Willis Towers Watson

TfL Pension Fund – Public Sector Section

Actuarial valuation as at 31 March 2015

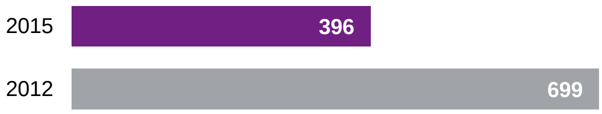
27 May 2016

Summary

The main results of the Section's actuarial valuation are as follows:

- Technical provisions funding level as at 31 March 2015 has increased to 95.4% (2012: 89.2%)

- Deficit of assets relative to technical provisions has decreased to £396 million (2012: £699 million)



- The recovery plan implemented to address the Section's funding deficit is expected to achieve full funding on the technical provisions assumptions by 31 March 2022, which is 7 years following the valuation date (2012: 8 years)

- The Scheme Actuary's statutory estimate of solvency as at 31 March 2015 has decreased to 43% (2012: 44%)

- The rate of employer contributions required to meet the increase in technical provisions arising from the accrual of future service benefits has increased to 25.55% of the relevant pay definition (2012: 20.40%)

Contents

Throughout this report the following terms are used:

Fund
TfL Pension Fund

Section
Public Sector Section

Trustee
TfL Trustee Company Limited

Principal Employer
TfL

Trust Deed & Rules
The Fund's Trust Deed and Rules dated 19 December 2008, as subsequently amended

Introduction

Scope

This is my report on the actuarial valuation of the Public Sector Section of the TfL Pension Fund as at 31 March 2015 and I have prepared it for the Trustee. As noted in the Limitations section of this report, others may not rely on it.

The actuarial valuation is required under Rule 43(3) of the Rules of the Fund and Part 3 of the Pensions Act 2004; a copy of this report must be provided to TfL in its capacity as Principal Employer and as representative for the other employers participating in the Section within seven days of its receipt.

The main purposes of the actuarial valuation are to review the financial position of the Section relative to its statutory funding objective and to determine the appropriate level of future contributions.

The report explains the financial position of the Section at 31 March 2015 using several different measures of its liabilities and how it has changed since the previous valuation at 31 March 2012. It also describes the strategy that has been agreed between the Trustee and TfL for financing the Section in future and provides projections of the funding position at the expected date of the next valuation.

This report and the work involved in the actuarial valuation are within the scope of and comply with the Financial Reporting Council's Technical Actuarial Standards regarding pensions, reporting actuarial information, data and modelling.

Next steps

The Trustee is required to disclose to members, in a summary funding statement, certain outcomes of this actuarial valuation within a reasonable period. Members may also request a copy of this report.

The financial position of the Section and the level of contributions to be paid will be reviewed at the next actuarial valuation, which is expected to be carried out at 31 March 2018.

In intervening years the Trustee will obtain annual actuarial reports on developments affecting the Section's assets and technical provisions. The next such report, which will have an effective date of 31 March 2016, must be completed by 31 March 2017.

G M Oxtoby
Fellow of the Institute and Faculty of Actuaries
27 May 2016

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Limitations

Third parties

This report has been prepared for the Trustee for the purpose indicated. It has not been prepared for any other purpose. As such, it should not be used or relied upon by any other person for any other purpose, including, without limitation, by individual members of the Fund for individual investment or other financial decisions, and those persons should take their own professional advice on such investment or financial decisions. Neither I nor Towers Watson Limited accepts any responsibility for any consequences arising from a third party relying on this report.

Except with the prior written consent of Towers Watson Limited, the recipient may not reproduce, distribute or communicate (in whole or in part) this report to any other person other than to meet any statutory requirements.

Data supplied

The Trustee bears the primary responsibility for the accuracy of the information provided, but will, in turn, have relied on others for the maintenance of accurate data, including the employers who must provide and update certain membership information. Even so it is the Trustee's responsibility to ensure the adequacy of these arrangements. I have taken reasonable steps to satisfy myself that the data provided is of adequate quality for the purposes of the investigation, including carrying out basic tests to detect obvious inconsistencies. These checks have given me no reason to doubt the correctness of the information supplied. It is not possible, however, for me to confirm that the detailed information provided, including that in respect of individual members and the asset details, is correct.

This report has been based on data available to me as at the effective date of the actuarial valuation and takes no account of developments after that date except where explicitly stated otherwise.

Some of the member data (such as date of birth and salary) required for the running of the Section, including for paying out the right benefits, is known as ‘personal data’. The use of this data is regulated under the Data Protection Act, which places certain responsibilities on those who exercise control over the data (known as ‘data controllers’ under the Data Protection Act). Data controllers would include the Trustee of the Fund and may also include the Scheme Actuary and Towers Watson Limited, so we have provided further details on the way we may use this data on our website at http://www.willistowerswatson.com/personal-data.

Assumptions

The choice of long-term assumptions, as set out in the Section’s Statement of Funding Principles dated 1 May 2016, is the responsibility of the Trustee, after taking my advice. They are only assumptions; they are not predictions and there is no guarantee that they will be borne out in practice. In fact I would expect the Section’s experience from time to time to be better or worse than that assumed. The Trustee and TfL must be aware that there are uncertainties and risks involved in any course of action they choose based on results derived from these assumptions.

The structure of the Willis Towers Watson Investment model, used to determine the spread of likely future outcomes for the Section’s finances, is based on an historical analysis of investment returns, although Willis Towers Watson has incorporated its subjective judgement to complement the information provided by historical returns. The model is designed to illustrate the future range of returns stemming from different asset classes and their inter-relationship and the consequent uncertainty in the future financial development of the Section. It should be noted that no economic model could be expected to capture future uncertainty perfectly or to be precise about the risk of extreme events. In particular, it should be noted that the timeframe in establishing our asset model and the assumptions used in this investigation are intentionally long-term, and are not meant to be reflective of the possible, or even likely, course of the investment markets in the short term.

Funding

Statutory funding objective

The Trustee's formal funding objective is the statutory funding objective under the Pensions Act 2004, which is to have sufficient and appropriate assets to cover the Section's technical provisions (i.e. the amount that the Trustee has determined to be required to make provision for the Section's liabilities).

The technical provisions are calculated by projecting the benefits (which are mostly pension payments) expected to be paid in each year after the valuation date and then discounting the resulting cashflows to obtain a present value. Benefits accrued in respect of service only up to the valuation date are taken into account in this calculation (although an allowance is made for an assumed level of future pensionable earnings increases for employed members). The main benefits taken into account in this actuarial valuation are summarised in the Additional Information section of this report.

The projections allow for benefit payments being made from the Section over the next 100 or so years. Most of these payments depend on future increases in price inflation statistics, subject to specified limits in some cases.

The method and assumptions for calculating the technical provisions as at 31 March 2015 have been agreed between the Trustee and TfL and are documented in the Statement of Funding Principles dated 1 May 2016.

Key assumptions as at 31 March 2015 and 31 March 2012

The table below summarises the financial assumptions used to calculate the Section's technical provisions for this and the previous actuarial valuation.

Financial assumptions	31 March 2015		31 March 2012	
	Nominal % pa	Real[1] % pa	Nominal % pa	Real[1] % pa
RPI inflation	3.2	-	3.4	-
CPI inflation	2.2	(1.0)	2.4	(1.0)
Pension increases in payment				
- Pre-6.4.88 GMP	0.0	(3.2)	0.0	(3.4)
- Post-5.4.88 GMP	1.9	(1.3)	2.5	(0.9)
- Non-GMP				
- Existing Members	3.2	0.0	3.4	0.0
- New Members	3.0	(0.2)	3.2	(0.2)
Pension increases in deferment				
- GMP (section 148)	4.2	1.0	4.4	1.0
- Non-GMP				
- Existing Members	3.2	0.0	3.4	0.0
- New Members	3.0	(0.2)	3.2	(0.2)
General salary increases	3.7	0.5	4.15	0.75
Discount rate (investment return)	5.31	2.11	6.38	2.98

[1]Relative to RPI inflation

For the purpose of determining the contributions required for the recovery plan and for certifying the schedule of contributions, it has been assumed that the Section's assets will earn an investment return equal to that assumed for the purposes of establishing the technical provisions and assessing the contributions required to meet future service benefit accruals.

Current mortality in deferment and payment is assumed to be in line with the tables summarised overleaf, projected to 2015 in line with the CMI_2014 1.6% model for the appropriate gender. (For the 2012 valuation, mortality in deferment and payment was assumed to be in line with the tables shown, projected to 2012 in line with the CMI_2011 1.5% model for the appropriate gender.)

Mortality assumptions	**31 March 2015**		**31 March 2012**	
Male members who retire on grounds of ill health	S2IMA	x 107%	S1IMA	x 115%
Female members who retire on grounds of ill health	S2IFA	x 101%	S1IFA	x 102%
Other male members	S2NMA	x 117%	S1NMA	x 119%
Other female members	S2NFA	x 129%	S1NFA	x 127%
Male dependants	S2NMAH	x 99%	S1NMAH	x 108%
Female dependants	S2DFA	x 121%	S1DFAH	x 97%

Allowance is made for mortality improvements after 2015 in line with the CMI_2015 1.6% model for the appropriate gender. (For the 2012 valuation, allowance was made for mortality improvements after 2012 in line with the CMI_2011 1.6% model for the appropriate gender.)

Please see the Statement of Funding Principles for a full description of the assumptions.

Funding position

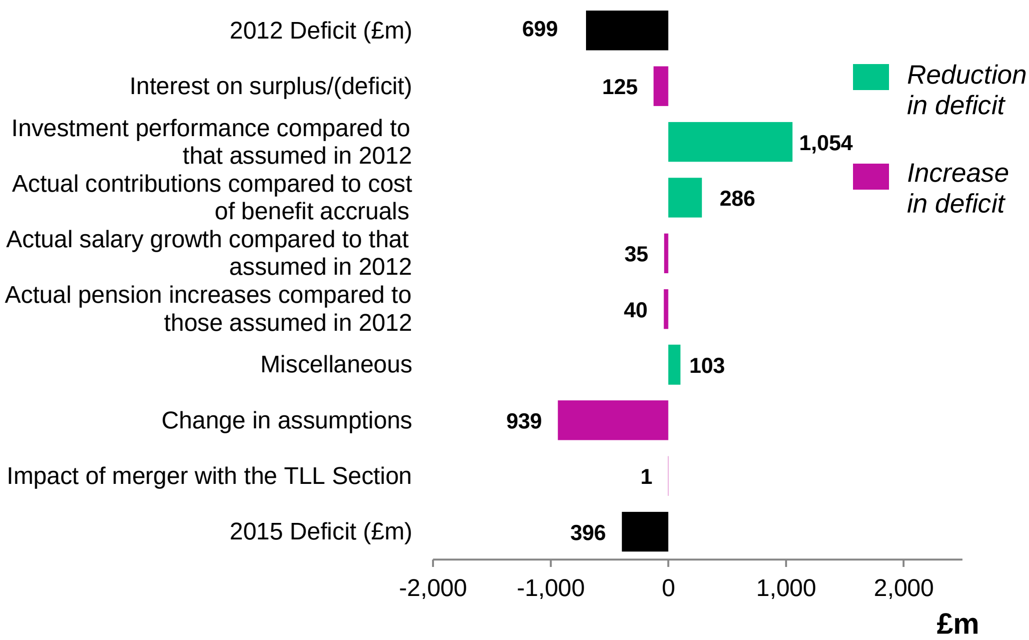
The table below compares the Section's technical provisions as at the date of the actuarial valuation with the market value of the Section's assets and the corresponding figures from the previous actuarial valuation. Also shown is the position allowing for the effect of the merger into the Section of the Tube Lines Limited ("TLL") Section with effect from 30 March 2016:

Valuation statement	**31 March 2015 Post-TLL merger £m**	**31 March 2015 Pre-TLL merger £m**	**31 March 2012 £m**
Amount required to provide for the Section's liabilities in respect of:			
Contributing members, in respect of service up to the valuation date	3,990	3,716	2,592
Deferred pensioners	1,018	1,017	810
Retired members and dependants	3,620	3,620	3,052
AVCs and other money purchase benefits	58	58	41
Technical provisions	8,686	8,411	6,495
Market value of assets (including AVCs)	8,290	8,016	5,796
Past service surplus/(deficit) (assets less technical provisions)	**(396)**	**(395)**	**(699)**
Funding level (assets ÷ technical provisions)	**95%**	**95%**	**89%**

Developments since the previous valuation

An analysis of the change in shortfall from 31 March 2012 to 31 March 2015 is shown below. The size of the items depends on the order in which they are analysed and also on the precise method used. It should be noted that this analysis has been performed using the 2012 assumptions as a benchmark and that using a different benchmark would result in a different breakdown of the items.

The most significant item of intervaluation experience is the favourable investment performance over the period, which resulted in a significant gain. However, this was largely offset by the net impact of changes in assumptions, particularly the reduction in the discount rate. In effect, the net improvement in the deficit of c£300 million is broadly similar to the amount of deficit contributions paid into the Section over the period.



Contribution requirements

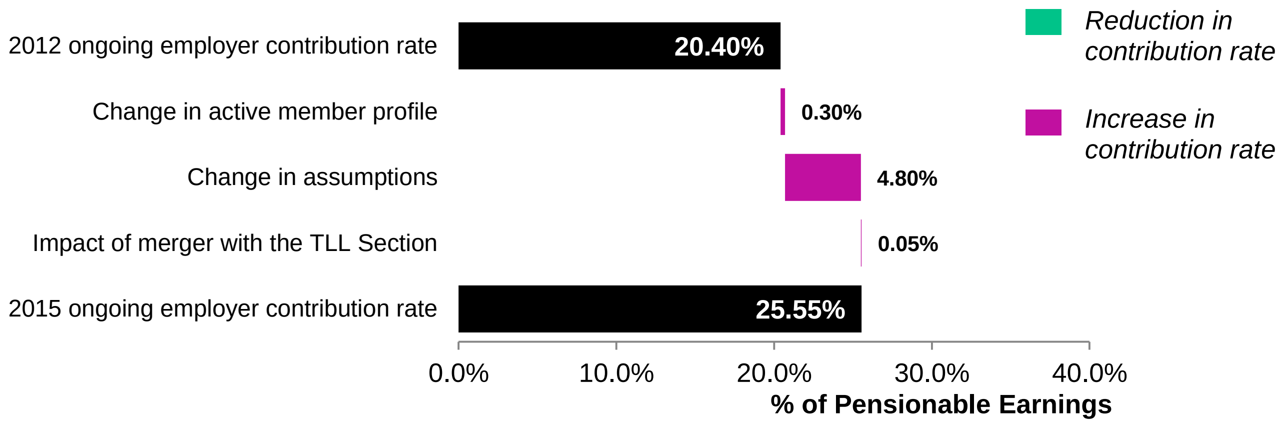
Future accrual of benefits

The annual employer contribution rate required to meet the cost of the benefits that are expected to be earned after the valuation date, prior to the merger of the TLL Section into the Section, is 25.50% of the relevant pay definition (as set out in Fund rule 13 for the purpose of calculating members' contributions). After allowing for the merger of the TLL Section into the Section, the required rate is 25.55% of the relevant pay definition. This rate has been calculated using the method and assumptions described in the Statement of Funding Principles.

This rate includes 0.50% of the total of the relevant pay definition (as set out in Fund rule 13 for the purpose of calculating members' contributions) in respect of non-investment expenses and 0.60% of the total of the relevant pay definition in respect of PPF and other levies.

The employer future service contribution rate has been calculated as the rate required over the year following the valuation date to meet the cost of benefits expected to be accrued over that year. On this basis, this rate will be sufficient, if the assumptions are borne out in practice, to cover the accrual of benefits in the future provided the age, gender and pensionable earnings profile of the employed membership remains reasonably stable.

An analysis of the change in ongoing contribution rate from 31 March 2012 to 31 March 2015 is shown below. The main reason for the increase in the required contribution rate has been the change to the assumptions, and in particular the reduction in the discount rate. The change in the membership profile also resulted in an increase to the contribution rate.



Recovery plan

As there were insufficient assets to cover the Section's technical provisions at the valuation date, the Trustee and TfL are required to agree a recovery plan. This specifies how, and by when, the statutory funding objective is expected to be met.

The employers have continued to pay total contributions to the Section of 31.0% of the relevant pay definition since the valuation date. The Trustee and TfL have agreed a recovery plan such that the post-TLL merger deficit of £396 million is expected to be removed by:

- Additional contributions from 1 April 2015 until 31 March 2022 equal to 5.45% of the total of the relevant pay definition (as set out in Fund rule 13 for the purpose of calculating Members' contributions) for all Members of the Section, and payable on the same dates as the Members' contributions are due to be remitted to the Section; plus

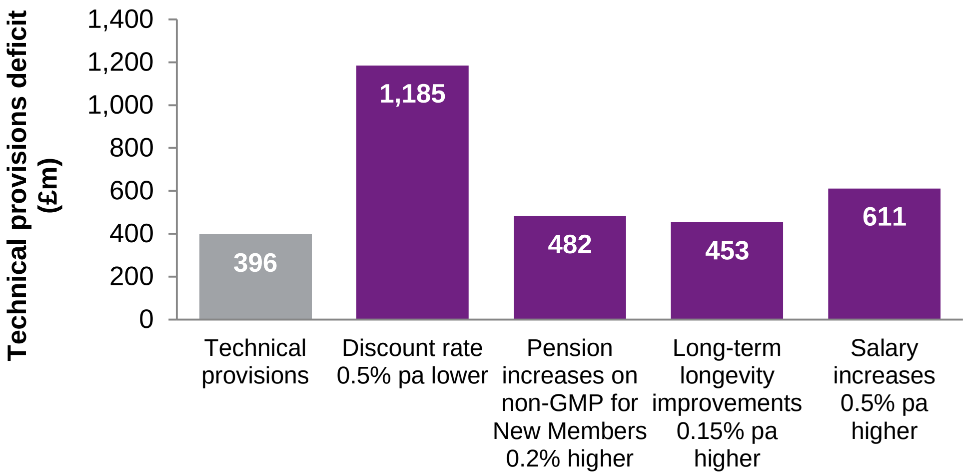
- on or before 31 March 2018 a lump sum of £37.8 million increased in line with the increase in the RPI between September 2008 and September 2017.

If the assumptions documented in the Statement of Funding Principles are borne out in practice, the deficit will be removed by 31 March 2022.

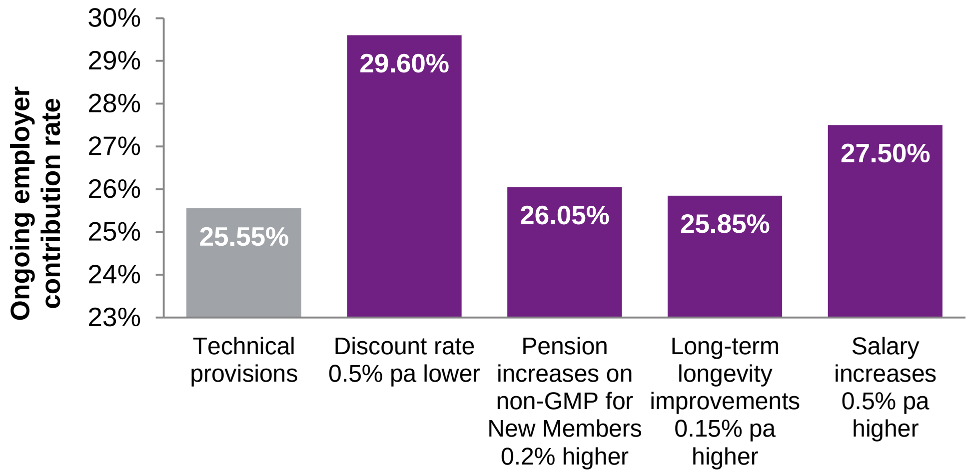
Projections and sensitivities

Based on the assumptions underlying the calculation of the Section's technical provisions as at 31 March 2015 and allowing for contributions to be paid to the Section as described above, the funding level is projected to increase from 95.4% to 98.0% by the expected date of the next actuarial valuation (31 March 2018).

The chart below illustrates the sensitivity of the technical provisions deficit as at 31 March 2015 to variations of individual key assumptions. (If more than one of these assumptions is varied, the effect may be greater than the sum of the changes from varying individual assumptions.)



The table below illustrates the sensitivity of the participating employers' future service contribution rate as at 31 March 2015 to variations of individual key assumptions. (If more than one of these assumptions is varied, the effect may be greater than the sum of the changes from varying individual assumptions.)



Solvency

Discontinuance

In the event that the Section is discontinued, the benefits of employed members would crystallise and become deferred pensions in the Section. There would be no entitlement to further accrual of benefits. The Section would then have liabilities comprising:

- the pensions payable to pensioners and deferred pensioners (and contingent pensions payable to their dependants);
- future increases in the deferred pensions;
- future increases to pensions whilst in payment; and
- future expenses.

Under the Fund's discontinuance provisions (Rule 45B of the Trust Deed and Rules), the Trustee must secure the members' accrued benefits (as far as possible, given the assets available) by

- continuing the Section as a closed fund, or
- purchasing annuities from an insurance company, or
- transferring liabilities to another pension scheme.

If the Section's discontinuance is not the result of the employers' insolvency, the employers would ultimately be required to pay to the Section any difference between the Scheme Actuary's estimate of the full cost of securing benefits with an insurance company (including expenses) and the value of the Section's assets – the "employer debt". The Trustee would then normally try to buy insurance policies to secure future benefit payments. However, the Trustee may decide to run the Section as a closed fund for a period of years before buying such policies if it is confident that doing so is likely to produce higher benefits for members or if there are practical difficulties with buying insurance policies, such as a lack of market capacity.

If the Section's discontinuance is a result of the insolvency of the employers, the "employer debt" would be determined as above and the Section would also be assessed for possible entry to the Pension Protection Fund ("PPF").

If the assessment concluded that the assets (including any funds recovered from the employers) were not sufficient to secure benefits equal to the PPF compensation then the Section would be admitted to and members compensated by the PPF. Otherwise the Section would be required to secure a higher level of benefits with an insurance company.

Under Section 179 of the Pensions Act 2004, the Trustee is required to provide the PPF with a valuation of the Section that the PPF can use to determine the levy it charges. This valuation uses assumptions specified by the PPF and covers only benefits similar to the PPF compensation benefits. I calculate that at 31 March 2015, before allowing for the TLL merger, the Section's assets covered 59% of the Section 179 liabilities as determined on the PPF's specified basis.

Statutory estimate of solvency

The Pensions Act 2004 requires that I provide the Trustee with an estimate of the solvency of the Section at the valuation date. Normally, this means an estimate of the proportion of the accrued benefits that could have been secured by buying insurance policies with the assets held by the Section at the valuation date. For this purpose I have assumed that no further payments are received from the employers.

I have assumed that the insurance company price would be calculated on an actuarial basis similar to that implied by bulk annuity quotations seen by Willis Towers Watson at around the valuation date. I have assumed the cost of implementing the winding-up to be 1.1% of the estimated value of the solvency liabilities (leading to assumed winding-up costs of £203 million).

The assumptions I have adopted for this purpose are the same as used for technical provisions purposes, with the following exceptions:

Discount rate – term-dependent real discount rate taken from an index-linked gilts yield curve with the following adjustments:

- Pensioners – index-linked gilts yield curve less 0.15% pa
- Non-pensioners – index-linked gilts yield curve less 0.55% pa

Improvements in post-retirement mortality after 2015 – in line with the CMI_2014 1.6% model

Commutation – no allowance

Expenses – an allowance equal to the amount prescribed for estimated expenses for section 179 PPF valuations.

My estimate of the solvency position of the Section as at 31 March 2015 is that the assets of the Section would have met 43% of the cost of buying insurance policies to secure the benefits at that date, based on the assumptions described above. This estimate takes no account of the subsequent merger of the TLL Section into the Section. Further details are set out in the table below alongside the corresponding details as at the previous valuation date:

Valuation statement	31 March 2015 £m	31 March 2012 £m
Amount required to provide for the Section's liabilities of:		
Contributing members, in respect of service up to the valuation date	10,203	6,418
Deferred pensioners	2,754	2,007
Retired members and dependants	5,474	4,524
AVCs and other money purchase benefits	58	41
Winding-up expense reserve	203	94
Solvency liabilities	18,692	13,084
Market value of assets (including AVCs)	8,016	5,796
Solvency surplus/(deficit)	**(10,676)**	**(7,288)**
Funding level (assets ÷ solvency liabilities)	**43%**	**44%**

The change in the solvency level from 44% to 43% is due mainly to the reduction in index-linked gilt yields since 31 March 2012 and the resulting increase in estimated insurance company prices, which has outweighed the positive impact of good investment performance and deficit contributions received by the Section.

The solvency estimate should not be relied upon to indicate the position on a future winding-up. Changes in market interest rates and in the supply and demand for annuities mean that the actual position at any particular point in time can be established only by obtaining specific quotations for buying the insurance policies required to secure the benefits.

The coverage for particular benefits depends on where they fall in the statutory priority order below. However, money purchase liabilities, such as those arising from members' Additional Voluntary Contributions (AVCs), are excluded from the statutory priority order; their treatment is determined by the Section's own rules and would normally be that they are secured in full before any other benefits.

- category 1 – benefits relating to certain pension annuities secured by the Section before 6 April 1997 (of which I understand there are none for the Section);

- category 2 – the cost to the Section of securing the compensation that would otherwise be payable by the PPF if the employers became insolvent;
- category 3 – benefits in respect of defined benefit AVCs not dealt with above
- category 4 – all other pensions and benefits due under the Section, including pension increases (where these exceed those under the PPF).

As the Section's assets did not cover the Section 179 liabilities as at 31 March 2015, the Section would probably have qualified for entry to the PPF had the employers become insolvent at 31 March 2015, in which case the members would have received PPF compensation in place of their benefits.

Relationship between the cost of securing benefits and the technical provisions

My estimate of the cost of securing benefits with an insurance company of £18,692 million is £10,281 million higher than the Section's technical provisions (before allowing for the TLL merger) of £8,411 million.

The technical provisions are intended to be a prudent assessment of the assets required under the Section's investment strategy to meet future benefit payments as and when they fall due but with reliance placed on the employers being able to support the Section in future if the assumptions are not borne out in practice. By contrast the estimated cost of securing benefits with an insurance company is based on the price that an insurer might be likely to charge to take on the risks associated with operating the Section without having recourse to future contributions from the employers.

If the statutory funding objective had been exactly met on 31 March 2015 (ie there had been no funding surplus or deficit), I estimate that the solvency level of the Section would have been 45%. This compares with 50% at the 31 March 2012 actuarial valuation.

Projections

Based on the assumptions underlying the calculation of the Section's technical provisions as at 31 March 2015 and allowing for contributions to be paid to the Section as summarised in the Funding section of this report, the solvency level is projected to projected to increase from 43% to 45% by the expected date of the next actuarial valuation.

Additional Information

Risks

The table below summarises the main risks to the financial position of the Section and the actions taken to manage them:

Risk	Approach taken to risk
Employers unable to pay contributions or make good deficits in the future	At each valuation the Trustee takes advice from an independent specialist on the ability of the employers to pay contributions to the Section and, in particular, to make good any shortfall that may arise if the experience of the Section is adverse. This advice is taken into account when determining the level of technical provisions and in considering the appropriateness of any recovery plan to remove a deficit relative to the technical provisions. Between valuations the Trustee monitors the employers' financial strength regularly. The Trustee also keeps under review whether contingent assets could be made available to mitigate this risk.
Investment returns on the existing assets could be insufficient to meet the Trustee's funding objectives	The Trustee takes advice from the Scheme Actuary on possible assumptions for future investment returns. For the calculation of the Section's technical provisions, the Trustee has adopted discount rates that are lower than the expected returns on the Section's assets. The Trustee is able to agree further contributions with the employers at subsequent valuations if future returns prove insufficient.
Investment returns on future income could be lower than the returns available at the valuation date	The Trustee takes this risk into account when determining the Section's technical provisions, by incorporating a level of prudence into the investment return assumptions. The Section does not currently hedge the majority of its exposure to changes in interest rates.
Price inflation could be different from that assumed which could result in higher liabilities	The Trustee invests in assets that are expected to be correlated to future inflation in the longer term (sometimes referred to as "real" assets). This means that, over the longer term, such assets are expected to keep pace with inflation. Such assets include equities, property and index-linked bonds. The Section does not currently hedge the majority of its exposure to inflation risk.
Falls in asset values might not be matched by similar falls in the value of the Section's liabilities	The Trustee considers this risk when determining the Section's investment strategy. It consults with TfL in order to understand TfL's appetite for bearing this risk and takes advice on TfL's ability to make good any shortfall that may arise. To the extent that such falls in asset values result in deficits at future valuations, TfL would be required to agree a recovery plan with the Trustee to restore full funding over a period of time.
Members live longer than assumed	For the calculation of the technical provisions, the Trustee has adopted demographic assumptions, including those relating to the life expectancy of members, that it regards as prudent overall so that higher reserves are targeted in respect of the risk than are expected to be necessary.
Options exercised by members could lead to increases in the Section's liabilities	The Trustee sets the terms for converting benefits in respect of member options on the basis of actuarial advice with the view to avoiding strains on the Section's finances as far as is reasonably possible without disadvantaging members. The terms are kept under regular review, generally following each actuarial valuation.
Legislative changes could lead to increases in the Section's liabilities	The Trustee takes legal and actuarial advice on changes in legislation and consults with TfL, where relevant.

Economic risk | Demographic risk | Legal risk

Benefits summary

The Fund is a registered pension scheme under the Finance Act 2004 and at the valuation date was contracted-out of the State Second Pension.

The main benefit provisions of the Fund are the same for each section and are summarised as follows:

Existing members:	Mainly those who joined the Fund on or before 1 April 1989
New members:	Mainly those who first joined after 1 April 1989
Scheme Pension Age (SPA):	Age 65 for men and women
Pensionable salary:	The greater of salary over the 12 months preceding date of retirement/leaving and total Contributory Pensionable Salary over the same period
Contributory Pensionable Salary:	Set each April as the annual rate of salary as at previous November

Note: for the purposes of the above two definitions

- *For an Existing Member, salary means basic salary excluding fluctuating emoluments but including any permanent additional allowance with the consent of the Principal Employer and the Trustee.*
- *For New Members, salary is as for Existing Members but less the Lower Earnings Limit.*
- *For LUL Company Plan Employees, salary is multiplied by 90% for pre-6 April 1998 accruals and by 100% for post-5 April 1998 accruals.*

Total Membership:	Service as a contributing member of the Fund, plus service credited by transfers-in or any other service granted by the former LT Board and Trustee.
Retirement at SPA:	A pension equal to one-sixtieth of Pensionable Salary for each year of Total Membership less, for Existing Members, £10.10 pa for each year of Total Membership after 1 October 1993.
Retirement before SPA, on grounds of ill-health:	Subject to 5 years' service, an immediate pension calculated as for retirement at SPA but based on Total Membership at retirement, plus an extra period equal to the shorter of 10 years and prospective service to SPA.
Retirement before SPA, not on grounds of ill health:	An immediate pension calculated as for retirement at SPA, but reduced for early payment. No reduction applies on retirement on or after age 60.
Lump Sum at Retirement:	On retirement part of the pension may be exchanged for a lump sum.
Death after Retirement:	A dependant's pension equal to one half of the pension which would have been in payment at the date of death assuming no pension was commuted or surrendered at retirement. Children's allowances are also paid.

Death in Service:	A lump sum of 4 years' Pensionable Salary A dependant's pension equal to one half of the pension which the member would have received on retirement on grounds of ill health at the date of death. Children's allowances are also paid.
Leaving Service:	If under 3 months' total membership, members are entitled to a refund of their contributions. If over 3 months' and less than 2 years' total membership, members have the option to take a deferred pension, a transfer value or a refund of their contributions. If 2 years' or more total membership, members have the option to take a deferred pension or a transfer value. A dependant's pension of one half of the member's deferred pension is paid on death before SPA provided that the member had completed at least 2 years' total membership.
Pension Increases:	
- Existing Members	Pensions in excess of any GMP in payment are guaranteed to be increased each year in line with retail price inflation.
- New Members	Pensions in excess of any GMP in payment are guaranteed to be increased each year in line with retail price inflation up to 5% pa.
- All Members	The GMP arising from service between 6 April 1988 and 5 April 1997 is increased each year when in payment in line with consumer price inflation up to 3% pa.
Revaluation in deferment:	Increases in deferment on pensions in excess of any GMP are the same as those awarded to pensions in payment.
Contributions:	Members pay 5% of Contributory Pensionable Salary, less £20 a year for Existing Members. Members may also pay additional voluntary contributions to increase their benefits. Employers make up any balance of cost of meeting the Fund's benefits.

Discretionary benefits

No future discretionary benefits or discretionary increases in benefit have been allowed for in the calculation of the technical provisions and statutory estimate of solvency, other than in line with our understanding of established practices in benefit calculations.

Changes to the benefits

Since the valuation as at 31 March 2012 no changes have been made to the Fund's benefits. However it has been clarified that increases applying to post-5 April 1988 GMPs in payment should be based on CPI inflation, not RPI inflation.

Uncertainty about the benefits

No allowance has been made in the calculation of the technical provisions or the statutory estimate of solvency for possible changes to the benefits that may be required to ensure that the Fund provisions in respect of Guaranteed Minimum Pensions do not unlawfully discriminate between male and female members.

Membership data

Membership data as at 31 March 2015 and 31 March 2012

Pensions in payment		31 March 2015			
	Numbers	Annual pensions £m	Mean annual pensions £	Median annual pensions £	Average age
Existing members					
Male	22,822	165.30	7,243	4,444	70
Female	2,936	12.38	4,217	2,648	73
	25,758	**177.68**	**6,898**	**4,252**	**70**
New members					
Male	4,769	26.24	5,502	2,456	64
Female	869	3.94	4,534	2,721	60
	5,638	**30.18**	**5,353**	**2,514**	**63**
Dependants	10,623	38.65	3,638	2,906	76*
Total	**42,019**	**246.51**	**5,867**	**3,714**	**70**

Pensions in payment		31 March 2012			
	Numbers	Annual pensions £m	Mean annual pensions £	Median annual pensions £	Average age
Existing members					
Male	23,363	149.85	6,414	4,179	71
Female	3,179	12.03	3,784	2,507	75
	26,542	**161.88**	**6,099**	**3,998**	**71**
New members					
Male	3,863	17.83	4,616	1,913	64
Female	706	2.65	3,754	2,051	61
	4,569	**20.48**	**4,482**	**1,931**	**64**
Dependants	10,790	34.52	3,199	2,597	76*
Total	**41,901**	**216.88**	**5,176**	**3,451**	**72**

*Excludes children

Deferred pensions	31 March 2015				
	Numbers	Annual pensions £m	Mean annual pensions £	Median annual pensions £	Average age
Existing members					
Male	4,711	21.46	4,555	2,752	55
Female	978	4.40	4,499	2,778	53
	5,689	**25.86**	**4,546**	**2,753**	**55**
New members					
Male	8,133	25.56	3,143	1,724	47
Female	3,286	10.33	3,144	1,936	45
	11,419	**35.89**	**3,143**	**1,787**	**47**
Total	**17,108**	**61.75**	**3,609**	**2,202**	**50**

Deferred pensions	31 March 2012				
	Numbers	Annual pensions £m	Mean annual pensions £	Median annual pensions £	Average age
Existing members					
Male	6,283	25.41	4,044	2,522	54
Female	1,129	4.44	3,933	2,479	51
	7,412	**29.85**	**4,027**	**2,516**	**54**
New members					
Male	7,912	20.40	2,578	1,468	45
Female	2,968	7.69	2,591	1,622	42
	10,880	**28.09**	**2,582**	**1,500**	**44**
Total	**18,292**	**57.94**	**3,168**	**1,969**	**48**

Current active members – Public Sector Section	31 March 2015 Numbers	31 March 2015 Pensionable salaries £m	31 March 2015 Average Age	31 March 2012 Numbers	31 March 2012 Pensionable salaries £m	31 March 2012 Average Age
Existing members						
Male	2,716	139.53	55	3,232	153.72	53
Female	155	7.36	52	183	7.98	50
	2,871	**146.89**	**55**	**3,415**	**161.70**	**53**
New members						
Male	15,253	612.05	44	13,605	499.15	43
Female	5,271	190.77	42	4,499	149.50	40
	20,524	**802.82**	**44**	**18,104**	**648.65**	**42**
Total	**23,395**	**949.71**	**45**	**21,519**	**810.35**	**44**

Current active members – Tube Lines Limited Section	31 March 2015 Numbers	31 March 2015 Pensionable salaries £m	31 March 2015 Average Age	31 March 2012 Numbers	31 March 2012 Pensionable salaries £m	31 March 2012 Average Age
Existing members						
Male	274	15.18	54	312	15.82	52
Female	6	0.25	48	7	0.26	46
	280	**15.43**	**54**	**319**	**16.08**	**52**
New members						
Male	554	26.00	48	628	26.37	46
Female	50	2.03	47	58	2.12	44
	544	**28.03**	**48**	**686**	**28.49**	**46**
Total	**884**	**43.46**	**50**	**1,005**	**44.57**	**48**

Pension credit members:

- **Public Sector Section:** In addition, at 31 March 2012, there were 33 pension credit members who were receiving total annual pensions of £0.160 million and 72 deferred pension credit members with total annual pensions of £0.545 million. At 31 March 2015, there were 50 pension credit members who were receiving total annual pensions of £0.268 million and 113 deferred pension credit members with total annual pensions of £0.925 million.
- **Tube Lines Limited Section:** In addition, at 31 March 2012, there were 3 pension credit members who were receiving total annual pensions of £0.028 million and 9 deferred pension credit members with total annual pensions of £0.64 million. At 31 March 2015, there were 3 pension credit members who were receiving total annual pensions of £0.022 million and 17 deferred pension credit members with total annual pensions of £0.154 million.

Notes on data tables:

1 The pensionable salaries shown are annualised full time equivalent pensionable salaries for all members and are after the deduction of the Lower Earnings Limit for New Members.

2 The annual pensions shown (for pensions in payment and deferred pensions) exclude the 1 April increase immediately after the effective date.

3 Pension increases applied to the excess over the GMP over the intervaluation period were as follows:

1 April 2012	5.6% for Existing Members; 5.0% for New Members
1 April 2013	2.6%
1 April 2014	3.2%
1 April 2015	2.3%.

4 Average ages at 2015 are weighted by pensionable salaries or pensions as appropriate. Average ages at 2012 are unweighted.

Merger of TLL Section into the Section

With effect from 30 March 2016, all of the assets, liabilities and members of the Tube Lines Limited Section were transferred to the Section. The effect of this transfer (or “merger”) was allowed for in the Recovery Plan and Schedule of Contributions (both dated 1 May 2016) that have been agreed by the Trustee and TfL.

Asset information

Movements in the market value of assets

The audited accounts supplied as at 31 March 2015 show that the market value of the Section's assets before allowing for the TLL merger was £8,015.6 million. This includes Additional Voluntary Contributions (AVCs) which amounted to £58.2 million. The audited accounts supplied as at 31 March 2015 for the Tube Lines Limited Section show that the market value of the section's assets was £274.2 million.

The change in the Section's assets (including AVCs) from £5,796.3 million as at 31 March 2012 to £8,015.6 million as at 31 March 2015 before allowing for the merger, and £8,289.8 million after allowing for the merger is detailed in the Trustee's Report and Financial Statements over that period. The table overleaf summarise a broad reconciliation of the change (including AVCs):

	Public Sector Section £m	Tube Lines Limited Section £m	Total £m
Assets at 31 March 2012 (including AVCs)	**5,796.3**	**174.1**	**5,970.4**
Income			
Contributions:			
Employers	778.8	67.0	845.8
Members - normal	126.2	6.5	132.7
- AVCs	17.6	-	17.6
Transfers in from other sections	100.5	-	100.5
Transfers in from other pension schemes	6.2	0.1	6.3
Investment income	2.8	-	2.8
Total income	**1,032.1**	**73.6**	**1,105.7**
Expenditure			
Benefits paid:			
Members leaving and benefits payable	858.5	-	858.5
Transfers out to other sections	8.8	42.7	51.5
PPF and other levies	25.5	1.3	26.8
Expenses	10.4	0.8	11.2
Total expenditure	**(903.2)**	**(44.8)**	**(948.0)**
Change in market value of investments	2,090.4	71.3	2,161.7
Assets at 31 March 2015 (including AVCs)	**8,015.6**	**274.2**	**8,289.8**
Represented by:			
Equity units	4,507.3	159.0	4,666.3
Bond units	1,140.6	43.9	1,184.5
Alternative assets	2,276.2	71.3	2,347.5
Other assets (excluding AVCs)	33.3	-	33.3
AVCs	58.2	-	58.2
Assets at 31 March 2015 (including AVCs)	**8,015.6**	**274.2**	**8,289.8**

Investment strategy

The investment strategy of the Section at 31 March 2015 was broadly to invest 55% in equities, 18% in alternatives and 27% in bonds.

Statutory Certificate

Actuarial certification for the purposes of regulation 7(4)(a) of the Occupational Pension Schemes (Scheme Funding) Regulations 2005

Name of scheme: TfL Pension Fund – Public Sector Section

Calculation of technical provisions

I certify that, in my opinion, the calculation of the Section's technical provisions as at 31 March 2015 is made in accordance with regulations under section 222 of the Pensions Act 2004. The calculation uses a method and assumptions determined by the Trustee of the Fund and set out in the Statement of Funding Principles dated 1 May 2016.

G M Oxtoby
Fellow of the Institute and Faculty of Actuaries
27 May 2016

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Glossary

This glossary describes briefly the terminology of the regime for funding defined benefit pension schemes as introduced by the Pensions Act 2004.

Actuarial report: A report prepared by the Scheme Actuary in years when an actuarial valuation is not carried out that provides an update on developments affecting the Section's assets and technical provisions over the year.

Actuarial valuation: A report prepared by the Scheme Actuary that includes the results of the calculation of the technical provisions based on the assumptions specified in the Statement of Funding Principles and assesses whether the assets are sufficient to meet the statutory funding target.

Contingent asset: An arrangement separate from the assets already held by the trustee under trust (or agreed and documented in the schedule of contributions) that provides for the trustee to receive certain assets should certain pre-defined events take place.

Covenant: This represents an employer's legal obligation and its ability to provide the financial support to a scheme that may be required now and in the future. The trustee's assessment of the sponsor's covenant will inform both investment and funding decisions.

Demographic assumptions: Assumptions relating to social statistics for Section members, which can affect the form, level or timing of benefits members or their dependants receive. This can include levels of mortality experienced by the Section and the proportion of members electing to exercise benefit options.

Discount rates: Assumptions used to place a capital value at the valuation date on projected future benefit cash flows from the Section. The lower the discount rate the higher the resulting capital value.

Financial assumptions: Assumptions relating to future economic factors which will affect the funding position of the Section, such as inflation and investment returns.

Funding target/objective: An objective to have a particular level of assets relative to the accrued liabilities of the Section. See also statutory funding objective.

Pension Protection Fund (PPF): Provides compensation to members of an eligible occupational scheme in the event that it is wound up with insufficient assets and the employer is insolvent. The level of PPF compensation provided would not usually be at the full level of the benefits that would otherwise have been due.

Prudence: Regulations require that assumptions are chosen prudently when assessing the level of technical provisions, although they do not define this term. We have interpreted prudence to be the level of conservatism in the assumptions. Where this is interpreted quantitatively, assumptions said to be prudent would result in higher technical provisions than a "best estimate" assumption (where a "best estimate" assumption is one where there is a 50% chance that the actual outcome will be higher or lower than assumed).

The Pensions Regulator: The regulatory supervisor for occupational pension schemes with statutory objectives to protect members' benefits and the Pension Protection Fund, and statutory powers to take interventionist action.

Recovery plan: A document required where an actuarial valuation discloses that the statutory funding objective is not met (ie the assets held are less than the technical provisions). It is a formal agreement between the trustee and the employer that sets out the steps to be taken to achieve the statutory funding objective by the end of an agreed period (the "recovery period").

Schedule of contributions: A document that sets out in detail the agreed contributions payable to a scheme by members and the employers and the dates by which such contributions are to be paid. It includes, but is not limited to, contributions agreed under a recovery plan.

Scheme Actuary: The individual actuary appointed (under the Pensions Act 1995) by the trustees to perform certain statutory duties for the Fund.

Scheme-Specific Funding Regime: A term used to refer to the legislative and regulatory rules that stem from the Pension Act 2004 and which govern the funding of occupational defined benefit pension schemes in the UK.

Statement of Funding Principles (SFP): The SFP sets out the trustee's policy for ensuring that the statutory funding objective and any other funding objectives are met and, in particular, the assumptions for calculating the technical provisions at the effective date of the actuarial valuation. The trustee is responsible for preparing and maintaining this document, taking into account the advice of the Scheme Actuary and in many cases seeking the agreement of the employer.

Statement of Investment Principles (SIP): The SIP sets out the trustee's policy for investing the Section's assets. The trustee is responsible for preparing and maintaining this document, taking into account written investment advice from the appointed investment advisor and consulting the employer before any changes are made.

Statutory estimate of solvency: An estimate of the cost of discharging a scheme's liability to pay benefits through the purchase of insurance policies in respect of each member's full benefit entitlement under the Section (unless the actuary considers that it is not practicable to make an estimate on this basis, in which case the estimate of solvency can be prepared on a basis that the actuary considers appropriate).

Statutory funding objective: To have sufficient and appropriate assets to cover the Section's technical provisions.

Statutory priority order: The order in which the assets of a scheme must be applied in securing the benefits of different members in the event of it being wound up. The order is consistent with the Pension Protection Fund (PPF) because benefits covered by the PPF are the highest priority class of defined benefit liabilities.

Summary funding statement: An update sent to members following the completion of each actuarial valuation or actuarial report informing them of the assessed financial position of the Section.

Technical provisions: The amount of assets required to make provision for the accrued liabilities of the scheme. The technical provisions are calculated using the method and assumptions set out in the Statement of Funding Principles.

Winding-up: This is a particular method of discharging a scheme's liability to pay benefits. It typically arises where the employer no longer provides financial support to it (for example if it becomes insolvent) and would usually involve using the scheme's assets to buy insurance policies that pay as much of the scheme's benefits as possible in accordance with the statutory priority order.