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Actuarial Investigation as at 30 June 2024

Government Division within Australian Retirement Trust (QSuper)

3 December 2024

A business of Marsh McLennan

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Executive Summary

I have prepared this report on the actuarial investigation of the Government Division within Australian Retirement Trust (QSuper) as at 30 June 2024 for Australian Retirement Trust Pty Ltd, as Trustee of QSuper (the Trustee), and Queensland Treasury on behalf of the Queensland Government. The previous investigation as at 30 June 2021 was carried out by Wayne Cannon (Queensland State Actuary at that time). QSuper is closed to new defined benefit members.

This report is provided to the Trustee and Queensland Treasury. It should not be relied upon for any other purpose or by any other party. Mercer is not responsible for the consequences of any other use. This report should be considered in its entirety and not distributed in parts.

Assets

Member contributions are made to QSuper, and employer contributions are made to the consolidated fund held separately by the State to meet its defined benefit superannuation obligations (the Employer Fund). The assets held in the Employer Fund are held for the purposes of meeting the liabilities within QSuper. The defined benefit section of QSuper is therefore funded jointly by the QSuper assets and the Employer Fund where contributions are made from the Employer Fund to QSuper when defined benefit payments arise including for pensions which are fully funded at commencement.

Purpose of the Actuarial Investigation

The *Queensland Future Fund Act 2020* introduced a funding guarantee (the funding guarantee) in the *Superannuation (State Public Sector) Act 1990* (the Act). Under Section 32 of the *Act*, the State is to hold assets that are at least equal in value to the accrued liability of the State in relation to defined benefit members, measured at least once every 3 years, less the value of the assets held in QSuper. This actuarial investigation calculates the Actuarial Value of Benefits of the State for this purpose.

The Government decides what funding initiatives should be undertaken (if any) after taking into account its overall balance sheet and financial priorities. Therefore, I do not comment or make recommendations about the relative merits of any funding management scenarios.

Under Section 31(2) of the Act, the contribution payable from the Employer Fund to QSuper on behalf of the State in respect of defined benefit members is the amount decided by the Board (the Trustee) on the advice of the actuary. This investigation recommends the contributions to be paid.

QSuper is regulated by the Australian Prudential Regulation Authority (APRA) with some exemptions as a public sector superannuation scheme (refer Section 2 for further details of the regulations that apply to QSuper and the exemptions). This investigation is also provided to the Trustee to meet the requirements under the Trust Deed of Australian Retirement Trust (the Deed) and the legislative requirements under relevant Commonwealth superannuation legislation as they apply to QSuper; these include the *Superannuation Industry (Supervision) Act 1993* and associated regulations (SIS legislation) and APRA Prudential Standard SPS 160 (refer to Section 2 for details of how this applies to QSuper).

Financial Position

I set out below a summary of QSuper's financial position at both this and the previous actuarial investigation dates. Refer to Section 6 for a detailed breakdown of the financial position at 30 June 2024.

$ millions	30 June 2024			30 June 2021		
	Past Service	Future Service	Total Service	Past Service	Future Service	Total Service
Value of Assets						
- QSuper Assets	6,772	962^	7,734	6,536	1,350^	7,886
- Employer Fund	26,141	724*	26,865	25,553	3,524*	29,077
Total	32,913	1,686	34,599	32,089	4,874	36,963
Actuarial Value of Benefits (Liabilities)	22,961	4,168	27,129	25,440	6,532	31,972
Surplus	9,952	(2,482)	7,470	6,649	(1,658)	4,991
Asset coverage of liabilities	143%		127%	126%		116%

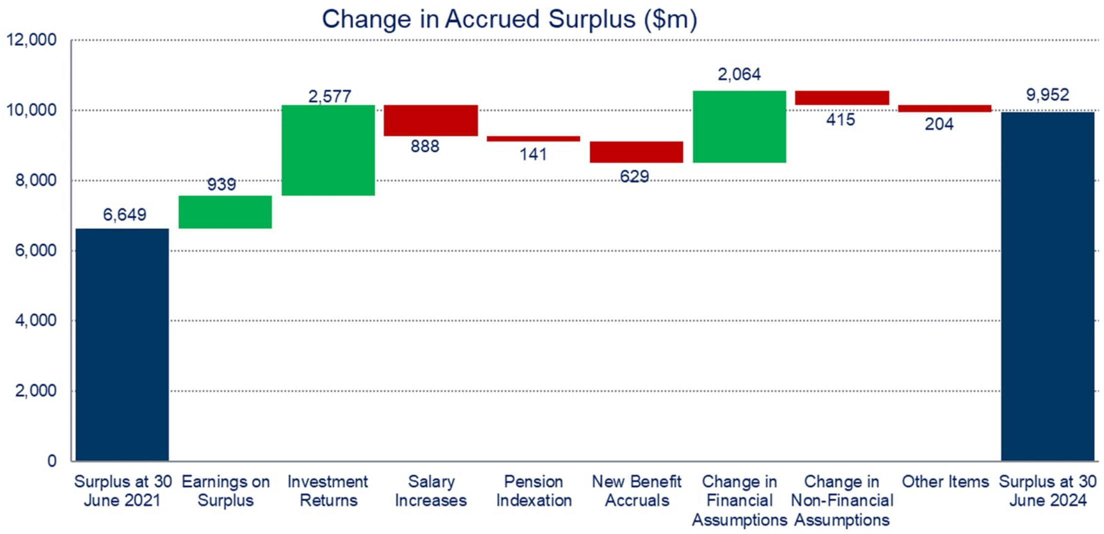
^Value of future member contributions to QSuper
**Value of future employer contributions to the Employer Fund until 30 June 2026. Thereafter investment of employer contributions will be suspended.*

The above totals exclude accumulation liabilities and additional accumulation balances for defined benefit members as the assets and liabilities are of equal value for these benefits and they are all in the Accumulation Category.

The asset coverage of Vested Benefits is shown in Section 6. This section also explains why the Actuarial Value of Benefits is the more relevant measure for QSuper.

The coverage level at 30 June 2024 was significantly higher than at the previous actuarial investigation for the reasons shown in the chart below.

Experience



The two major contributors to the increase in the surplus were:

- Investment earnings of 7.2% pa, which were higher than the assumed long term rate (4.5% pa)
- The change in the assumptions used to value the benefits (refer below).

These were partially offset by salaries and pensions increasing at a higher rate than assumed (partly as a result of higher inflation over the period) and benefits accruing at a higher rate than the contributions being made (new benefit accruals in the chart above).

Assumptions

I have updated the assumptions adopted to value QSuper's liabilities from those used in the previous investigation. These reflect changes to the economic environment and membership experience since the previous actuarial investigation. The financial assumptions are summarised below (refer Section 5 and Appendix C for further details):

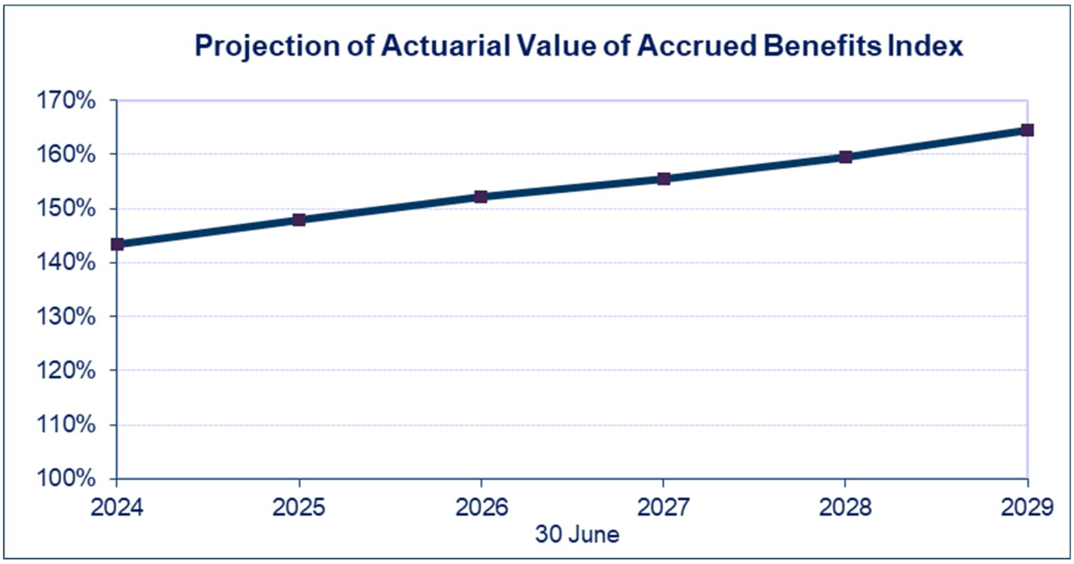
Assumption p.a.	30 June 2024	30 June 2021
Discount Rate	6.25%	4.5%
Salary Inflation	3.4%	3.1%
Price (CPI) Inflation	2.4%	2.1%

The gap between the discount rate and both the rate of salary inflation and the rate of price inflation has increased significantly which has led to a material reduction in the Actuarial Value of Accrued Benefits (being the past service value of the Accrued Value of Benefits in the table above). In other words, with the funds held expected to increase at a higher rate than both salaries and inflation, fewer assets are required at the valuation date to meet the liabilities in future.

Changes to the decrement assumptions have also been made based on the membership experience and these are covered in the experience analysis in Appendix B.

Projection

I have projected the assets (QSuper plus Employer Fund), and the Actuarial Value of Accrued Benefits based on the funding assumptions adopted for this investigation on a deterministic basis (refer Section 5). In the graph below we show the projection of the Index which is the ratio of assets to the Actuarial Value of Accrued Benefits (being the past service value of the Accrued Value of Benefits in the table above). This includes allowance for investment of contributions in line with the recommended rates to the Employer Fund until 30 June 2026. Thereafter investment of the employer contributions in the Employer Fund will be suspended.



The graph shows that the financial position is projected to continue to improve over the next 5 years based on the assumptions adopted.

Funding Guarantee

For the purposes of the Act, the actuarial value of the accrued benefits of government defined benefit members is $22,961 million and the value of assets held in QSuper for defined benefit liabilities is $6,772 million. Therefore, the accrued liability of the State is $16,189 million (being $22,961 million - $6,772 million) and legislation requires the State hold assets equal to this figure. At 30 June 2024, the Employer Fund was $26,141 million therefore the requirements are met.

For information, under AASB 119 (the accounting standard for the State's financial statements) the total value of past service liabilities is $25,876m[1] which is $2,915m higher than the figure shown above. The difference is the discount rate of 4.3% per annum used for AASB 119 (prescribed in the standard to be based on a Commonwealth government bond yield of appropriate duration) compared to 6.25% per annum used for funding (based on an expected return on assets). Refer to Section 6 for a full balance sheet on both bases.

There is no requirement to fund to this higher level and I note that past practice has been to fund to the level required if the expected return on the assets held were to eventuate. However, at 30 June 2024 the assets are also sufficient to cover the AASB 119 liabilities.

Risks

The above projection is based on the assumptions made, which represent a single scenario from a range of possibilities. The future is uncertain and QSuper's actual experience will differ from these assumptions; these differences may be minor in their overall effect, or they may be significant and material. In addition, different sets of assumptions or scenarios may also be within the reasonable range and results based on those alternative assumptions would be different. In section 7 we show the impact on the results of changing the key assumptions.

Given the funding and benefit payments guarantee (defined in Section 2), the State is exposed to these (and other) risks where actual experience differs from that assumed.

Recommended Contributions

Under Section 31(2) of the Act, the contribution payable from the Employer Fund to QSuper on behalf of the State in respect of defined benefit members is the amount decided by the Board (the Trustee) on the advice of the actuary. Rule 46 of the Government Division Rules of the Deed further says that such contributions must be paid when the defined benefit member becomes entitled to the defined benefit regardless of whether or not the defined benefit is paid out of the fund.

[1] This figure is $99m lower than the disclosed AASB 119 figure of $25,975m, and reflects the updated demographic assumptions from this investigation so that it is comparable to the other liabilities in this report

Therefore, I recommend the following funding arrangements to meet the State's share of the defined benefit liabilities (refer Section 6 for detailed calculation):

Income protection	Income protection benefits to be met fully by the State as required by the Deed.
Pensioners	Payments to pensioners continue to be met solely from QSuper. Refer below, all pensions are fully funded at commencement.
All other defined benefit payments	Other than the above, State to meet **88%** of defined benefit payments. Defined benefit payments for this purpose include any transfers to an accumulation category and the present value of new pensions that emerge on the exit of defined benefit active members (refer Appendix D for factors to calculate this present value).

The proportion of 88% of defined benefit payments has reduced from 92% since the last actuarial investigation due to the higher relative position of QSuper assets compared to the total Actuarial Value of Accrued Benefits (refer Experience above for details).

The next actuarial investigation will be performed as at 30 June 2027.

Post Investigation Date Events

We are not aware of anything material that has happened since 30 June 2024 which would impact the results shown in this investigation.

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Introduction

Background of QSuper

QSuper is operated for the benefit of current and former employees of the Queensland Government and surviving spouses and children where applicable. The provisions of the Act and the Deed dated 28 June 2023 (as amended) govern the operation and the benefits provided in QSuper.

QSuper was established on 13 June 1990 by the Act. From 1 May 2000, the Comprehensive Accumulation Category became the default category for new QSuper members with a once only option in the future to transfer to the Standard Defined Benefit Category. Subsequently, the Defined Benefit Category was closed to new members from 12 November 2008. QSuper merged with Sunsuper in 2022 and became part of Australian Retirement Trust. QSuper is now known as the Government Division within Australian Retirement Trust. We will continue to refer to “QSuper” in this report.

The Trustee, Australian Retirement Trust Pty Ltd, holds a Registrable Superannuation Entity Licence under the *Superannuation Industry (Supervision) Act 1993* (Cwlth) and associated regulations (SIS legislation) and operates QSuper as required under the Deed. In this actuarial investigation, I have considered the defined benefit categories only i.e. Standard Defined Benefit, State, Police, Fire and Parliamentary categories.

Defined benefit QSuper members may receive lump sum or pension defined benefits on retirement, death or disablement, depending on their entitlements under the Deed. A high-level summary of the defined benefits provided for each membership category is set out in Appendix A. Within the Standard Defined Benefit Category, most members are entitled to similar benefits except Police Officers who have different benefit conditions as summarised in Appendix A (noting this is a different group of Police Officers to those in the distinct Police Category which provides different benefits). The previous Actuary found that these Police Officers had traditionally had higher rates of death and disablement than the other members of the Standard Defined Benefit Category and therefore we consider their experience separately and also show this group as a separate sub-category.

Assets

Member contributions are made to QSuper, and employer contributions are made to the consolidated fund held separately by the State to meet its defined benefit superannuation obligations (the Employer Fund). The assets held in the Employer Fund are held for the purposes of meeting the liabilities within QSuper. The defined benefit section of QSuper is therefore funded jointly by the QSuper assets and the Employer Fund where contributions are made from the Employer Fund to QSuper when defined benefit payments arise including for pensions which are fully funded at commencement.

Rule 20 under the Government Division of the Deed requires that an actuarial investigation and report as to the state and sufficiency of the fund shall be made by the Actuary to the Trustee at least every three years. It requires the report to include:

- A statement of the assets of the fund;

- A statement as to any liability for benefit payments not expected to be financed out of the assets of the fund; and
- Any other matters which the actuary may consider appropriate generally.

Benefit Payments Guarantee

Section 31 of the Act determines the State's contribution from the Employer Fund (referred to as the consolidated fund in the Act) to QSuper. In this report I will refer to this as the "Benefit Payments Guarantee". Section 31 says:

(1) The Treasurer must make, on behalf of the State, the following contributions to the scheme fund:

(a) contributions to satisfy defined benefits that become payable to government defined benefit members under the deed;
(b) any other contributions the Treasurer considers necessary for the efficient and effective operation of the scheme in relation to government defined benefit members.

(2) The amounts of the contributions payable under subsection (1)(a) are the amounts decided by the trustee on the advice of an actuary.

(3) The amounts of the contributions payable under subsection (1)(b) are the amounts decided by the Treasurer in consultation with the trustee.

(4) The contributions under subsection (1) in a financial year must be at least the amount required to meet defined benefits under the deed that become payable in the financial year less

(a) any share of the defined benefits satisfied by contributions already made to the scheme fund by the Treasurer under this section or former section 29; and

(b) any share of the defined benefits satisfied by:
(i) contributions already made by the government defined benefit members to whom the defined benefits are payable; and
(ii) accumulated interest on the contributions mentioned in subparagraph (i).

(5) A contribution under subsection (1) must be paid out of the consolidated fund, which is appropriated accordingly.

This report of the actuarial investigation makes a recommendation to the Trustee regarding the level of contributions as required under Section 31(2).

Funding Guarantee

The *Queensland Future Fund Act 2020* introduced a funding guarantee in the Act. Under Section 32 of the Act, the State is to hold assets in relation to defined benefit liabilities as follows (referred to in this report as the "Funding Guarantee"):

(1) The State is to hold assets that are at least equal in value to the accrued liability of the State in relation to defined benefits, measured at least once every 3 years.

(2) For subsection (1), the accrued liability of the State in relation to defined benefits is the

actuarial value of the accrued benefits of government defined benefit members less the value of the scheme fund that is attributed in an actuarial investigation to government defined benefit members.

(3) For subsection (2), the actuarial value of the accrued benefits of government defined benefit members is to be determined using the assumptions that are used in the actuarial investigation mentioned in the subsection to determine recommended contributions to the scheme fund.

This actuarial investigation calculates the Actuarial Value of Accrued Benefits for this purpose.

The Government decides what funding initiatives should be undertaken (if any) after taking into account its overall balance sheet and financial priorities. Therefore, I do not comment or make recommendations to the Government about the relative merits of any funding management scenarios.

Regulation

QSuper is a regulated superannuation fund under the supervision of APRA and must meet the relevant reporting requirements. As mentioned, a proportion of the assets are held within QSuper with the remainder held within the Employer Fund. In the Actuarial Balance Sheet shown in Section 6, this shows QSuper is well funded taking into account the Employer Fund assets. However, QSuper technically meets the definition of an unfunded or partially funded Public Sector Superannuation Scheme as the Employer Fund is held outside of QSuper, and hence when considering the monitoring and disclosure requirements for a regulated superannuation fund some exemptions or special rules apply. Public Sector Superannuation Scheme has the same meaning as set out in section 10 of the SIS Act:

"A scheme for the payment of superannuation, retirement or death benefits, where the scheme is established:

(a) by or under a law of the Commonwealth or of a State or Territory; or

(b) under the authority of:
(i) the Commonwealth or the government of a State or Territory; or
(ii) a municipal corporation, another local governing body or a public authority constituted by or under a law of the Commonwealth or of a State or Territory."

Therefore, the disclosure requirements of this actuarial investigation are limited to those summarised in paragraph 24 of SPS 160. These are:

(a) the value of the assets of the fund at the valuation date, excluding any amount held to meet the Operational Risk Financial Requirement (ORFR);

(b) if the RSE (Registrable Superannuation Entity) actuary considers it appropriate, taking into account the proportion of the liabilities of the fund that are being funded, a statement recommending the level of, or the rate at which, or the range of rates within which, employer contributions to be made during the three-year period immediately following the valuation date. In preparing the statement, the RSE actuary must assess and comment on the appropriateness of the assumptions and valuation methods used to determine the accrued benefit liability;

(c) a statement regarding the adequacy of the funding of the liabilities of the fund, having regard to any Commonwealth, State or Territory guarantee in respect of benefit payments and to any appropriations in respect of the fund; and

(d) a statement regarding the occurrence of a prescribed event, if a pre-July 1988 funding credit has been granted under section 342 of the SIS Act or has been obtained by transfer under Part 12 of the SIS Regulations, and an event prescribed under section 342(4)(a) of the Act and listed in regulation 12.10 of the SIS Regulations has occurred.

The statements required under these disclosure requirements are set out in Section 10.

Funding and Solvency Certificate: Under Regulation 9.05 of the *Superannuation Industry (Supervision) Regulations 1994* there is a specific exemption for QSuper and therefore a Funding and Solvency Certificate is not required.

Shortfall Limit: SPS 160 paragraph 10 does not apply to QSuper and therefore a Shortfall Limit is not required.

Minimum Requisite Benefits (MRB): Actuaries must adhere to Professional Standard 400 (PS 400) as issued by the Actuaries Institute when performing an investigation of the financial condition of a defined benefit superannuation fund. However, PS 400 does not require the Minimum Requisite Benefit ratio to be calculated for Public Sector Superannuation Schemes that meet certain criteria such as QSuper.

Vested Benefits

Vested Benefits are the amounts to which the members are entitled should all active members voluntarily resign or, if eligible, retire at the investigation date, plus the estimated actuarial value of expected future payments in respect of deferred members and pensioners. For an APRA regulated fund that has to comply with all of the requirements of SPS 160, the Vested Benefits are an important measure because if the coverage of the Vested Benefits fall below 100%, then the fund is found to be in an unsatisfactory financial position, and this triggers the requirement for additional funding under a Restoration Plan. However, this does not apply to QSuper.

As set out above, the State's funding guarantee is based on the Actuarial Value of Accrued Benefits.

Therefore, for both of these reasons, Vested Benefits is not the preferred liability measure for QSuper with the Actuarial Value of Accrued Benefits being the more relevant measure. However, for completeness, we have shown the coverage of Vested Benefits in Section 6.

Taxation

QSuper is a complying superannuation scheme and is taxed accordingly. QSuper is thus liable for tax at the rate of 15% on investment income (excluding assets in respect of pensioners which are tax exempt) and employer contributions, less deductions for the notional cost of insurance, expenses, the discounted component of realised capital gains and the income earned in respect of its franked dividend income.

The advice contained in this report is given in the context of Australian law and practice. I have made no allowance for taxation, accountancy or other requirements in any other country.

Insurance Arrangements

The income protection and death and disability benefits for the defined benefit section of QSuper are self-insured. I consider that QSuper's current self-insurance arrangements remain suitable given the funding and benefit payments guarantee and the declining risk exposure. (Refer Section 9).

Summary of the Purpose of this Investigation

In summary, I have prepared this report exclusively for the Trustee of QSuper and Queensland Treasury on behalf of the Queensland Government for the following purposes:

- To present the results of an actuarial investigation of QSuper as at 30 June 2024;
- To review QSuper experience from 30 June 2020 to 30 June 2023 being the period since the previous experience review;
- To recommend contributions to be made by the State as required under Section 31(2) of the Act;
- To satisfy the requirements of the Deed for actuarial investigations of QSuper's financial position;
- To meet legislative requirements under relevant Commonwealth superannuation legislation as they apply to QSuper; these include the SIS legislation and SPS 160; and
- To satisfy the requirements of Section 32 of the Act to value the accrued liabilities of the State.

My report satisfies Professional Standard 400 issued by the Actuaries Institute setting out requirements for actuarial investigations of defined benefit superannuation funds.

The previous actuarial investigation was conducted as at 30 June 2021 by Wayne Cannon (Queensland State Actuary), and the results are contained in a report dated 3 December 2021.

Significant Events since the Investigation Date

I am unaware of any significant events that have occurred since 30 June 2024 which would materially impact on the findings or recommendations in this report.

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Membership and Data

Data Provisions

To prepare this report, I have relied on financial and participant data provided by Australian Retirement Trust, Queensland Treasury and QIC. The data used is summarised in this report. I have not independently verified or audited the data provided but have performed a range of broad "reasonableness" checks and tested for consistency with previous records.

Where the data was deemed incorrect or incomplete, I have made adjustments in line with the approach adopted by the previous Actuary to reduce the impact of such inaccuracies. For example, the current salary field in the active member data of the Standard Defined Benefit Category was replaced by the 1 July 2024 salary list which was provided in addition to the membership data. Other data adjustments we have made include the following:

- Any nil or missing salaries were adjusted based on the previous year's salary information.
- Negative contribution accounts were set to nil.
- Member contribution rates outside the allowable range were adjusted to be the maximum rate if greater than the maximum, or the standard rate if less than the minimum.

Further, I note in previous investigations the salaries provided in the data were uplifted by 0.25% to compensate for the expected underestimation of liabilities due to the timing and quality of data. However, this is no longer needed as the quality of data has improved and we have received the majority of the salary data at 1 July 2024 required for this investigation.

I am satisfied that the data is sufficiently accurate for the purposes of this actuarial investigation.

I have also relied upon the documents, including amendments, governing QSuper as provided by Queensland Treasury. The owners of the data supplied (Australian Retirement Trust, Queensland Treasury and QIC) are ultimately responsible for the validity, accuracy and comprehensiveness of this information. If the data or QSuper benefit provisions are not accurate and complete, the investigation results may differ significantly from the results that would be obtained with accurate and complete information; this may require a revision of this report.

Membership

The membership of QSuper's defined benefit section has changed since the last investigation as follows:

	30 June 2021	30 June 2024
Active Members		
Standard Defined Benefit (excl. Police)	30,717	23,726
Standard Defined Benefit – Police Only	3,115	2,510
State	263	173
Police	88	72
Parliamentary	3	3
Subtotal	**34,186**	**26,484**
Pensioners		
Defined Benefit	765	751
State	1,079	1,013
Police	194	195
Parliamentary	136	130
Fire	2	1
Subtotal	**2,176**	**2,090**
Deferred Members		
Defined Benefit	22,703	15,880
State	66	41
Police	13	8
Parliamentary	1	1
Subtotal	**22,783**	**15,930**
Total	**59,145**	**44,504**

There were active accumulation members and account-based pensioners at 30 June 2024 whose benefits are determined wholly on a defined contributions (or 'accumulation') basis. However, I have considered the closed defined benefit categories only in this valuation. All new members join the accumulation section of QSuper.

During the period under review the number of defined benefit members within QSuper has decreased from 59,145 to 44,504 members.

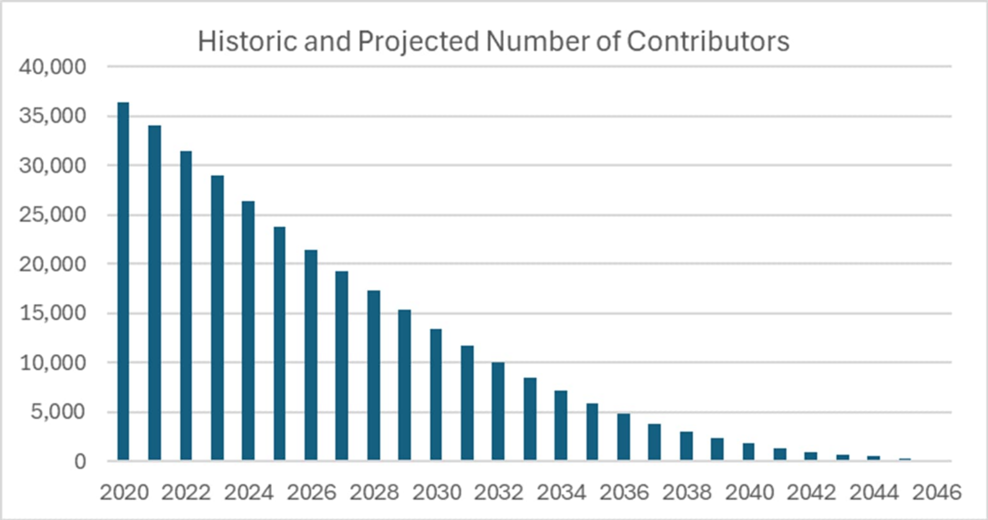
The membership characteristics of QSuper's defined benefit section as at the investigation date are as follows:

	Active Members					Former Members	
	Standard Defined Benefit (excl. Police)	Standard Defined Benefit – Police only	State	Police	Parliamentary	Pensioners	Deferred (Defined Benefit)
Average Age	57.2	53.4	58.3	55.1	60.1	68.5	51.0
Average Membership (years)	28.8	28.2	36.8	34.0	24.2	-	-
Average Salary^/Annual Pension* /Balance	129,000	131,000	120,000	135,000	222,000	51,000	89,000

^Salaries at 1 July 2024.

*For 30 June 2024 calculations, I have increased the QSuper pensions provided in the data by 3.4% (i.e. the change in Brisbane All Groups Consumer Price Index over the year to June 2024), which is expected to occur after the investigation date.

The graph below shows the actual number of active members (contributors) from 2020 to 2024 together with how the number is projected to reduce based on the assumptions noted in Section 5.



The number of contributors is expected to decrease over time by around 10% a year for the first 5 years and then this rate of decrease starts to increase gradually.

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Assets

Market Value

QSuper holds assets in respect of the defined benefit liabilities and the accumulation accounts which are in the Accumulation Category (this includes both accumulation accounts of defined benefit members and those for accumulation members).

The total net market value of QSuper assets (defined benefit and the Accumulation Category) as at 30 June 2024 was:

QSuper Assets	$million
Net assets at 30 June 2024	143,053
Employer Receivables	(16,515)
Net assets available	126,538

The $126,538 million includes the value of the Operational Risk Financial Requirement (ORFR) which was $302 million and other reserves.

As the Employer Fund is held to meet the State's liabilities in QSuper we have also allowed for the market value of the Employer Fund when looking at the assets held to meet the defined benefit liabilities.

Therefore, the net market value of assets available to support the defined benefit liabilities of QSuper as at 30 June 2024 for the purposes of the actuarial investigation was $32,913 million (based on the data provided by Australian Retirement Trust and QIC) broken down as shown:

Calculation of Assets at 30 June 2024	$ millions		
	Defined Benefit	Accumulation Category and Reserves	Total
QSuper Assets	$6,772*	$119,766**	$126,538
Employer Fund	$26,141	-	$26,141
Net assets to support the liabilities of QSuper	**$32,913**	**$119,766****	**$152,679**

*The Defined Benefit share of the QSuper assets underwrites a capital guarantee in respect of former Voluntary Preservation Plan members. At 30 June 2024, this was $10 million and therefore the assets shown above for the defined benefit assets in QSuper are $10 million lower than shown in the financial statements as this has been notionally transferred to the Accumulation Category. This treatment is consistent with that used by the prior Actuary at 30 June 2021.

**Includes the value of the ORFR and other reserves.

Operational Risk Reserves

The assets to meet the Operational Risk Financial Requirement (ORFR) are held directly by the Trustee. They are not included in the asset figure used in this investigation to support QSuper's defined benefit liabilities.

The scope of this Investigation does not include a review of the adequacy of assets held to meet the Trustee's ORFR or the Trustee's ORFR strategy.

Investment Policy

Assets backing Defined Benefit Liabilities

The assets within QSuper and those held in the Employer Fund are held to meet the defined benefit liabilities (referred to as Total Assets in this section). The State Investment Advisory Board (SIAB), an advisory board constituted under the *Queensland Treasury Corporation Act 1988* is responsible for the investment policy for the assets held in the Employer Fund and the Trustee is responsible for the investment strategy for the assets held within QSuper which is set in liaison with SIAB.

QIC manages the Total Assets and determines how to split the overall strategic asset allocation between the assets held within QSuper and the Employer Fund. The overall asset allocation currently involves a benchmark exposure of 70% to 'growth' assets such as shares and property and a benchmark exposure of 30% to 'defensive' assets such as cash and fixed interest. 'Growth' assets are expected to earn higher returns over the long term compared to 'defensive' assets, but also to exhibit more variation in returns from year to year.

The investment objective for the total defined benefit assets is:

- Returns: deliver investment performance in excess of the Consumer Price Index (CPI)+3% pa over rolling seven-year periods. Returns are measured after investment management expenses;
- Risk: probability of negative return no more than one in three years; and
- Aggregate: maximising the probability of being fully funded subject to 95th percentile funding risk over 10 years.

The actual and strategic asset allocations for the Total Assets supporting the defined benefit liabilities are as follows:

Asset Class	Actual Allocation as at 30 June 2024	Strategic Asset Allocation
Australian Shares	5.9%	6.0%
Overseas Shares	32.9%	32.0%
Real Assets	19.9%	19.7%
Fixed Interest	11.6%	12.0%
Other Alternatives	26.4%	26.2%
Cash	3.3%	4.1%
Total	**100%**	**100%**

Source: QIC SIAB – Endowment Portfolio | Quarterly Investment Report 30 June 2024

Member benefits are largely unaffected by the investment return on the Total Assets. The actual investment returns will therefore affect the financial position of QSuper from year to year and will impact the ultimate cost of meeting the liabilities.

Given the benefit payments guarantee provided by the State, the investment policy does not materially impact the security of the members' benefits and should reflect the risk preferences as determined by SIAB. Therefore, I believe the current investment strategy is appropriate in view of the financial position shown at this investigation date, the longer term period over which the cash flows will eventuate and the benefit payments guarantee provided by the State

Assets backing Accumulation Benefit Liabilities

QSuper has an Accumulation Category which provides members with a range of investment options for their accumulation benefits (including the additional account balances of defined benefit members). The assets supporting QSuper's accumulation benefit liabilities are invested according to members' selected investment options and the actual returns on those investments (whether positive or negative) are passed on to members via changes in the unit prices by which member account balances are determined. Thus, QSuper's accumulation liabilities and related assets are fully matched.

I consider that QSuper's investment policy for assets relating to accumulation liabilities is suitable, having regard to the nature and term of these liabilities.

Crediting Rate Policy

The main features of the crediting rate policy in relation to defined benefits are summarised briefly below.

Members' withdrawal benefits include a component based on the accumulation of member contributions with investment earnings at the crediting rate.

The crediting rate is determined based on the actual earning rate of the QSuper Accumulation Account Balanced Risk-Adjusted option and is declared as at the end of each financial year, with a deduction for death and disability insurance for State and Police category members. Interim crediting rates apply for the period up to the date of leaving service for which a declared rate is not yet available. The interim crediting rate is determined based on the latest available monthly return of the Accumulation Balanced Risk-Adjusted option and its long-term expected net earning rate thereafter until the date of leaving service.

Whilst the monthly update of the interim rate theoretically allows some scope for anti-selection, taking into account the nature of the benefits and that termination of service (with associated notice periods) would generally be required to trigger a payment, I consider that the current frequency of review of interim rates is appropriate.

Conclusion

The general principles of the QSuper crediting rate policies in relation to defined benefits, which I have reviewed are reasonable.

5

Actuarial Assumptions

The ultimate cost of providing the benefits to members is:

- The amount of benefits paid out; and
- The expenses of running QSuper, including tax;

less

- Members' contributions; and
- The net return on investments on total assets.

The ultimate cost will not depend on the actuarial assumptions or the methods used to determine the recommended contribution/funding arrangements, but on the actual experience of QSuper (including the return on assets of the Employer Fund). The financing method and actuarial assumptions adopted will however affect the timing of the contribution requirements from the Employer Fund to QSuper.

The actuarial process includes projections of possible future total assets in both QSuper and the Employer Fund and benefit liabilities on the basis of actuarial assumptions about future experience.

These assumptions include investment returns (discount rate), salary increases, pension indexation rates, the rates at which members leave QSuper for various reasons, and other factors affecting the financial position of QSuper.

It is not expected that these assumptions will be precisely borne out in practice, but rather that in combination they will produce a model of possible future experience that is considered a suitable basis to continue to monitor the financial position of QSuper and determine the rate at which contributions should be transferred from the Employer Fund to QSuper.

Economic Assumptions

The most significant assumption made in estimating the cost of defined benefits for QSuper is the difference between:

- The discount rate; and
- The rate of salary increases used in the projections of future benefit payments.

This difference is commonly referred to as the "gap".

The key economic long term assumptions adopted for this investigation are:

Assumption	30 June 2024	30 June 2021
Discount rate (after tax and investment fees)	6.25% p.a.	4.5% pa
Salary Inflation	3.4% p.a.	3.1% pa
Price (CPI) Inflation	2.4% p.a.	2.1% pa
Gap for active members (discount rate – Salary inflation)	2.85% p.a.	1.4% p.a.

The detail of the derivation of the economic assumptions is included in Appendix B and a full breakdown of assumptions is included in Appendix C, but I have included a summary in this section.

Discount rate

The discount rate is used to discount future expected cashflows to the investigation date and is typically based on the expected return on the assets that are backing the liabilities. Mercer has a capital markets model which we have used to determine the discount rate at 30 June 2024. We have taken QSuper's current benchmark investment mix for the total assets (QSuper and Employer Fund) and used Mercer's assumptions of the means and standard deviations of returns from the various underlying asset classes and the correlations of returns between those asset classes. Over 7 years (being the approximate duration of the liabilities) the expected return on the total assets after adjusting for the future inflation assumption of 2.4% per annum (refer below) is 6.25% p.a.

The increase in the discount rate to 6.25% per annum from 4.5% per annum in 2021 reflects the changes in economic outlook and therefore the expected return of the total assets.

Price (CPI) Inflation

Our price inflation assumption is the market implied break-even inflation, which is consistent with prior years. After discussion with the State Actuary's Office, we note the importance of continuing to use this method for determining inflation and that this should be the same for funding and accounting purposes as it is important to have an objective measure that is consistent across all disclosures given the various stakeholders involved with QSuper.

Only the pension increases are explicitly linked to the CPI. However, the salary increase assumption is determined with reference to the price inflation assumption and the majority of the liabilities are linked to salaries so the inflation assumption is indirectly important in terms of its impact on the liabilities.

Break-even inflation was calculated based on the difference between nominal government yields and inflation-linked real government yields at a duration of 7 years. The market implied break-even inflation as at 30 June 2024 was 2.4% p.a. which was slightly higher than the assumption used at 30 June 2021 of 2.1% per annum.

For most pensioners, pensions increase each year in August based on the change in the Brisbane All Groups Consumer Price Index to June. This increase for the year to June 2024 was 3.4% and therefore as this is known, we have allowed for this in the liability calculations and then assumed 2.4% p.a. thereafter. Different increases apply to some pensioners in the Parliamentary and Fire Categories.

Salary Inflation

The salary inflation assumption is CPI +1% which is the same as in 2021 resulting in an assumption of 3.4% per annum at 30 June 2024 compared to 3.1% per annum at 30 June 2021, reflecting the increase in breakeven inflation.

In determining whether CPI + 1% is still appropriate, we have considered the past salary increase experience and the long term economic forecasts for future increases in average weekly earnings (AWOTE).

Whilst the actuarial investigation is as at 30 June 2024, we have allowed for the actual salaries at 1 July 2024 for the Standard Defined Benefit Category to reflect the known increases at that date which is consistent with the prior Actuary's methodology.

A promotional salary scale is used in addition to this salary inflation assumption, as shown in Appendix C.

Return on Assets

We project the assets using the discount rate of 6.25% p.a. as it reflects the expected return on the total assets over the duration of the liabilities.

Impact of the Changes in Financial Assumptions

I have summarised in the table below the changes in assumptions from those used in the previous investigation and the reasons for the changes:

Assumption	Investigation at 30 June 2024	Investigation at 30 June 2021	Reason for change
Discount rate	6.25% pa	4.5% pa	Updated investment outlook in relation to asset class returns
Salary increases	3.4% pa	3.1% pa	Both 1.0% pa above price inflation
Price (CPI) inflation	2.4% pa	2.1% pa	Market implied break-even inflation

The gap between the discount rate and the salary increase assumption has increased from 1.4% pa in 2021 to 2.85% in 2024. The overall changes in financial assumptions reduced the Actuarial Value of the Accrued Benefits by $2,064m.

Demographic and Decrement Assumptions

A number of demographic and decrement assumptions are made in this investigation and they are summarised in Appendix C. As an example, they include when the members will retire, or leave the scheme by other means, the mortality of the pensioners and the promotional salary increase scale. We have conducted a full experience analysis over the period 1 July 2020 – 30 June 2023 and the detail can be found in Appendix B. As a result of this analysis we have changed some of the decrements and the reasons are explained in Appendix B.

The overall impact of all of the changes in assumptions was to decrease the Actuarial Value of Accrued Benefits (being the past service value of the Accrued Value of Benefits) by $1,649m.

6

Financial Position

Valuation Methodology and Financing Method

The funding guarantee requires the actuarial value of liabilities accrued at the investigation date to be measured and the Government will then determine how those liabilities are funded.

I have calculated the Actuarial Value of Accrued Benefits allowing for actual benefits that have been earned to the investigation date using an actual accrual approach. Where benefits are based on prospective service, I have allowed for a proportion of the benefits based on the proportion of service at the investigation date to the total potential future service allowed for in the benefit. This method satisfies the requirements of Professional Standard No. 402 of the Actuaries Institute. I understand the method used for the determination of Accrued Benefits is the same as that used at the previous investigation. The Actuarial Value of Accrued Benefits is the Actuarial Value of Benefits shown under “Past Service” in the actuarial balance sheet.

I have used an aggregate funding method split between the liabilities accrued to 30 June 2024 and those expected to be accrued over the future working life of the membership.

Funding Status

The assets held in the Employer Fund, in addition to the assets held within QSuper, are held for the purposes of meeting the liabilities within QSuper. Therefore, all of the measures in this report consider the total assets rather than just those held by QSuper.

Actuarial Value of Accrued Benefits

The Actuarial Value of Accrued Benefits is the expected value (as at the investigation date) of all future expected benefit payments, based on membership to date, discounted to the investigation date, taking into account the probability of payment. This value is calculated using the actuarial assumptions and method outlined in the previous sections. In determining the value, I have not applied a minimum of the vested benefits. The Actuarial Value of Accrued Benefits are the past service value of the Accrued Value of Benefits in the actuarial balance sheets.

The assets as 30 June 2024 represented 143.3% of the Actuarial Value of Accrued Benefits, which was significantly higher than the coverage level of 126.1% at the previous investigation as at 30 June 2021.

The above percentages exclude accumulation liabilities and additional accumulation balances for defined benefit members but include all defined benefit pension liabilities.

The coverage levels at 30 June 2024 were significantly higher than the levels at the previous actuarial investigation. The two major contributors to the increase in the surplus were:

- Investment earnings of 7.2% pa, which were higher than the assumed long term rate (4.5% pa)
- The change in the assumptions used to value the benefits.

These were partially offset by salaries and pensions increasing at a higher rate than assumed (partly as a result of higher inflation over the period) and benefits accruing at a higher rate than the contributions being made by the employers into the Employer Fund.

Please refer to Section 7 for an analysis of surplus from the 2021 investigation to 2024.

Actuarial Balance Sheet

Set out below is a defined benefit actuarial balance sheet.

Funding Basis 30 June 2024	$millions Past Service	Future Service	Total Service
Value of Assets			
QSuper Assets	6,772	-	6,772
Employer Fund	26,141	-	26,141
Member Contributions	-	962	962
Employer Contributions*	-	724	724
Total Value of Assets	32,913	1,686	34,599
Actuarial Value of Benefits (Liabilities)			
Active members	17,085	3,350	20,435
Pensioners	1,458	-	1,458
Other former members	1,509	-	1,509
Disability income benefit	28	244	272
Expenses	614	125	739
Contributions Tax	2,267	449	2,716
Total Value of Liabilities	22,961	4,168	27,129
Surplus	9,952	(2,482)	7,470
Funding Position	**143.3%**		**127.5%**

*Suspension of investment of employer contributions from 1 July 2026

Past Service shows the value of the benefits accrued to 30 June 2024 (referred to in this report as the Actuarial Value of Accrued Benefits) and future service is the value of the benefits expected to be earned from 1 July 2024 over the future working life of the active membership.

When contributions are made to QSuper they are subject to tax and therefore I have made an allowance for the expected value of the contribution tax. I have included an allowance for the notional cost of insurance and administration expenses which can be offset against contributions tax resulting in an effective tax rate of 14%. This is consistent with the rate used in the prior investigation.

This balance sheet allows for the suspension of investment of employer contributions into the Employer Fund from 1 July 2026 as determined by the Government. Without the suspension, the future service assets would have been higher by $1.8bn.

This shows that the assets held are expected to be more than sufficient to meet all future liabilities, assuming that the assumptions are borne out in practice. The deficit shown for future service reflects that the contributions being received are not expected to cover the value of the benefits being accrued but this shortfall would be met from the surplus at the investigation date. Therefore, the overall total position, allowing for past and future service, is a funding position of 127.5%.

Funding Guarantee

The value of the State's funding guarantee is the difference between the value of the past service defined benefit liabilities and the assets held in QSuper for defined benefit liabilities.

The value of the defined benefit liabilities can be determined using a variety of different assumptions and methods as noted earlier. The funding guarantee is calculated using the assumptions used to calculate the contribution requirements. For the purposes of this report the accrued benefits method and funding basis assumptions as set out in Section 5 are used. The value of the State's funding guarantee on the funding basis as at 30 June 2024, calculated as the difference between the actuarial value of the accrued benefits of government defined benefit liabilities ($22,961 million) and the assets held in QSuper for defined benefit liabilities ($6,772 million), is $16,189 million. Legislation requires the State to hold assets equal to this figure. At 30 June 2024, the Employer Fund was $26,141 million therefore the requirements are met.

For information, and in line with past practice to gain a more comprehensive understanding of QSuper's financial position, I have included below the defined benefit actuarial balance sheet calculated using the accounting basis (AASB 119) applied for the State's financial statements.

Accounting Basis 30 June 2024	$ millions		
	Past Service	Future Service	Total Service
Value of Assets			
QSuper Assets	6,772	-	6,772
Employer Fund	26,141	-	26,141
Member Contributions	-	1,047	1,047
Employer Contributions*	-	730	730
Total Value of Assets	32,913	1,777	34,690
Actuarial Value of Benefits (Liabilities)			
Active members	19,100	4,055	23,155
Pensioners	1,793	-	1,793
Other former members	1,591	-	1,591
Disability income benefit	28	267	295
Expenses	689	148	837
Contributions Tax	2,675	728	3,403
Total Value of Liabilities	25,876^	5,198	31,074
Surplus	7,037	(3,421)	3,616
Funding Position	**127.2%**		**111.6%**

*Suspension of investment of employer contributions from 1 July 2026

^ This figure is $99m lower than the disclosed AASB 119 figure of $25,975m, and reflects the updated demographic assumptions from this investigation so that it is comparable to the other liabilities in this report.

The only difference is the discount rate assumption of 4.3% pa used for AASB 119 (prescribed in the accounting standard to be a Commonwealth government bond yield of appropriate duration) compared to 6.25% pa used for funding (based on an expected return on assets).

The difference in the surplus positions on the two bases is the net present value of the risk premium expected to be earned on the assets (6.25% less 4.3% = 1.95% pa) over the future lifetime of the liabilities. It is important to note that there is no requirement to fund to the accounting basis and neither has this been past practice. However, the figures on the accounting basis are included on the State's balance sheet and therefore whilst this is not the figure used to determine funding it can provide useful context.

The actuarial balance sheets were calculated based on the investment of future employer contributions made to the Employer Fund at the following rates until 30 June 2026, and assuming that the current average member contribution rate and part-time ratio will remain the same. From 1 July 2026, investment of the employer contributions in the Employer Fund will be suspended.

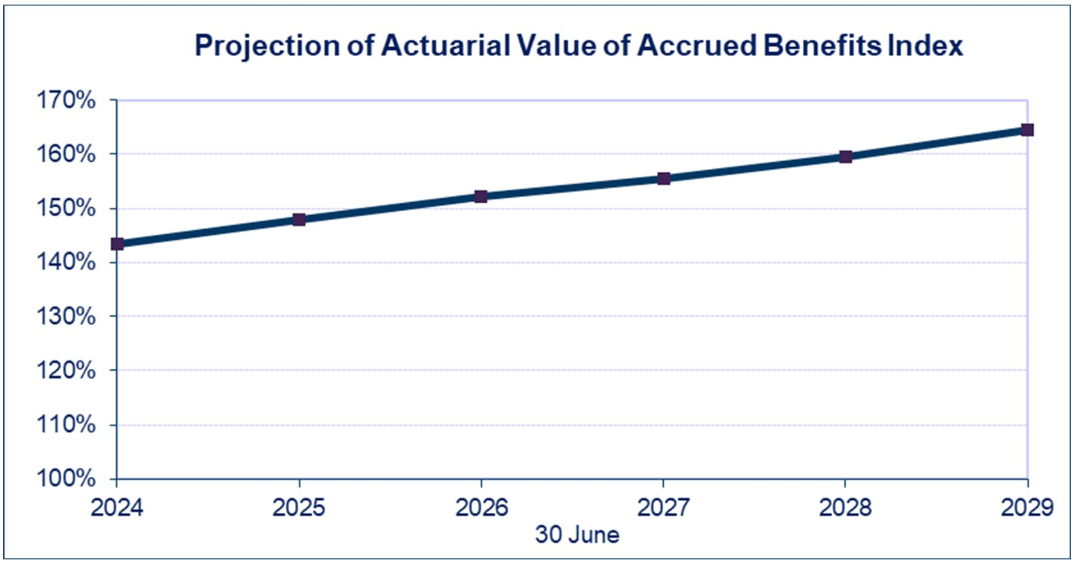
Membership Category	Employer Contribution Rate
Standard Defined Benefit (excl. Police)	7.75% of Salary + 1 x Member Contributions
Standard Defined Benefit – Police Only	6.00% of Salary + 2 x Member Contributions
State	4.75% of Salary + 1 x Member Contributions
Police	3.00% of Salary + 2 x Member Contributions
Parliamentary	5 x Member Contributions

Projected Financial Position

I have prepared a deterministic projection of QSuper and Employer Fund assets and benefit liabilities based on:

- The actuarial assumptions adopted for this investigation; and

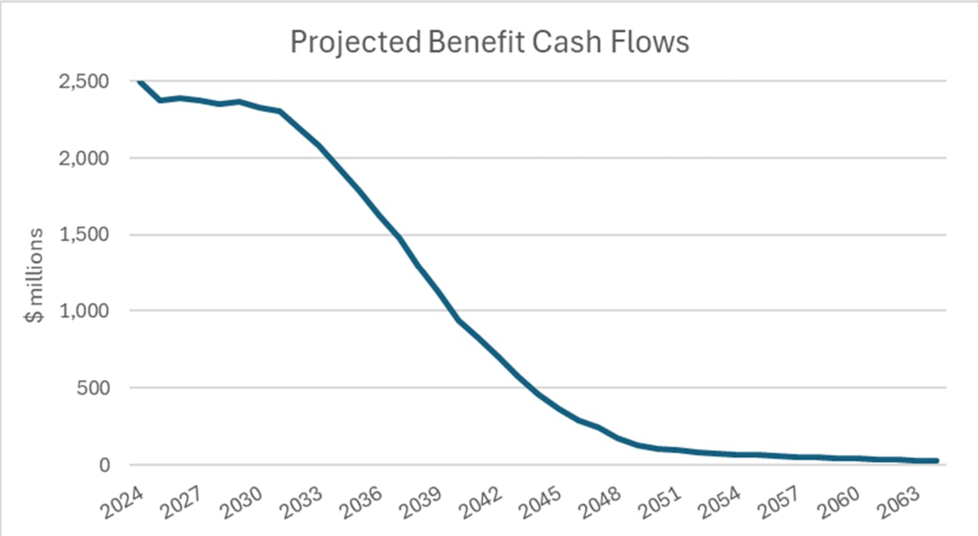
Investment of employer contributions made in line with the rates in the table above to the Employer Fund until 30 June 2026. Thereafter investment of the employer contributions in the Employer Fund will be suspended. The results of the projection are as follows:



This projection is based on the assumptions adopted, which represent a single scenario from the range of possibilities. The future is uncertain and actual experience will differ from those assumptions; these differences may be minor in their overall effect, or they may be significant and material. In addition, different sets of assumptions or scenarios may also be within the reasonable range and results based on those alternative assumptions would be different, as discussed under Sensitivity Analysis in Section 7.

The projection above shows that the coverage level of assets compared with the Actuarial Value of Accrued Benefits is anticipated to improve over the next five years largely as a result of the investment return on the surplus and remain well above 100% of Actuarial Value of Accrued Benefits over the period to 30 June 2027 i.e. the date of next actuarial investigation.

The graph below shows the projected benefit payment cash flows underlying the defined benefit liabilities. The annual cash flows are expected to remain over $1 billion per annum until around 2040.



Vested Benefits

Vested Benefits are the amounts to which the members are entitled should all active members voluntarily resign or, if eligible, retire at the investigation date, plus the estimated actuarial value of expected future payments in respect of deferred members and pensioners.

As mentioned in Section 2, for an APRA regulated fund that has to comply with all of the requirements of SPS 160, the Vested Benefits are an important measure because if the coverage of the Vested Benefits falls below 100%, then the fund is found to be in an unsatisfactory financial position and this triggers the requirement for additional funding under a Restoration Plan. However, this does not apply to QSuper.

Also, the State's funding guarantee is based on the Actuarial Value of Benefits.

Therefore, for both of these reasons, the Vested Benefit measure is not the preferred measure for QSuper. For completeness, the total assets at 30 June 2024 represented 128.4% of the vested benefits. This was higher than the coverage level of 118.0% at the previous investigation as at 31 June 2021.

In calculating the Vested Benefits, we have included allowance for expenses and contribution tax at 14%. Expenses do not need to be included in the Vested Benefits, however given this measure is not used to fund QSuper and acknowledging that there would be expenses involved in winding-up QSuper we have used the same expenses as shown in the Actuarial Value of Benefits results. Given there are expenses in the Vested Benefits calculation (which is consistent with the 2021 method) we think it is reasonable therefore to allow for this when determining the contribution tax rate so have used the 14%

consistent with the calculation of the Accrued Value of Actuarial benefits (in the prior investigation, 15% was used).

Employer Fund Share of Defined Benefit Payments

Under Section 31(2) of the Act, the contribution payable by the State in respect of defined benefit members is the amount decided by the board (the Trustee) on the advice of an actuary. Rule 46 under the Government Division Rules of the Deed further says that such contributions must be paid when the defined benefit member becomes entitled to the defined benefit regardless of whether or not the defined benefit is paid out of QSuper.

Pension payments have been fully met by QSuper assets as they are funded at commencement of the pension, and I recommend that this continue. The Deed requires that income protection benefits for defined benefit members be fully met by the State. Other than pension, accumulation (fully met by QSuper assets) and income protection benefits, the calculation of the proportion of other defined benefit payments to be met by the State from the Employer Fund is as follows, noting that this follows the same method as used in the 2021 investigation.

30 June 2024	$ millions
(a) Total Value of All Benefits including contributions tax and expenses	27,129
(b) QSuper Assets	6,772
(c) Future Member Contributions	962
(d) Total Crown Payments required to fund benefits (a) – (b) – (c)	19,395
(e) Disability Income Benefit	272
(f) Balance of Crown Payments required to fund benefits (d) – (e)	19,123
(g) Defined Benefit Liabilities to which proportion applies (excludes Pensioners, Disability income benefit, contributions tax and expenses)	21,944
(h) Proportion of Benefits to be funded from Employer Fund (rounded up) (f) / (g)	88%

It should be noted that defined benefit member voluntary contributions are excluded as they are held within the accumulation assets in the Accumulation Category and that the Employer Fund proportion includes an allowance for contributions tax and hence there should be no grossing up of the amounts to be transferred. “Defined benefit payments” for this purpose explicitly *include*:

- Preserved benefits in respect of State/Police members on transfer to an accumulation category;
- Member balances transferred to an accumulation account in respect of DB category members who resign before age 55; and
- Deferred Retirement Benefits transferred to an accumulation category as a result of a conversion to an Investment Linked Option, death or TPD or reaching age 55

New pensions that commence payment upon an active member’s exit should continue to be fully funded at emergence since all payments made to pensioners are to be met from the QSuper fund. A contribution from the Employer Fund equal to 88% of the estimated present value at the commencement of each new pension (derived as shown in Appendix D) should therefore be made.

If the actuarial assumptions are realised, then the contributions as described above will fund the balance of all defined benefit liabilities (including those that arise in respect of service after the investigation date) not met from the current QSuper fund assets and future member contributions.

The Employer Fund proportion has decreased from 92% recommended in the last investigation due to due to the higher relative position of QSuper assets compared to the total Actuarial Value of Accrued Benefits.

Recommended Contributions

I understand that the recommended funding arrangements from the previous actuarial investigation as at 30 June 2021 were implemented.

Based on the results of this investigation, as required under Section 31(2) of the Act I recommend the following contributions are made from the Employer Fund to QSuper on behalf of the State to meet the State's share of the defined benefit liabilities:

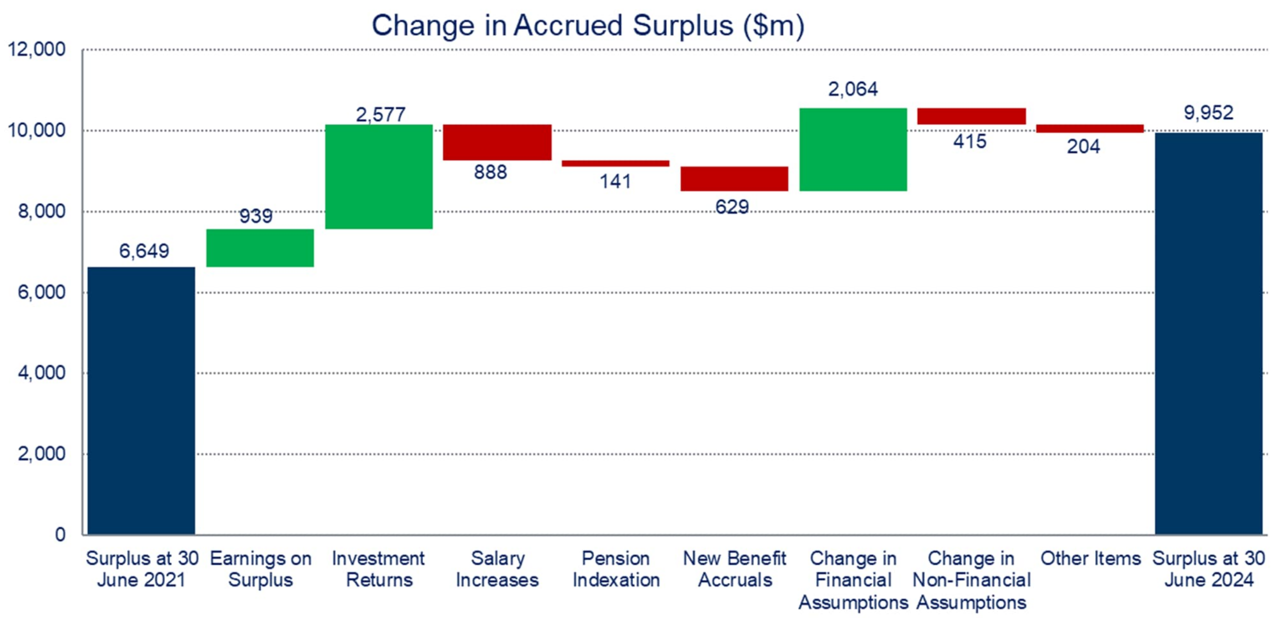
Income Protection Benefits	To be met fully by the State as required by the Deed
Pension Payments	To be met fully by QSuper assets; Refer below, all pensions are fully funded at commencement.
All other defined benefit payments	State to meet 88% of defined benefit payments. Defined benefit payments for this purpose include any transfers to an accumulation category and the present value of new pensions that emerge on the exit of defined benefit active members.

7

Surplus and Sensitivity Analysis

Analysis of Surplus

The surplus of assets over the Actuarial Value of Accrued Benefits (being the past service value of the Accrued Value of Benefits in the actuarial balance sheet) was $6,649 million as at 30 June 2021 and increased to $9,952 million as at 30 June 2024. The overall impact of assumption changes and the experience since the previous actuarial investigation was an improvement in QSuper's financial position. The main items affecting QSuper's financial position during the period from 30 June 2021 to 30 June 2024 were as follows:



Investment Returns

The actual returns on the total QSuper assets (QSuper and Employer Fund combined) over the period since the previous investigation were:

Year ended 30 June	Investment return over the year
2022	1.9%
2023	6.8%
2024	13.2%

The compound average investment return for the three-year period to 30 June 2024 was 7.2% pa compared to the long term assumption at the last actuarial investigation of 4.5% pa. The higher return than assumed had a positive impact on QSuper's financial position.

Salary Increases

Salaries for the current defined benefit members increased by an average of 4.2% pa over the period compared to the longer-term assumption at the last actuarial investigation of 3.1% pa, excluding the effects of assumed promotional increases. The salary increases were higher than assumed, partly as a result of higher inflation over the period. They had a negative impact on QSuper's financial position, as most of QSuper's liabilities are salary related.

Pension Indexations

Pensions for the defined benefit pensioners increased by an average of 5.3% pa over the period, mostly reflecting the change in the Consumer Price Index. The higher pension indexation than the 2.1% pa assumed had a negative impact on QSuper's financial position.

New Benefit Accruals

The defined benefits for active members accrued at a higher rate than the contributions received (ie member contributions plus the employer contributions). This had a negative impact on QSuper's financial position.

Change in Assumptions

Both the financial and decrement assumptions adopted to value QSuper's liabilities have changed from those used in the previous actuarial investigation. The most significant impact was the increase in the gap between the discount rate and the salary increase assumption with a gap of 1.4% pa in 2021 increasing to 2.85% pa in 2024. This reflected the material change in financial conditions since the prior investigation and accounted for a large decrease in the value of the liabilities. This had a positive impact on QSuper's financial position and was discussed in detail in Section 5. The decrement changes are documented in the experience analysis in Appendix B.

Sensitivity Analysis

I have tested the effect of changes to the key assumptions on the value of liabilities and QSuper's net financial position.

The liabilities shown in this report are calculated using the best estimate assumptions for investment return (discount rate of 6.25% pa), salary growth (3.4% pa) and CPI (2.4% pa). As all of these items are unknown, it is almost certain that actual experience will differ from these assumptions.

It is the difference between the discount rate and salary growth rate/price inflation that is crucial rather than the individual assumptions, because the value of the assets moves with investment returns while QSuper's defined benefit liabilities grow with salaries/inflation.

To quantify the sensitivity of the net financial position to my assumptions, I have calculated the change in the Actuarial Value of Accrued Benefits based on the following scenarios:

- Decrease the discount rate assumption by 1% pa;
- Increase the salary growth assumption by 1% pa; and
- Increase the price indexation assumption by 1% pa.

All other assumptions are assumed to remain the same.

The effects of these changes are shown below:

Scenario – Past Service Liabilities	Actuarial Value of Accrued Benefits $millions	Change in Actuarial Value of Accrued Benefits $millions	Change in Actuarial Value of Accrued Benefits %
Base assumptions as shown previously	22,961		
Decrease discount rate by 1% pa	24,364	1,403	6.1
Increase salary growth by 1% pa	24,080	1,119	4.9
Increase price indexation by 1% pa	23,176	215	0.9

This shows that the liabilities are most sensitive to the discount rate net of salary increases.

There are a range of decrement assumptions made in carrying out the investigation which are set out in detail in Appendix C. Due to the nature of the benefits payable and the membership characteristics of QSuper the overall liabilities are less sensitive to changes in these assumptions. We have therefore not explicitly shown sensitivities for any decrement assumptions.

The weighted average term of the accrued benefit liabilities is 7 years.

8

Key Risks

Due to the funding and benefit payments guarantee provided by the State, the risks considered below are all borne by the Government, instead of directly impacting the security of defined benefit entitlements.

Investment Volatility

The current benefits for defined benefit members are linked mostly to salaries and not linked to investment returns. Therefore, QSuper's funding position is highly sensitive to changes in the investment return assumptions. Given the asset allocation has a 70% allocation to growth assets, the coverage of liabilities will vary with the value of the assets held. This is the most material risk to the funding position of QSuper.

Salary Growth Risk

The benefit for active members is based on salaries and therefore the risk is that salaries will rise more rapidly than assumed, increasing benefit amounts and thereby causing the financial position to deteriorate.

For example, if the assumed future salary increase rate was increased by 1% pa with no change in other assumptions, then QSuper's Actuarial Value of Accrued Benefits would increase by $1,119 million as shown in the table in Section 7.

The actual rate of future salary increases may vary (positively or negatively) from the rate assumed at this investigation by much more than the (positive) 1% pa illustrated in the example above.

Legislative Risk

This risk is that the Commonwealth Government could make legislative changes that increase the cost of providing the defined benefits. For example, an increase in the rate of tax on superannuation funds.

Pensioner Liabilities and Related Risks

QSuper currently has 2,090 pensioners as shown in the membership table in Section 3 and there are current members that are entitled to receive a pension. Lifetime pensioners may present risks to QSuper as there is uncertainty relating to the level of future payments (mostly linked to CPI increases) and the period for which they will be paid (life expectancy).

9

Self-Insurance

QSuper self-insures death and disability benefits for members of the defined benefit categories with no segregated self-insurance reserve and this has been approved by APRA.

The Accumulation Category was substantially self-insured prior to 30 June 2016, with new business from 1 July 2016 underwritten by QInsure (now called ART Life). The corresponding liabilities were subject to regular actuarial review, with reserves maintained by QSuper in accordance with actuarial advice (latest review undertaken by Wayne Cannon as at 30 June 2019). However, since 30 June 2020, the Trustee have not required actuarial advice on these liabilities on materiality grounds.

It has been assumed for the purposes of this investigation that the balance of the accumulation self-insurance reserve is sufficient to meet the liability for outstanding claims as at the investigation date and that any excess is considered part of QSuper's overall accumulation reserves and therefore not available to meet defined benefit liabilities.

The actuarial balance sheet contains an allowance for the liability in respect of outstanding defined benefit income protection payments and also an allowance for outstanding death and TPD payments. Further detail can be found in Appendix B.

In my opinion it is reasonable to self-insure the benefits for the following reasons:

- The State has a funding and benefit payments guarantee in respect of the defined benefit liabilities such that the self-insured benefits are guaranteed;
- The membership in the defined benefit categories is large enough such that the death and disability experience is small relative to the overall liabilities of QSuper;
- The risk exposure is reducing as the insured component of the death and TPD benefits is declining due to the ageing membership; and
- Defined benefit members do not pay for self-insurance.

APRA guide SPG 160 states that APRA expects the trustee and actuary to identify “events or conditions that would trigger an interim review of self-insurance arrangements”. I would suggest that the relevant conditions would be if the State were to withdraw its funding and benefit payments guarantee noting this is not possible currently as it is set out in legislation.

SPG 160 also mentions consideration of any catastrophe scenarios. Whilst the Trustee should be aware of the catastrophe risk associated with the self-insurance arrangements, I consider that it is unnecessary to take any action to address this risk due to the funding and benefit payments guarantee provided by the State and the declining risk exposure.

I understand that APRA has confirmed that a contingency plan is not currently required and that this will only be required if the State removes the funding and benefit payments guarantees which are set out in legislation.

10

Required Statements

Deed

Rule 20(2) under the Government Division Rules of the Deed requires the following statements:

- The assets of QSuper at 30 June 2024 were $126,538 million (refer Section 4).
- It is expected that the assets held within QSuper together with the future member and employer contributions plus the recommended future contributions from the Employer Fund to QSuper will be sufficient to meet all future benefit payments from QSuper, based on the assumptions used in this actuarial investigation.

Statements Required by SPS 160

As explained in Section 2, paragraph 23 of SPS 160 does not apply to QSuper.

This section provides statements required to be made under APRA Prudential Standard SPS 160 paragraph 24. Values cited relate to QSuper as a whole (inclusive of all accumulation members and accounts) and exclude the assets held in the Employer Fund.

(a) The value of QSuper's assets as at 30 June 2024 was $126,237 million. This value excludes assets held to meet the Operational Risk Financial Requirement.

(b) In respect of the 3-year period following 30 June 2024, I recommend that the following employer contributions are made to QSuper in respect of Defined Benefit members:

- Income protection benefits to be met fully by the State as required by the Deed, plus
- Pension payments to be met fully from QSuper at commencement; plus
- 88% of all defined benefit payments other than the above to be met by the State (i.e. the Employer Fund). Defined benefit payments for this purpose include any transfers to an accumulation category and the present value of new pensions that emerge on the exit of defined benefit active members.

(c) Taking into account the circumstances of QSuper, the details of the membership and the assets, the benefit structure of QSuper, I consider that the assumptions and valuation methodology used are appropriate in relation to the determination of the accrued benefit liabilities for the purposes of this report. Further comments on the assumptions and valuation methodology are set out in Sections 5 and 6 of this report.

In my opinion, the funding of the liabilities of QSuper is adequate, primarily given the funding and benefit payments guarantee provided by the State. It is expected that the assets held within QSuper together with the future member and employer contributions plus the recommended future contributions from the Employer Fund to QSuper will be sufficient to meet all future benefit payments from QSuper, based on the assumptions used in this actuarial investigation.

(d) I understand an event prescribed under section 342(4)(a) of the SIS Act and listed in regulation 12.10 of the SIS Regulations (that a pre-July 1988 funding credit has been granted or has been obtained by transfer under part 12 of the SIS Regulations) has not occurred.

Funding Guarantee

For the purposes of Section 32 of the Act, the Actuarial Value of the Accrued Benefits of government defined benefit members is $22,961 million and the value of assets held in QSuper for defined benefit liabilities is $6,772 million. Therefore, the accrued liability of the State is $16,189 million (being $22,961 million - $6,772 million) and legislation requires the State to hold assets equal to this figure. At 30 June 2024, the Employer Fund was $26,141 million therefore the requirements are met.

11

Actuarial Certification

Actuary's Certifications

Professional Standards and Scope

I have prepared this report in accordance with generally accepted actuarial principles, Mercer's internal standards, and the relevant Professional Standards of the Actuaries Institute, in particular PS400 (as it applies to QSuper as a Public Sector Superannuation Scheme).

Use of Report

This investigation report should not be relied upon for any other purpose or by any party other than the Trustee of QSuper and Queensland Treasury. Mercer is not responsible for the consequences of any other use. This report should be considered in its entirety and not distributed in parts.

The advice contained in this report is given in the context of Australian law and practice. I have made no allowance for taxation, accountancy or other requirements in any other country.

Actuarial Uncertainty and Assumptions

An actuarial investigation report contains a snapshot of QSuper's financial condition at a particular point in time, and projections of QSuper's estimated future financial position based on certain assumptions. It does not provide certainty in relation to QSuper's future financial condition or its ability to pay benefits in the future.

Future funding and actual costs relating to QSuper are primarily driven by QSuper's benefit design, the actual investment returns, the actual rate of salary growth, the actual rate of pension indexation and any discretions exercised by the Trustee or the Government. QSuper's actuary does not directly control or influence any of these factors in the context of an actuarial investigation.

QSuper's future financial position and the recommended employer contributions depend on a number of factors, including the amount of benefits QSuper pays, the cause and timing of member withdrawals, plan expense, the level of taxation and the amount earned on any assets invested to pay the benefits. These amounts and others are uncertain and unknowable at the investigation date but are predicted to fall within a reasonable range of possibilities.

To prepare this report, assumptions are used to select a single scenario from the range of possibilities. The results of that single scenario are included in this report.

However, the future is uncertain and QSuper's actual experience will differ from those assumptions; these differences may be significant or material. In addition, different assumptions or scenarios may also be within the reasonable range and results based on those assumptions would be different. For this reason, this report shows the impact on the results if alternative assumptions were to be adopted.

Actuarial assumptions may also be changed from one investigation to the next because of mandated requirements, QSuper's experience, changes in expectations about the future and other factors. I did not perform, and thus do not present, an analysis of the potential range of all future possibilities and scenarios.

Because actual experience will differ from the assumptions, decisions about benefit changes, investment policy, funding amounts and benefit related issues should only be made after careful consideration of possible future financial conditions and scenarios, and not solely on the basis of a single set of investigation results.

Additional Information

The next **actuarial investigation** is required at a date no later than 30 June 2027. At that time, the adequacy of the employer contribution levels will be reassessed.

The next **Benefit Certificate** is required following the expiry of the current Benefit Certificate (which expires 30 June 2028).

A **Funding and Solvency Certificate** is not required for QSuper (refer Section 2).

Further Information

Please contact me to provide any supplementary information or explanations about this actuarial investigation as may be required.

A Hartl

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Angela Hartl

Fellow of the Institute of Actuaries of Australia

3 December 2024

I have reviewed this report under Mercer's professional Peer Review Policy. I am satisfied that it complies with the applicable professional standards and uses assumptions and methods that are suitable for the purpose.

R S Boyfield

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Richard Boyfield

Fellow of the Institute of Actuaries of Australia

Appendix A

QSuper Benefit Design

A full description of the benefit and contribution conditions of QSuper is contained in the formal governing documents. A simplified summary of the main benefit provisions in respect of defined benefit members for each category is set out below but this should not be relied on and the formal governing documents should be consulted for full details. Some details have been omitted where they are no longer relevant to most of the remaining membership.

Standard Defined Benefit Category

The Standard Defined Benefit Category is closed to new entrants.

Annual Compulsory Contribution Accrual	Standard Member: $12.5\% \times \frac{\textit{Annual Compulsory Contribution Rate}}{5\%}$ Police Member: $21.0\% \times \frac{\textit{Annual Compulsory Contribution Rate}}{6\%}$
Annual Basic Benefit Accrual	Standard Member: $8.5\% \times$ *part of annual review year during which compulsory contributions have been received* Police Member: $3.5\% \times$ *part of annual review year during which compulsory contributions have been received* (A Standard member therefore earns 21% for each year of membership that they are full time and contribute at 5% of salary). (A Police member therefore earns 24.5% for each year of membership that they are full time and contribute at 6% of salary).
Normal Retirement Age	No Normal Retirement Age, but members are entitled to the Retirement Benefit from age 55. Accrual cannot continue past age 75.
Final Average Salary (FAS)	Average of annual review date salaries over the previous one year.
Final Salary (FS)	Annual review date salary, unless it is calculated in the year preceding the member's 55th birthday (in which case, FS is taken to be the average of annual review date salaries since age 54).

Retirement Benefit	*Where a member retires or otherwise leaves service on or after their 55th birthday.* *Lump sum benefit:* FAS x (Annual Compulsory Contribution Accruals + Annual Basic Benefit Accruals)
Total and Permanent Disability (TPD) Benefit	*Where a member becomes eligible to a TPD Benefit prior to age 55 member has a choice of a lump sum benefit or pension (pension election to be made within 3 months of notification of TPD acceptance)* *Lump sum benefit* Retirement Benefit* + Prospective Membership Benefit *The Retirement Benefit is calculated using FS instead of FAS. Standard Member: $\begin{matrix} Prospective \\ Membership\ Benefit \end{matrix} = FS \times 21\% \times \begin{matrix} Potential\ Membership\ from\ date\ of \\ disablement\ to\ the\ member's\ 55^{th}\ birthday \end{matrix}$ Police Member: $\begin{matrix} Prospective \\ Membership\ Benefit \end{matrix} = FS \times 24.5\% \times \begin{matrix} Potential\ Membership\ from\ date\ of \\ disablement\ to\ the\ member's\ 55^{th}\ birthday \end{matrix}$ or *Annual pension benefit* Standard Member: lump sum benefit / 9.8 Police Member: lump sum benefit / 11.43 The annual pension benefit is subject to a maximum of 75% of FS. On the death of a pensioner before the pension has been paid for five years, a lump sum benefit is payable at the current annual rate of pension until the five-year term is reached.
Permanent and Partial Disability Benefit	*If a member becomes permanently and partially disabled prior to age 55, a lump sum benefit is payable:* FS x (Annual Compulsory Contribution Accruals + Annual Basic Benefit Accruals)
Death Benefit	*Where a member dies before age 55, a lump sum is payable equal to the TPD lump sum benefit,* with a child's pension payable where applicable.

Income Protection Benefit	*An income benefit equal to:* 75% of FS payable for up to 2 years, commencing after a member was absent from employment on sick leave for 14 continuous days. Deemed to have contributed at the standard contribution rate whilst a member is receiving an Income Protection Benefit.
Withdrawal Benefit	*The total withdrawal benefit is a lump sum:* FS x (Annual Compulsory Contribution Accruals + Annual Basic Benefit Accruals) However, this is split into two components: • The member contributions accumulated with interest • The balance of the benefit, i.e. the Deferred Retirement Benefit (DRB) Preserved and indexed in line with Average Weekly Ordinary Time Earnings (AWOTE) until age 55, unless the member chooses at any time to convert it to a cash equivalent amount (the Investment Linked Option, ILO) where the DRB is discounted by 2.88% for each year from conversion to age 55
Involuntary Termination Benefit	*Lump sum benefit:* (incl. early retirement and retrenchments) FS x (Annual Compulsory Contribution Accruals + Annual Basic Benefit Accruals)
Member Contributions	<u>Standard Member</u>: Within the range of 2% to 8% as nominated by the member. The standard contribution rate is 5% of salary. (contributions in excess of 5% are only allowed in order to “catch up” for having previously contributed at a rate below 5% otherwise excess contributions are transferred to their accumulation account held in the Accumulation Category). <u>Police Member</u>: Within the range of 3% to 9% as nominated by the member. the standard contribution rate is 6% of salary.
Pension Indexation	The increase in the Brisbane All Groups Consumer Price Index
Transfer to Accumulation Category	This can occur to the Comprehensive Accumulation Category at any time on an open ended basis. This is a one way transfer. The amount payable is the withdrawal benefit for members under age 55 and the retirement benefit for those over age 55.

State Category

Under the Deed there are State 58 and State 72 Categories but there are no remaining active members in the State 58 Category. The summary below describes the benefits in the State 72 Category for members that entered after 30 June 1988. The State Categories are closed to new members.

Membership	Starts from the later of the date the member joined QSuper and age 20 and ends at the earlier of the date the member exits QSuper or reaches age 65, subject to a maximum of 42.5 years
Normal Retirement Age	Age 65
Final Average Salary (FAS)	Average fortnightly salary during the year immediately prior exit from QSuper. However, any increases in salary in the two years immediately preceding retirement in addition to Award increases are averaged over two years.
Retirement Benefit	*A pension is payable from age 60 as follows:* *Fortnightly pension benefit*: $\frac{3}{200} \times Membership \times FAS$ or the member may choose to commute the pension to a lump sum as follows: *Lump sum benefit:* Fortnightly pension benefit x commutation factor from the Deed [The factor is 313 at age 60 and decreases to 261 at age 65]
Early Retirement Benefit	*A lump sum benefit is payable on early retirement between age 55 & 60.* *Lump sum benefit:* $\frac{3}{200} \times Membership \times FAS \times 313 \times (1 - 2\% \times [60 - age\ at\ retirement])$ Or the member may choose to convert the lump sum to a pension as follows: *Fortnightly pension benefit:* Lump sum benefit / factor from the Deed [The factor is 365 at age 55 and decreases to 313 at age 60]

Death Benefit	*Lump sum benefit:* $$\frac{3}{170} \times max(Membership\ at\ death, Potential\ membership\ to\ age\ 60) \times FAS \times factor\ from\ the\ Deed$$ [The factor depends on the age of the member at their death, it is 137 at/below age 25, increases to 235 at age 50, remains at 235 until age 60, then decreases to 196 at age 65] or *Fortnightly spouse's pension benefit:* $$\frac{3}{170} \times Potential\ membership\ to\ age\ 65 \times FAS \times \frac{2}{3}$$ with a child's pension payable where applicable
Ill-Health Benefit	*Fortnightly pension benefit:* $$\frac{3}{170} \times Potential\ membership\ to\ age\ 65 \times FAS$$ commencing after a member was absent from employment on sick leave for 14 continuous days. If the Board consents, this benefit may be commuted for a lump sum which is the same as that payable had the member died.
Withdrawal Benefit	The member has the option to take a withdrawal benefit or preserve their benefit in QSuper. Withdrawal benefit is the member contributions with interest and the required level of SG contributions subject to any SIS preservation requirements or Preserved in QSuper: $$Retirement\ Benefit\ payable\ at\ 55 \times \frac{Membership\ at\ exit}{Membership\ to\ age\ 55} \times [1 - 2\% \times (55 - Age\ at\ Exit)]$$
Member Contributions	5% of salary (as all the members are now over age 35)
Pension Indexation	The increase in the Brisbane All Groups Consumer Price Index

Police Category

Under the Deed there are Police 68 and Police 74 categories but there are no remaining active members in the Police 68 category. We have summarised the benefits under the Police 74 category below for members that entered the category after 30 June 1998. The Police Category is closed to new members.

Membership	Starts from the date the member joined QSuper or the date the member reached age 20 if later, subject to a maximum of 40 years
Normal Retirement Age	Age 60
Final Average Salary (FAS)	Average fortnightly salary during the year immediately prior to ceasing service except that any increases in salary in the two years immediately preceding retirement which are in addition to Award increased are averaged over two years.
Retirement Benefit	*The retirement benefit payable on retirement from age 55 to-age 60 is a <u>fortnightly pension benefit</u>:* $\frac{1}{62.5} \times Membership \times FAS \times (1 - 3\% \times [60 - age\ at\ retirement])$ The fortnightly retirement benefit payable on retirement after age 60 is: $\frac{1}{62.5} \times Membership \times FAS$ The member can choose to take a lump sum instead of the pension: *<u>Lump sum benefit</u>:* Fortnightly pension benefit x commutation factor from the Deed [The factor is 365.3 at age 55 and decreases to 313.1 at age 60]
Death Benefit	*<u>Lump sum benefit</u>:* $\frac{3}{160} \times max(Membership\ at\ death, Potential\ membership\ to\ age\ 55) \times FAS \times factor\ from\ the\ Deed$ [The factor is based on the members age at their date of death and is 139 at/below age 25, increases to 233 at age 50, remains at 233 until age 55.5, then increases to 235 at age 60]. or *<u>Fortnightly pension benefit</u>:* $\frac{3}{160} \times Potential\ membership\ to\ age\ 60 \times FAS \times \frac{2}{3}$ with a child's pension payable where applicable

Withdrawal Benefit	The member has the option to take a withdrawal benefit or preserve their benefit in QSuper. Withdrawal benefit is the member contributions with interest and the required level of SG contributions subject to any SIS preservation requirements or Preserved in QSuper: $Retirement\ Benefit\ payable\ at\ 55 \times \frac{Membership\ at\ exit}{Membership\ to\ age\ 55}$ $\times [1 - 2\% \times (55 - Age\ at\ Exit)]$
Member Contributions	7% of salary (as all members over age 35)
Pension Indexation	The increase in the Brisbane All Groups Consumer Price Index

Parliamentary Category

The Parliamentary Category is closed to new members. A very high level summary of the benefits is set out below.

Basic Salary	Annual salary of a backbencher
Leaving Service Benefit	*<u>Annual pension benefit</u>:* $Basic\ Salary \times \left[0.5 + \frac{0.025}{12} \times (t - 96)\right] \times \frac{Total\ Salary\ Received}{Total\ Basic\ Salary}$ where t is complete months of membership with a maximum of 240. or *<u>Lump sum benefit</u> (if the member is less than 75 years old):* Annual pension benefit x commutation factor where the factor is 10 at/below age 70 and decreases by 0.5 for each year of age in excess of 70.

Death Benefit	*Annual pension benefit*: The greater of: • 40% of Basic Salary at death, and • 2/3 of Leaving Service pension payable at death or *Lump sum benefit*: Annual pension benefit x commutation factor from the Deed
Member Contributions	11.5% of salary until age 70
Pension Indexation	Pensions increase either in line with the Brisbane All Groups Consumer Price Index or in line with the increase in backbenchers' salary as set out in the Deed.

Fire Category

There are no remaining active members in this category and therefore we have not included details of the benefits.

Superannuation Guarantee

Benefits on leaving service for any reason and under all categories are subject to a minimum Superannuation Guarantee (SG) benefit described in QSuper's Benefit Certificate.

Appendix B

Analysis of Experience 2020-2023

We summarise below the results of the experience analysis for the defined benefit categories of the Government Division within Australian Retirement Trust (QSuper) over the period from 1 July 2020 to 30 June 2023 (unless stated elsewhere). This experience analysis forms part of the actuarial investigation as at 30 June 2024 and should be read in conjunction with that report.

The previous analysis of experience was completed for the period from 1 July 2017 to 30 June 2020 and included in the triennial actuarial investigation report produced by the previous Actuary, Wayne Cannon, as at 30 June 2021.

The liabilities have been calculated on a funding basis which is the focus of this actuarial investigation, but we have also shown the liabilities calculated using the assumptions on the accounting basis, under AASB 119 for information. These bases are typically the same, except for the discount rate. It is my understanding that it is important that the salary increase assumption and price inflation assumption are the same across both bases. The discount rate under the accounting basis is set under AASB 119 by Queensland Treasury on my advice. This section concentrates on the funding basis, I have included the accounting assumptions for completeness.

Financial Experience Analysis

In the actuarial investigation at 30 June 2021, the previous Actuary used the following financial assumptions:

30 June 2021	Funding Basis Per annum	Accounting Basis Per annum
Discount Rate	4.5%	1.5% (1.4% net)
Salary Increases	3.1%	3.1%
Price (CPI) Inflation	2.1%	2.1%

The real salary inflation rate was therefore 1.0% per annum and the net real discount rate was 2.4% per annum. Whilst each assumption is important it is the relativity between each of the financial assumptions that impacts the value that we place on the liabilities.

Discount Rate

The discount rate is used to discount future expected cashflows to the investigation date and is typically based on the expected return on the assets that are backing the liabilities.

In the prior investigation, the discount rate was set with reference to the real yield expected on the combined QSuper assets and the Employer Fund as determined by QIC based on the duration of the liabilities. The discount rate was then set equal to the real yield plus the break-even inflation rate to give a nominal discount rate of 4.5% per annum.

The actual return on the total QSuper DB assets (QSuper and Employer Fund combined) were:

Year ended 30 June	Investment return over the year
2021	19.0%
2022	1.9%
2023	6.8%
2024	13.2%
Average rate per annum over three years since prior investigation	**7.2%**

This is a positive item of experience compared to the 4.5% per annum expected.

Whilst the experience over the period impacts the assets, it is typical to set the discount rate based on the expected future return on the assets. Mercer has a capital markets model which we have used to determine the discount rate at 30 June 2024. We have taken QSuper's current benchmark investment mix, and used Mercer's assumptions of the means and standard deviations of returns from the various underlying asset classes and the correlations of returns between those asset classes. Over seven years (being the approximate duration of the liabilities) the expected return on the total assets after adjusting for the future inflation assumption of 2.4% per annum (refer below) is 6.25% p.a.

Price (CPI) Inflation

Our price inflation assumption is the market implied break-even inflation, which is consistent with prior years. At 30 June 2021, the assumption was 2.1% per annum. After discussion with the State Actuary's Office, we note the importance of continuing to use this method for determining inflation and that this should be the same for funding and accounting purposes as it is important to have an objective measure that is consistent across all disclosures given the large number of stakeholders involved with QSuper.

Only the pension increases are explicitly linked to the CPI. However, the salary increase assumption is determined with reference to the price inflation assumption and the majority of the liabilities are linked to salaries so the inflation assumption is indirectly important in terms of its impact on the liabilities.

Break-even inflation was calculated based on the difference between nominal government yields and inflation-linked real government yields at a duration of 7 years. The market implied break-even inflation as at 30 June 2024 was 2.4% p.a.

Salary Increases

Actual salary increases over the period since the last actuarial investigation compared to the expected salary increases are set out below for the Standard Defined Benefit Category. The prior actuarial investigation included analysis of the salary increase for the year to 30 June 2021.

Year Ending 30 June	Standard Males		Standard Females		Police		Total		
	Actual	Expected	Actual	Expected	Actual	Expected	Actual	Expected	Expected based on break-even CPI*
2022	4.4%	3.4%	4.7%	3.5%	3.5%	3.9%	4.5%	3.5%	3.5%
2023	4.0%	3.4%	4.5%	3.5%	4.8%	3.9%	4.4%	3.5%	4.0%
2024	3.6%	3.4%	3.8%	3.5%	3.9%	3.9%	3.7%	3.5%	4.1%
Average	**4.0%**	**3.4%**	**4.4%**	**3.5%**	**4.0%**	**3.9%**	**4.2%**	**3.5%**	**3.9%**

It should be noted that while the actuarial investigations are at 30 June, they allow for the new salaries granted at 1 July.

The expected figures are 3.1% pa assumed at the previous investigation with an allowance for promotional salary increases.

*However, the salary increase was actually expressed as break-even inflation + 1% + an allowance for promotional salary increases. If we allow for the increase break-even inflation over the period the expected is higher as shown and over the three year period the actual salaries have increased slightly more than expected.

The total salary increases over the years to 30 June 2022 and 2023 were greater than those assumed, even after allowing for increases that may have arisen as a result of promotion, and I understand this may be partly due to “catch-up” increases after a “freeze” on enterprise bargaining salary increases as noted in the previous actuarial investigation report as at 30 June 2021.

Inflationary Salary Increases

The salary increase assumption is based on long term economic forecasts for future increases in average weekly earnings (AWOTE) and discussions with the State Actuary’s Office.

The excess rates of Queensland Average Weekly Earnings over Australia All Groups CPI, both published by Australian Bureau of Statistics, for various periods ending in December 2023 were:

Number of Years to Dec 2023	Real Qld AWE Increase (% pa)
5	-0.4%
10	0.0%
15	0.7%
20	1.1%
25	1.1%

Note: AWEs are to November but CPIs are to December

There had been some fluctuations in the rates in shorter term, but the longer-term levels have been around 1.1% p.a.

Over the long term, real salary growth is closely related to labour productivity growth. The 2023 Intergenerational Report issued by the Australian Government adopted a long-term productivity growth assumption of 1.2% p.a., which is reduced from the 1.5% p.a. assumed in the previous Intergenerational Report.

The 2024-25 Queensland Budget Papers includes Queensland economic forecasts as below.

Year	Inflation	Wage Price Index
2024-25	2.00%	3.75%
2025-26	3.25%	3.50%
2026-27	2.50%	3.25%
2027-28	2.50%	3.00%

The averages of forecast inflation and wage price index are around 2.6% and 3.4% respectively, suggesting real wage inflation of 0.8% p.a.

Mercer's Capital Market Simulator forecast economic variables based on a stochastic forward-looking econometric model and the outputs at 30 June 2024 are:

Number of Years from 30 June 2024	CPI (Australia)	Wage Growth (Australia)	Implied Real Wage Growth
5	2.6%	3.6%	0.9%
10	2.6%	3.5%	1.0%
15	2.5%	3.5%	1.0%
20	2.5%	3.5%	1.0%

The previous actuarial investigation adopted 1.0% p.a. above the price inflation, and based on the information above, this is still considered reasonable as a long-term salary increases. At 30 June 2021 this gave an assumption of 3.1% p.a. and 3.4% p.a. for the actuarial investigation as at 30 June 2024.

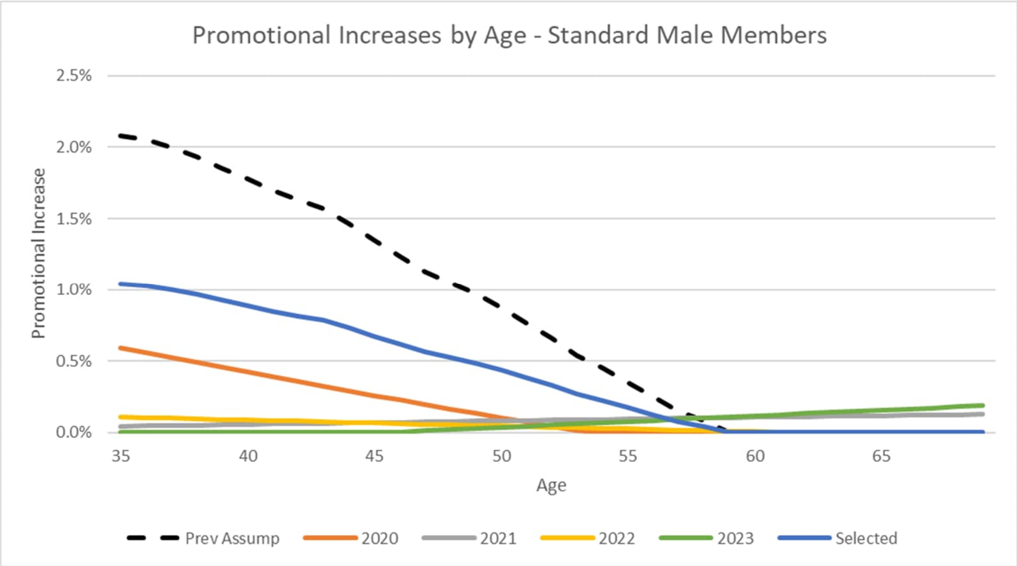
Promotional Salary Increases

In addition to the inflationary salary increases, an allowance for salaries to progress age by age on the basis of a promotional salary scale is considered by member type within the Standard Defined Benefit Category (i.e. Standard Males, Standard Females and Police).

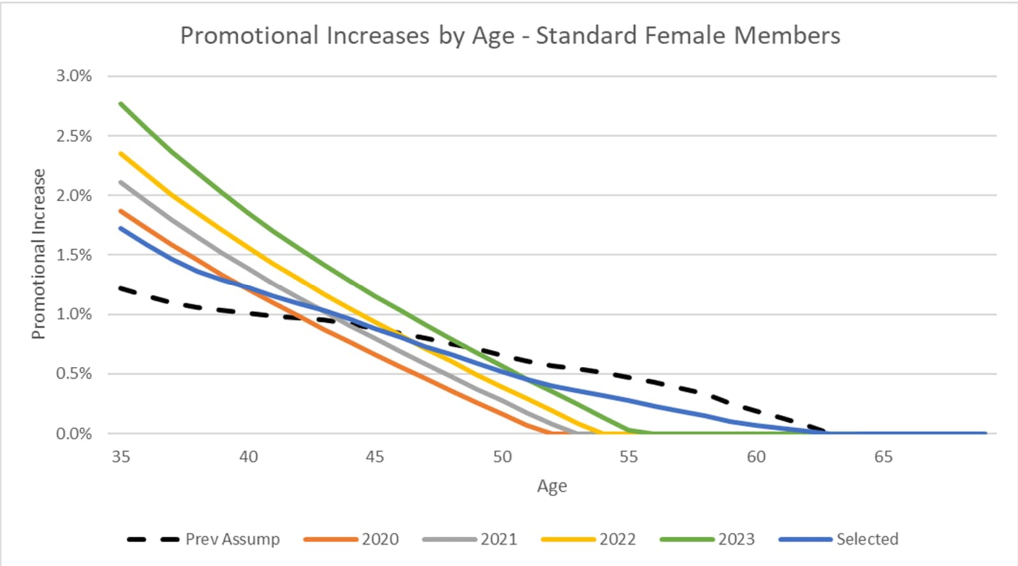
In line with the approach adopted in the previous experience analysis, we have analysed the cumulative effect of promotional salary increases applied to all members at the investigation date for Standard Male and Female Members, and analysed the promotional salary increases that applied to members who were present throughout the review period for Police Members. We understand the vast majority of Police Members are subject to a Certified Agreement and hence the promotional increases were calculated by deducting the inflationary increases from the Agreement as shown in the below table.

Year Ending 30 June	Salary Increases for Police Members
2021	2.5%
2022	4.0%
2023	4.0%
Average	3.5%

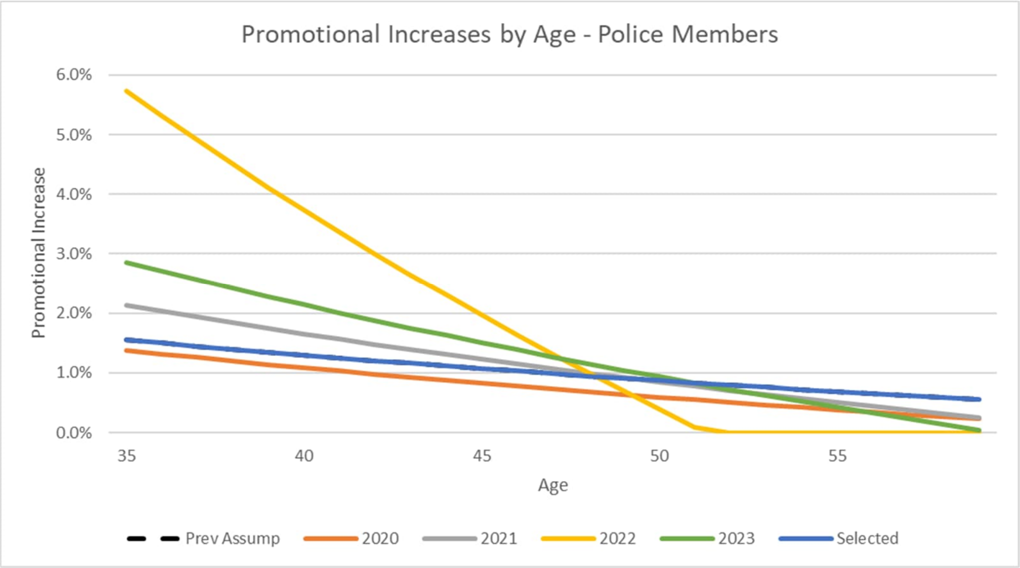
The estimated promotional salary increases over the review period, the previously assumed rates from the 2021 actuarial investigation as well as those selected for the actuarial investigation as at 30 June 2024 are compared in the graphs below.



The experience for Standard Male Members over the review period has been significantly lower than the assumption adopted at the previous investigation, and this was the same pattern found in the experience review over 2017-2020. Hence, we have proportionately decreased the rates to be more consistent with experience.



The experience for Standard Female Members over age 45 on average has been lower than the previous assumption and those for Standard Female Members below age 45 have been higher. The pattern of experience compared to the assumption was also similar in the prior experience analysis and therefore we have adjusted the rates towards recent experience.



The scales for Police Members over the review period have been broadly in line with the previous assumption except for 2022 being an outlier. Therefore, we have retained the previous assumption for Police Members.

Note that the dotted line can not be seen as it is directly under the blue line, this is also the case in some of the graphs below.

Notwithstanding the above, we note the impact of promotional salary increases assumption on the overall QSuper liabilities is becoming less significant given the increased age of the remaining members. As an illustration, removing the promotional salary increases for all members reduces the total liability for active members by approximately 1.5%.

Demographic Experience Analysis for Active Members

The demographic experience for active members has been analysed separately for each member type within the Standard Defined Benefit Category (i.e. Standard Males, Standard Females and Police). We apply the assumptions to the other categories of members (being the State, Police and Parliamentary members) except for the leaving service assumption for the Parliamentary Category (see below). We do not analyse the experience for the other categories of active and deferred members as the numbers of members are only a small proportion of the overall membership.

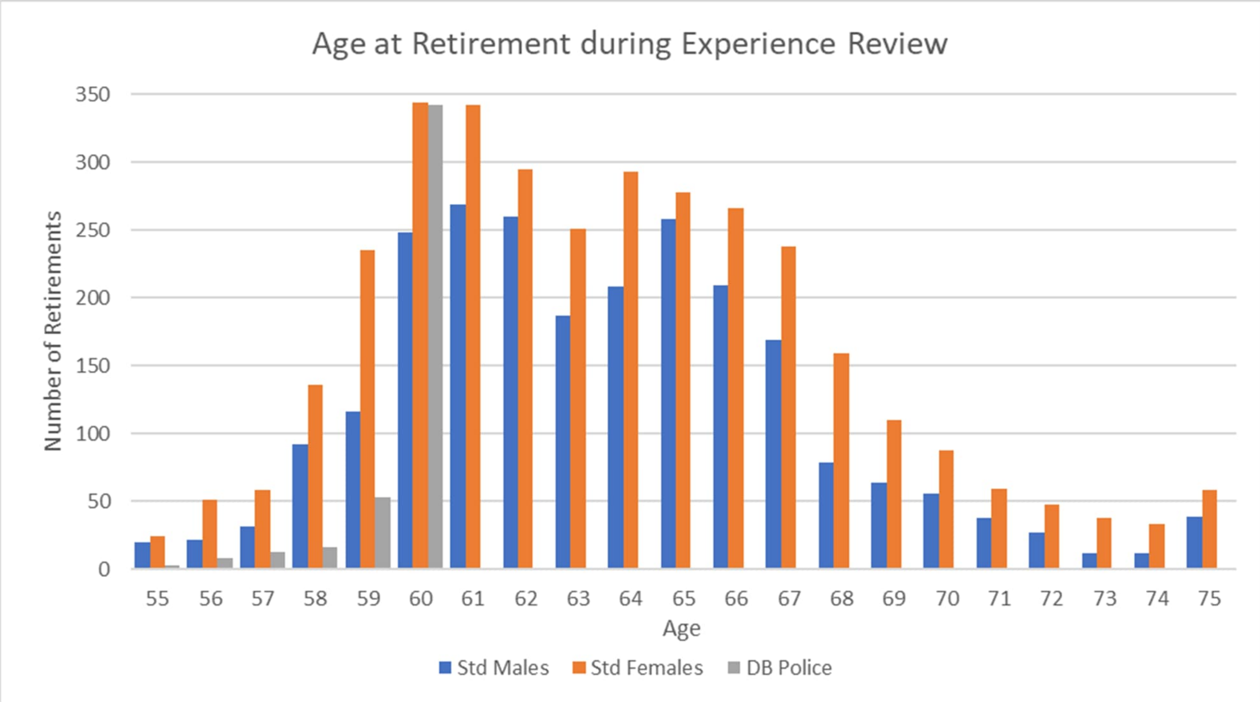
We have taken expected rates from those assumed in the previous actuarial investigation as at 30 June 2021, which were based on the previous experience analysis covering the period from 1 July 2017 to 30 June 2020.

Where we have shown the demographic experience in a graph, we have started this from age 40 as there are not many members under age 40 and to include them can distort the graphs where the experience may be different to expected but this is not credible on a small sample size.

Retirement

Retirement Age

Normal retirement age is not defined for the Standard Defined Benefit Category members and the graph below shows the ages at which the members retired during the period of this review.



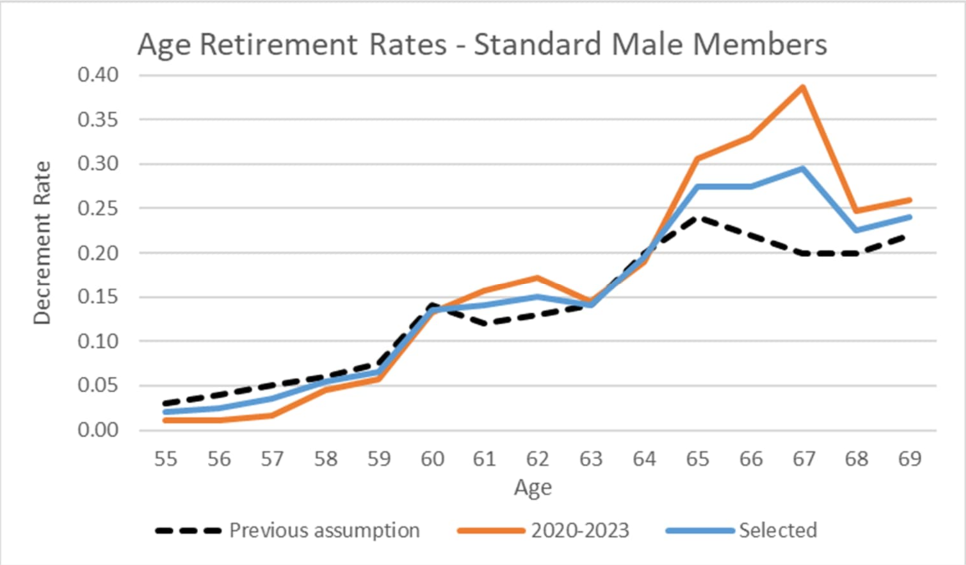
We have retained a normal retirement age of 70 for Standard Members given the significant number of retirements observed until age 70. The previous experience of all Police Members retiring on or before age 60 continued during this review period so we have not changed that assumption.

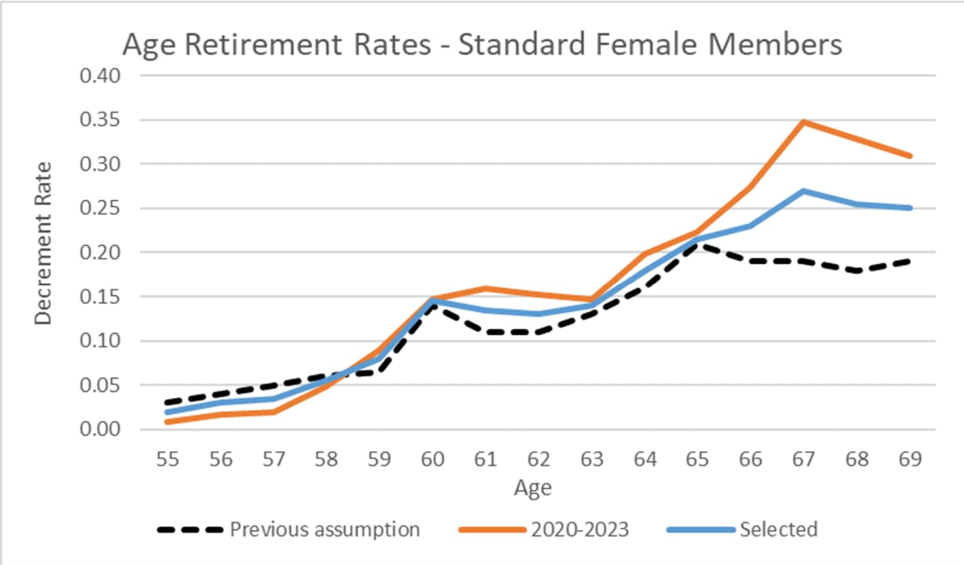
Retirement Rates

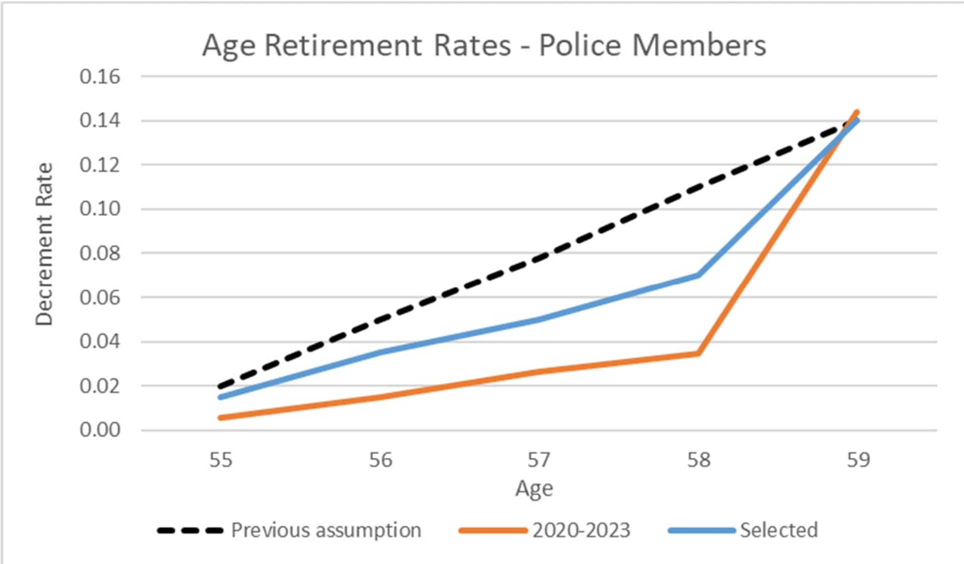
The actual number of retirements of Standard Defined Benefit Category members over the review period in comparison to the expected number of retirements calculated based on the assumptions used in the previous actuarial investigation are as follows:

	Standard Male Members			Standard Female Members			Police Members		
Age	Actual Ret.	Expected Ret.	Ratio of Actual to Expected	Actual Ret.	Expected Ret.	Ratio of Actual to Expected	Actual Ret.	Expected Ret.	Ratio of Actual to Expected
55	20	56	36%	24	89	27%	3	11	27%
56	22	78	28%	51	116	44%	8	26	30%
57	32	101	32%	58	145	40%	13	39	34%
58	92	121	76%	136	167	81%	16	51	31%
59	116	150	77%	235	171	138%	53	52	103%
60	248	262	95%	344	329	105%			
61	269	205	131%	342	236	145%			
62	260	196	133%	295	213	138%			
63	187	181	103%	251	223	112%			
64	208	219	95%	293	236	124%			
65	258	202	128%	278	261	106%			
66	209	139	150%	266	185	144%			
67	169	88	193%	238	130	183%			
68	79	64	123%	159	87	182%			
69	64	54	118%	110	68	163%			
Total	**2,233**	**2,116**	**106%**	**3,080**	**2,656**	**116%**	**93**	**179**	**52%**

The actual and expected retirement rates over the review period as well as the rates selected for the actuarial investigation as at 30 June 2024 are compared in the graphs below.







We have selected the rates of retirement assumption to represent an equally weighted blend of the prior assumption and that observed during the experience review period for all member types.

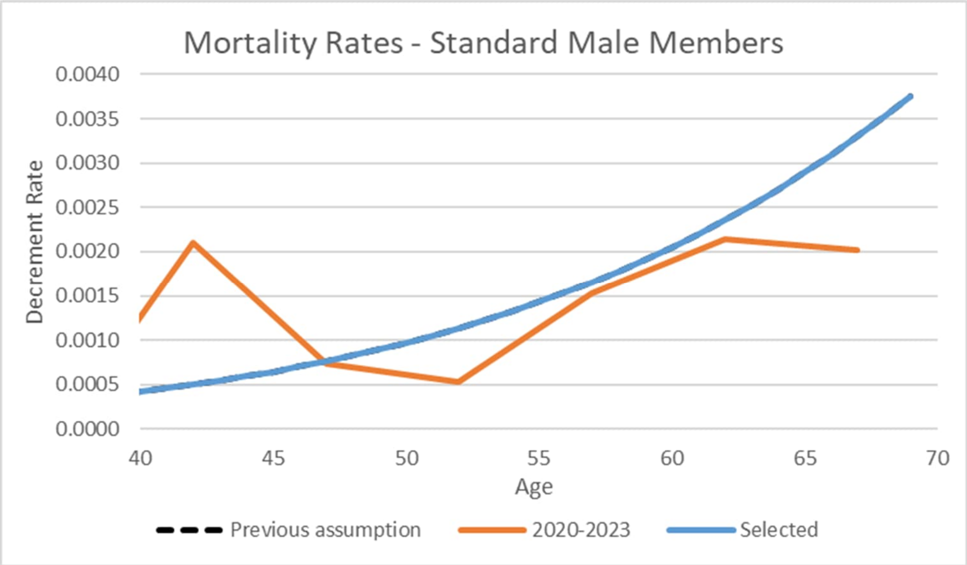
Mortality

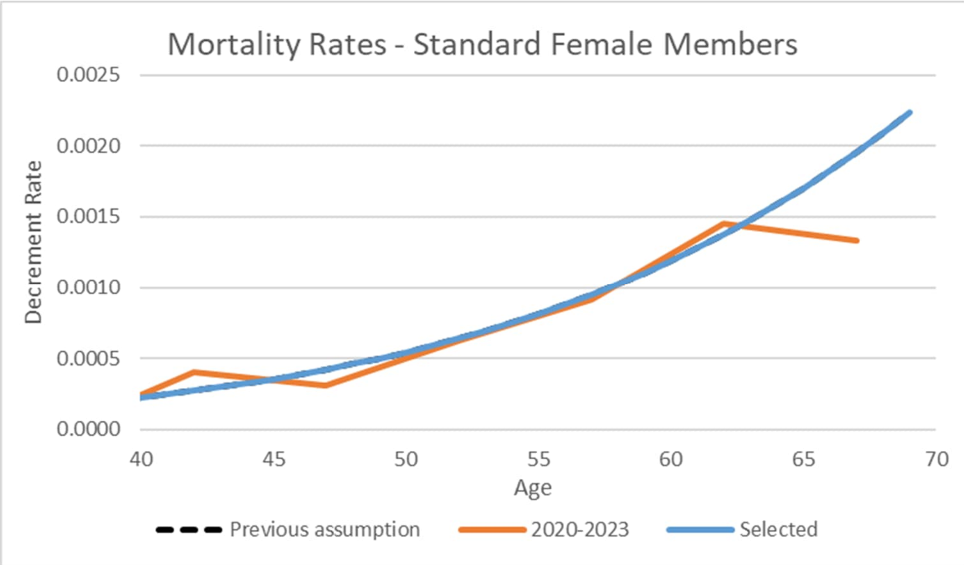
The mortality assumption used for the active membership is different to that used for the pensioners and is based on member experience rather than mortality tables. The assumption used is about 30% of the assumption used for post-retirement mortality (ie the mortality decrement pre-retirement assumes only 30% of the members leave active service as a result of death compared to the number expected to die based on the mortality tables). There are a number of reasons why a member may no longer be an active member of a superannuation fund. On the contrary, once a pension is in payment, the only reason for the pension to cease is that member is no longer alive which supports the use of mortality tables post retirement. As an example, if a member is sick, they may leave the workforce or make a TPD claim from the superannuation fund, all or which mean the member would no longer be an active member. It is therefore not unusual to determine pre-retirement mortality based on experience rather than using mortality tables.

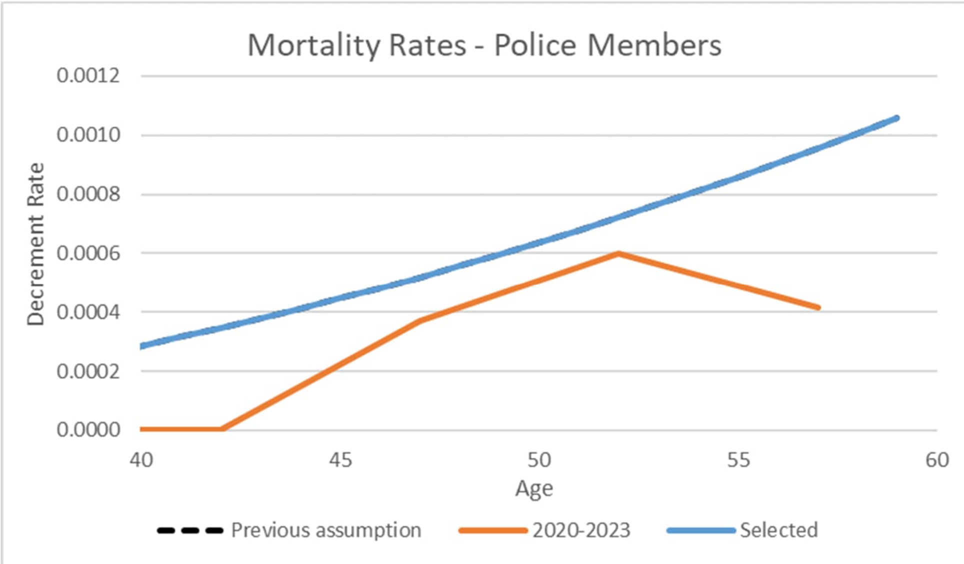
The actual deaths of Standard Defined Benefit Category members over the review period in comparison to the expected deaths calculated based on the assumptions used in the previous actuarial investigation are as follows:

	Standard Male Members			Standard Female Members			Police Members		
Age Group	Actual Deaths	Expected Deaths	Ratio of Actual to Expected	Actual Deaths	Expected Deaths	Ratio of Actual to Expected	Actual Deaths	Expected Deaths	Ratio of Actual to Expected
35-39	0	0	0%	0	0	0%	0	0	0%
40-44	2	1	389%	1	1	134%	0	0	0%
45-49	3	3	94%	3	4	71%	1	1	70%
50-54	4	9	46%	9	9	97%	2	2	84%
55-59	15	16	92%	13	13	97%	1	2	44%
60-64	16	17	92%	14	13	107%			
65-69	5	8	63%	5	7	71%			
Total	**45**	**54**	**83%**	**45**	**48**	**94%**	**4**	**6**	**63%**

The actual and expected mortality rates over the review period as well as the rates selected for the actuarial investigation as at 30 June 2024 are compared in the graphs below.







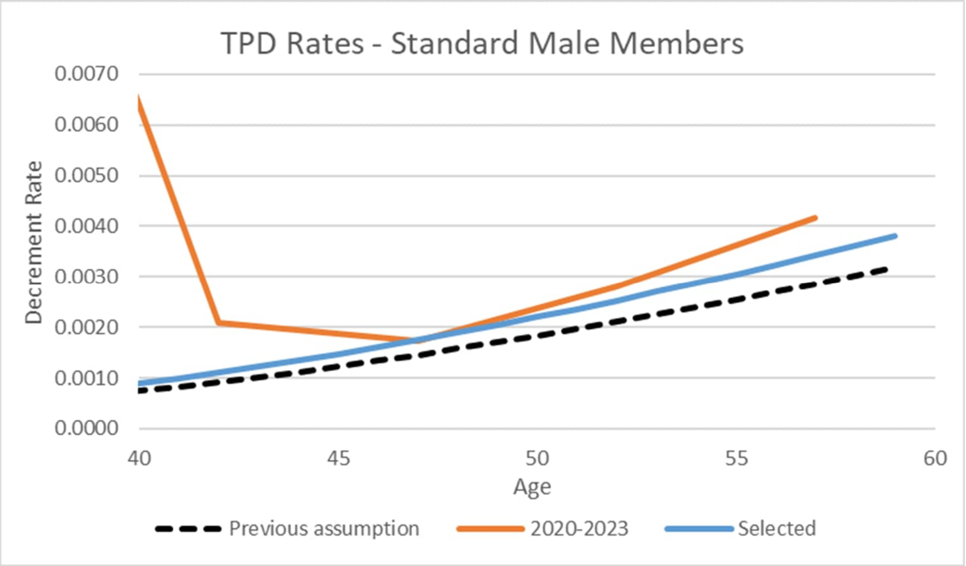
The actual mortality experience over the review period has been overall lower than the previous assumption. However, there is not a significant amount of experience and the difference between actual and expected numbers of deaths is negligible for each age group. Therefore, we have retained the previous mortality assumption.

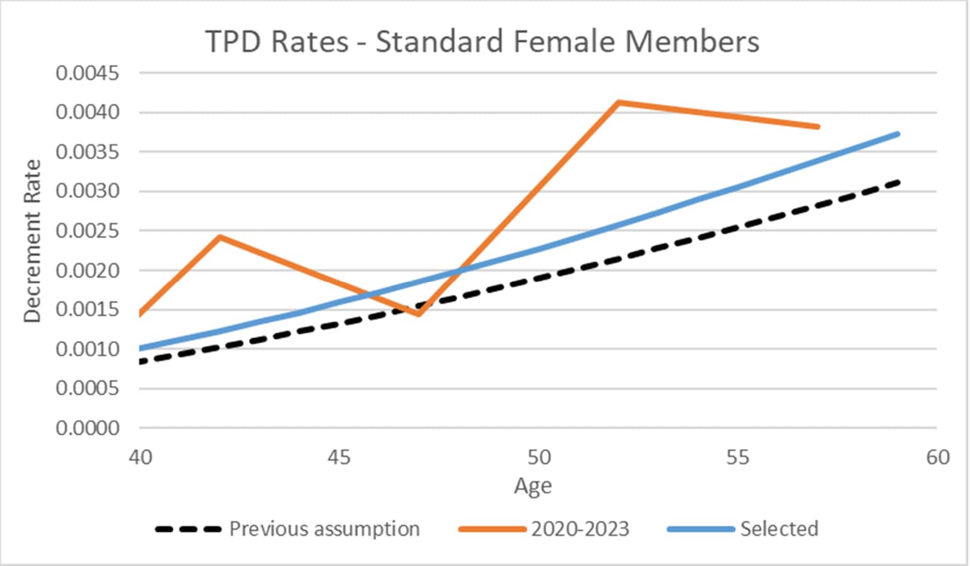
Total and Permanent Disablement (TPD)

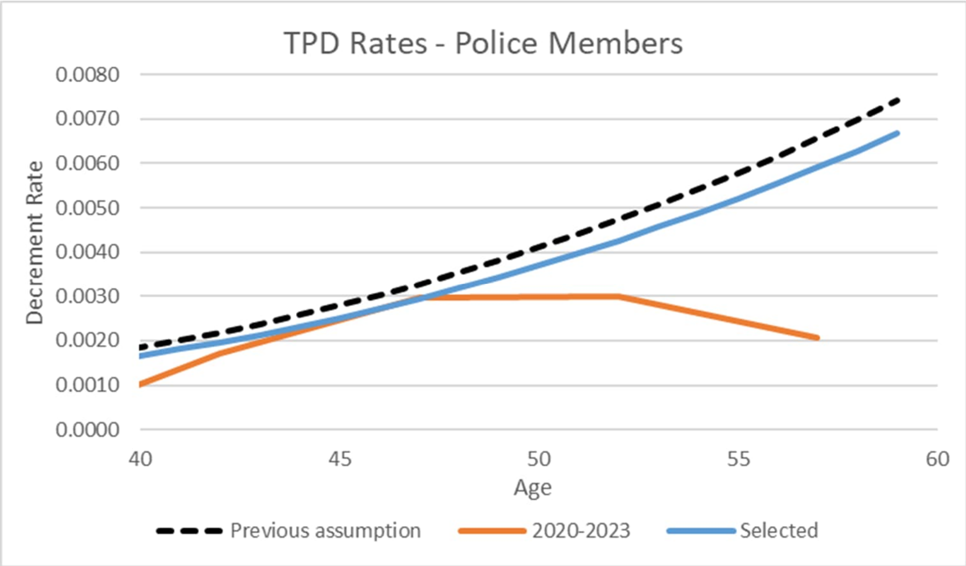
The actual exits due to TPD of Standard Defined Benefit Category members over the review period in comparison to expected exits due to TPD calculated based on the assumptions used in the previous actuarial investigation are as follows:

	Standard Male Members			Standard Female Members			Police Members		
Age Group	**Actual TPDs**	**Expected TPDs**	**Ratio of Actual to Expected**	**Actual TPDs**	**Expected TPDs**	**Ratio of Actual to Expected**	**Actual TPDs**	**Expected TPDs**	**Ratio of Actual to Expected**
35-39	1	0	>200%	0	0	0%	0	0	0%
40-44	2	1	209%	6	3	215%	1	1	71%
45-49	7	6	115%	14	15	92%	8	9	88%
50-54	21	16	131%	59	31	191%	10	16	64%
55-59	41	28	145%	54	40	135%	5	16	32%
Total	**72**	**51**	**140%**	**133**	**89**	**150%**	**24**	**42**	**57%**

The actual and expected TPD rates over the review period as well as the rates selected for the actuarial investigation as at 30 June 2024 are compared in the graphs below.







There is not a great deal of TPD experience for all member types.

However, for Standard Male and Female Members, the actual experience over the review period has been somewhat above the previous assumption. Hence, we have proportionately increased the TPD rates to be more consistent with the recent experience.

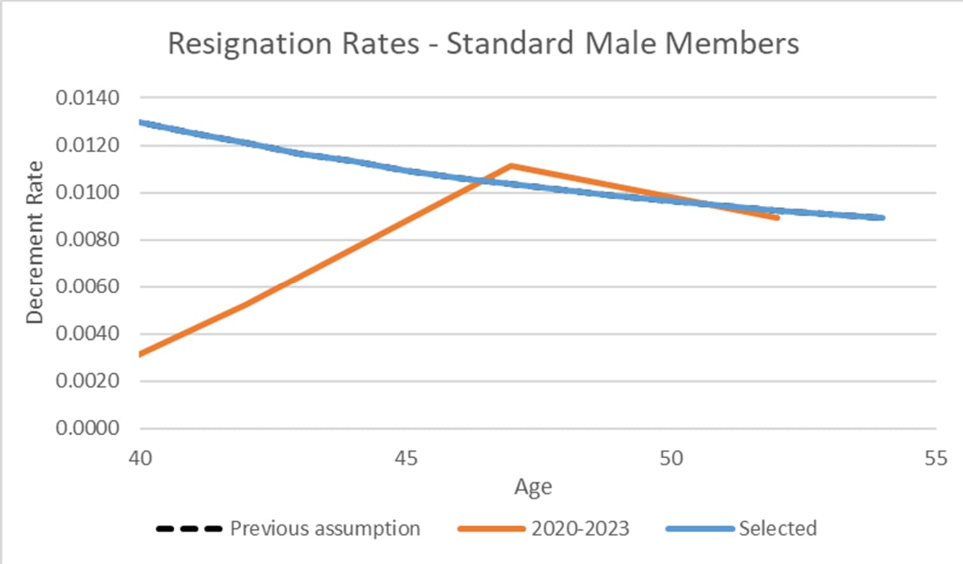
In contrast, the actual experience for Police Members has been below the previous assumption, and hence we have proportionately reduced the TPD rates to be more consistent with the recent experience.

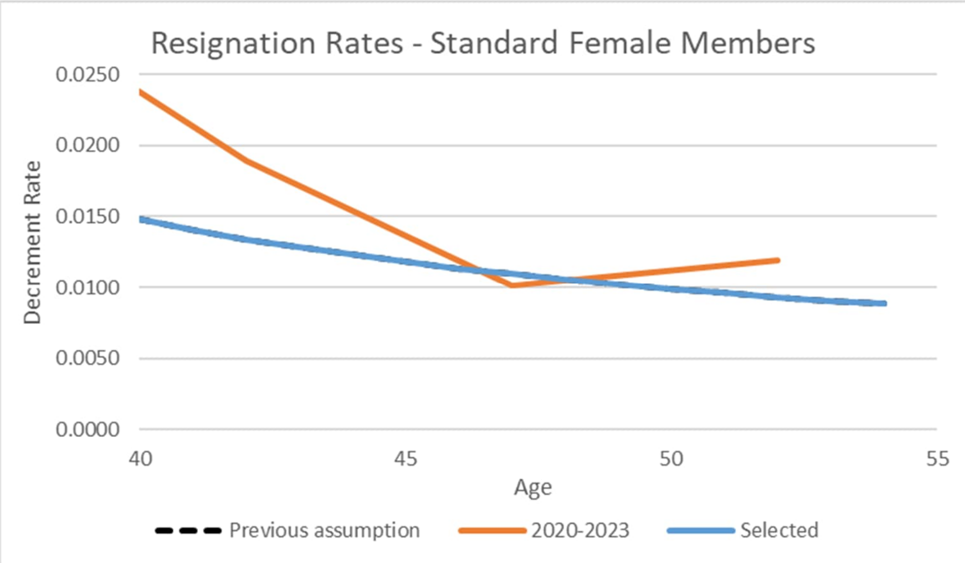
Resignation

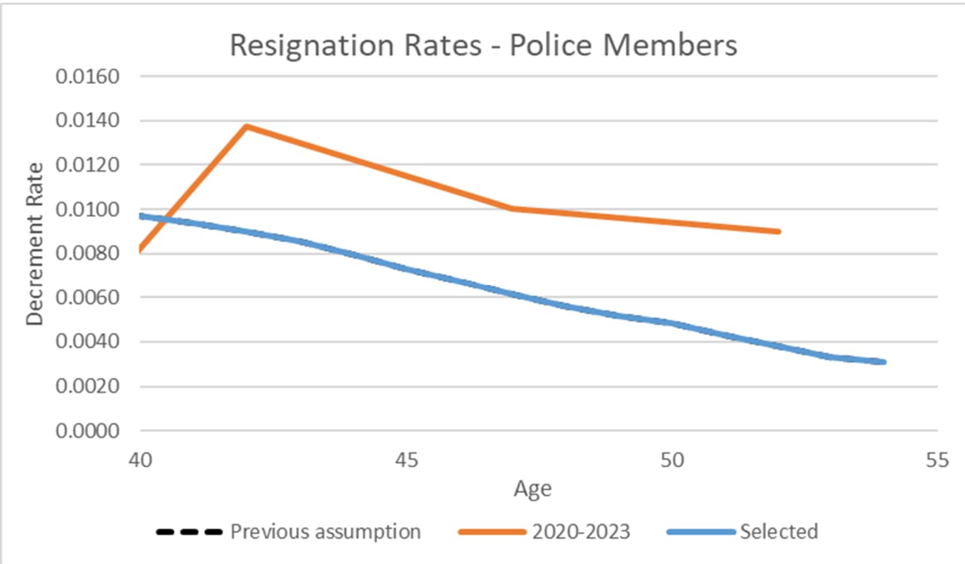
The actual resignations of Standard Defined Benefit Category members over the review period in comparison to expected resignations calculated based on the assumptions used in the previous actuarial investigation are as follows:

	Standard Male Members			Standard Female Members			Police Members		
Age Group	Actual Resign.	Expected Resign.	Ratio of Actual to Expected	Actual Resign.	Expected Resign.	Ratio of Actual to Expected	Actual Resign.	Expected Resign.	Ratio of Actual to Expected
30-34	0	0	0%	0	0	0%	0	0	0%
35-39	0	1	0%	4	2	186%	0	0	0%
40-44	5	11	45%	47	32	147%	8	5	163%
45-49	45	42	108%	98	105	93%	27	16	166%
50-54	67	69	97%	171	133	128%	30	13	230%
Total	**117**	**123**	**95%**	**320**	**273**	**117%**	**65**	**34**	**190%**

The actual and expected resignation rates over the review period as well as the rates selected for the actuarial investigation as at 30 June 2024 are compared in the graphs below.


Resignation Rates - Standard Male Members
Decrement Rate
0.0140
0.0120
0.0100
0.0080
0.0060
0.0040
0.0020
0.0000
40
45
50
55
Age
Previous assumption
2020-2023
Selected


Resignation Rates - Standard Female Members
Decrement Rate
0.0250
0.0200
0.0150
0.0100
0.0050
0.0000
40
45
50
55
Age
Previous assumption
2020-2023
Selected


Resignation Rates - Police Members
Decrement Rate
0.0160
0.0140
0.0120
0.0100
0.0080
0.0060
0.0040
0.0020
0.0000
40
45
50
55
Age
Previous assumption
2020-2023
Selected

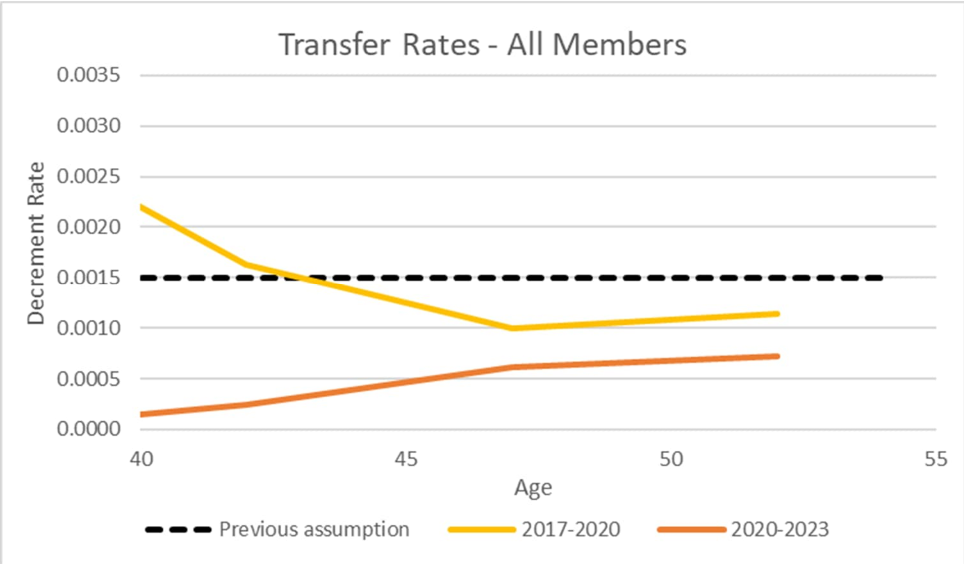
The actual experience over the review period has been broadly similar for Standard Male Members and somewhat above the previous assumption for Standard Female and Police Members. However, we have retained the previous resignation rates and for this investigation they will also cover the transfer to the Comprehensive Accumulation Category assumption (see below) which had been separately identified in the prior actuarial investigations.

Transfers to the Comprehensive Accumulation Category

The actual transfers of Standard Defined Benefit Category members to the Comprehensive Accumulation Category over the review period in comparison to expected transfers calculated based on the assumptions used in the previous actuarial investigation are as follows:

	All Members		
Age Group	Actual Transfer	Expected Transfer	Ratio of Actual to Expected
30-34	0	0	0%
35-39	0	0	0%
40-44	1	6	17%
45-49	10	25	41%
50-54	18	38	48%
Total	**29**	**69**	**42%**

The actual and expected transfer rates are compared in the graphs below.



The numbers of transfers are too small to make statistical inferences even though all member types are considered as a whole. We have discontinued an explicit transfer assumption in this investigation, instead the resignation assumption will include transfers to the Comprehensive Accumulation Category.

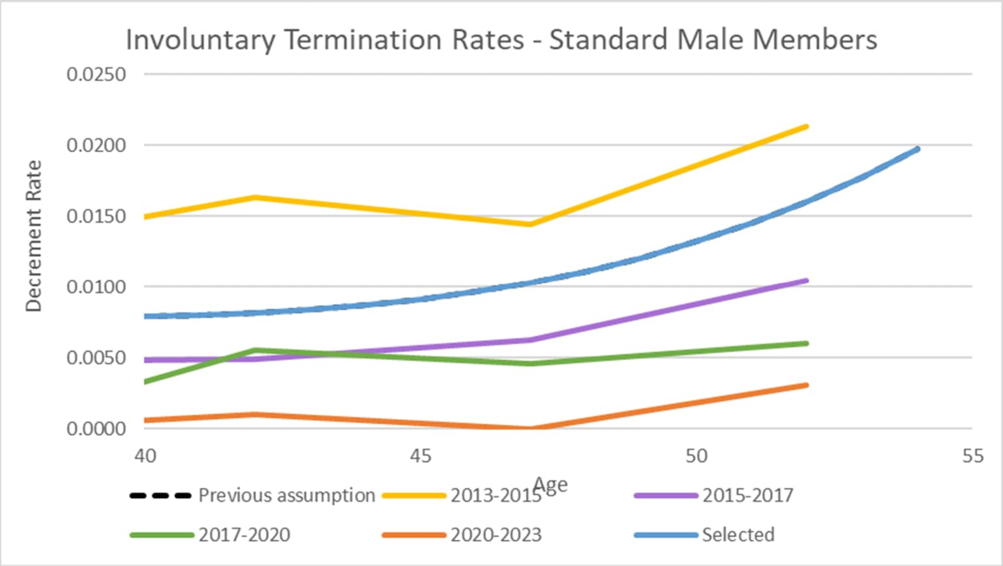
Involuntary Termination

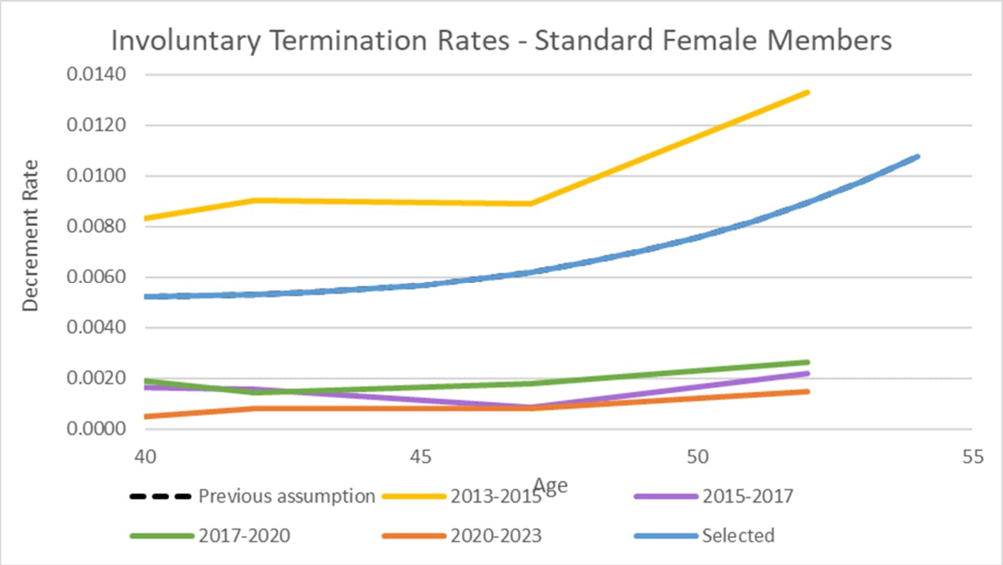
Involuntary termination includes voluntary early retirements prior to age 55, retrenchments and redundancies. We make a specific allowance for this because the involuntary termination benefit is greater than the actuarial reserve, although the sensitivity of the liabilities to this assumption is reduced as the active membership ages.

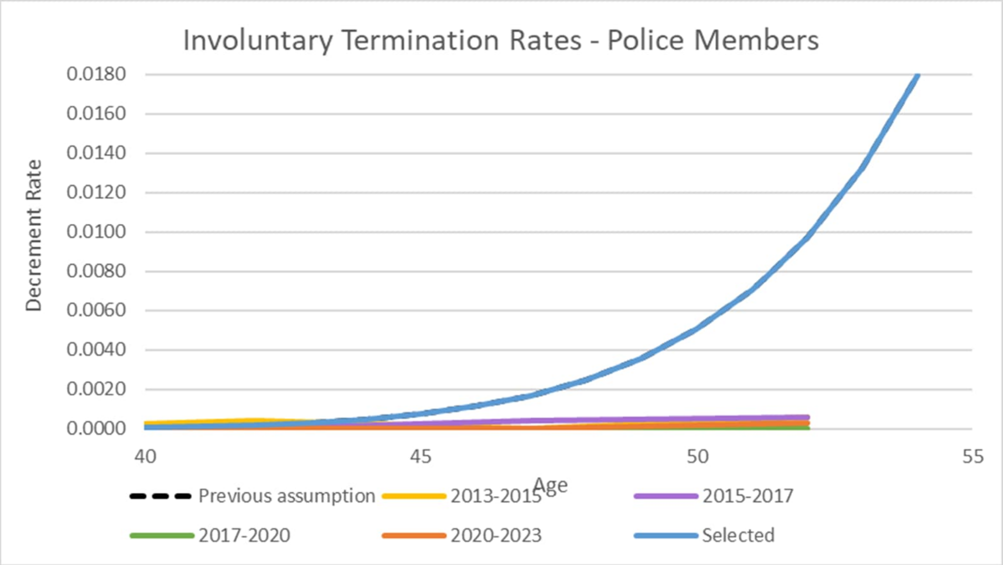
The actual involuntary terminations of Standard Defined Benefit Category members over the review period in comparison to expected involuntary terminations calculated based on the assumptions used in the previous actuarial investigation are as follows:

	Standard Male Members			Standard Female Members			Police Members		
Age Group	Actual Invol. Term.	Expected Invol. Term.	Ratio of Actual to Expected	Actual Invol. Term.	Expected Invol. Term.	Ratio of Actual to Expected	Actual Invol. Term.	Expected Invol. Term.	Ratio of Actual to Expected
30-34	0	0	0%	0	0	0%	0	0	0%
35-39	0	1	0%	0	1	0%	0	0	0%
40-44	1	8	12%	2	13	15%	0	0	0%
45-49	0	43	0%	8	62	13%	0	6	0%
50-54	23	124	19%	21	130	16%	1	34	3%
Total	**24**	**176**	**14%**	**31**	**206**	**15%**	**1**	**40**	**3%**

The actual and expected involuntary termination rates as well as the rates selected for the actuarial investigation as at 30 June 2024 are compared in the graphs below.







The actual involuntary termination experience over the review period has been significantly lower than the previous assumption. However, as noted in the previous experience analysis, the decrement tends to be quite volatile over time and the available data is insufficient to be statistically credible. The labour market has been tight over this period and therefore likely less redundancies than over other periods.

On balance, we have retained the previous involuntary termination assumption as there has not been significant experience to draw a conclusion and retaining this assumption is conservative.

Leaving Service – Parliamentary Category

At this investigation date there are only three members left in this category and therefore we have removed all decrements and assume they will just leave by retiring.

Assumptions No Longer Required

For completeness, we included below the assumptions which were considered in the previous experience analysis but are no longer required going forward.

- Family law splits and transition to retirement pensions – we understand they were removed by the previous Actuary following a simplification in the liability valuation approach post the 2021 actuarial investigation.
- Transfers to the Comprehensive Accumulation Category – this is now assumed to be part of the resignation assumption.

Experience Analysis for Deferred Retirement Benefit (DRB) Members

Upon leaving employment prior to age 55, members in the Standard Defined Benefit Category receive a DRB, which is a benefit that increases each year in line with the increase in AWOTE, preserved until a preservation cashing condition is satisfied. A DRB can be converted at any time to an Investment Linked Option (ILO), which is a cash equivalent amount immediately transferrable to an accumulation fund. The conversion discounts the DRB by 2.88% compound for each year until age 55. An allowance for the effect of the ILO is needed if the gap between the assumed investment returns and salary increases is different to 2.88%.

At the 2021 investigation this gap was 1.4% and therefore assuming members leave by taking the ILO was recognising those gains. At this investigation date, the gap is 2.85% and therefore there is a negligible impact on the liabilities of members opting for this. We have kept the ILO Conversion rate (below) as these rates could diverge in the future.

ILO Conversion Rates for Existing DRB Members

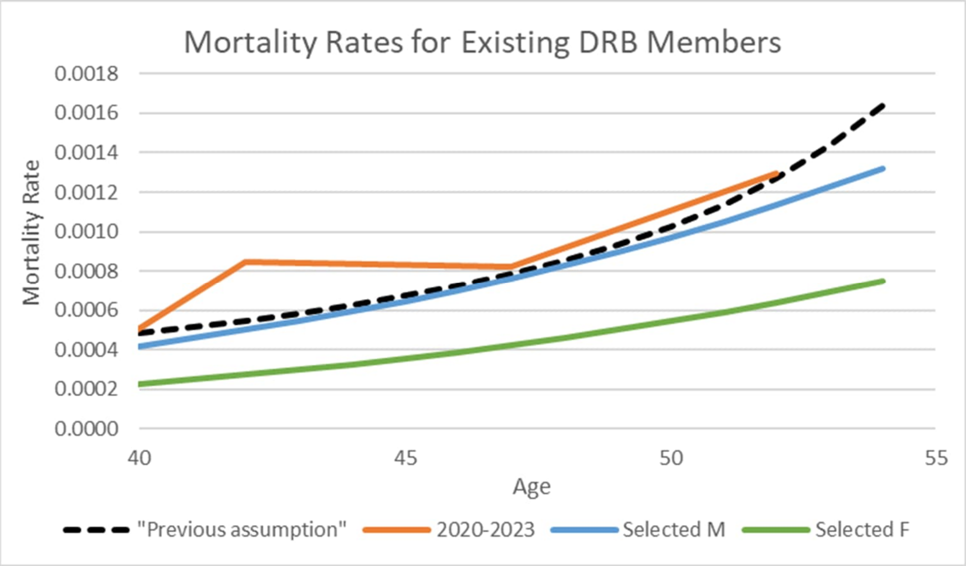
The following table shows the rates at which existing DRB members have converted to ILO over the review period.

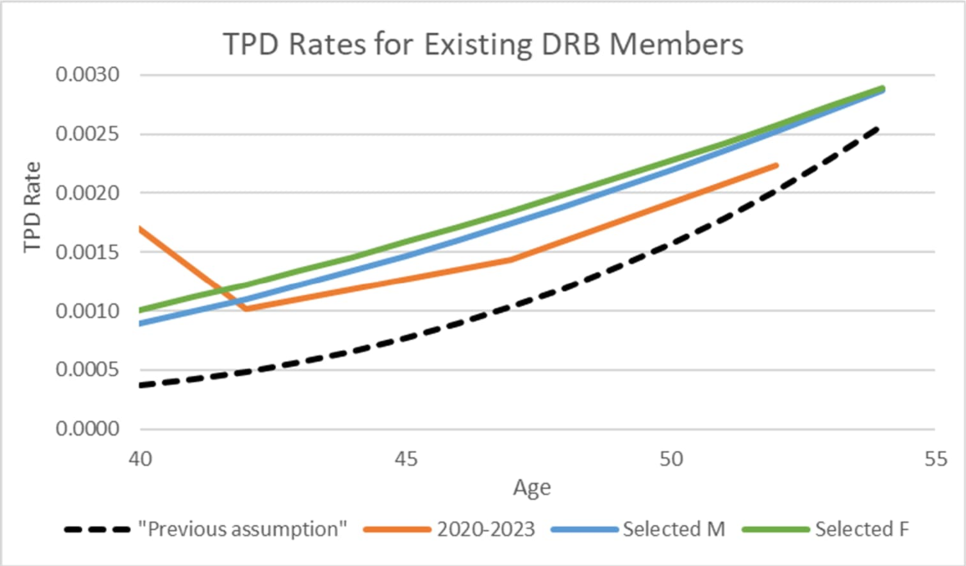
Year Ending 30 June	Average
2021	0.9%
2022	1.0%
2023	0.8%
Total	**0.9%**

The rate assumed in the previous actual investigation was 1.5% and the previous experience analysis showed an average of 1.3% over the three years to 30 June 2020. As the recent experience also shows a decline in the ILO conversion rate, we have reduced it to 1.0%.

Mortality and TPD for Existing DRB Members

The actual and expected exit rates due to deaths or TPD of DRB members over the review period as well as the rates selected for the actuarial investigation as at 30 June 2024 are compared in the graphs below.





The available data is insufficient to be statistically credible, and the mortality and TPD assumptions for DRB members do not have a significant impact on the overall liabilities. Therefore, the mortality and TPD rates adopted for active members are also applied to DRB members. We note that the recent experience was not dissimilar to the selected rates.

Proportion of Members Choosing ILO at Exit

The following table shows the proportion of active members who have chosen an ILO immediately upon exit over the review period.

Year Ending 30 June	Average
2021	3.2%
2022	8.0%
2023	10.5%
Total	**7.2%**

The rate assumed in the previous actual investigation was 4.0% and the previous experience analysis showed an average of 4.4% over the three years to 30 June 2020. As the recent experience also shows an increase in the proportion of exiting members choosing ILO, we have increased it to 5.0%.

Experience Analysis for Pensioners

Pensioner Mortality

The pensioner mortality assumption adopted in the previous actuarial investigation was the Queensland Life Tables 2017-19, with the 25-year improvement factors from Australian Life Tables 2015-17 and age ratings (i.e. -2 years unless the member retired in ill-health in which case +4 years).

The actual deaths of pensioner members (across all categories) over the review period in comparison to expected deaths calculated based on the assumptions used in the previous actuarial investigation are as follows:

Three years ended 30 June 2023	Actual Deaths	Expected Deaths	Ratio of Actual to Expected
Ill-Health Pensioners	44	45.9	96%
Non-Ill-Health Pensioners	142	141.3	101%
Total	**186**	**187.2**	**99%**

The actual mortality experience for pensioner members over the review period was in line with the previous assumption.

We have also considered standard Mercer pensioner mortality rates derived from the experience of public sector superannuation schemes in Australia from 2017-22, but the previous mortality assumption tied in more closely with the recent experience and these have therefore been retained.

Spouse assumptions

If the pensioner dies, a pension may be payable to their spouse. We have assumed that all of the pensioners or potential pensioners have a spouse and that males are three years older than females which is consistent with the assumption adopted at the previous investigation.

Pension Increases

Pensions are increased annually in the first full fortnight in August, by the change in Brisbane All Groups CPI for the year to the previous June quarter (except for some members in the Parliamentary Category). Some Parliamentarians' pensions are increased by the change in the Parliamentary backbencher salary over the financial year.

The actual pension increases over the review period were as follows:

Year Ending 30 June	Increase in CPI linked pensions	Increase in salary linked pensions
2021	4.9%	0.0%
2022	7.3%	4.3%
2023	6.3%	2.5%
Average	**6.2%**	**2.2%**

On average during the review period, the increase in CPI linked pensions have been significantly above the previously assumed 2.1% p.a. and the increase in salary linked pensions have been below the previously assumed 3.1% p.a.

We do not propose changing the assumption, as it has been based on break-even inflation for the CPI linked pensions and a view on salary increase for the pension that increase in line with salaries.

The pensioner liability calculated at the previous investigation had allowed for the 4.9% increase to the pensions from August 2021 (where applicable). Similarly, we have allowed for the known increase of 3.4% at August 2024 in this actuarial investigation.

Proportion Taking Pensions

Standard Defined Benefit Category

A pension is only payable in the event that a member exits on account of TPD and chooses the pension option. The assumption adopted in the previous actuarial investigation was that 50% of TPD exits will take the pension whereas experience over the review period has been lower at only 19.5%. As the available experience is insufficient to make a change to the assumption, we have retained the assumed proportion of TPD exits taking the pension at 50%.

For the State and Police Categories, all other decrements are set equal to the decrements for the Standard Defined Benefit Categories. However, the assumption regarding the proportion of members choosing to take a pension has a material impact on the liabilities of the State and Police Category and therefore we analyse this for the separate categories.

State Category

The assumption adopted in the previous actuarial investigation was that 50% of age retirees, 80% of ill-health retirees and 50% of spouses will take the pension.

The following table compares the actual and expected proportions of State Category members upon retirement or their spouses choosing pensions over the review period. The data on spouses taking partial commutation was not available and the proportions taking pensions are calculated assuming partial commutations of 50%.

Pension Type	Number taking Lump Sum	Number taking Full Pension	Partial Commutation	Total	Proportion Taking Pension	Previous Assump.	Selected
Age Pensioner	19	31	4	54	61%	50%	50%
Ill-Health Pensioner	0	2	0	2	100%	80%	80%
Spouse on Death of Active Member	1	0	N/A	1	0%	50%	50%
Spouse on Death of Pensioner/Commuter	19	27	N/A	46	59%	50%	50%

The available data is insufficient to make a change to the assumptions, and hence the previous proportions of State Category members taking the pension are retained.

Police Category

The assumption adopted in the previous actuarial investigation was that 50% of all retirees and pensioner spouses will take the pension.

The following table compares the actual and expected proportions of Police Category members upon retirement or their spouses choosing pensions over the review period. The data on spouses taking partial commutation was not available and the proportions taking pensions are calculated assuming partial commutations of 50%.

Pension Type	Number taking Lump Sum	Number taking Full Pension	Partial Commutation	Total	Proportion Taking Pension	Previous Assump.	Selected
Age Pensioner	8	4	2	14	36%	50%	50%
Ill-Health Pensioner	1	2	0	3	67%	50%	50%
Spouse on Death of Active Member	0	0	N/A	0	-	50%	50%
Spouse on Death of Pensioner/Commuter	2	2	N/A	4	50%	50%	50%

The available data is insufficient (as well as not being significantly different) to make a change to the assumptions, and hence the previous proportions of Police Category members taking the pension are retained.

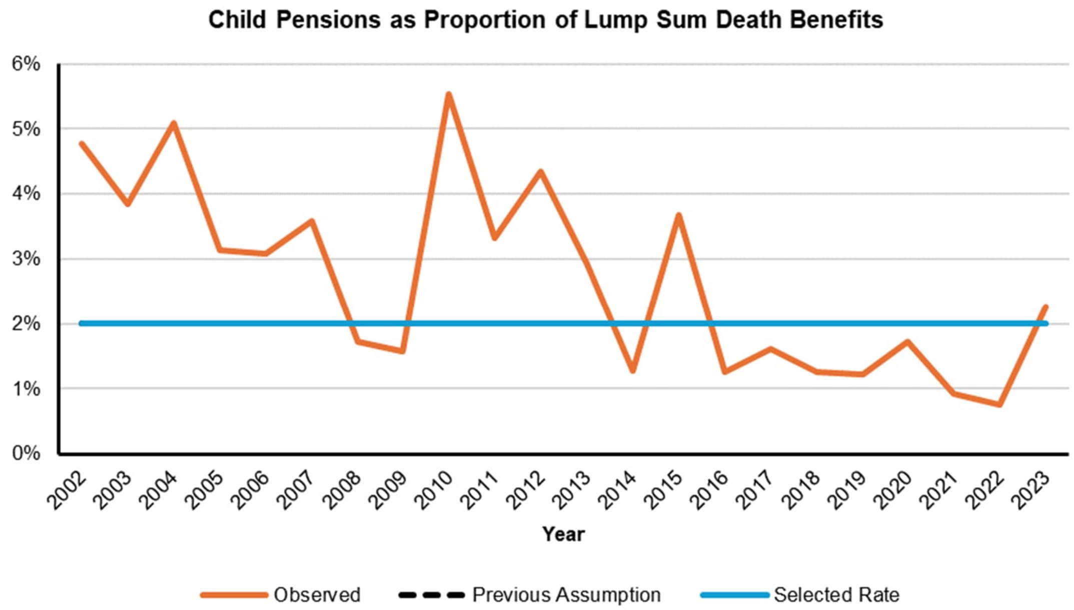
Parliamentary Category

The assumption adopted in the previous actuarial investigation was that 75% of eligible members and 100% of eligible spouses will take the pension.

With only three remaining active Parliamentary Category members since 2021, it is not possible to have experience large enough to make changes to the assumptions. Hence, we have retained the previous assumptions.

Child Pensions

The cost of child pensions commencing each year in the Standard Defined Benefit Category is considered as a percentage of the lump sum death benefits paid in that year. This cost was on average 1.1% of the death benefits during the review period, with the costs for previous years shown in the graph below.



The average cost during the review period is lower than the previously assumed 2.0%. We would expect a downward trend as the members age it would be reasonable to assume that less people will have children that meet the criteria for a pension to be paid on the death of the member. However, the previous assumption is retained due to the size of available data during the review period and in consideration of the past averages for longer periods.

Given the relative size of the Standard Defined Benefit Category, this assumption applies also for the State and Police Categories.

Income Protection Benefit

The Income Protection Benefit is not insured and is provided through QSuper. The accrued liabilities include claims currently in payment and an allowance for income protection claims incurred prior to the date of investigation but not yet reported. The future service liability includes an estimate of the cost of income protection incurred after the investigation date using the percentage of salaries shown below.

The Standard Defined Benefit and State Category members are eligible for the income protection benefit but the Police Members of the Standard Defined Benefit Category and members of the Police Category are not.

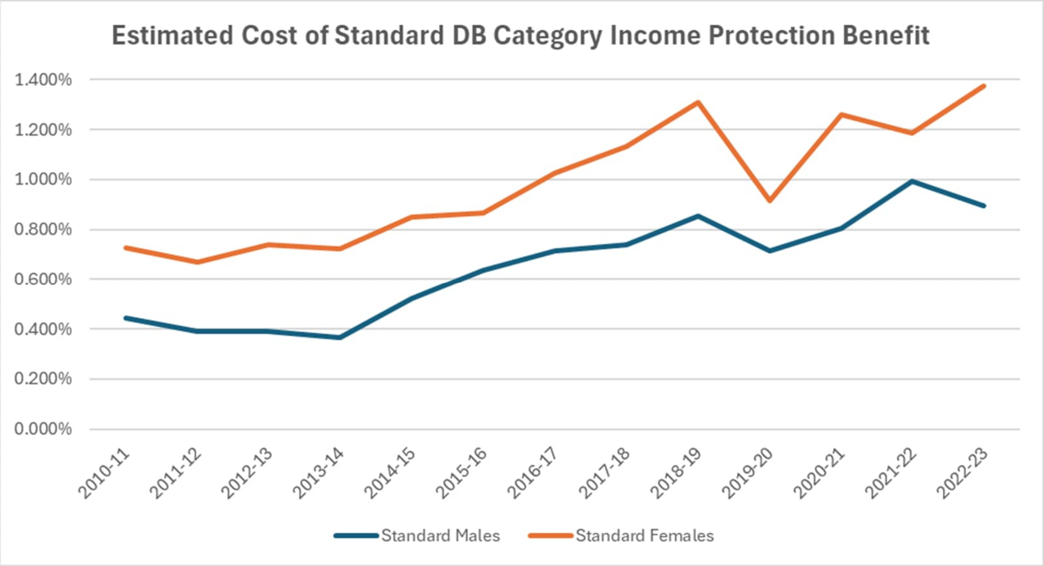
This report relates only to the defined benefit members but to avoid any doubt, this analysis does not cover the income protection benefit provided within the Comprehensive Accumulation Category.

In consideration of the immateriality of this income protection cost assumption, we have used a simple chain ladder method to estimate the ultimate claims cost as shown below.

Standard Defined Benefit Category

Incident Year	Development Year Paid ($m)				Total ($m)	PV of Outstanding Claims ($m)
	1	2	3	4+		
2014-15	11.7	12.9	3.8	0.5	28.9	-
2015-16	11.1	13.7	4.5	0.3	29.6	-
2016-17	11.1	16.8	5.4	0.3	33.6	-
2017-18	12.7	16.7	5.8	0.2	35.4	-
2018-19	13.3	19.4	6.5	0.2	39.4	-
2019-20	10.6	15.6	5.1	0.2	31.5	-
2020-21	11.6	17.5	7.0	0.2	36.3	0.2
2021-22	11.4	19.7	4.7	0.2	36.0	4.7
2022-23	13.6	19.0	4.9	0.2	37.7	23.3

Noting the gender specific rates adopted and reviewed in prior experience analyses, we have estimated the costs separately for Standard Male and Female Members.



The estimated cost of income protection benefits over the review period, including an allowance for the cost of foregone member contributions whilst in payment, was on average 0.9% of salaries for Standard Male Members and 1.3% of salaries for Standard Female Members. As they are broadly in line with the previously assumed rates of 1.0% and 1.5% respectively, we have retained the previous assumptions.

State Category

Using the same methodology, we note the following for the State Category

Incident Year	Development Year Paid ($m)				Total ($m)	PV of All Claims ($m)	Salary Exposure ($m)	Income Protection Cost
	1	2	3	4+				
2014-15	0.2	0.2	0.2	0.1	0.7	0.6	37.7	1.7%
2015-16	0.0	0.0	0.0	0.0	0.1	0.1	35.8	0.3%
2016-17	0.1	0.1	0.0	0.0	0.3	0.3	34.1	0.8%
2017-18	0.2	0.2	0.2	0.3	0.9	0.8	31.9	2.6%
2018-19	0.1	0.1	0.0	0.0	0.2	0.2	29.8	0.7%
2019-20	0.1	0.1	0.1	0.1	0.3	0.3	27.9	1.2%
2020-21	0.0	0.0	0.0	0.0	0.0	0.0	24.8	0.0%
2021-22	0.1	0.2	0.1	0.1	0.5	0.4	23.8	1.9%
2022-23	0.1	0.1	0.0	0.0	0.2	0.2	22.5	0.8%

The estimated cost of income protection benefits, including an allowance for the cost of foregone member contributions whilst in payment, was on average 0.9% of salaries over the review period. This is lower than the previously assumed rate of 1.3%. However, the amounts of income protection claims are not sufficient to make a change to the assumption and the estimated costs have been volatile in the past. Hence, the previous assumption is retained.

Death/TPD - Outstanding Claims

The accrued liabilities include an allowance for death and TPD claims incurred prior to the investigation date (both those still being processed and those incurred but not yet reported). Similar to income protection claims, we have used a chain ladder method to calculate an estimate of this cost.

The actual and projected death and TPD benefit payments by incident year and development year paid are as below:

	Death						TPD					
Incident Year	Development Year Paid ($m)				Total ($m)	PV of Outstanding Claims ($m)	Development Year Paid ($m)				Total ($m)	PV of Outstanding Claims ($m)
	1	2	3	4+			1	2	3	4+		
2014-15	13.1	5.2	-	-	18.3	-	9.8	18.1	12.2	13.6	53.7	-
2015-16	18.0	5.6	-	-	23.6	-	7.8	9.9	19.8	12.3	49.8	-
2016-17	20.4	6.0	-	-	26.4	-	4.1	11.1	19.6	16.9	51.7	-
2017-18	15.6	6.4	-	-	22.0	-	8.6	13.0	21.3	16.2	59.1	0.1
2018-19	16.3	9.1	-	-	25.4	-	8.1	19.5	27.7	10.6	65.9	0.4
2019-20	23.4	7.5	-	-	30.9	-	7.9	21.2	11.0	6.6	46.7	2.0
2020-21	13.8	8.4	-	-	22.2	-	6.6	17.1	16.6	8.2	48.5	7.9
2021-22	13.6	11.5	0.3	-	25.4	0.2	11.4	14.7	18.3	9.1	53.5	26.2
2022-23	10.7	5.3	0.2	-	16.2	5.4	13.5	28.4	29.3	14.6	85.8	67.8

In the previous experience analysis, the outstanding death and TPD liabilities were rounded to the nearest $10 million due to their materiality and issues with historical data, and they were taken to be the reasonable estimates at the following investigation dates until next experience review is undertaken. We have maintained this approach. The implied outstanding death and TPD liabilities in total are calculated to be $110 million under both funding and accounting bases.

The value of liabilities for other former members noted in the previous actuarial investigation includes the vested benefits for Unpaid Leaver Members. They represent active members who have left QSuper but their reason of exit is unknown and their benefit payments have not yet been made at the investigation date. The previous investigation made an allowance for the likelihood of those members receiving death/TPD benefits by reducing the Unpaid Leaver liabilities by 8%. This effectively assumed that 8% of Unpaid Leaver Members would ultimately receive death/TPD benefits and hence their liabilities are accounted for within the outstanding claims liabilities. Given the small number of Unpaid Leaver Members and to take a conservative approach, we have removed the proportion to be deducted from the liabilities of Unpaid Leaver Members.

Expenses

An explicit allowance for expenses is made in the actuarial balance sheet. In line with the previous experience analysis, the administration expenses incurred for the defined benefit categories are analysed separately for:

- Non-pensions, expressed relative to annual defined benefit payments;
- Pensions, expressed relative to annual pension payments;
- Income protection, expressed relative to annual income protection benefits payments; and
- Death/TPD, expressed relative to annual death/TPD lump sum benefit payments.

The actual administration expenses incurred during the review period are allocated into different types and expressed as a proportion of the relevant benefit payments as below.

Year Ending 30 June	Non-pension Admin Expenses	Pension Admin Expenses	Income Protection Admin Expenses	Death/TPD Admin Expenses
2021	1.9%	2.6%	9.3%	4.4%
2022	1.9%	3.1%	11.4%	3.6%
2023	1.7%	2.6%	15.1%	4.5%
Average	**1.8%**	**2.8%**	**11.9%**	**4.1%**

The assumed ratios selected for the actuarial investigation as at 30 June 2024 are as follows:

	Selected
Non-pension administration expenses as a proportion of annual defined benefit payments	3.0%
Pension administration expenses as a proportion of annual pension payments	3.5%
Income protection administration expenses as a proportion of annual income protection benefit payments	10.0%
Death/TPD administration expenses as a proportion of annual lump sum death/TPD benefit payments	5.0%

In consideration of the observed ratios over the review period as well as those over the period covered by the previous experience analysis, we have retained the previous assumptions. However, we have observed that it is common for administration fees to be largely fixed rather than linked to payments as superannuation funds have reducing number of members. If the basis on which administration fees charged is changed, we would reflect this in subsequent investigations.

Appendix C

Actuarial Assumptions - Details

The detail of the assumptions used at 30 June 2024 are set out below. Further information regarding their derivation can be found in the experience analysis in Appendix B and also refer to Section 5 for commentary.

Financial Assumptions

	Assumption
Discount rate (after tax and investment fees)	6.25% p.a.
Salary Inflation	3.4% p.a.
Price (CPI) Inflation	2.4% p.a.

Promotional Salary Increase Assumption

In addition to the above salary inflationary increase, I have assumed the following promotional increase rates.

	Promotional Salary Increase		
Age	Standard Male	Standard Female	Police
36	1.0%	1.6%	1.5%
37	1.0%	1.5%	1.4%
38	1.0%	1.4%	1.4%
39	0.9%	1.3%	1.3%
40	0.9%	1.2%	1.3%
41	0.8%	1.2%	1.3%
42	0.8%	1.1%	1.2%
43	0.8%	1.0%	1.2%
44	0.7%	1.0%	1.1%
45	0.7%	0.9%	1.1%
46	0.6%	0.8%	1.0%
47	0.6%	0.7%	1.0%
48	0.5%	0.7%	0.9%
49	0.5%	0.6%	0.9%
50	0.4%	0.5%	0.9%
51	0.4%	0.5%	0.8%
52	0.3%	0.4%	0.8%
53	0.3%	0.4%	0.8%
54	0.2%	0.3%	0.7%
55	0.2%	0.3%	0.7%
56	0.1%	0.2%	0.7%
57	0.1%	0.2%	0.6%
58	0.0%	0.2%	0.6%
59	0.0%	0.1%	0.6%
60	0.0%	0.1%	
61	Nil thereafter		

Demographic and Decrement Assumptions

The following tables show the assumptions that have been made concerning the rates at which members will leave QSuper for the reasons shown.

Retirement, Death and Disablement in Service, Resignation, Involuntary Termination

The rates at which current active members are assumed to leave QSuper due to retirement, death and disablement in service, resignation and involuntary termination are set out below. They are shown separately for Standard Male (Std M), Standard Female (Std F) and Police (P) Members.

	Resignation/Retirement			Death			TPD			Involuntary Termination		
Age	Std M	Std F	P	Std M	Std F	P	Std M	Std F	P	Std M	Std F	P
36	1.53%	1.86%	1.14%	0.03%	0.02%	0.02%	0.05%	0.06%	0.12%	0.78%	0.52%	0.00%
37	1.46%	1.75%	1.08%	0.03%	0.02%	0.02%	0.06%	0.07%	0.13%	0.78%	0.52%	0.00%
38	1.40%	1.65%	1.03%	0.04%	0.02%	0.02%	0.07%	0.08%	0.14%	0.78%	0.52%	0.00%
39	1.35%	1.56%	1.00%	0.04%	0.02%	0.03%	0.08%	0.09%	0.15%	0.78%	0.52%	0.00%
40	1.30%	1.48%	0.97%	0.04%	0.02%	0.03%	0.09%	0.10%	0.17%	0.79%	0.52%	0.01%
41	1.25%	1.41%	0.94%	0.05%	0.02%	0.03%	0.10%	0.11%	0.18%	0.80%	0.52%	0.01%
42	1.21%	1.34%	0.90%	0.05%	0.03%	0.03%	0.11%	0.12%	0.20%	0.81%	0.53%	0.02%
43	1.16%	1.29%	0.85%	0.05%	0.03%	0.04%	0.12%	0.13%	0.21%	0.84%	0.54%	0.03%
44	1.13%	1.24%	0.80%	0.06%	0.03%	0.04%	0.13%	0.15%	0.23%	0.87%	0.55%	0.05%
45	1.09%	1.18%	0.73%	0.06%	0.04%	0.04%	0.15%	0.16%	0.25%	0.91%	0.57%	0.07%
46	1.06%	1.13%	0.67%	0.07%	0.04%	0.05%	0.16%	0.17%	0.27%	0.96%	0.59%	0.11%
47	1.04%	1.10%	0.61%	0.08%	0.04%	0.05%	0.17%	0.18%	0.29%	1.03%	0.62%	0.17%
48	1.01%	1.06%	0.56%	0.08%	0.05%	0.06%	0.19%	0.20%	0.32%	1.11%	0.66%	0.25%
49	0.99%	1.03%	0.52%	0.09%	0.05%	0.06%	0.20%	0.21%	0.34%	1.21%	0.70%	0.35%
50	0.96%	0.99%	0.48%	0.10%	0.05%	0.06%	0.22%	0.23%	0.37%	1.32%	0.76%	0.50%
51	0.94%	0.96%	0.43%	0.10%	0.06%	0.07%	0.24%	0.24%	0.40%	1.45%	0.82%	0.70%
52	0.92%	0.93%	0.38%	0.11%	0.06%	0.07%	0.25%	0.26%	0.43%	1.60%	0.89%	0.97%
53	0.91%	0.90%	0.33%	0.12%	0.07%	0.08%	0.27%	0.27%	0.46%	1.78%	0.98%	1.33%
54	0.89%	0.88%	0.31%	0.13%	0.08%	0.08%	0.29%	0.29%	0.49%	1.97%	1.08%	1.79%
55	2.00%	2.00%	1.50%	0.14%	0.08%	0.09%	0.31%	0.31%	0.52%			
56	2.50%	3.00%	3.50%	0.15%	0.09%	0.09%	0.32%	0.32%	0.56%			
57	3.50%	3.50%	5.00%	0.17%	0.09%	0.10%	0.34%	0.34%	0.59%			
58	5.50%	5.50%	7.00%	0.18%	0.10%	0.10%	0.36%	0.36%	0.63%			
59	6.50%	8.00%	14.00%	0.19%	0.11%	0.11%	0.38%	0.37%	0.67%			
60	13.50%	14.50%		0.21%	0.12%							
61	14.00%	13.50%		0.22%	0.13%							
62	15.00%	13.00%		0.24%	0.14%							
63	14.00%	14.00%		0.25%	0.15%							
64	19.50%	18.00%		0.27%	0.16%							
65	27.50%	21.50%		0.29%	0.17%							
66	27.50%	23.00%		0.31%	0.18%							
67	29.50%	27.00%		0.33%	0.20%							
68	22.50%	25.50%		0.35%	0.21%							
69	24.00%	25.00%		0.38%	0.22%							

The above mortality and TPD rates applicable to Standard Male and Standard Female Members are also assumed to apply to Deferred Retirement Benefit (DRB) Members.

Pensioner Mortality

The assumed pensioner mortality rates, based on our latest experience analysis for QSuper in Appendix B, are the Queensland Life Table 2017-19 released by Australian Bureau of Statistics with the 25-year improvement factors from Australian Life Tables 2015-17 and age ratings (i.e. -2 years unless the member retired in ill-health in which case +4 years). These are unchanged from the 2021 investigation.

Examples of the base pensioner mortality rates and improvement factors are set out in below.

	Base Mortality		Improvement Factors	
Age	Male	Female	Male	Female
60	0.00691	0.00409	-2.5531	-2.1634
65	0.01035	0.00605	-2.9664	-2.4286
70	0.01595	0.00983	-2.9861	-2.3961
75	0.02648	0.01693	-2.7708	-2.3274
80	0.04737	0.03054	-2.3497	-2.0289
85	0.08609	0.05990	-1.6057	-1.4483
90	0.15236	0.11729	-0.8890	-0.8014
95	0.23188	0.20935	-0.5187	-0.3361
100	0.32862	0.30978	-0.0808	0.0000

Other Assumptions

New Members

QSuper's defined benefit section is closed to new entrants and I have made no allowance for new members.

Investment Linked Option (ILO) conversion

It is assumed that 5.0% of active members upon exit will choose an ILO i.e. a cash equivalent amount instead of preserving the withdrawal benefit within QSuper, and 1.0% of existing DRB members are assumed to take an ILO.

Pensioners

It is assumed that all pensioners are married with males three years older than their spouses. The following proportions are assumed to take pension benefits.

Category	Exit/Pension Type	Assumed
Defined Benefit	Total and permanent disablement exits	50%
State	Age Pensioner	50%
	Ill-Health Pensioner	80%
	Spouse on Death of Active Member/Pensioner/Commuter	50%
Police	All pensioners and spouses	50%
Parliamentary	Eligible members	75%
	Eligible spouses	100%

I have made an allowance for pensions to be payable to a child/children by increasing the cost of lump sum death benefits by 2.0%.

Outstanding Claims Cost

I have made an allowance for the cost of outstanding claims as below.

	Income Protection Benefit
Standard Defined Benefit Category – Males	1.0% of salary
Standard Defined Benefit Category – Females	1.5% of salary
State Category	1.3% of salary
	Death and TPD Benefit
Standard Defined Benefit Category	$110 million

Expenses

Administration costs and management expenses are deducted from QSuper assets. Based on experience analysis in Appendix B, the following allowance for expenses is made:

Administration expense assumption	
Non-pension administration expenses as a proportion of annual defined benefit payments	3.0%
Pension administration expenses as a proportion of annual pension payments	3.5%
Income protection administration expenses as a proportion of annual income protection benefit payments	10.0%
Death/TPD administration expenses as a proportion of annual lump sum death/TPD benefit payments	5.0%

Tax

I have assumed that the effective tax rate of 14% continues to apply to QSuper's assessable income, which allows for the expected value of tax credits and deductions for the notional insurance cost and administration expenses. This rate has also been assumed to apply in calculating the allowance for contribution tax in the Vested Benefits.

All future Employer and member salary sacrifice contributions are assumed to be subject to 15% contribution tax, after deduction of any insurance premiums and administration and management costs.

I have made no allowance for:

- Excess contributions tax, as this is payable by the member.
- Additional tax on contributions (including defined benefit notional contributions) for those with incomes above the threshold (currently $250,000), which is also payable by the member.

Minimum Requisite Benefits (MRB)

The MRB has not been valued as it has been assumed that this is not financially significant and the data is not available. The administrator has confirmed that on an individual basis the MRB is rarely higher than the benefits provided under QSuper and based on our review of the benefits this seems reasonable.

Appendix D

Pension Factors

Defined benefit payments to pensioners are solely met by QSuper assets and hence 88% of the present value of any new pensions that emerge need to be funded by the Employer Fund at commencement.

The present value of new pensions can be calculated by multiplying the annual value of the pension payable by a pension factor from the below table, that estimates the value of $1 p.a. payable for life, indexed by CPI, with a subsequent reversionary pension. The pension factors depend on the pension type (eg age retirement, ill health retirement or payment to a spouse) and are based on the age last birthday of the member at retirement or death.

Please note the pension factors for pensions indexed by salary increases are not provided in this report as they are only applicable to three remaining active members in the Parliamentary Category. I can provide a relevant factor if and when the need arises.

Age	Age Retirement with 2/3 Reversion	Age	Ill Health with 2/3 Reversion	Age	Spouse
55	20.167	30	23.873	30	23.721
56	19.909	31	23.756	31	23.600
57	19.642	32	23.634	32	23.474
58	19.365	33	23.508	33	23.344
59	19.079	34	23.377	34	23.208
60	18.783	35	23.240	35	23.069
61	18.478	36	23.099	36	22.924
62	18.162	37	22.951	37	22.774
63	17.835	38	22.799	38	22.618
64	17.498	39	22.640	39	22.457
65	17.151	40	22.475	40	22.291
66	16.791	41	22.304	41	22.118
67	16.421	42	22.126	42	21.939
68	16.040	43	21.942	43	21.754
69	15.647	44	21.750	44	21.561
70	15.243	45	21.552	45	21.362
71	14.829	46	21.345	46	21.156
72	14.405	47	21.131	47	20.943
73	13.971	48	20.909	48	20.722
74	13.527	49	20.679	49	20.493
75	13.075	50	20.440	50	20.256
76	12.614	51	20.193	51	20.011
77	12.146	52	19.937	52	19.757
78	11.672	53	19.672	53	19.495
79	11.192	54	19.398	54	19.223
80	10.708	55	19.115	55	18.943
81	10.222	56	18.822	56	18.654
82	9.736	57	18.519	57	18.356
83	9.250	58	18.207	58	18.048
84	8.769	59	17.884	59	17.732
85	8.293	60	17.550	60	17.406

86	7.825	61	17.206	61	17.072
87	7.369	62	16.851	62	16.727
88	6.926	63	16.485	63	16.374
89	6.499	64	16.109	64	16.011
90	6.090	65	15.722	65	15.637
91	5.701			66	15.254
92	5.334			67	14.859
93	4.988			68	14.455
94	4.664			69	14.041
95	4.362			70	13.619
96	4.081			71	13.187
97	3.822			72	12.748
98	3.583			73	12.302
99	3.360			74	11.849
100	3.253			75	11.391

The pension factors are shown only for certain ages due to the relevant age eligibilities based on the pension type.

For members aged over 100, the age 100 factor should be used.

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