
Total Liabilities	**1,376**	**1,649**	**9,312**	**8,373**	**5,215**	**6,066**

Future service

All figures below are percentages of pensionable payroll.

GUS

	Section 1		Section 2		Section 3		Section 4		Section 5		Section 6		Section 7		Section 8		Section 8a	
Valuation Date	2019	2016	2019	2016	2019	2016	2019	2016	2019	2016	2019	2016	2019	2016	2019	2016	2019	2016
Employer Future Service Rate	16.1%	18.5%	18.15%	20.85%	19.05%	23.1%	16.4%	18.9%	22.3%	19.8%	16.5%	18.6%	32.8%	35.2%	28.8%	-	32.5%	44.9%
Employee Contribution Rate	7.5%	5.0%	10.25%	7.75%	12.25%	8.5%	9.1%	6.6%	12.0%	9.5%	10.9%	8.4%	13.5%	11.0%	10.0%	-	15.0%	5.0%
Total Future Service Rate	**23.6%**	**23.5%**	**28.4%**	**28.6%**	**31.3%**	**31.6%**	**25.5%**	**25.5%**	**34.3%**	**29.3%**	**27.4%**	**27.0%**	**46.3%**	**46.2%**	**38.8%**	**-**	**47.5%**	**49.9%**

No figures are included for Section 9. This section (for new Judges) was not setup until 1 April 2020, therefore there were no members eligible for this section as at 31 March 2019.

Teachers' Pension Schemes

	Pre 2007 Scheme		Post 2007 Scheme	
Valuation Date	2019	2016	2019	2016
Employer Future Service Rate	17.8%	17.6%	15.7%	16.4%
Employee Contribution Rate	9.5%	10.3%	9.5%	9.3%
Total Future Service Rate	**27.3%**	**27.9%**	**25.2%**	**25.7%**

Police Pension Schemes

	1991 Scheme		2010 Scheme		2018 Scheme	
Valuation Date	2019	2016	2019	2016	2019	2016
Employer Future Service Rate	41.3%	37.2%	20.7%	19.3%	19.1%	-
Employee Contribution Rate	14.3%	14.3%	12.1%	11.6%	12.1%	-
Total Future Service Rate	**55.6%**	**51.5%**	**32.8%**	**30.9%**	**31.1%**	**-**

Non-GUS Small Schemes

	Judicial 1992*		Judicial 2004		Manual Workers (No.1)	
Valuation Date	2019	2016	2019**	2016	2019^	2016
Employer Future Service Rate	-	-	48.6%	42.4%	-	24.5%
Employee Contribution Rate	-	-	3.0%	3.0%	-	1.5%
Total Future Service Rate	**-**	**-**	**51.6%**	**45.4%**	**-**	**26.0%**

* No active members at 2016 or 2019 valuation

** No allowance for phasing up of member contribution rate from 1 April 2020

^ No active members at 2019 valuation