Report on the Actuarial Valuation as at 31 July 2017 The University of York Pension Fund

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Introduction

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This report is addressed to the Trustee Directors and sets out the results of my actuarial valuation of The University of York Pension Fund (the “Fund”) as at 31 July 2017.

This report satisfies the requirements of legislation together with the Fund's Trust Deed and Rules, which requires the Trustee Directors to obtain regular reports on the Fund's financial position.

As required by law, a copy of this report must be provided to the University within 7 days of its receipt by the Trustee Directors.

Readers other than the Trustee Directors of the Fund should note that this report cannot be relied upon as being actuarial advice to third parties and third parties should seek their own independent advice as appropriate.

The SFO valuation

Under the Statutory Funding Objective (SFO) regime, pension schemes are required to hold sufficient assets to meet their technical provisions.

Technical provisions are an estimate, made on prudent actuarial principles, of the assets needed at any particular time, to make provision for the benefits already accrued under the Fund.

The purpose of the SFO valuation is to consider the funding position of the Fund and to establish the level of contributions required to meet the technical provisions.

SFO valuation results

I set out below the results of my SFO valuation as at 31 July 2017, together with the results of the last SFO valuation as at 31 July 2014.

SFO valuation	31 July 2017 £m	31 July 2014 £m
Assets	**171.3**	**132.5**
Actives	55.8	51.6
Deferred members	34.9	22.0
Pensioners	63.8	48.3
Technical provisions	**154.5**	**121.9**
Surplus/(Shortfall)	**16.8**	**10.6**
Funding level	**111%**	**109%**

Details of all the assumptions used are given in Appendix D.

After considering the results of this valuation, the Trustee Directors and the University have agreed a Schedule of Contributions. I have provided actuarial certificates supporting the calculation of the Fund's technical provisions and the adequacy of the Schedule of Contributions.

The Statement of Funding Principles (SFP) agreed between the Trustee Directors and the University sets out the principles and methods used to determine the funding assumptions and objectives for the Fund.

The funding method used is the Projected Unit method. For this method, it is assumed that the Fund continues to operate on an ongoing basis and allowance is made for all decrements, as appropriate.

I have included copies of all the key documents in Appendix F.

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In determining the provision required to meet these benefits, allowance is made for the following types of future increases:

Membership type	Increases from the valuation date to retirement date or earlier death	Increases after retirement date
Active (in pensionable service)	Salary increases to accrued benefits	Annual increases to pensions in payment
Deferred (no longer in pensionable service and not yet drawing their pension)	Revaluation of deferred benefits	Annual increases to pensions in payment
Pensioners (drawing their pension)	Not applicable	Annual increases to pensions in payment

Future service contribution rate

I set out below a breakdown of the contribution rate required to meet the cost of future service benefits and Fund expenses.

Future service contributions	% of Pensionable Salary
Total cost of future service retirement benefits	30.7% pa
Expenses and death in service premiums	1.0% pa
Less employee contributions	(7.8% pa)
To be met by the University*	**23.9% pa**

*The University and the Trustee Directors have agreed that part of the surplus at 31 July 2017 will be used to reduce the level of contributions required to be paid by the University to 16.0% pa of Pensionable Salaries.

The above contribution rate includes an allowance for Fund expenses, premiums for insured death in service benefits and levies to the Pension Protection Fund.

In calculating the contribution rate, the cost of benefits accruing in the year after 31 July 2017 has been valued, allowing for future salary increases to retirement (or earlier date of leaving). The value of these benefits is then expressed as a percentage of the total pensionable salary roll to give an annual contribution rate.

The value of future service benefits takes into account the benefits that are expected to accrue over the year following the valuation date, based on projected final salaries and making allowance for decrements, as appropriate.

This method will maintain a stable percentage contribution rate if the age and salary profile of the Fund remains stable.

The buy-out solvency valuation

The SFO valuation sets a funding target that is appropriate for a scheme that is not in the process of winding up.

For the buy-out solvency valuation, I have considered what the situation would be if the Fund had commenced winding up at the valuation date. In such a situation, active members would immediately become deferred members.

A buy-out solvency valuation shows the estimated level of Fund assets required to secure all Fund benefits via immediate and deferred annuity contracts with an insurance company.

In valuing the Fund's liabilities, I have estimated the assumptions that an insurance company might adopt in pricing its immediate and deferred annuity contracts.

My estimate of the value of the liabilities on these assumptions can therefore only be taken as a guide to the actual cost that might have been quoted by an insurance company at the valuation date. Market changes, both in interest rates and in supply and demand for annuity business, mean that no single estimate of buy-out costs can be relied upon.

Ultimately, the actual position on a buy-out basis can only be established by obtaining a formal buy-out quotation and completing the purchase of annuities.

Buy-out valuation results

I set out below the results of my buy-out solvency valuation, together with the corresponding results from the last valuation.

Buy-out valuation	As at 31 July 2017 £m	As at 31 July 2014 £m
Assets	**171.3**	**132.5**
Actives	116.6	107.8
Deferred members	93.0	48.7
Pensioners	87.1	63.1
Payment expenses	2.1	2.1
Winding up expenses	6.8	3.1
Total liabilities	**305.6**	**224.8**
Surplus/(Shortfall)	**(134.3)**	**(92.3)**
Funding level	**56%**	**59%**

Details of all the assumptions used are given in Appendix D.

Significance of the buy-out solvency valuation

At the valuation date, the Fund did not have sufficient assets to buy-out all benefits with an insurance company.

If the Fund had started to wind up at the valuation date, then a statutory debt on the University would have been levied to bring the assets up to a 100% funding level on the buy-out solvency basis. As at 31 July 2017, the debt on the University would have been approximately £134m.

University able to meet debt in full

If the University were able to pay this statutory debt, full Fund benefits would be secured with an insurance company.

University unable to meet debt in full

If the University were unable to meet this statutory debt, for example if they were insolvent, then the assets would be insufficient to meet all Fund liabilities on a buy-out solvency basis. Assets would then be allocated to members in accordance with priority orders set out in legislation and possibly the Fund rules.

The priority order under current legislation is as follows:

1. Money purchase benefits
2. Winding up expenses
3. Non surrenderable annuities (bought pre 6 April 1997)
4. PPF level of benefits
5. Benefits secured by AVCs (non money purchase)
6. Other benefits

At 31 July 2017, the Fund did not have sufficient assets to meet the PPF level of benefits. If an insolvency event in respect of the University had triggered wind up then, providing other entry conditions were met, the PPF would assume responsibility of the Fund with members entitled to PPF compensation.

Valuation development

Change in funding position

It is helpful to consider how the SFO funding position has developed since the last valuation.

If all the assumptions made for the 31 July 2014 valuation had been borne out in practice, the SFO funding surplus should have decreased from £10.6m to around £9m. Any other changes arise due to actual experience being different to that anticipated and to changes in assumptions.

The following table shows the financial effect of this experience. Although the figures are approximate, they do provide a reasonable guide to the relative importance of the various factors.

Factor	£m	Notes
Surplus/(Shortfall) as at 31 July 2014	10.6	
Effect of interest on the surplus/shortfall	1.7	
Higher investment return than expected	18.9	The average return achieved by the assets, calculated by making allowance for cashflows, was 9.2% pa, compared with the long term yield of 5.0% pa assumed.
Contributions paid less expenses, with interest	14.4	Contributions have been paid in accordance with the agreed Schedule of Contributions. See Appendix C for more information.
Accrual of benefits since 31 July 2014	(16.6)	As expected, the value of benefits accrued after 31 July 2014 has been greater than the value of the contributions paid since the last valuation. This is because the University and Trustee agreed that part of the surplus at that time would be used to reduce the level of contributions payable by the University.
Salary increases lower than expected	2.9	Pensionable Salary for active members in service throughout the whole period has increased at an average rate of 2.1% pa, compared with the rate assumed at the last valuation of 4.45% pa.

Factor	£m	Notes
Inflation lower than expected	3.7	The average rate of inflation linked revaluation in deferment since the last valuation has been 0.7% pa, compared with the rate assumed at the last valuation of 2.4% pa. The average rate of inflation linked increases in payment since the last valuation has been 2.2% pa. This compares with the rate assumed at the last valuation of 2.4% pa (i.e. the CPI inflation assumption).
Member movements (withdrawals, deaths, transfers etc)	1.0	Overall, member movements have resulted in a saving of around £1m.
Changes in valuation method and assumptions	(23.4)	The main factor contributing to the increase in the technical provisions is the reduction in the pre and post retirement discount rates.
Miscellaneous	3.6	There have been a significant number of data changes since I carried out the 31 July 2014 actuarial valuation, the impact of which is difficult to quantify in isolation. The impact of these changes is included here.
Surplus/(Shortfall) as at 31 July 2017	**16.8**	

Change in future service contribution rate

I set out below a breakdown of the reasons for the change in the contribution rate required to meet the cost of future service benefits and expenses.

Future service contributions	% of pensionable salary
Total contribution rate at last valuation	25.7% pa
Change in assumptions	6.2% pa
Other less significant factors	(0.2% pa)
Total contribution rate at this valuation	**31.7% pa**

The following table provides further detail on the factors contributing to the change in funding position due to the change in the valuation method and assumptions.

Changes to valuation method and assumptions	
Reduces technical provisions	Increases technical provisions
Members are not expected to live as long	Inflation is expected to be higher in the future
	Investment returns are expected to be lower in the future

Significant events since the last valuation

Tier 3 benefits

A new tier of benefits (Tier 3) was introduced into the Fund with effect from 1 August 2016. Details of the benefits applicable to Tier 3 members are provided in Appendix A.

Comparison with the last buy-out solvency valuation

The funding position of the Fund on the buy-out solvency basis has deteriorated over the inter-valuation period. The main reason for this change is that bond yields in the market have declined since the last valuation, increasing the estimated buy-out cost.

Projection to the next valuation

Assuming all SFO assumptions are borne out in practice (and the same assumptions apply in 3 years' time), I would expect the Fund to have a funding level of 108% on the SFO basis and 58% on the buy-out basis as at the next valuation date of 31 July 2020.

Risks and uncertainty

I have also considered the sensitivity of the SFO valuation results to using different assumptions and examined the key risks that could impact on the funding and investment strategy for the Fund.

Sensitivity of results to assumptions used

The assumptions represent one estimate of possible future experience. The final cost will be determined by actual experience such as the performance of the investments, the actual rate at which members' benefits increase, and how long the members actually live for.

To help illustrate the sensitivity of the valuation results to the assumptions used, I set out below the approximate change in the technical provisions for various changes in key assumptions. In each case, the value of assets does not change and each change is made in isolation.

Change in SFO basis as at 31 July 2017	Change in technical provisions	Technical provisions as at 31 July 2017 £m
None	-	154.5
Discount rate 0.5% pa lower	+9%	168.4
Salary increases 0.5% pa higher	+2%	156.8
Inflation 0.5% pa higher (including salary increases, revaluation and pension increases in payment)	+9%	167.6
Long term rate of pre and post retirement mortality increased from 1.5% pa to 2.0% pa	+1%	156.7

It is also important to understand how sensitive the results are to the actual investment return on assets achieved over the inter-valuation period being different from that required to support the discount rate used to calculate the technical provisions.

For example, for every 1% pa that the investment return is lower than the discount rate, a reduction to the surplus of around £5.5m would emerge at the next actuarial valuation.

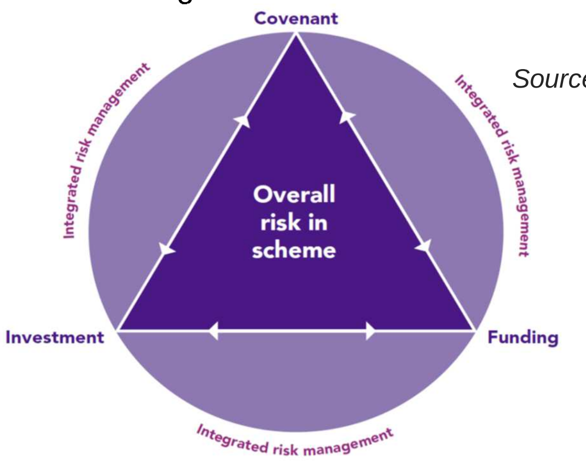
Integrated Risk Management (IRM)

A pension scheme faces a number of risks that might result in unforeseen increases to the liabilities, falls in asset values, or at the extreme the loss of the support of the Employer.

The Trustee Directors adopt a proportionate integrated approach to risk management when developing their funding and investment strategy for the Fund.

The Pensions Regulator considers the key risks that affect strategy can be grouped into risks which are:

- employer covenant related;
- investment related; and
- funding related.



Source: The Pensions Regulator

As part of a proportionate IRM approach, the Trustee Directors understand the key risks across all of these strands. In general, employer covenant, funding and investment decisions interact so that a material change to one affects the other two.

The Trustee Directors monitor key indicators so where a material change occurs they can make timely adjustments to their funding and investment strategy.

Key risks

The following table summarises the key risks that may affect the financial position of the Fund.

	Risk	Nature	Significance	Mitigation
Funding	Assumptions are not borne out in practice.	The level of prudence in the key assumptions may prove to be inadequate.	The Fund is fully funded on the SFO basis. The sensitivity analysis on page 10 shows how sensitive the technical provisions are to changes in the assumptions.	In selecting the assumptions for the SFO valuation, the Trustee Directors have included a margin for prudence. The appropriate level of prudence will be considered at each actuarial valuation and will reflect the strength of the University's covenant.
Investment	Fall in asset values, not matched by a fall in the value of technical provisions.	The assets that best match the liabilities are a combination of fixed-interest bonds, index-linked bonds and liability driven investment (LDI) funds. The actual assets held are somewhat different to the best matched position. Therefore, the funding position may be volatile.	If the value of the assets were to fall by 25% then, to the extent that assets and technical provisions are matched, the value of that portion of the technical provisions would also fall by 25%.	The Trustee Directors review their investment strategy at least every 3 years.
Investment	Poor investment performance.	Risk that growth assets don't deliver expected investment returns.	For example, in valuing the technical provisions, allowance has been made for an investment return on equities of 4.6% pa (net of investment expenses).	By adopting prudent principles in the SFO valuation, the Trustee Directors have made some provision to cope with poor investment performance.

	Risk	Nature	Significance	Mitigation
Covenant	University cannot afford contributions agreed for ongoing accrual of benefits.	If contributions are not paid at the levels agreed then this will increase the likelihood that members will not receive their benefits in full.	At 31 July 2017, there was a surplus of £16.8m on the SFO basis.	The contributions payable under the Schedule of Contributions have been set at a level the University can currently afford.
Covenant	University insolvency (which would trigger winding up of the Fund).	There are insufficient assets to enable benefits to be insured in full and the University may be unable to meet the debt payment due.	The level of benefits that could have been secured had the University become insolvent at the valuation date with no debt recovered was 56%. However, in these circumstances the Fund may qualify for the PPF.	The Trustee Directors regularly monitor the strength of the University's covenant.
Covenant	Uncertainty around the impact of the UK's withdrawal from the EU on investment markets and the strength of the University's covenant.	External and beyond the control of the Fund.	Unknown at this stage and beyond the control of the Fund.	Seek update from University on possible impact. Consider requesting sensitivity analysis and/or scenario testing to aid understanding.
All	Climate change risk and other long term uncertainties.	Long term risk which could affect investment markets, life expectancy and strength of University's covenant.	Unknown at this stage.	Trustee Directors consider asking Fund managers to what extent they take into account risks associated with climate change and assess whether climate change risk could be material. Trustee Directors consider to what extent climate change risk would affect the University's covenant.

Appendix A: Benefit structure

My understanding of the Fund's benefit structure, as used in the valuation as at 31 July 2017, is outlined below. Full details can be found in the Trust Deed and Rules dated 6 April 2006, as amended.

Contracting out

The Fund was contracted out of the State Second Pension. Contracting out came to an end on 5 April 2016.

Definitions

Normal Pension Age

Normal Pension Age (NPA) is the member's 65th birthday. However, benefits accrued between certain dates may be taken at an earlier age than this, without reduction:

- Pension accrued before 1 January 2004 is payable unreduced from the member's 60th birthday;
- Pension accrued after 31 December 2003 and before 1 October 2009 is payable unreduced from the date the member reaches 63 years and 6 months;
- Pension accrued after 30 September 2009 is payable unreduced from the member's 65th birthday.

Pensionable Employment

Pensionable Employment is the member's completed service (in years and days) as a contributing member of the Fund. The maximum period of Pensionable Employment is 40 years.

Pensionable Salary

Pensionable Salary is the member's annual salary or wage, excluding any bonuses, overtime and any other fluctuating payments.

Final Pensionable Salary

Final Pensionable Salary is the member's highest annual average of Pensionable Salary over any period of 12 months in the last 3 years of service before the date on which the member ceases to be in Pensionable Employment.

Retirement benefits

An annual pension to the member of:

- For benefits accrued before 1 October 2009:
    - 1/60th of Final Pensionable Salary for each year of Pensionable Employment.
- For benefits accrued after 30 September 2009:
    - 1/60th of Final Pensionable Salary for each year of Pensionable Employment for Tier 1 members;
    - 1/85th of Final Pensionable Salary for each year of Pensionable Employment for Tier 2 members;

- 1/100th of Final Pensionable Salary for each year of Pensionable Employment plus a compulsory cash lump sum of 3/100ths of Final Pensionable Salary for each year of Pensionable Employment for Tier 3 members.

Death in service benefits (before NPA)

A lump sum of three times Pensionable Salary.

A spouse's pension of half the member's prospective pension, payable until death.

Death in deferment benefits (before NPA)

A spouse's pension of half the member's pension revalued to date of death, payable until death.

Death after retirement benefits

A spouse's pension of half the member's pension (before any commutation) payable on the member's death after retirement plus, if death occurs within 5 years of retirement, a lump sum equivalent to the remaining instalments of pension that would have been paid in the 5 years following retirement.

Withdrawal benefits

More than 3 months' service and less than 2 years' service

Members have the option of:

- a transfer of their accrued rights to an alternative provider; or
- a return of their contributions.

More than 2 years' service

A deferred pension payable from the member's NPA calculated on the same basis as the retirement benefit. The deferred pension will be subject to a minimum of the GMP, plus any benefit in respect of pre-contracting-out service, and will be revalued in two ways.

The GMP element will be revalued to GMP Payment Age at the fixed rate of revaluation applying at date of exit.

The deferred pension for service before 6 April 2009 (in excess of the member's GMP) will be revalued in line with CPI inflation up to a maximum of 5% pa between date of leaving and NPA.

The deferred pension for service after 5 April 2009 (in excess of the member's GMP) will be revalued in line with CPI inflation up to a maximum of 2.5% pa between date of leaving and NPA.

Pension increases in payment

GMPs for service before 6 April 1988 do not increase in payment.

GMPs for service between 6 April 1988 and 5 April 1997 will be increased in payment at the rate of 3% pa or in line with CPI inflation if less.

Pension in excess of GMP receives full CPI increases (at the discretion of the University).

Active members' contributions

Active members are currently required to contribute part of their Pensionable Salary:

- Tier 1 members contribute 8.75% of their Pensionable Salary;
- Tier 2 members contribute 5.25% of their Pensionable Salary;
- Tier 3 members contribute 7.00% of their Pensionable Salary.

Notes

The value of members' pensions will not be less than the value of their accumulated contributions.

The Fund grants discretionary pension increases on non-GMP benefits. Historically, these have been in line with uncapped CPI inflation each year and your funding strategy assumes this policy will continue in future.

Additional Voluntary Contributions have been excluded from the valuation calculations.

Money purchase sections have been excluded from the valuation calculations.

Uncertainty relating to benefits under the Fund

GMP Equalisation

The Fund was contracted out of the State Earnings Related Pension Scheme and therefore provides a GMP in respect of accrual prior to 5 April 1997. The calculation of GMP is unequal for males and females, and the Fund has not yet addressed the matter of equalisation for GMPs.

In November 2016, the Government issued a second consultation on equalising benefits for GMPs, which closed in January 2017. First Actuarial submitted a response, and we will monitor any significant developments.

In calculating the technical provisions, no allowance has been made for GMP equalisation.

PPF compensation

Should the Fund enter the PPF, members would receive PPF compensation. Details of how PPF compensation is calculated can be found on:

http://www.pensionprotectionfund.org.uk/Pages/Compensation.aspx

Appendix B: Membership data

Membership data as at 31 July 2017 was supplied by Gillian Hamilton at the University.

I have carried out a number of high level checks on the membership data. These checks highlighted the following issues:

- Full death after retirement spouses' data was not available for the pensioner members in the Fund. In line with the approach taken for the 31 July 2014 valuation, we have assumed that spouse's pensions are 2/3rds of the members' pension in payment at death (i.e. post commutation). This is a prudent assumption, and I do not believe the issue to be material.

- GMP data was not available for the active members in the Fund, therefore all pension has been valued as non-GMP. Since the GMP proportion of active members' benefits is only likely to be small, I do not believe this issue to be material.

- GMP data was available for the deferred members in the Fund, however it was not split between pre and post 6 April 1988 service. We have assumed that the GMP provided is all in relation to post 6 April 1988 service. This is a prudent assumption, and I do not believe the issue to be material.

The following membership data was used in carrying out the valuation. The membership data is recorded at 31 July 2017 and no allowance has been made for any movements that have occurred since that date.

Figures as at the last valuation at 31 July 2014 are shown in brackets. Average ages as at 31 July 2017 are weighted by the SFO liability.

Active members

	Males	Females	Total
Number	290 (398)	544 (754)	834 (1,152)
Total Pensionable Salaries (£'000 pa)	7,240 (9,616)	10,723 (13,945)	17,963 (23,561)
Liability weighted average age	51 (53)	50 (51)	50 (52)

Deferred members

	Males	Females	Total
Number	242 (173)	478 (352)	720 (525)
Total deferred pension at date of valuation (£'000 pa)	935 (592)	1,092 (802)	2,027 (1,394)
Liability weighted average age	52 (51)	50 (51)	51 (51)

Pensioners

	Males	Females	Total
Number	301 (264)	519 (446)	820 (710)
Total pensions paid from the Fund (£'000 pa)	2,024 (1,665)	1,938 (1,585)	3,962 (3,250)
Liability weighted average age	69 (69)	68 (68)	69 (69)

Membership experience since the last valuation

	Active Members	Deferred Members	Pensioner Members	Total
Number at 31 July 2014	1,152	525	710	2,387
New joiners	53	-	-	53
Leavers (deferred pension)	(245)	245	-	-
Leavers (refund of contributions)	(9)	-	-	(9)
Transfers out	(6)	(4)	-	(10)
Trivial commutations and small lump sums	(4)	(4)	-	(8)
Retirements	(105)	(49)	154	-
Deaths	(2)	(1)	(57)	(60)
New dependants	-	-	16	16
Child pensions ceased	-	-	(4)	(4)
Adjustments – member records combined	-	(3)	(2)	(5)
Adjustments – additional members	-	11	3	14
Number at 31 July 2017	834	720	820	2,374

The adjustments are in respect of:

- 5 members who had duplicate records in the 2014 valuation data (e.g. one active and one deferred record or two deferred records) which have been combined into one record for the 2017 valuation; and
- 14 members who were missing from the 2014 valuation data but were included in the 2017 valuation data.

Appendix C: Asset data and cashflows

The Trustee Directors' investment strategy, as set out in the Fund's Statement of Investment Principles dated 14 December 2016, is as follows:

Asset category	Proportion
UK equity	38%
Overseas equity	29%
Private equity	5%
Property and ground rent	16%
Corporate bonds	10%
Cash	2%

Assets

The audited accounts for the Fund for the year ended 31 July 2017 give the market value of assets of the Fund as £171,289,000 (excluding AVCs). The assets of the Fund are held with Schroders Investment Management Limited and Standard Life.

Based on the audited Fund accounts as at 31 July 2017, the assets can be categorised as follows:

Assets invested in	£m	% of total
UK equity	65.5	38%
Overseas equity	54.9	32%
Private equity	3.0	2%
Property and ground rent	8.3	5%
Corporate bonds	33.8	20%
Cash and net current assets	5.8	3%
Total	171.3	100%

Insurance

The Trustee Directors' currently hold an insurance policy to cover the costs of the death in service lump sum benefit. The spouse's pension paid on death in service is paid from the Fund.

Cashflows

The following table details the contributions paid into the Fund (excluding AVCs) and the benefits and other outgo paid out of the Fund (excluding death in service lump sum benefits which are covered by an insurance policy).

Cash flows	Scheme year ending		
	31 July 2015 £'000	31 July 2016 £'000	31 July 2017 £'000
Employer normal contributions	3,426	3,266	3,097
Employee normal contributions	1,333	1,353	1,521
Employer deficit contributions	250	42	-
Employer other contributions	40	-	9
Total in	**5,049**	**4,661**	**4,627**
Benefits paid	4,505	4,976	4,807
Other payments and administration expenses	348	315	320
Total out	**4,853**	**5,291**	**5,127**

Contributions have been paid in line with the Schedule of Contributions certified on 24 September 2015.

Appendix D: Assumptions

The assumptions for the SFO valuation are set out in the Statement of Funding Principles dated 19 July 2018.

In carrying out my valuation on the buy-out solvency basis, I have estimated the assumptions which would have been made by an insurance company in establishing its annuity rates. However, the true buy-out position can only be ascertained by obtaining actual quotations from insurance companies.

The following tables provide a summary of the key assumptions. For comparative purposes, I have also shown the SFO assumptions and the buy-out assumptions as at 31 July 2014.

Financial assumptions

	SFO basis		Buy-out solvency basis	
	Used as at 31 July 2017	Used as at 31 July 2014	Used as at 31 July 2017	Used as at 31 July 2014
Pre retirement discount rate	4.10% pa	5.00% pa	0.90% pa	2.40% pa
Post retirement discount rate	4.10% pa	5.00% pa	Non-pensioners: 1.50% pa Pensioners: 1.60% pa	3.00% pa
Salary increases	4.55% pa	4.45% pa	N/A	N/A
Revaluation in deferment:				
Pre 06/04/2009	2.50% pa	2.40% pa	3.10% pa	3.60% pa
Post 05/04/2009	2.50% pa	2.40% pa	2.30% pa	2.50% pa
Pension increases in payment:				
Pre 88 GMP	0.00% pa	0.00% pa	0.00% pa	0.00% pa
Post 88 GMP	2.20% pa	2.40% pa	2.80% pa	3.00% pa
Pre 97 benefits (in excess of GMP)	2.50% pa	2.40% pa	0.00% pa	0.00% pa
Post 97 benefits for non-pensioners	2.50% pa	2.40% pa	3.50% pa	3.50% pa
Post 97 benefits for pensioners	2.50% pa	2.40% pa	3.20% pa	3.50% pa

Demographic assumptions

<table>
<tr><th rowspan="2"></th><th colspan="2">SFO basis</th><th colspan="2">Buy-out solvency basis</th></tr>
<tr><th>Used as at
31 July 2017</th><th>Used as at
31 July 2014</th><th>Used as at
31 July 2017</th><th>Used as at
31 July 2014</th></tr>
<tr><td>Pre and post retirement mortality:
Base table
Adjustment to base table

Improvement</td><td>100% S2NXA
+1 year

CMI 2016
1.5% pa</td><td>100% S2NXA
+1 year

CMI 2013
1.5% pa</td><td>100% S2NXA

CMI 2016
1.5% pa</td><td>90% S2NXA

CMI 2013
1.5% pa</td></tr>
<tr><td>Retirements</td><td colspan="2">It is assumed that those members who do not withdraw or retire on ill-health grounds will retire from service at age 62. It is assumed that member who do withdraw will retire at age 60.</td><td colspan="2">Members are assumed to retire at the earliest age at which full benefits are payable unreduced.</td></tr>
<tr><td>Withdrawals</td><td colspan="2">Allowance is made for active members to withdraw from service in line with the following sample rates:<table><tr><th>Age</th><th>Unisex withdrawal</th></tr><tr><td>20</td><td>10%</td></tr><tr><td>30</td><td>10%</td></tr><tr><td>40</td><td>5%</td></tr><tr><td>50</td><td>3%</td></tr><tr><td>55</td><td>-</td></tr></table></td><td colspan="2">All members are assumed to leave at the valuation date.</td></tr>
</table>

<table>
<tr><th rowspan="2"></th><th colspan="2">SFO basis</th><th colspan="2">Buy-out solvency basis</th></tr>
<tr><th>Used as at 31 July 2017</th><th>Used as at 31 July 2014</th><th>Used as at 31 July 2017</th><th>Used as at 31 July 2014</th></tr>
<tr><td>Ill-health retirement</td><td colspan="2">Allowance is made for members to retire on ill-health grounds at the following sample rates:
<table>
<tr><th>Age</th><th>Male</th><th>Female</th></tr>
<tr><td>20</td><td>0</td><td>0</td></tr>
<tr><td>30</td><td>0.0001</td><td>0.0002</td></tr>
<tr><td>40</td><td>0.0008</td><td>0.0020</td></tr>
<tr><td>50</td><td>0.0037</td><td>0.0093</td></tr>
<tr><td>55</td><td>0.0066</td><td>0.0186</td></tr>
</table></td><td colspan="2">No ill-health decrements.</td></tr>
<tr><td>Cash commutation</td><td colspan="2">An allowance is made for 25% of pension to be commuted at retirement using a commutation factor 8% higher than the current one.</td><td colspan="2">No cash commutation.</td></tr>
<tr><td>Transfer values</td><td colspan="4">No allowance for transfer values.</td></tr>
<tr><td>Proportion married</td><td colspan="2">70% of members are assumed to be married at retirement.</td><td colspan="2">85% of males and 75% of females are assumed to be married at retirement.</td></tr>
<tr><td>Age difference</td><td colspan="4">Females 3 years younger than their spouse.</td></tr>
<tr><td>Expenses</td><td colspan="2">None</td><td colspan="2">In line with version A8 of the PPF's S179 valuation assumptions.</td></tr>
</table>

Appendix E: Compliance

Actuarial standards

The following Technical Actuarial Standards apply to this work:

- TAS 100: Principles for Technical Actuarial Work
- TAS 300: Pensions

I confirm I have complied with their requirements.

iBoxx data disclaimer

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CMI data

Mortality tables and the CMI Projections Model are copyright material of the Continuous Mortality Investigation Limited and the Institute and Faculty of Actuaries.

ONS data

ONS data has been adapted from data from the Office for National Statistics licensed under the Open Government Licence v.3.0 (https://goo.gl/OIoePc).

Appendix F: Key documents

This Appendix contains the following key documents:

- Statement of Funding Principles
- Schedule of Contributions (including the certificate)
- Actuary's Certificate of the calculation of the technical provisions

STATEMENT OF FUNDING PRINCIPLES

THE UNIVERSITY OF YORK PENSION FUND (THE "FUND")

STATUS

This Statement of Funding Principles has been prepared by the Trustee of The University of York Pension Fund (the "Trustee"), after obtaining the advice of David Joy FFA, the actuary of the Fund, to set out the Trustee's policies for securing that the Statutory Funding Objective is met.

This statement replaces the Statement of Funding Principles dated 24 September 2015.

The statement has been agreed by the University of York (the "University").

THE STATUTORY FUNDING OBJECTIVE

The Statutory Funding Objective is that the Fund has sufficient and appropriate assets to pay its benefits as they fall due (the technical provisions).

There are no additional objectives.

CALCULATION OF THE TECHNICAL PROVISIONS

The principle method and assumptions to be used in the calculation of the technical provisions are set out in the Appendix.

The general principles adopted by the Trustee are that the assumptions used, taken as a whole, will be sufficiently prudent for pensions and benefits already in payment to continue to be paid and to reflect the commitments which will arise from members' accrued pension rights.

The basis will include appropriate margins to allow for the possibility of events turning out worse than expected and will only be adopted after considering how it compares with the assumptions used to assess the Fund's solvency position.

In particular, a prudent margin will be included in the discount rate and demographic assumptions will be based on prudent principles. Other assumptions will be based on best estimates of future experience, within the constraints of the basis being prudent overall. However, the Trustee does not intend for the method and assumptions to remove completely the risk that the technical provisions could be insufficient to provide benefits in future.

In determining what is "prudent," the Trustee will take into account their objective assessment of the University's covenant.

POLICY ON DISCRETIONARY INCREASES AND FUNDING STRATEGY

The Fund must provide guaranteed increases to pensions in payment for service from 6 April 1997 in line with CPI inflation limited to 5% (or 2.5% for service from 6 April 2005) each year. However, the Fund Rules allow additional increases to be given. For valuation purposes, full allowance will be made for increases in line with uncapped CPI inflation on all pension in payment in excess of the GMP, for all service. This is consistent with historic practice in the Fund.

There is no allowance for any other discretionary benefit.

PERIOD WITHIN WHICH AND MANNER IN WHICH A FAILURE TO MEET THE STATUTORY FUNDING OBJECTIVE IS TO BE RECTIFIED

If the assets of the Fund are less than the technical provisions at the effective date of any actuarial valuation, a recovery plan will be put in place which requires additional contributions for the University to meet the shortfall. The Trustee and the University have agreed that any such funding shortfalls should be eliminated as quickly as the University can reasonably afford.

Additional contributions will be expressed as level monetary amounts.

In determining the actual recovery period at any particular valuation, the Trustee will take into account the following factors:

- the size of the funding shortfall and the Fund's assets and liability structure
- the business plans of the University
- the Trustee's objective assessment of the financial covenant of the University
- any contingent security offered by the University
- contributions paid to the Fund in excess of those in respect of the future accrual of benefits after the valuation date.

In determining the additional contributions, the assumptions used will be the same as those used for calculation the technical provisions. However, when determining the investment return assumption over the recovery period, the Trustee may allow for a return over the prudent level allowed for in setting the discount rate for the technical provisions.

ARRANGEMENTS BY A PERSON OTHER THAN THE EMPLOYER OR A MEMBER TO CONTRIBUTE TO THE FUND

There are no arrangements for any person other than a participating employer to meet a shortfall in technical provisions in the event of that participating employer becoming insolvent.

POLICY ON REDUCTION OF CASH EQUIVALENT TRANSFER VALUES (CETVS)

At each valuation, the Trustee will ask the actuary to report on the extent to which assets are sufficient to provide CETVs for all members. If the assets are insufficient to provide 100% of benefits on that basis, so that payment of full CETVs would adversely affect the security of the remaining members' benefits, and the University is unable or unwilling to provide additional funds, the Trustee will consider reducing CETVs as permitted under legislation.

If, at any other time, the Trustee is of the opinion that the payment of CETVs at a previously agreed level could adversely affect the security of the remaining members' benefits, the Trustee will commission a report from the actuary and will use the above criteria to decide whether, and to what extent, CETVs should be reduced.

PAYMENTS TO THE UNIVERSITY

Unless the Fund is being fully wound up, no part of the assets can be paid to the University. If the Fund is being fully wound up, and the relevant part of the assets exceeds the costs of securing members' benefits with an insurance company, the Trustee and University may use their discretion to secure increases in benefits. Any remaining assets may be paid to the University or one of the other participating employers in such proportions as the Trustee decides.

FREQUENCY OF VALUATIONS AND CIRCUMSTANCES FOR EXTRA VALUATIONS

An actuarial valuation is carried out as at 31 July 2017 and subsequent valuations will in normal circumstances be carried out every three years thereafter. An actuarial report on developments affecting the Fund's funding level since the previous valuation will be obtained as at each intermediate anniversary of that date.

The Trustee may call for a full actuarial valuation instead of an actuarial report if, after considering the actuary's advice, they are of the opinion that events have made it unsafe to continue to rely on the results of the previous valuation as the basis for future contributions. The circumstances in which the Trustee will consider calling a valuation instead of an actuarial report include:

- a significant deterioration in the University covenant;
- a significant change in investment strategy
- a significant movement in the level to which the technical provisions are funded
- a significant change in outlook for the Fund's investments
- a bulk transfer in or out of a significant proportion of the active members.

The Trustee will consult the University before carrying out an early valuation. Commissioning a valuation will not be necessary if agreement can be reached with the University to revise the Schedule of Contributions and/or the recovery plan in a way satisfactory to the Trustee on the advice of the actuary.

This statement was agreed by the Trustee:

Signed on behalf of the Trustee of The University of York Pension Fund

Signed: I. S. Shephe.

Name: IAN SHEPHERD

Position: Trustee

Date: 15.7.18

This statement has been agreed by the University:

Signed on behalf of the University of York

Signed:

Name: Jeremy Lindley

Position: Finance Director

Date: 19 July 2018

This statement has been agreed by the Trustee of The University of York Pension Fund after obtaining actuarial advice from the Scheme Actuary of the Fund:

Signed:

Name: DAVID JOY

Position: Scheme Actuary to The University of York Pension Fund

Date: 19 JULY 2018

APPENDIX TO THE STATEMENT OF FUNDING PRINCIPLES

METHOD AND ASSUMPTIONS USED IN CALCULATING THE TECHNICAL PROVISIONS

Summary of the decisions made as to the method and key assumptions used for calculating the Technical Provisions as at 31 July 2017

The actuarial method used was the Projected Unit method.

Principal actuarial assumptions for valuation as at 31 July 2017	
Discount rate	4.10% pa
Retail Prices Index (RPI) inflation	3.30% pa
Consumer Prices Index (CPI) inflation	2.50% pa
Salary increases	4.55% pa
Increases to pensions in payment: - Post 88 GMP - Pension in excess of GMP	 2.20% pa 2.50% pa
Revaluation in deferment (non-GMP)	2.50% pa
Mortality – base table	S2NA (YOB) adjusted by plus 1 year to reflect the membership profile of the Fund
Mortality – future improvements	CMI_2016 (1.5% pa)

The derivation of these key assumptions and an explanation of the other assumptions to be used in the calculation of the technical provisions is set out below.

Asset returns

The expected future prudent investment returns on the Fund's assets as at 31 July 2017 were derived as follows:

Asset class	Return	Derived rate
Gilts	Bank of England nominal gilt yield curve at a duration of 20 years, less 0.2% pa for investment expenses.	1.8% pa
Corporate bonds	The yield on the iBoxx over 15 year AA rated Sterling Corporate Bond Index, less 0.2% pa for investment expenses.	2.3% pa
Equities (UK, overseas and private)	The expected return on gilts (before expenses) of 2.0% pa plus a prudent equity risk premium (ERP) of 2.8% pa, less 0.2% pa for investment expenses. The prudent ERP of 2.8% pa is set by taking 52% of the best estimate ERP of 5.4% pa to reflect the Trustee's view of the strength of the University's covenant. The best estimate ERP of 5.4% pa is derived as the sum of: • FTSE All Share net dividend yield (3.6% pa) • Best estimate RPI inflation assumption (3.3% pa) • A real dividend growth assumption (0.5% pa) *less* • The expected return on gilts (before expenses) of 2.0% pa	4.6% pa
Property and Ground Rent	Average of the expected returns on corporate bonds and equities, both after expenses, ie (2.3% pa + 4.6% pa) / 2	3.5% pa

Discount rate

The discount rate has been set based on a long term asset allocation of 72% equities (UK, overseas and private), 16% property and ground rent and 12% corporate bonds.

The discount rate as at 31 July 2017 was 4.1% pa (72% x 4.6% + 16% x 3.5% + 12% x 2.3%). This is equivalent to the expected return on gilts (after expenses) of 1.8% pa plus 2.3% pa.

Retail Prices Index (RPI) inflation

The RPI inflation assumption as at 31 July 2017 was set in line with the Bank of England implied inflation yield curves at a duration of 20 years with a deduction of 0.3% pa to reflect market distortions. The RPI inflation assumption adopted as at 31 July 2017 was therefore 3.3% pa. The same assumption was adopted for best estimate purposes.

Consumer Prices Index (CPI) inflation

The CPI inflation assumption as at 31 July 2017 was set as the RPI inflation assumption with a deduction of 0.8% pa. The CPI inflation assumption as at 31 July 2017 was therefore 2.5% pa.

Pension increases in payment

Pensions in payment in excess of GMP are assumed to increase in line with the CPI inflation assumption.

Salary increases

The rate of salary increases, inclusive of promotion, is derived in line with the RPI inflation assumption plus 1.25% pa. The salary increase assumption as at 31 July 2017 was therefore 4.55% pa.

Revaluation of pensions in deferment

The non GMP elements of deferred pensions which increase in line with statutory requirements over the period from leaving active service to retirement are assumed to increase in line with historic actual statutory revaluation over the period to the valuation date and assumed CPI inflation thereafter, subject to the relevant caps in place.

A cap of 5% pa applies in respect of service prior to 6 April 2009 and a cap of 2.5% pa in respect of service after this date.

Mortality

When setting the mortality assumptions, the Trustee will have regard to the latest available published mortality tables and the latest available evidence concerning future mortality improvements as at the valuation date.

For the 31 July 2017 valuation, the Trustee adopted the S2NA (year of birth) base table rated up by 1 year with future mortality improvements based on the CMI 2016 projections with a long term rate of improvement of 1.5% pa.

Retirement

Members who do not withdraw or retire on health grounds are assumed to retire at age 62. Members who withdraw are assumed to retire at age 60.

Ill-health retirement

Examples of the rates assumed are set out below:

Age	Ill-health Male	Ill-health Female
20	0.0000	0.0000
30	0.0001	0.0002
40	0.0008	0.0020
50	0.0037	0.0093
55	0.0066	0.0186

Withdrawal

Examples of the rates assumed are set out below:

Age	Withdrawal Male and Female
20	10%
30	10%
40	5%
50	3%
55	0%

Cash commutation

An allowance is made for 25% of pension to be commuted for a tax free cash lump sum at retirement using commutation factors 8% higher than the Fund's current factors.

Age difference of spouses

Husbands are assumed to be three years older than their wives.

Percentage with spouses' benefits at retirement or earlier death

70% of males and females are assumed to be married at date of retirement or earlier death.

Civil partners and same-sex marriages

No explicit allowance is made for civil partners and same-sex marriages. An implicit allowance has been included within the spouses' percentage above.

Expenses

All expenses of running the Fund and the cost of levies (including the PPF levy) will be payable by the Trustee from the Fund's assets. With the University's agreement, this is allowed for by adding 1% of pensionable salary to the contributions included in the Schedule of Contributions.

An approximate allowance for investment related expenses has been made in determining the discount rate.

Schedule of Contributions

The University of York Pension Fund (the "Fund")

Status

This Schedule of Contributions has been prepared by the Trustee of The University of York Pension Fund (the "Trustee") after obtaining the advice of David Joy FFA, the actuary to the Fund.

This document replaces the Schedule signed on 24 September 2015 and comes into force on the date it is certified by the Scheme Actuary.

Contributions covering the period from 31 July 2017 to 31 July 2018

By active members of the Fund:

Tier 1 (60ths) Members:	8.75% of Pensionable Salary
Tier 2 (85ths) Members:	5.25% of Pensionable Salary
Tier 3 (100ths) Members:	7.00% of Pensionable Salary

Where an active member participates in Pensions Plus/Pensions Extra, the active member shall not be required to contribute. These contributions will be deducted from salary by the Employer and paid into the Fund by the 19th of the following month.

Additional Voluntary Contributions may be paid in addition to the above.

By the Employer:

In respect of accrual of benefits:	15.00% of Pensionable Salary
In respect of expenses:	1.00% of Pensionable Salary

In addition, the Employer shall pay the notional member's contributions due in respect of any active member who participates in Pensions Plus/Pensions Extra, at the rates summarised above.

These contributions are to be paid to the Fund on or before the 19th of the calendar month following that to which the payment relates.

The above information is provided for information only and does not form part of the Schedule of Contributions

Contributions covering the 5 year period from 1 August 2018 to 31 July 2023

By active members of the Fund:

Tier 1 (60ths) Members:	8.75% of Pensionable Salary
Tier 2 (85ths) Members:	5.25% of Pensionable Salary
Tier 3 (100ths) Members:	7.00% of Pensionable Salary

Schedule of Contributions

The University of York Pension Fund (the "Fund")

Where an active member participates in Pension Plus/Pensions Extra, the active member shall not be required to contribute. These contributions will be deducted from salary by the employer and paid into the Fund by the 19th of the following month.

Additional Voluntary Contributions may be paid in addition to the above.

By the Employer

In respect of accrual of benefits: 15.00% of Pensionable Salary

In respect of expenses: 1.00% of Pensionable Salary

In addition, the Employer shall pay the notional member's contributions due in respect of any active member who participates in Pensions Plus/Pensions Extra, at the rates summarised above.

These contributions are to be paid to the Fund on or before the 19th of the calendar month following that to which the payment relates.

Employer's contributions in respect of benefit augmentations

In addition, the Employer may make augmentation payments under Clauses 3(A), (B) and (C). This includes a requirement for the Employer to pay such additional contributions (if any) as the Trustee requires, having consulted the Actuary, in respect of any PRCS pension and/or PRCS waiver granted under the Fund rules.

Employer's contributions in respect of administration and other costs

An allowance for administration costs, Pension Protection Fund levies and death in service premiums is made in the Employer's contributions set out above.

Pensionable Salary

Pensionable Salary means the annual rate or equivalent (as determined by the Member's Employer) of the basic salary or wage payable to a Member by his Employer, excluding bonuses, overtime and any other fluctuating emoluments, but including shift pay, enhanced payments forming part of a regular shift pattern, and any other payments which are a planned and regular element of his salary or wage.

Where a member participates in Pension Plus/Pension Extra, his Pensionable Salary is the amount that it would be if he did not participate in that arrangement. The monthly contributions are calculated using monthly Pensionable Salaries determined as one-twelfth of the annual amounts.

For the purpose of calculating Employer contributions, Pensionable Salary is deemed to be paid at the rate applicable at the commencement of maternity, paternity or sick leave during such leave, irrespective of actual amounts paid to the member.

Arrangements for other parties to make payments to the Fund

Payments towards the Fund may be paid by the University of York, or any other participating company.

Schedule of Contributions

The University of York Pension Fund (the "Fund")

Dates of review of this Schedule

This Schedule of Contributions will be reviewed by the Trustee and the Employer no later than 15 months after the effective date of each actuarial valuation, due every three years.

Employer and Trustee agreement

This Schedule of Contributions has been agreed by the Employer; the University of York, and the Trustee of The University of York Pension Fund on 19 July 2018.

Signed on behalf of the Trustee of The University of York Pension Fund

Signed: I. F. Shepherd

Name: IAN SHEPHERD

Position: Trustee

Date: 19.7.18

Signed on behalf of the University of York

Signed:

Name: Jeremy Lindley

Position: Finance Director

Date: 19 ~~18~~ July 2018

Actuarial Certificate for the purposes of Section 227(5) of The Pensions Act 2004

Name of scheme: The University of York Pension Fund

Adequacy of rates of contributions

1. I certify that, in my opinion, the rates of contributions shown in this Schedule of Contributions are such that the Statutory Funding Objective could have been expected on 31 July 2017 to continue to be met for the period for which the Schedule is to be in force.

Adherence to Statement of Funding Principles

2. I hereby certify that, in my opinion, this Schedule of Contributions is consistent with the Statement of Funding Principles dated 19 JULY 2018

The certification of the adequacy of the rates of contributions for the purpose of securing that the Statutory Funding Objective can be expected to be met is not a certification of their adequacy for the purpose of securing the Fund's liabilities by the purchase of annuities, if the Fund were to be wound up.

Signature:		Date:	19 JULY 2018
Name:	David Joy	Qualification:	Fellow of the Institute and Faculty of Actuaries
Address:	First Actuarial LLP Mayesbrook House Lawnswood Business Park Leeds LS16 6QY		

Actuarial Certificate for the purposes of Section 225 of the Pensions Act 2004

Name of scheme: The University of York Pension Fund

Calculation of technical provisions

I certify that, in my opinion, the calculation of the scheme's technical provisions as 31 July 2017 is made in accordance with regulations under Section 222 of the Pensions Act 2004. The calculation uses a method and assumptions determined by the Trustee of the Fund and set out in the Statement of Funding Principles dated 19 July 2018.

Signature:		Date:	19 July 2018
Name:	David Joy	Qualification:	Fellow of the Institute and Faculty of Actuaries
Address:	First Actuarial LLP Mayesbrook Hosue Lawnswood Business Park Leeds LS16 6QY		