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South Australian Superannuation Scheme

Actuarial Report as at 30 June 2016

SA Super

Actuarial Report

June 2017

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Contents

1 Introduction

1.1 We have prepared this report at the request of the South Australian Department of Treasury and Finance, to satisfy the requirements of Section 21 of the *Superannuation Act 1988*. This Section of the Act requires an Actuary to provide a report to the Minister —

a on the cost of the Scheme to the State Government at the time of the report and in the foreseeable future; and

b estimating the proportion of future benefits under Part 5 that can be met from the Fund.

1.2 This report continues the series of reports which have been prepared to address these issues in the past. These reports have been prepared at three yearly intervals, and in addition to the requirements of Section 21 of the Act have provided information about the funding and cost of the superannuation scheme which is used for employees in the public sector in South Australia.

1.3 The previous actuarial valuation was prepared as at 30 June 2013 by Catherine Nance of PricewaterhouseCoopers and dated June 2014.

1.4 We have prepared this report with the assistance of Mr John Barrett, who is the Actuarial Officer within the Department of Treasury and Finance. We have been able to use computer analyses prepared by Mr Barrett, which derive their information from the administration computer system which is used within the State Superannuation Office (Super SA) in the Department of Treasury and Finance. We have appreciated his extensive knowledge of the operations of the Scheme, which was of great assistance in this exercise.

1.5 The purpose of this report, is to —

a examine the economic and demographic experience of the Scheme,

b provide information about the funding status of the Scheme,

c recommend any changes to the Prescribed Proportion of Pension Division benefits met by the Pension Division assets,

d recommend contribution rates to apply for both the Lump Sum and Pension Divisions in respect of future service benefits, and

e produce estimates of the emerging cost of the Scheme.

1.6 This Report excludes the liabilities and assets relating to TransAdelaide, which relate to members of the Scheme under the provisions of the Superannuation (STA Employees) Regulations 2005. These liabilities and assets should be reviewed separately.

1.7 We confirm that this Report has been prepared to comply with Professional Standard PS400 of the Institute of Actuaries of Australia, relating to the Investigation of Defined Benefit Superannuation Funds. Where requirements of the Standard are not relevant or appropriate for the Scheme, we have omitted them.

2 Legislation Affecting The Scheme

Governing Legislation

2.1 The South Australian Superannuation Scheme (SASS, the Scheme) is governed by the *Superannuation Act 1988* (the Act). The Scheme is closed to new entrants.

2.2 Under the Act, members who joined the Scheme before 31 May 1986, are able to receive benefits in pension form, while those members who joined on or after that date but before 4 May 1994, receive benefits in lump sum form.

2.3 Pension members receive benefits under the Pension Division of the Act, while lump sum members receive benefits under the Lump Sum Division of the Act. An overview of the benefits and contributions under the current legislation is provided in Appendix A.

2.4 The government's current share of the cost of the SASS benefits are:-

a 86% of benefits paid to pension scheme members (excluding retrenchment pensioners),

b 100% of benefits paid to retrenchment pensioners until age 60 and,

c 100% of the employer component of lump sum scheme benefit payments.

2.5 With regard to Pension Scheme members, the cost of the remaining 14% of their benefits (the Prescribed Proportion) is provided from the assets of the Fund which comprise member's own contributions accumulated with interest. This Prescribed Proportion will vary over time in line with the change in the financial position of the Scheme.

2.6 As the Scheme is a constitutionally protected scheme, no tax is payable by the Scheme and members' benefits are paid as 'untaxed benefits'.

Amendments to Legislation

2.7 Since the time of the previous report, the Act has been changed to facilitate the payment of amounts to the Commissioner of Taxation in connection with Division 293 tax payable by contributors. Division 293 tax applies to high income earners, broadly whose income and concessionally taxed superannuation contributions exceed $300,000 in an income year.

2.8 The amendment does not change the benefits provided by the Scheme, and as such does not impact this valuation.

3 Funding of the Scheme

Member Contributions

3.1 Members make contributions to the Scheme at varying rates, according to their desired benefit levels. An amount equal to these contributions is paid by the Treasurer into the South Australian Superannuation Fund (the Fund). This Fund is managed and invested by Funds SA.

3.2 The Fund retains separate divisions for the Pension and Lump Sum Scheme contributors. The amount of assets in the two divisions should generally correspond with the total of individual contribution accounts maintained for the members of the respective Schemes.

3.3 The Fund is required to meet its share of administration costs and benefit payments.

Funding of Public Sector Superannuation

3.4 Since 1 July 1994, the State Government has undertaken a program which is intended to progressively fund its accumulated superannuation liabilities. This program has been set out over a 40 year period, with the intention of achieving complete funding of accumulated superannuation liabilities by the year 2034.

3.5 This program will produce a specific pool of externally invested assets, which are currently managed by Funds SA. These assets will be maintained in distinct accounts for each of the State schemes. In particular the assets for the SASS scheme are held in the SASS Employer Contribution Account.

3.6 The payments which are being made into the investment pool (by both the State Government and the employing agencies) are intended to meet the cost of newly accruing benefits each year, as well as to meet a portion of the existing past service liability. During the twenty-two years ending 30 June 2016, payments made in respect of the unfunded past service liability for all the public sector schemes totalled around $6.7 billion.

3.7 The scope of this report does not include accessing the funding program for the Scheme's Past Service Liability.

Balance of Costs for this Scheme

3.8 The employer share of benefit costs is initially totally met by the Treasurer, in respect of both the Pension Scheme and Lump Sum Scheme. The Treasurer is generally reimbursed for a portion of the benefit cost from employer accounts (established to meet employer liabilities) managed by Funds SA. Separate employer accounts are maintained with Funds SA for all Authorities which are liable for the superannuation costs for their employees. Contributions by employing agencies in respect of both Pension Scheme and Lump Sum Scheme members are paid into this Employer Contribution Account.

3.9 The only benefits which are now reimbursed from other sources are those in respect of former employees of the Universities, where the employer costs are shared with the Commonwealth Government.

3.10 Under the current "cost sharing" arrangements, the Pension division of the Fund meets a Prescribed Proportion of benefit payment costs, currently 14%, with the exception of:–

a benefits involving a return of members' contributions, where the Fund meets 100% of the payment, and the employer meets 100% of the Superannuation Guarantee, and

b the cost of retrenchment pension paid between the time of the retrenchment and age 60 is totally met by the employing department or agency.

3.11 As a result, the employing department or agency is generally required to meet 86% of benefit payments. This cost sharing arrangement has been in place without significant amendment since 1 July 1988. The last change was a decrease in the Prescribed Proportion from 20.4% to 14% with effect from January 2011, following the 2010 actuarial review.

3.12 For the Lump Sum Scheme, the member financed benefit is met from the Lump Sum division of the Fund. The employer component of benefits is financed from the SASS Employer Contribution Account maintained by Funds SA.

4 Assets of the Fund

Details of Assets

4.1 At 30 June 2016, the assets of the Fund which were invested by Funds SA for the two divisions were comprised as follows (by market value) :

Asset Type	Pension Scheme Division (old scheme) ($'000)	Lump Sum Scheme Division (new scheme) ($'000)	Total ($'000)
Australian Equities	337,656	142,803	480,459
International Equities	339,600	143,528	483,128
Property	202,244	85,919	288,162
Diversified Strategies Growth	154,499	62,126	216,625
Diversified Strategies Income	220,699	97,235	317,934
Inflation Linked Securities	80,904	40,305	121,209
Fixed Interest	38,857	19,578	58,435
Short Term Fixed Interest	–	10,833	10,833
Cash	33,342	31,696	65,037
Socially responsible investment	–	3,143	3,143
Total Assets	1,407,800	637,166	2,044,965
Plus adjustment to Scheme accounts	16,488	-9,112	7,377
Net Assets at 30 June 2016	1,424,288	628,054	2,052,342
Net Assets at 30 June 2013	1,304,017	628,758	1,932,775

4.2 The adjustment to Scheme accounts shown in this table comprises such items as cash and deposits with the Department of Treasury and Finance, contributions receivable and benefits payable.

4.3 The Funds SA investment product which covers the South Australian Superannuation Scheme is the Growth Portfolio.

As at 30 June 2016, the actual asset allocation and target allocation for the Growth Portfolio is set out below:–

		Actual (%)	Target (%)
(a)	Australian Equities	24	24
(b)	International Equities	24	24
(c)	Property	14	14
(d)	Diversified Strategies – Growth	11	10
(e)	Diversified Strategies – Income	16	16
(f)	Inflation Linked Securities	6	6
(g)	Fixed Interest	3	4
(h)	Short Term Fixed Interest	-	-
(i)	Cash	2	2
(j)	Socially responsible investment	-	-

4.4 The allocation to growth assets (shares, property and diversified strategies - growth) at 30 June 2016 was 73%.

4.5 Member investment choice for the Lump Sum Scheme Division commenced as from 5 August 2004 in respect of member contributions. The default allocation for this Division remains the Growth Portfolio.

Returns on Investments

4.6 One of the major objectives which Funds SA has for the management of the assets of the Pension and Lump Sum divisions has been the achievement of long term returns of 4.5% per annum in excess of inflation.

4.7 Following an investment review in 2015, Funds SA lowered its investment objectives in an economic environment where the likelihood exists for an extended period of lower returns. Changes to the Strategic Asset Allocation to reflect the new investment objectives applied from 1 January 2016. The objective of the Growth portfolio was reduced from CPI+ 4.5% to CPI + 4.0%.

4.8 A review of the defined benefit investment strategy was undertaken in 2016 which resulted in a new customised Defined Benefit investment portfolio in addition to the existing portfolios. The objective of the new portfolio is a long term return of CPI + 4.5% which is the same as High Growth portfolio, but includes a higher allocation to unlisted assets rather than increasing the exposure to listed equities. The new Defined Benefit portfolio commenced from 1 January 2017.

4.9 The assets of the Pension and Lump Sum divisions have a significant emphasis on “growth” investments, which is consistent with the objective of achieving a high real rate of return. One of the results of this emphasis on “growth” investments is that returns will be variable from year to year, as Australian and international economies fluctuate over time.

4.10 Rates of return on the assets held in the Pension and Lump Sum divisions, allowing for the management fees applied by Funds SA, for the last three years (based on changes in underlying unit prices) have been —

2013/14	2014/15	2015/16
14.9%	10.0%	3.8%

4.11 For the 3 year intervaluation period, the actual investment return compared to the expected assumptions used in the 2013 valuation are as below:

	Salary increases	Pension increase	Investment return	Real return actives	Real return pensioners
Actual increase (p.a.)	2.7%	1.7%	9.5%	6.8%	7.8%
Expected increase (p.a.)	4.0%	2.5%	7.0%	3.0%	4.5%
Difference (p.a)	(1.3%)	(0.8%)	2.5%	3.8%	3.3%

4.12 As such, the actual real returns exceeded the expected real returns by 3.8% per annum over salary inflation and by 3.3% per annum over CPI over the three year period to 30 June 2016.

5 Valuation Assumptions

Introduction

5.1 This actuarial valuation applies a model to project the expected amount of each item of income and expenditure in each future year. These expected cash flows are then discounted to the valuation date to determine the present values of these amounts. These calculations require assumptions to be made regarding:—

a economic assumptions relating to the future rates of investment earnings, inflationary salary increases and CPI inflation;

b demographic assumptions relating to the future rates of retirement, death, invalidity and resignation, and including the proportion of pension commuted and promotional salary increases;

c valuation of the assets which is, as far as possible, consistent with the valuation of the Scheme's liabilities.

5.2 Once the present value of the Scheme's liabilities and assets has been calculated, the contribution rate for each Division is then determined by allocating the cost over future years in accordance with an appropriate funding method.

5.3 It should be appreciated that in the long run the government's liability will depend on the actual experience of the Scheme, not on the assumptions made.

Economic Assumptions

5.4 The level of benefits paid by the Scheme depends on future increases in salaries for contributory members, because benefits are directly related to members' salaries prior to their exit from the Scheme and depends on future CPI increases for preserved benefits and pension payments. The ability of the Scheme to meet these benefit payments depends, in part, on the actual investment earnings achieved by the assets of the Scheme in the future. Accordingly, suitable financial assumptions need to be determined for investment returns, salary inflation and price increases.

5.5 Assumptions are required to be made about future crediting rates, salary increases and CPI increases. These assumptions are inter-related, since it would be expected that crediting and earning rates should normally be higher than salary increases, which in turn should be higher than CPI increases. Accordingly, these elements of the actuarial assumptions were chosen to not only reflect long-term trends but also to ensure that their combined effects would be mutually consistent. Therefore, of prime significance during the in-service period is the differential between the future rate of investment earnings on the one hand, and the rate of salary growth due to inflation on the other. This differential is referred to as the real return over salary inflation. For preserved members and pensioners the differential between the future rate of investment earnings and the future rate of price increases is important.

5.6 The financial elements of the experience were examined in Section 4. However, as investment returns, salary increases and price increases can vary significantly in the short term it is more important to consider long-term expectations than the experience since the previous actuarial investigation, when setting assumptions for the future.

5.7 We note that a major investment objective by Funds SA is to achieve long term returns of 4.5% per annum in excess of inflation for the Defined Benefit investment product (see paragraph 4.8 above). I have therefore adopted this real rate return for the purpose of this investigation.

5.8 We have adopted an assumed rate of CPI inflation of 2.5% per annum.

5.9 Inflationary salary increases are expected to average 4.0% per annum over the long term. We have allowed for known short term salary increases of 3% for the first two years ending 30 June 2018. .

5.10 In addition to an assumed level of general salary increases, allowance is also made for promotional salary increases throughout a member's career. New rates of promotional salary increases have been adopted with largely lower rates for Teachers and Others.

5.11 Set out below is a summary of the economic assumptions used in this valuation.

Investment Earnings:	7.0% per annum
Long Term Inflationary Salary Increases:	4.0% per annum
Inflationary Salary Increases for first two years:	3.0% per annum
Promotional Salary Increases:	Teacher 0.6% per annum Non-teacher 0.9% per annum (for a member of average age of 58 years) Refer Appendix E.7 for detailed rates
CPI Increases:	2.5% per annum
"Real Return" over inflationary salary increases	3.0%
"Real Return" over CPI	4.5%

Expenses

5.12 Fund administration expenses have been valued based on a cost per member, projected membership of each Division and assuming expenses increase at the same rate as salary inflation. As per the regulations, 30% of expenses are met by the Fund.

5.13 We note that as the Scheme is closed, and as membership falls, the approach to projecting these expenses may need to be changed.

Demographic Assumptions

5.14 The demographic assumptions which were used in the projections and valuations were set after considering the experience of contributors, preserved members and pensioners over the three year period as well as the trends in the experience observed in previous valuations. The Scheme is sufficiently large that this experience is statistically significant, that is, the assumptions which are derived from the experience could be regarded as being reliable for the purpose of the calculations.

5.15 Details of the experience and the rates adopted are given in Appendices C, D and E.

5.16 The most significant changes in assumptions related to —

a higher rates of age pensioner mortality for ages 92 and over and for ages up to age 66 for males and up to age 71 for females after allowing for rates of mortality improvement assumed in 2013;

b a corresponding impact of higher mortality for spouse and invalid pensioners; and

c lower proportions of pensions commuted by pensioners.

5.17 The rates of mortality for age pensioners, spouse pensioners and invalid pensioners (over 2 year in duration) have been set by adjusting the Australian Life Tables 2010-12. Details of the adjustments are given in Appendix D.

Value of Pension Scheme Assets

5.18 We have adopted the market value assets for the Pension Scheme, which amounted to $1,424,288,000 at 30 June 2016. The use of a market value of assets is consistent with general industry practice.

Value of Lump Sum Assets

5.19 The liabilities of the Lump Sum Division are the balances of member accounts and so no adjustment is necessary for the assets of this Division. Accordingly, the market value of $628,054,000 at 30 June 2016 was used in the valuation.

Funding Method

5.20 We have used a projection and funding method known as “aggregate funding” which involves calculating the present value of all liabilities relating to present contributors, pensioners and preserved members, and comparing the prescribed proportion of this with the present value of future member contributions together with the value of the Scheme’s investments.

6 Valuation Results — Lump Sum Scheme

6.1 There are two measures which we have used to assess the adequacy of the Fund for the Lump Sum Scheme, being —

a comparison of Fund investments against member contribution accounts; and

b projected long term cost of the employer financed benefits of the Scheme in respect of future service only (past service costs are met from contributions paid into the Employer Account).

Comparison of Fund Investments against Member Contribution Accounts

6.2 For the Lump Sum Scheme, the assets held by the Fund are intended to meet the employee component of the benefits payable from the Scheme. Provided that the crediting rate which is allocated to employee contribution accounts is equal to the actual earning rate on the investments of the Fund (less the appropriate share of administrative costs), then the amount of the investments should be the same as the total of member contribution accounts. As a result, the liabilities of the employer should not be affected by the return on the Fund investments.

6.3 At 30 June 2016, the total of member accounts was $639.5 million representing contribution accounts of $605.9 million plus roll-in accounts of $33.5 million, which compares with the total assets held in the Fund of $628.1 million. This represents a deficit of $11.4m, or 1.8% of member accounts. Small differences between the value of the investments and the total of member accounts may arise from time to time where there are differences in the crediting rate applied to member accounts and the actual earning rate on the investments. These differences are expected to be rectified over time.

Projected Long Term Cost of the Scheme

6.4 We have also considered the long term cost of supporting the employer financed benefits in respect of future service for members of the Lump Sum Scheme (past service liabilities are being progressively funded by the State Government, as discussed in paragraph 3.4 of the Report).

6.5 For this purpose, we have projected the future experience of current contributors, and then discounted the projected future benefit payments to the valuation date. The resulting values are the present value of the employer financed portion of future service liabilities for contributory members of the Lump Sum Scheme.

6.6 The results of the calculations are as follows —

Present Value of Employer Financed Future Service Liabilities

Current Contributors	$'000
Age Retirements	201,499
Disability	30
Invalidity	212
Deaths	1,959
Transfers	2,038
Resignations with Cash Payments	24
Resignations with Preserved Benefits	1,010
Expenses	3,032
Total Liability at 30 June 2016	**209,804**
Total Liability at 30 June 2013	**325,022**

6.7 The total liability represents the present day cost of providing employer financed benefits for the current members of the Lump Sum Scheme, based on their service after 30 June 2016. This is referred to as the "future service liability".

6.8 The future service liability is equivalent to future employer contributions of 14.1% of contributors' salaries.

6.9 This means that, if an amount equivalent to 14.1% of contributors' salaries is set aside as a provision which is notionally accumulated with interest at 7.0% per annum, or invested each year, the projected future service benefits would be able to be totally met by those future provisions or investments, based on the projection assumptions.

6.10 The corresponding contribution rate at the 2013 review was 14.5%. Although the contribution rate tends to increase with age, the average age of members only increased by 1.5 years. The downward impact of the 28% of active members who left the Scheme since 2013 has offset any increase for the remaining members.

6.11 We recommend that the current employer contribution rate of 14.75% of contributors' salaries be maintained. Given that the declining membership could lead the calculated contribution rate to show fluctuation in future reviews, a change in contribution rate is not warranted.

Sensitivity Analysis

6.12 The impact on the employer contribution rate as a percentage of salary from changes in the assumed discount rate is shown as follows:-.

Impact of Changes to the assumed investment return (discount rate)

Investment return	Employer Contribution Rate
6.0%	14.7%
7.0%	14.1%
8.0%	13.6%

7 Valuation Results — Pension Scheme

7.1 The processes which are followed to assess the financial position of the Pension Scheme are more complex than that of the Lump Sum Scheme, as a result of the operation of the cost sharing proportion.

Ability of Fund to Meet Prescribed Proportion of Costs

7.2 To assess the financial position of the Pension Scheme, we have projected the future experience of current contributors, preserved members and pensioners, and then discounted these future benefit payments to the current date. The resulting values are the present value of current and future liabilities for members of the Pension Scheme, the prescribed proportion (14.0%) of which must be compared with the value of the assets of the Pension division of the Fund and the present value of future member contributions.

7.3 We have set out below the results of the calculations using the prescribed proportion of these liabilities —

Present Value of Liabilities representing 14.0% of Prescribed Proportion		
	$'000	**$'000**
Current and Preserved Contributors		
Age Retirements	107,707	
Invalidity Retirements	257	
Spouse and Children's Benefits	7,014	
Resignations with Cash Payments	4	
Expenses	539	115,521
Current Pensioners		
Age Retirements	765,657	
Invalidity Retirements	34,148	
Retrenchment Pensioners	63,624	
Pensioner Spouses	171,535	
Contributor Spouses and Children	17,263	
Expenses	5,258	1,057,485
Total Liabilities at 30 June 2016		1,173,006
Total Liabilities at 30 June 2013		1,239,002

Present Value of Assets		
	$'000	$'000
Future Member Contributions	6,103	
Fund Investments	1,424,288	
Total Assets		1,430,391
Assets less liabilities ("reserve") at 30 June 2016		**257,385**
Reserve at 30 June 2013		**84,144**

7.4 If the current Prescribed Proportion is retained (14%), based on the projection assumptions applied in this valuation, assets are expected to exceed liabilities by $257.4 million. This compares with a reserve of $84.1 million at 30 June 2013

7.5 The reserve of $257.4 million represents 21.9% of total liabilities. This reserve has been built up from better than expected investment experience over the past three years. Given the high growth nature of the investment portfolio (73% in growth assets) investment returns will be volatile from year to year and typically better than expected investment years are followed by poorer than expected years.

7.6 If no reserve is maintained for future investment losses, the Prescribed Proportion could be increased from 14% to 17% and the employer share reduced from 86% to 83%, however, you should then expect the employer share to increase at some future time possibly in excess of the current 86%.

7.7 For an investment portfolio with 73% in growth assets a reasonable reserve to be maintained would typically be 10% to 20% of liabilities (i.e. $117.3 million to $234.6 million). Maintaining this level of reserve, the Prescribed Proportion could be increased as follows:

a From 14% to 14.3% with a 20% reserve and employer share reducing to 85.7%; or

b From 14% to 15.7% with a 10% reserve and employer share reducing to 84.3%.

7.8 Given the current volatility in the investment markets, we would recommend maintaining a reserve in the order of 20% which means maintaining the current Prescribed Portion of 14% and employer share of 86%.

Explanation of Change in the Financial Position of the Fund

7.9 We have analysed the change in the financial position, by considering the main contributing factors. These factors relate to both experience and changes in the valuation assumptions.

7.11 The following table sets out the major influences affecting the change in the financial position between 30 June 2013, and 30 June 2016 —

Influence	Impact $m
Experience	
Interest on reserve	19.0
Investment Earnings, taking into account the value placed on the assets	111.3
Salary increases (base only)	5.1
CPI increases	26.2
Age retirement higher than expected	(0.9)
Expenses lower than expected	1.3
Commutation	(1.7)
Untraced	3.8
Total Experience	164.1
Change in Valuation Assumptions	
Revised age retirements	(0.8)
Revised salary promotion	0.7
Revised pensioner mortality assumptions	9.3
Revised pensioner proportion married	3.9
Revised pensioner age differences	(4.3)
Revised pensioner commutation	(1.1)
Short term salary inflation of 3.0%	1.5
Total Change in Valuation Assumptions	9.2
Net Change in reserve	173.3

7.12 The major contributing factors to the change in reserve were as follows:–

a Investment Earnings
Investment returns were 2.5% per annum more than assumed over the 3 year period.

b Pension increases
Pension increases were 0.8% per annum less than assumed over the 3 year period.

Projected Cost of Pension Scheme

7.13 The cost sharing arrangements apply to past service liabilities. For liabilities which accrue based on service after 30 June 2016, employing agencies contribute at a rate which if accumulated with interest is expected to fully meet the cost of these future liabilities (after allowing for expected future member contributions which also fund future service liabilities).

7.14 The results of the calculations of the future service liabilities are as follows:–

Present Value of future service liabilities	
	$'000
Current Contributors	
Age Retirements	50,941
Invalidity Retirements	109
Spouse and Children's Benefits	3,350
Resignations with Cash Payments	-
Expenses	182
Total future service liabilities as at 30 June 2016	**54,583**

7.15 Our calculations produce a total future service liability which is equivalent to future contributions of 25.8% of contributors' salaries (after allowing for expected future member contributions of 3.25%). This means that, if an amount equivalent to 25.8% of contributors' salaries is set aside as a provision which is notionally accumulated with interest at 7.0% per annum, or invested each year, the projected future service benefits would be able to be totally met by those future provisions or investments, based on the projection assumptions. This represents a small decrease from the contribution rate of 26.4% of contributor salaries calculated as at the 2013 review.

7.16 We recommend that the employer contribution rate of 26.0% of contributors' salaries be maintained.

Sensitivity Analysis

7.17 The impact on the Fund share of benefits and the employer contribution rate as a percentage of salary from changes in the assumed discount rate is shown as follows:-.

Impact of Changes to the assumed investment return (discount rate)	
Investment return	Employer Contribution Rate
6.0%	30.0%
7.0%	25.8%
8.0%	22.4%

8 Projected Cost to the State Government

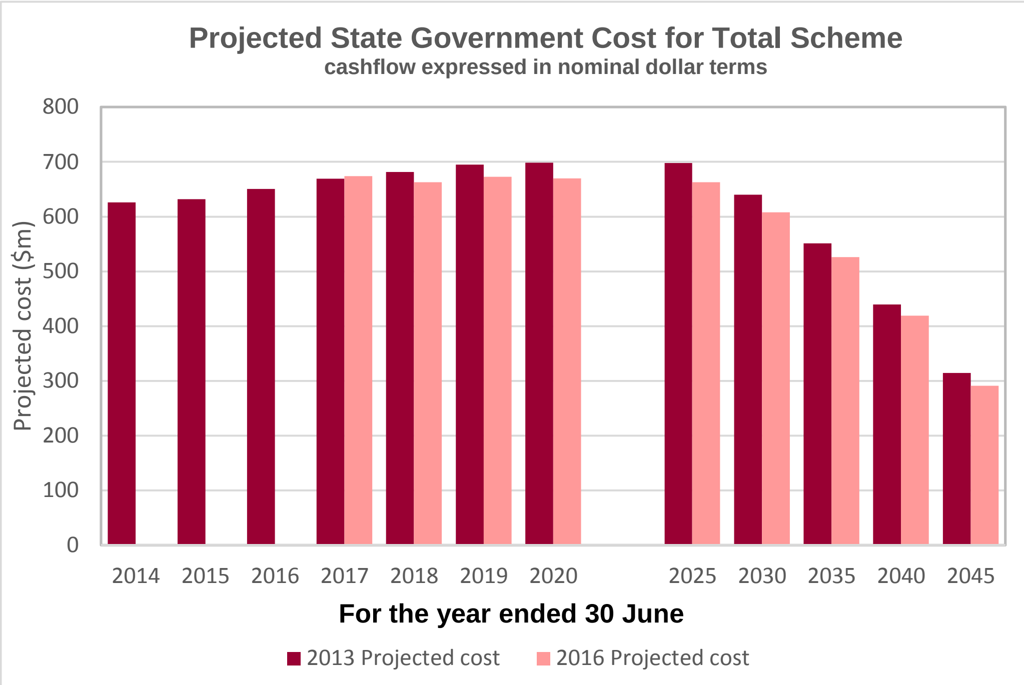
8.1 We have projected the cost of the Lump Sum and Pension Schemes using the assumptions described in this Report, assuming that the recommended cost sharing arrangements (refer paragraph 7.9) will apply in the future.

8.2 The State Government costs include the employer share of benefits for all Departments and Agencies except those classified as Commercial. Also the share of benefits met by the Commonwealth Government in respect of University are excluded.

8.3 The projected costs to the State Government (expressed in current salary and dollar terms as well as nominal dollars) are set out in the table below —

	In current salary and dollar terms			In Nominal dollar terms		
Year Ended 30 June	**Pension Scheme $ m**	**Lump Sum Scheme $ m**	**Total Cost $ m**	**Pension Scheme $ m**	**Lump Sum Scheme $ m**	**Total Cost $ m**
2017	518	145	663	526	148	674
2018	507	128	635	530	133	663
2019	495	127	622	536	137	673
2020	480	115	595	540	130	670
2021	464	112	576	543	131	674
2025	401	83	484	549	114	663
2030	322	43	365	537	71	608
2035	245	15	260	497	29	526
2040	168	2	170	414	5	419
2045	97	—	97	291	—	291
2050	44	—	44	161	—	161

8.4 The graph below shows the projected costs to the State Government in 2013 compared with the projected costs now (both in nominal terms).



8.5 The graph shows the projected costs are similar three years on. The changes are partly due to the past experience over the three years and changes to future assumptions. In particular higher experienced retirements in the last three years have resulted in lower cash flows in the future except for the first year of the projection which is due to the higher rates of retirement assumed.

9 Membership Data

9.1 We have been able to use the membership data which has been extracted from the administration system used by the Superannuation Office for the ongoing administration of the Schemes. We have been able to satisfy ourselves that the data is sufficiently accurate for the purpose of our calculations, and consider that any errors in the recording of member information would not have a material impact on our conclusions.

9.2 A number of checks have been performed on the member data, to ensure consistency between years and to ensure that contributor and pensioner information is consistent.

9.3 The quality of the administration records is being continually enhanced, and the amount of information which has been able to be used about preserved members has been of assistance in the projection process.

9.4 While we would expect that there will be adjustments to the member data after 30 June 2016, we would not expect that it would have a material impact on our calculations and conclusions.

9.5 We have provided details of membership and its changes during the three year period in Appendix B of this Report.

10 Conclusion and Review of Recommendations

10.1 In this Report, we have set out our comments about the funding status of the South Australian Superannuation Scheme, in the Lump Sum and Pension sections.

10.2 We recommend that the employer contribution rate for the employer share of the future service cost of the Lump Sum Scheme be maintained at 14.75% of contributors' salaries.

10.3 We recommend that the employer contribution rate for the employer share of the future service cost of the Pension Scheme be maintained at 26.0% of contributors' salaries.

10.4 Given the current volatility in the investment markets, we would recommend maintaining a reserve in the order of 20% in the Pension Scheme which means maintaining the current Prescribed Portion of 14% and employer share of 86%.

10.5 The next review should be completed at 30 June 2019.

Catherine Nance FIAA
Retirement Incomes and Asset Consulting

Authorised Representative (#265248) of
PricewaterhouseCoopers Securities Ltd

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Appendix A Benefits and Contributions

Overview

A.1 The State Superannuation Scheme is closed to new members. State Government employees who are not members are automatically covered by the Southern State Superannuation Scheme. This scheme provides for both non-contributory and contributory members.

A.2 This description of the Scheme is intended to provide a good general understanding of the benefit entitlements of active contributors to the Scheme who are in full-time employment but it should not be used as a substitute for the actual legislation.

A.3 There are two distinct types of benefit payable under the Scheme namely those payable to old scheme or pension benefit members, being members who were accepted as contributors before 31 May 1986; and those payable to new scheme or lump sum benefit members, being members who were accepted as contributors before 4 May 1994. The new scheme benefits are split into two components, an employee component and an employer component.

A.4 Benefits are based on contribution points. One contribution point is awarded for each month of contribution at the Standard Contribution Rate. Proportional contribution points are awarded for higher or lower contribution rates and for part-time employees. The Standard Contribution Rate is 6% of salary but members may elect, from time to time, to contribute at 3%, 4.5%, 6%, 7.5% or 9%. Contributors may also elect to cease contributing. The maximum number of points that count towards benefits is an average of one per month of membership. No contribution points accrue during periods of cessation of contribution payments.

Old Scheme or Pension Benefit Member Entitlements

A.5 Retirement Benefits

The normal retirement age is 60 for most members. A contributor who has reached this age is entitled to a pension calculated in the following manner:

$$P = FS \times A \times \frac{2}{3} \times \left(1 + \frac{X}{E}\right) + \frac{FS}{100} + FS \times \frac{7.4}{100} \times \frac{n}{420}$$

where

a FS is the contributor's final salary;

b A is the lesser of unity and the numerical value obtained by dividing the number of the contributor's accrued contribution points by the larger of 360 and the number of months between the contributor's date of acceptance and the age of retirement;

c X is the number of months by which the contributor's age at retirement exceeds the age of retirement, as defined in the Superannuation Act 1988;

d E is

i in relation to a contributor whose contribution period at the age of retirement was 360 months or more — 600;

ii in relation to a contributor whose contribution period at the age of retirement was 300 months or more but less than 360 months — 1200.

b n is 420 or the aggregate number of contribution points that accrued to the contributor between 1 July 1992, and the date of retirement whichever is the lesser (contribution points are taken to accrue at the rate of one per month where a contributor has attained the maximum number of points for the purpose of calculating A above).

A.6 Early Retirement Benefits

A contributor who retires after reaching age 55 but before the age of retirement is entitled to a pension calculated as follows:

$$P = FS \times A \times \left(\frac{50}{100} + \frac{17.6}{100} \times \frac{n_2}{60} \right) + FS \times \frac{n_1}{420} \times \left(\frac{6}{100} + \frac{1.4}{100} \times \frac{n_2}{60} \right)$$

where:

a FS is the contributor's final salary;

b A is the lesser of unity and the numerical value obtained by dividing the number of the contributor's accrued contribution points by the larger of (300 + n2) and the number of months between the contributor's date of acceptance and the date of retirement;

c n1 is 420 or the aggregate number of contribution points that accrued to the contributor between 1 July 1992, and the date of retirement whichever is the lesser (contribution points are taken to accrue at the rate of one per month where a contributor has attained the maximum number of points for the purpose of calculating A above);

d n2 is the number of months between the day on which the contributor reached the age of 55 years and the day of retirement.

A.7 Retrenchment Benefits

Two forms of retrenchment benefits are payable.

1 A contributor, who is aged over 45 and has belonged to the pension scheme for five years or more, is entitled to a pension and lump sum calculated as follows:

$$P = A \times \frac{2}{3} \times FS$$

, and

$$LS = FS \times \frac{0.85}{450} \times M$$

where

a FS is the contributor's final salary;

b A is calculated in the same manner as for the retirement benefit at age 60 but with prospective service to age 60 being included;

c M is the number of months of the contributor's contribution period occurring after 31 December 1987.

2 Where a contributor is not entitled to a retrenchment pension, a lump sum benefit is payable, consisting of the two components:

a an amount equivalent to the amount standing to the credit of the contributor's contribution account; and

b an amount equal to:

$$2\tfrac{1}{3} \times A - P + FS \times \frac{0.85}{450} \times M$$

where

a FS is the contributor's final salary;
b A is the lesser of the aggregate of the contributor's contributions and an amount that would have been equal to the aggregate of the contributor's contributions if the contributor had contributed throughout at the standard contribution rate;
c P is the amount of any pension paid under the Act to the contributor;
d M is the number of months of the contributor's contribution period occurring after 31 December 1987.

Alternatively, a contributor who is not entitled to a retrenchment pension may:

a if the contributor has not reached the age of 55, preserve ,or
b if the contributor has reached the age of 55, receive age retirement benefits.

A.8 Disability Pensions

A contributor who is temporarily or permanently incapacitated for work, who is not eligible for weekly workers compensation payments and who has used all available sick leave credits, is entitled to a temporary disability pension. The pension will not be paid for periods of less than one week, and may not be paid if the incapacity is expected to last less than six months. Usually the temporary disability pension will be paid for a maximum of twelve months. The amount of the pension is calculated as follows:

$$P = A \times \frac{2}{3} \times FS$$

where

a FS is the contributor's final salary;
b A is calculated in the same manner as for the retirement benefit at age 60 but with prospective service to age 60 being included.

While a temporary disability pension is being paid, a contributor is not required to make contributions to the Scheme.

A.9 Invalidity Pensions

When a contributor's employment is terminated because of invalidity, an invalidity pension is payable. The amount of the pension is calculated as follows:

$$P = FS \times A \times \frac{2}{3} + \frac{FS}{100} + FS \times \frac{7.4}{100} \times \frac{n}{420}$$

where

a FS is the contributor's final salary;
b A is calculated in the same manner as for the retirement benefit at age 60 but with prospective service to age 60 being included;
c n is calculated in the same manner as for the retirement benefit

A.10 Minimum Pension at age 60 but with prospective service to age 60 being included

The minimum amount paid in respect of a contributor who commences a pension is the amount of pension that would be payable for a period of 4.5 years.

A.11 Pensions payable on death of a contributor

When a contributor dies a surviving eligible spouse is entitled to a pension equal to two-thirds of the deceased contributor's notional pension.

Children of a deceased contributor who are under the age of sixteen years, or who are undertaking full-time study and are under the age of twenty five years, are eligible for children's pensions. The rate of pension paid is dependent on the number of eligible children and on whether a spouse pension is also payable.

Where a spouse pension is payable, childrens' pensions vary from one ninth of the contributor's notional pension for one child to a maximum of one third of the contributor's notional pension divided among three or more eligible children.

Where no spouse pension is payable, an orphan's benefit is payable varying from 45% of the deceased contributor's notional pension for one child to a maximum equal to 100% of the deceased contributor's notional pension divided among four or more eligible children. A lump sum is also paid equal to the greater of the balance of the contributor's contribution account and twice the contributor's final salary.

Where no spouse or child pension is payable, a lump sum is payable which is similar to the age retirement benefit under the Lump Sum scheme.

A.12 Resignation Benefits

On resignation, contributors may elect either to receive a cash lump sum equal to a return of their contributions with interest, or to preserve their benefit until retirement at or after age 55. Preserved benefits include full vesting of the employer share of benefits.

The form of the preserved benefit is determined by the contributor's length of contributory membership before resignation. For contributors with less than ten years membership, the benefit is in the form of a lump sum, while for contributors with ten years or more membership, the benefit is in the form of a pension.

The lump sum preserved benefit consists of the two components:

a an amount equivalent to the amount standing to the credit of the contributor's contribution account; and
b an amount equal to:

$$2\tfrac{1}{3} \times A + AFS \times \frac{0.85}{450} \times M$$

where

a A is the lesser of the balance of the contributor's contribution account and an amount that would have been equal to the balance of the contributor's contribution account if the contributor had contributed throughout at the standard contribution rate;
b AFS is the contributor's salary on resignation adjusted to reflect changes in the CPI since the date of resignation;
c M is the number of months of the contributor's contribution period occurring after 31 December 1987.

The preserved pension is calculated as if the member had remained in employment until retirement but had not paid any contributions from the date of resignation. The contributor's salary on resignation is adjusted for changes in the CPI.

If a contributor elects to receive an immediate cash payment of the balance of their contribution account, the contributor will also be entitled to a preserved benefit equal to the aggregate of:

$$AFS \times \frac{0.85}{450} \times M$$

and

a preserved amount equal to the superannuation guarantee benefit in respect of service after 30 June 1992 accumulated with interest.

where

a AFS is the contributor's salary on resignation adjusted to reflect changes in the CPI since the date of resignation;

b M is the number of months of the contributor's contribution period occurring between 31 December 1987, and 1 July 1992.

A.13 Commutation

On retirement, or attainment of age 60 in the case of invalidity or age 55 for retrenchment pensioners, the whole or part of pension entitlements may be commuted for a lump sum. The commutation basis is independent of sex or marital status. At age 65 an amount of $9.50 is paid for each dollar of pension commuted and this amount increases linearly to $11.50 at or below age 55. The limits on amounts that may be commuted were removed as from 1 July 2001 except that retrenchment pensioners who are subject to a reduction in pension can only commute the pension actually being paid.

Spouses of deceased contributors have similar initial options to commute their pension entitlements. Commutation rates are $11.50 at ages at or below 50 reducing to $8.50 at age 65 and continuing to reduce progressively at older ages.

A.14 Voluntary Separation Package Benefits

Contributors aged less than 55 who accept voluntary separation packages can elect to take their normal preserved resignation benefits. Alternatively they are entitled to receive cash lump sum benefits, while those aged 45 or more at resignation may instead choose to receive a pension.

The cash lump sum benefits are equal to

a an employee component equal to their contribution accounts balance, plus

b an amount equal to the lesser of 2.5 times the employee component or 2.5 times the amount that would have constituted the employee component if the contributor had contributed throughout at the standard contribution rate. A part of this component equal to the minimum superannuation guarantee amount needs to be preserved to age 55.

The pension benefit for those aged 45 or more at resignation is calculated as follows:

$$P = FS \times \left[\frac{A \times \{22 + [(2.1 + 0.07 \times (X - 45)) \times (X - 45)]\}}{100} \right] \times \left[1 + \left(\frac{n}{420} \times \frac{6}{A} \times \frac{1}{50} \right) \right]$$

where

a FS is the contributor's final salary;
b A is the lesser of unity and the numerical value obtained by dividing the number of the contributor's accrued contribution points by the larger of the number of months between the date of acceptance as a contributor and the date of resignation, and the number of months between the contributor's 30th birthday and the date of resignation;
c X is the contributor's age at resignation in years and completed months expressed to two decimal places;
d n is the lesser of 420 and the number of contribution points that accrued to the contributor between 1 July 1992, and the date of resignation.

Contributors who accept voluntary separation packages with a pension benefit are entitled to commute those pensions.

These benefits are also known as Targeted Separation Packages or TSP's.

A.15 Ceasing of Member Contributions

Member contributions cease when a member has attained the age of retirement and where the number of accrued contribution points equals the larger of 360 and the number of months between the contributor's date of acceptance and the age of retirement. Members who joined prior to the Repealed Act cease contributions when 360 points are accrued on or after the age of retirement.

New Scheme or Lump Sum Benefit Member Entitlements

A.16 As mentioned earlier new scheme benefit entitlements are split into two components.

A.17 The employee component is simply the member's own contributions accumulated with interest at the rates of return credited to new scheme contributors' contribution accounts by the Board. This component is paid in addition to any employer component (EC) of a benefit.

A.18 Retirement Benefits

A retirement benefit may be paid after age 55 and the employer component is equal to the lesser of:

$$EC = FS \times A \times 4.5 + FS \times \frac{0.85}{300} \times M$$

and

$$EC = FS \times 4.5 \times \left(1 - \frac{X}{420}\right) + FS \times \frac{0.85}{300} \times M$$

where

a FS is the contributor's final salary;
b A is the lesser of unity and the numerical value obtained by dividing the number of the contributor's accrued contribution points by 420;
c M is the number of months of the contributor's contribution period occurring after 30 June 1992;
d X is the number of months by which the contributor's age falls short of 60 years.

A.19 Resignation Benefits — Without Preservation

If on resignation prior to age 55 contributors elect not to preserve their entitlements but to receive immediate cash payments of the balances of their contribution accounts, they are also entitled to a preserved amount equal to the superannuation guarantee benefit in respect of service after 30 June 1992 accumulated with interest.

A.20 Resignation Benefits — With Preservation

If on resignation prior to age 55 contributors elect to preserve their entitlements, the employee components remain in the Fund and benefits are only paid on death, becoming incapacitated and on age retirement. The benefits paid are calculated as if the member had remained in employment until retirement but had not paid any contributions from the date of resignation. The contributor's salary on resignation is adjusted for changes in the CPI.

A.21 Transfers

On transfer to an approved superannuation scheme the amount transferred is the balance of the contributor's contribution account plus an employer component equal to the aggregate of:

a an amount equal to the lesser of twice the above employee component or twice the amount that would have constituted the employee component if the contributor had contributed throughout at the standard contribution rate; and
b an amount equal to:

$$FS \times \frac{0.85}{300} \times M$$

where

a FS is the contributor's final salary;
b M is the number of months of the contributor's contribution period occurring after 30 June 1992.

A.22 Retrenchment Benefits

On retrenchment a member can elect either to receive an immediate lump sum equal to the amount of the transfer benefit, or to take a preserved resignation benefit.

A.23 Invalidity Benefits

A member aged less than 55 who is incapacitated is entitled, in the first instance, to a temporary disability pension of 2/3rds of salary for a period of up to 12 months. This may be extended to 18 months in special circumstances.

If a member's employment is terminated on account of invalidity before age 55 the temporary disability pension ceases and a lump sum is paid. The employer component of the benefit is as follows:-

$$EC = (FS \times A \times 3.86) + X + \left(FS \times \frac{0.85}{300} \times M \right)$$

where

a FS is the contributor's final salary;
b A is the lesser of unity and the numerical value obtained by dividing "p" by 360, where

c p is the contributor's accrued contribution points plus a proportion of the number of months from the date of invalidity to age 55. The proportion equals one minus the extent of incapacity for workers' compensation purposes;
d X is the amount (if any) by which the employee component falls short of twice the contributor's final salary;
e M is the number of months of the contributor's contribution period occurring after 30 June 1992.

A.24 Death Benefits — for Surviving Spouses

The lump sum paid to a surviving spouse on death is the same as the invalidity benefit except that:

a the multiple of 3.86 is replaced by a multiple of 3.0; and
b in the calculation of "p", months are taken to age 60 instead of to age 55.

A.25 Death Benefits — for Eligible Children

Pensions payable to each eligible child are calculated as follows.

a Where a spouse pension is payable and there are less than 4 eligible children:

$$P = A \times .05 \times FS$$

b Where a spouse pension is payable and there are 4 or more eligible children:

$$P = \frac{A \times .15 \times FS}{number\ of\ \ children}$$

c Where there is no spouse pension payable and there are less than 4 eligible children:

$$P = A \times .15 \times FS$$

d Where there is no spouse pension payable and there are 4 or more eligible children:

$$P = \frac{A \times .45 \times FS}{number\ of\ \ children}$$

where

a A is the lesser of unity and the numerical value obtained by dividing the number of the contributor's extrapolated contribution points by 420
b FS is the contributor's final salary.

In (3) and (4) above a lump sum is also paid to the estate of the contributor. The amount of this lump sum equals the aggregate of:

a the greater of the balance of the deceased contributor's contribution account or twice the deceased contributor's salary; and
b an amount equal to:

$$FS \times \frac{0.85}{300} \times M$$

where

a FS is the contributor’s final salary;
b M is the number of months of the contributor’s contribution period occurring after 30 June 1992.

A.26 Death Benefits — with neither spouses nor eligible children

On death where there is neither a surviving spouse nor any eligible children the employer benefit is the same as the age retirement benefit.

A.27 PSESS Benefits

Where a contributor is entitled to a benefit from the new scheme, the contributor is also entitled to an amount equal to the balance of the contributor’s account in the Public Sector Employees Superannuation Scheme as at 30 June 1992 plus investment earnings credited to that balance at the same rate as for the new division of the Fund.

A.28 Voluntary Separation Package Benefits

Contributors aged less than 55 who accept voluntary separation packages can elect to take their normal preserved resignation benefits. Alternatively they are entitled to receive cash lump sum benefits equal to:

a an employee component equal to their contribution account balance, plus
b an amount equal to the lesser of twice the above employee component or twice the amount that would have constituted the employee component if the contributor had contributed throughout at the standard contribution rate. A part of this component equal to the minimum superannuation guarantee amount needs to be preserved to age 55.

These benefits are also known as Targeted Separation Packages or TSP’s.

Appendix B Membership Information

B.1 Contributor Record Details

Department

Date of birth

Date started service

Actual and notional dates of joining the Scheme

Salary

Sex

Scheme code

Exit code

Full or limited benefits indicator

Contribution rate

Accrued points

Contribution account balance

Other factors for special benefit modifications

B.2 Pensioner Record Details

Department

Pension type

Sex

Dates of birth for member and spouse

Date pension started and date spouse pension started

Exit code and date of exit

Details of child pensioners

Commutation details

Basic pension

Supplementation pension

B.3 Summary of Contributor Movements for the Three Years to 30 June 2016

Pension Scheme	**Teachers**		**Other Employees**		**Total**
	Males	Females	Males	Females	
New Entrants	—	—	—	—	—
Age retirements	298	102	364	67	831
Invalidity / disability	2	1	2	—	5
Deaths	1	—	3	1	5
Resignations (with refund)	—	—	—	—	—
Resignations (preserved)	—	1	6	3	10
Resignations (transfer)	—	—	1	—	1
Retrenchments	—	—	2	—	2
Targeted Separation Packages	—	—	—	1	1
Other	—	—	—	—	—
Total Exits	301	104	378	72	855

Lump Sum Scheme	**Teachers**		**Other Employees**		**Total**
	Males	Females	Males	Females	
New Entrants	—	—	—	—	—
Age retirements	82	270	299	387	1,038
Invalidity / disability	—	1	1	3	5
Deaths	3	2	6	5	16
Resignations (with refund)	—	1	—	—	1
Resignations (preserved)	1	6	28	26	61
Resignations (transfer)	3	5	13	17	38
Retrenchments	—	—	—	1	1
Targeted Separation Packages	—	—	1	1	2
Other	—	—	—	—	—
Total Exits	89	285	348	440	1,162

B.4 Summary of Contributor Details as at 30 June 2016

Pension Scheme	Teachers		Other Employees		Total
	Males	Females	Males	Females	
Contributors					
Number	159	128	322	79	688
	$'000	$'000	$'000	$'000	$'000
Annual salaries	17,393	12,943	33,543	7,151	71,030
Contributions	528	535	1,038	258	2,359
Account balances	48,796	33,275	89,075	18,702	189,848
Preserved members					
Number	21	15	117	41	194
	$'000	$'000	$'000	$'000	$'000
Account balances	2,897	1,786	14,986	3,298	22,967
Number of SG preserved contributors	31	22	109	32	194

Lump Sum Scheme	Teachers		Other Employees		Total
	Males	Females	Males	Females	
Contributors					
Number	274	678	1,006	1,086	3,044
	$'000	$'000	$'000	$'000	$'000
Annual salaries	28,776	66,618	106,621	93,834	295,849
Contributions	1,744	3,603	6,285	5,198	16,830
Account balances	58,560	124,347	201,559	165,901	550,367
Preserved & Disability Contributors					
Number	34	91	359	398	882
	$'000	$'000	$'000	$'000	$'000
Account balances	3,283	6,197	24,319	21,782	55,581
Number of SG preserved contributors	19	28	179	188	414

B.5 Summary of Contributors By Age as at 30 June 2016

Pension Scheme	Teachers		Other Employees		Total
	Males	Females	Males	Females	
40 – 44	–	–	–	–	–
45 – 49	–	–	9	8	17
50 – 54	4	8	37	9	58
55 – 59	70	64	141	34	309
60 – 64	74	48	97	21	240
65 – 69	10	7	29	4	50
70 – 74	1	1	7	2	11
75 – 79	–	–	2	–	2
80+	–	–	–	1	1
Total	159	128	322	79	688

Lump Sum Scheme	Teachers		Other Employees		Total
	Males	Females	Males	Females	
40 – 44	–	5	17	32	54
45 – 49	19	76	104	140	339
50 – 54	55	125	217	203	600
55 – 59	100	193	338	355	986
60 – 64	79	212	246	253	790
65 – 69	20	57	73	85	235
70 – 74	1	8	9	16	34
75 – 79	-	2	2	1	5
80+	–	–	–	1	1
Total	274	678	1,006	1,086	3,044

B.6 Summary of Pensioner Details as at 30 June 2016

	Number		**Annual Pensions $'000**	
Age retirements				
Males	8,495		398,693	
Females	2,039		78,676	
Total		10,534		477,369
Retrenchments				
Males	957		37,482	
Females	63		2,984	
Total		1,020		40,466
Invalidity retirements				
Males	486		18,921	
Females	151		5,274	
Total		637		24,195
Spouses of deceased members				
Male pensioners	99		2,037	
Female pensioners	2,926		71,559	
Total		3,025		73,596
Non-member spouses				
Male pensioners	–		–	
Female pensioners	40		829	
Total		40		829
Children of deceased members		22		129
Total		15,278		616,584

Note: The table above includes 11 children of deceased member pensions paid under the Lump Sum scheme.

B.7 Summary of Pensioners By Age as at 30 June 2016

	Age		Invalidity		Spouse		Total		Total
Age	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	
45 – 49	—	—	—	—	—	3	—	3	3
50 – 54	2	1	1	2	1	6	4	9	13
55 – 59	173	56	12	6	3	37	188	99	287
60 – 64	1,426	336	55	20	3	127	1,484	483	1,967
65 – 69	2,319	476	119	39	15	284	2,453	799	3,252
70 – 74	2,025	407	111	29	15	363	2,151	799	2,950
75 – 79	1,422	313	60	24	19	449	1,501	786	2,287
80 – 84	943	219	70	10	17	558	1,030	787	1,817
85 – 89	760	167	45	16	14	610	819	793	1,612
90 – 94	325	102	13	1	11	393	349	496	845
95 – 99	52	21	—	4	1	123	53	148	201
100 – 104	5	4	—	—	—	13	5	17	22
105 – 109	—	—	—	—	—	—	—	—	—
Total	9,452	2,102	486	151	99	2,966	10,037	5,219	15,256

Note: Table above excludes 22 child pensioners

Appendix C Contributor Experience

C.1 Introduction

The experience of contributors during the three years to 30 June 2016 has been examined and compared with that assumed in the previous actuarial investigation. The total years of exposure during the period were as follows:

		Years of Exposure	
		Pension Scheme	Lump Sum Scheme
Males	Teachers	898	963
	Other	1,458	3,471
	Total	2,356	4,434
Females	Teachers	521	2,452
	Other	324	3,802
	Total	845	6,254
Total		3,201	10,688

During the three years to 30 June 2016, there has been a significant reduction in members of both the Pension and Lump Sum schemes.

Comments on individual aspects of the experience are detailed in the following sections of this Appendix and summaries of the rates adopted for the current investigation are set out in Appendix E.

C.2 Contributor Mortality

The mortality assumptions used in the 2013 investigation of the State Scheme were based the Australian Life Tables 2005-07 with adjustments for mortality improvement for seven years. The Australian Life Tables 2010-12, with adjustments for mortality improvement for five years, have been used to produce the 2016 mortality assumptions.

The mortality experience was as follows, with expected deaths determined according to the assumptions used in the previous investigation.

	Pension Scheme		Lump Sum Scheme	
	Males	Females	Males	Females
Actual deaths	4	1	9	7
Expected deaths	4	1	7	6

The mortality rates adopted have been set at 35% of the Australian Life Tables 2010–12 adjusted for 5 years of mortality improvement. This proportion has been increased from the 32% in the 2013 investigation as a result of the number of deaths exceeding the number expected.

C.3 Invalidity Retirement

The invalidity experience was as shown below. The numbers include invalidity retirements and temporary disablements where members have not returned to work.

	Pension Scheme		Lump Sum Scheme	
	Males	**Females**	**Males**	**Females**
Actual invalids	4	1	1	4
Expected invalids	3	1	2	3

The existing rates have been retained.

C.4 Resignation

The rates of resignation experienced in the three years to 30 June 2016 are shown below, subdivided by scheme, age, sex and teacher/non-teacher status.

Resignations

Age	Teachers		Other	
	Males	**Females**	**Males**	**Females**
Pension Scheme				
40 – 44	–	–	–	–
45 – 49	–	–	0.021	0.031
50 – 54	–	0.015	0.030	0.052
Lump Sum Scheme				
40 – 44	–	–	0.010	0.014
45 – 49	0.012	0.014	0.021	0.035
50 – 54	0.012	0.018	0.040	0.030

A comparison of actual and expected resignations for the period is as follows:

	Teachers		Other	
	Males	Females	Males	Females
Pension Scheme				
Actual resignations	–	1	7	4
Expected resignations	0	1	4	2
Lump Sum Scheme				
Actual resignations	4	12	42	45
Expected resignations	7	16	38	42

C.5 Resignations in the last three years are close to expected for Lump Sum Scheme Other members and the 2010 assumptions have been retained. The numbers are small for the remaining groups in the above table and small changes have been made to the rates for these groups.

C.6 Preservation

The following tables show the percentages of resigning contributors who also preserve their entitlements.

Pension Scheme

Age	Teachers		Other	
	Males	Females	Males	Females
	%	%	%	%
40 – 44	–	–	–	–
45 – 49	–	–	100	–
50 – 54	–	100	83	100

The assumed proportions in the 2007 basis have been retained.

Lump Sum Scheme

Age	Teachers		Other	
	Males	Females	Males	Females
	%	%	%	%
40 – 44	–	–	100	33
45 – 49	100	25	89	72
50 – 54	–	63	59	54

The assumed proportions in the 2010 basis for all members have been retained.

C.7 Transfer of Lump Sum Scheme members to another Superannuation Fund

Current Contributors

The following table shows the percentages of resigning contributors who transferred their entitlements to an approved superannuation fund during 2013-16.

Lump Sum Scheme

Age	Teachers		Other	
	Males	Females	Males	Females
	%	%	%	%
40 – 44	–	–	–	67
45 – 49	–	50	–	22
50 – 54	100	38	41	46

The assumed proportions in the 2010 basis for all members have been retained.

Preserved Contributors

A rate of 2% of preserved members per annum are assumed to transfer their entitlements to an approved superannuation fund.

C.8 Age Retirement

Actual and expected age retirements for the three years to 30 June 2016 were as follows:

	Teachers		Other	
	Males	Females	Males	Females
Pension Scheme				
Actual retirements	298	102	364	67
Expected retirements	278	131	333	70
Lump Sum Scheme				
Actual retirements	82	270	298	387
Expected retirements	76	264	312	357

The percentages of retirements before age 60 were as follows:

Pension Scheme		Lump Sum Scheme		Preserved Contributors	
Males	Females	Males	Females	Males	Females
32%	31%	29%	24%	47%	42%

Contributors may choose to retire after age 55, although the scheme is designed around a normal retiring age of 60. Age retirement rates are higher for Pension Scheme members than for Lump Sum Scheme members. The Pension Scheme experience over the last three years has shown more retirements than expected for males but less for females. For Lump Sum Scheme members, there were more retirements except for male Other. New rates have been adopted for both scheme members with separate rates for Teachers and Others. There are now 64 Pension Scheme members and 273 Lump Sum Scheme members over age 65.

C.9 Age Retirement of Preserved Contributors

Actual and expected age retirements for the three years to 30 June 2016 were as follows:

	Teachers		Other	
	Males	Females	Males	Females
Pension Scheme				
Actual retirements	27	17	110	14
Expected retirements	57	33	236	45
Lump Sum Scheme				
Actual retirements	9	22	85	71
Expected retirements	22	46	168	153

The existing rates have been retained.

C.10 Retrenchment

The numbers of retrenchments during the three years to 30 June 2016 were as follows:

Males	2
Females	1

Because of the unpredictable nature of retrenchment no allowance has been made in this investigation for future retrenchments.

C.11 Voluntary Separation Packages

The Superannuation Act was first amended in May 1993 to provide the option of an additional cash benefit payable to contributors who resign pursuant to a voluntary separation package (VSP).

No allowance has been made for future VSP benefits.

C.12 Promotional Salary Increases

Promotional salary increases experienced were higher than expected for male Non-Teachers as follows:

Promotional Salary Increases	Teachers Males	Teachers Females	Other Males	Other Females
	% pa	% pa	% pa	% pa
Actual increase	0.6	0.4	1.2	0.9
Expected increase	0.9	1.0	1.3	1.4

These promotional increases, along with inflationary increases, were reflected in the Total salary increases as follows:

Total Salary Increases	Teachers Males	Teachers Females	Other Males	Other Females
	% pa	% pa	% pa	% pa
Actual increase	3.4	3.2	3.9	3.6
Expected increase	5.0	5.0	5.3	5.4

New promotional salary scales for Teachers and Other members have been adopted as set out in Appendix E.7.

C.13 Commutation

For the three years ended 30 June 2016 the commutation experience was as follows:

	Percentage of pensioners who commuted	Percentage of pension commuted by those who commuted	Average Percentage of pension commuted
	%	%	%
Age retirements:			
Males	24	25	7
Females	29	34	10
Invalidity retirements			
At start of pension	-	-	-
At age 60	30	39	11
Spouses	24	52	14

Commutation rates for the last three years have been lower than expected. The percentage adopted for age retirements has been reduced from 10.0% to 7.5% and from 15.0% to 10.0% for invalid retirements. The rate of 15.0% has been retained for spouses.

C.14 Family Statistics

In order to value benefits payable to spouses and children, assumptions are needed regarding:

a the proportions of contributors married at each age;
b the age differences between contributors and their spouses; and
c details of the children of contributors.

The proportions married have largely been reduced for males and females. At age 65, the proportion has been reduced from 88% to 83% for males and from 71% to 61% for females. However, with reducing mortality, the proportions increased from age 91 for males and 90 for females. Age differences were increased for males from age 86 and females from age 84.

C.15 Contribution Rates

The distribution of contribution rates as at 30 June 2016 was as follows:

Pension Scheme Contribution Rates (% of salary)

Age	0	1.5	3	4.5	6	7.5	9	Total
Male								
45 – 54	–	–	1	–	46	2	1	50
55 – 59	–	–	1	1	202	3	4	211
60 – 64	154	–	–	1	11	–	5	171
65 –	46	–	–	–	2	1	–	49
Total	200	–	2	2	261	6	10	481
Female								
45 – 54	–	–	2	–	22	–	1	25
55 – 59	–	–	2	1	88	2	5	98
60 – 64	36	–	1	–	26	1	5	69
65 –	12	–	1	–	2	–	–	15
Total	48	–	6	1	138	3	11	207

Lump Sum Scheme Contribution Rates (% of salary)

Age	0	1.5	3	4.5	6	7.5	9	Total
Male								
35 – 44	–	–	2	1	10	1	3	17
45 – 54	8	–	28	12	238	38	71	395
55 – 59	8	–	41	11	254	33	91	438
60 – 64	4	–	54	9	179	18	61	325
65 –	2	–	16	4	57	5	21	105

Age	0	1.5	3	4.5	6	7.5	9	Total
Total	22	–	141	37	738	95	247	1,280
Female								
35 – 44	2	–	8	1	23	3	–	37
45 – 54	15	–	58	19	279	55	118	544
55 – 59	2	–	64	18	299	39	126	548
60 – 64	1	–	95	15	227	25	102	465
65 –	3	–	33	3	81	10	40	170
Total	23	–	258	56	909	132	386	1,764

The standard rate of 6 percent shown in the tables above includes members whose standard rate is between 5 and 6 percent. Lump Sum Scheme members show more variation from the standard than Pension Scheme members. Lump Sum Scheme members have tended to increase their contribution rate to the Scheme. Most of the Pension Scheme members with zero contributions will be members whose contribution have ceased because they have attained age 60 and maximum contribution points.

The percentages at standard rates for each Scheme are as follows:

Percentage Contribution At Standard Rate		
	Males	Females
Pension Scheme	54	67
Lump Sum Scheme	58	52

Appendix D Pensioner Experience

D.1 Introduction

The mortality experience of pensioners during the three years to 30 June 2016 has been examined and compared with that assumed in the previous actuarial investigation. Where appropriate the previous assumptions have been modified in light of this experience. Comments on individual aspects of the experience are detailed in the following sections of this Appendix and summaries of the rates adopted for the current investigation are set out in Appendix E.

D.2 Age Retirement Pensioners

The mortality experience was as follows, with expected deaths determined according to the assumptions used in the previous investigation.

	Males	Females
Actual Deaths	829	150
Expected Deaths	834	156

The rates of mortality have shown a further decline, which is at roughly the same rate as the anticipated improvement in mortality rates in the Australian population. New rates have been based on the Australian Life Tables 2010-12 adjusted for 5 years mortality improvement, which rise from 55% at age 60 to 100% from age 95. The age from which rates are set to 100% of adjusted ALT has been increased from 90 to 95. This partly due to a reduction in the 25-year rates of mortality improvement for age pensioners up to age 68 and over 87 for males and up to age 62 and over 79 for females.

D.3 Invalidity Pensioners

Invalidity pensioners are expected to suffer higher rates of mortality than age retirement pensioners, particularly in the first few years after retirement. The mortality experience of invalidity pensioners is summarised below:

	Males			Females		
	Year 1	Year 2	Later Years	Year 1	Year 2	Later Years
Actual Deaths	–	1	73	–	–	18
Expected Deaths	0	0	64	0	0	15

Invalidity rates have been set for durations over two years using a similar method as in 2010. The male rates commence at 0.007 for ages to 55 and reduce as a multiple of the Australian Life Tables 2010-12 (adjusted for 5 years mortality improvement) to 1.0 times at age 90. The female rates commence at .008 for ages to 55 and reduce as a multiple to 1.0 times at age 80.

For early durations the mortality rate has been retained at 0.05 in year one and 0.02 in year two for both males and females.

D.4 Spouse Pensioners

The mortality experience of spouse pensioners was as follows:

	Males	Females
Actual Deaths	16	571
Expected Deaths	15	532

Rates of mortality have been set as a multiple of the Australian Life Tables 2010-12 (adjusted for 5 years mortality improvement). The multiples of the Tables have been set at 0.70 for ages below 65 rising to 1.0 at age 90.

D.5 Mortality Improvement

Mortality rates have been improving for many years and it is reasonable to expect that this trend will continue. However, there has been some reduction in rates of improvement as described in D.2 above. The mortality improvement factors have been set equal to the 25 year average factors in Appendix E of the Australian Life Tables 2010-12.

Appendix E Demographic Assumptions

E.1 Contributor Mortality Rates

Age	Males (35% 2010-12 ALT with 5 years improvements)	Females (35% 2010-12 ALT with 5 years improvements)
20	0.00018	0.00008
25	0.00020	0.00008
30	0.00026	0.00011
35	0.00034	0.00017
40	0.00044	0.00026
45	0.00061	0.00038
50	0.00089	0.00057
55	0.00134	0.00082
60	0.00198	0.00124
65	0.00313	0.00191

E.2 Contributor Invalidity Retirement Rates

Age	Pension Scheme	Lump Sum Scheme
20	0.00009	0.00009
25	0.00015	0.00015
30	0.00025	0.00025
35	0.00039	0.00039
40	0.00060	0.00060
45	0.00088	0.00088
50	0.00123	0.00123
55	0.00167	—
60	—	—
65	—	—

E.3 Contributor Resignation Rates

Age	Teachers		Other Employees	
	Pension Scheme	Lump Sum Scheme	Pension Scheme	Lump Sum Scheme
20	0.00900	0.01260	0.04770	0.05291
25	0.01384	0.02016	0.04429	0.05083
30	0.01559	0.02436	0.03867	0.04238
35	0.01554	0.02402	0.03085	0.03393
40	0.01399	0.02131	0.02452	0.02548
45	0.01244	0.01781	0.02042	0.02210
50	0.01014	0.01748	0.02108	0.02600

E.4 Preservation Proportions — Pension Scheme

Age	Teachers and Others
Up to 45	0.80
46	0.84
47	0.88
48	0.92
49	0.96
50 and over	1.00

E.5 Withdrawal Benefit Option Proportions — Lump Sum Scheme

Age	Preserved	Transfer	Cash
Up to 45	0.30	0.50	0.20
46	0.30	0.54	0.16
47	0.30	0.58	0.12
48	0.30	0.62	0.08
49	0.30	0.66	0.04
50 and over	0.30	0.70	—

A rate of transfer of 2% per annum has been assumed for preserved members up to age 55.

E.6 Rates of Retirement

	Current Contributors				Preserved Contributors	
	Pension Scheme		Lump Sum Scheme		Pension	Lump Sum
Age	Teachers	Others	Teachers	Others	Scheme	Scheme
55	0.07	0.08	0.08	0.06	0.50	0.40
56	0.09	0.10	0.06	0.06	0.50	0.15
57	0.12	0.13	0.06	0.06	0.50	0.15
58	0.15	0.17	0.09	0.08	0.50	0.15
59	0.20	0.20	0.10	0.08	0.50	0.15
60	0.50	0.43	0.18	0.21	0.50	0.25
61	0.35	0.35	0.14	0.13	0.50	0.25
62	0.35	0.35	0.16	0.13	0.50	0.25
63	0.35	0.35	0.17	0.13	0.50	0.25
64	0.35	0.35	0.22	0.20	0.75	0.25
65	0.35	0.35	0.35	0.35	1.00	1.00
66	0.45	0.35	0.25	0.30	1.00	1.00
67	0.35	0.35	0.25	0.30	1.00	1.00
68	0.35	0.35	0.25	0.30	1.00	1.00
69	0.35	0.35	0.25	0.30	1.00	1.00

E.7 Rates of Promotional Salary Increases

Age	Teachers	Other Employees
20	0.046	0.029
25	0.039	0.025
30	0.032	0.022
35	0.026	0.019
40	0.021	0.016
45	0.016	0.014
50	0.012	0.012
55	0.008	0.010
60	0.005	0.008
65	0.003	0.007

E.8 Family Statistics — Males

Age	Percentage Married	Age of Husband less Age of Wife	No. of Dependent Children	Average Age of Dependent Children
20	3	—	—	—
25	20	2	1	1
30	44	3	2	4
35	68	3	2	7
40	81	3	2	10
45	85	3	2	13
50	85	3	1	15
55	85	3	—	—
60	84	3	—	—
65	83	3	—	—
70	81	3	—	—
75	79	3	—	—
80	74	3	—	—
85	67	4	—	—
90	55	6	—	—

E.9 Family Statistics — Females

Age	Percentage Married	Age of Husband less Age of Wife	No. of Dependent Children	Average Age of Dependent Children
20	12	4	—	—
25	42	4	1	2
30	55	4	2	7
35	62	4	2	10
40	64	4	2	12
45	65	3	1	14
50	65	3	1	15

Age	Percentage Married	Age of Husband less Age of Wife	No. of Dependent Children	Average Age of Dependent Children
55	64	3	—	—
60	63	3	—	—
65	61	3	—	—
70	58	2	—	—
75	53	2	—	—
80	43	2	—	—
85	30	1	—	—
90	15	—	—	—

E.10 Pensioner Mortality Rates

Pensioner Mortality

a proportion of ALT (adjusted for mortality imp), varying from 55% up to age 60 to 100% at age 9095.

Spouse Pensioner Mortality

a proportion of ALT (adjusted for mortality imp), varying from 70% up to age 65 to 100% at age 90.

Invalidity Pensioner Mortality

Males: A rate of 0.007 to age 55 reducing to 100% times ALT 20052010-0712 (adjusted for mortality impr) at age 90.

Females: A rate of 0.008 to age 55 reducing to 100% times ALT 20052010-0712 (adjusted for mortality impr) at age 80.

					Invalidity Pensioners	
	Age Retirements		Spouse Reversion		After 2 years	
Age	Males	Females	Males	Females	Males	Females
20	0.00028	0.00013	0.00016	0.00036	0.00700	0.00800
25	0.00032	0.00013	0.00017	0.00040	0.00700	0.00800
30	0.00042	0.00018	0.00022	0.00053	0.00700	0.00800
35	0.00054	0.00027	0.00034	0.00068	0.00700	0.00800
40	0.00069	0.00040	0.00051	0.00088	0.00700	0.00800
45	0.00096	0.00060	0.00077	0.00122	0.00700	0.00800
50	0.00141	0.00089	0.00114	0.00179	0.00700	0.00800

					Invalidity Pensioners	
55	0.00210	0.00129	0.00165	0.00267	0.00700	0.00800
60	0.00311	0.00195	0.00248	0.00396	0.00970	0.01033
65	0.00527	0.00322	0.00381	0.00625	0.01427	0.01330
70	0.00909	0.00577	0.00669	0.01055	0.02109	0.01776
75	0.01723	0.01106	0.01259	0.01963	0.03391	0.02372
80	0.03474	0.02247	0.02521	0.03898	0.05723	0.02988
85	0.07072	0.05059	0.05618	0.07853	0.09618	0.06147
90	0.13954	0.11123	0.12287	0.15414	0.15414	0.12287
95	0.24777	0.21663	0.21663	0.24777	0.24777	0.21663

The mortality rate in the first year of an invalidity pension is assumed to be 5% and 2% in the second year.

E.11 Rates of Mortality Improvement

	Annual rates of decrease of age specific mortality rates	
Age	**Males**	**Females**
	%	%
60	3.042	2.461
70	3.136	2.545
80	2.293	2.059
90	0.893	0.830
100	-	-

E.12 Commutation

Pension Type	Percentage Commuted
Age	7.5
Invalid	10.0
Spouse	15.0

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