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# London Borough of Croydon Pension Fund

Actuarial valuation report  
as at 31 March 2007

Consulting. Outsourcing. Investments.



March 2008  
London Borough of Croydon  
Pension Fund  
Actuarial valuation as at  
31 March 2007

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## Summary

### Main Conclusions

An actuarial valuation of the London Borough of Croydon Pension Fund has been carried out as at 31 March 2007.

The key conclusions from the valuation are:

- The Fund showed a deficit of £261m at the valuation date based on the assumptions made for calculating its funding target. This measure compares the Fund's assets with the value of the past service benefits at 31 March 2007. It represents a funding level of 68% relative to the Fund's funding target;
- Based on the assumptions made for assessing the cost of future accrual, the Common Contribution Rate (i.e. the average employer contribution rate in respect of future service only) was 14.1% of Pensionable Pay;
- If the actuarial assumptions were to be based purely on the returns available on conventional and index-linked gilts (a so-called "least risk" basis) the deficiency would have increased to approximately £500m;
- If the deficit of £261m is recovered through additional employer contributions over a 25 year period then the average employer contribution rate emerging from the valuation is 23.2% of Pensionable Pay per annum;
- The recommended employer contribution rates for the period 1 April 2008 to 31 March 2011 are set out in Appendix I to this report. Employee contributions are payable in addition to the employer contributions. These contributions are adequate to meet the above funding objective based on the actuarial assumptions detailed in this report. Additional capital contributions will be paid on top of the rates shown in respect of non-ill health early retirements.



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## Compliance Statements

The data for the actuarial valuation was provided by the Administering Authority [, via the Scheme's administrator,] and its accuracy has been relied upon. Whilst reasonableness checks on the data have been carried out, they do not guarantee the completeness or the accuracy of the data. Consequently Mercer does not accept any liability in respect of its advice where it has relied on data which is incomplete or inaccurate.

This report is addressed to the Administering Authority and has been prepared in accordance with the version of the Board for Actuarial Standards' 'Guidance Note 9: Funding Defined Benefits – Presentation of Actuarial Advice' current at the date this report is signed.

However the following aspects of GN9 are not relevant to the LGPS in the current circumstances and so have not been reported on:

- Paragraph 3.4.16 of GN9 requires the actuary to include the certification of technical provisions in relation to a valuation under Part 3 of the Pensions Act 2004. As Part 3 of the Pensions Act 2004 does not apply to the LGPS, this report does not comply with paragraph 3.4.16 of GN9; and
- Paragraph 3.5 of GN9 requires the actuary to report on the value of the liabilities that would arise had the Fund wound up on the valuation date (based on the cost of buying out the accrued benefits with insurance policies). As the LGPS is a statutory scheme, there is no regulatory provision for scheme wind up and the scheme members have a statutory right to their accrued benefits. Therefore the concept of solvency on a buy-out basis does not apply. Accordingly, this report does not comply with paragraph 3.5 of GN9.

The calculations in the report use methods and assumptions appropriate for reviewing the financial position of the Scheme and determining the appropriate contribution rate for the future. Mercer does not accept liability to any third party in respect of this report; nor does Mercer accept liability to the Administering Authority if the advice is used for any purpose other than that stated (for example for company accounting or corporate mergers/acquisitions).

The data for the actuarial valuation was provided by the Administering Authority and its accuracy has been relied upon. Whilst reasonableness checks on the data have been carried out, they do not guarantee the completeness or the accuracy of the data. Consequently Mercer does not accept any liability in respect of its advice where it has relied on data which is incomplete or inaccurate.

The report may be disclosed to participating employers and others who have a statutory right to see it. It may also be disclosed, if the Administering Authority and Mercer consent, to any other third parties.

1

## Introduction

- 1.1 This report sets out the results of the actuarial valuation of the London Borough of Croydon Pension Fund ('the Fund') as at 31 March 2007.

### Purpose of valuation

- 1.2 The primary aims of the valuation are to review the financial position of the Fund and to determine appropriate employer contributions to the Fund for the future.
- 1.3 In particular, the valuation aims:
- to assess the Fund's funding position relative to its funding objective;
  - taking the above into account, to determine the appropriate future level of employer contributions.
- 1.4 Under the provisions of the Local Government Pension Scheme Regulations 1997 (as amended) (the "LGPS Regulations"), employer contributions are calculated by the actuary having regard to the assumptions and methodology set out in the Fund's Funding Strategy Statement (FSS). In accordance with the LGPS Regulations, the FSS has been determined by the Fund's Administering Authority, having taken the advice of the Fund's Actuary and after consultation with those parties as it considers appropriate.
- 1.5 The valuation has been carried out in accordance with Regulation 77 of the LGPS Regulations.

### Previous actuarial valuation

- 1.6 The previous actuarial valuation of the Fund was carried out as at 31 March 2004 by ourselves.
- 1.7 At the previous valuation an average employer contribution rate of 20.9% of Pensionable Pay was agreed, made up of a normal contribution rate for benefits and expenses of 10.9% plus deficiency recovery contributions of 10.0%. The

report on the 2004 actuarial valuation sets out the agreed contribution rates for individual employers for the period 1 April 2005 to 31 March 2008 (the corresponding rates for the year to 31 March 2005 being shown in the 2001 actuarial valuation report). Appendix F includes the amounts of employer contributions which have actually been paid since the last actuarial valuation.

2

## Funding objective

- 2.1 The funding objective is to achieve and then maintain assets equal to the funding target. The funding target is the present value of 100% of projected accrued liabilities, including allowance for projected final pay. This is to comply with the requirement of the LGPS Regulations to secure the solvency of the Fund and is in accordance with the Funding Strategy Statement (FSS). The methodology and assumptions by which the funding target and contribution rates are calculated have also been determined in accordance with the Fund's FSS.
- 2.2 The funding objective is the same as at the previous valuation.
- 2.3 The FSS specifies a maximum period for achieving full funding of 25 years. For each individual employer, the funding objective, method and assumptions depend on the particular employer's circumstances and different approaches have been adopted where applicable, in accordance with the FSS. The FSS also specifies any transitional arrangements ("phasing") for the implementation of revised employer contribution requirements.

3

## Funding results – funding target

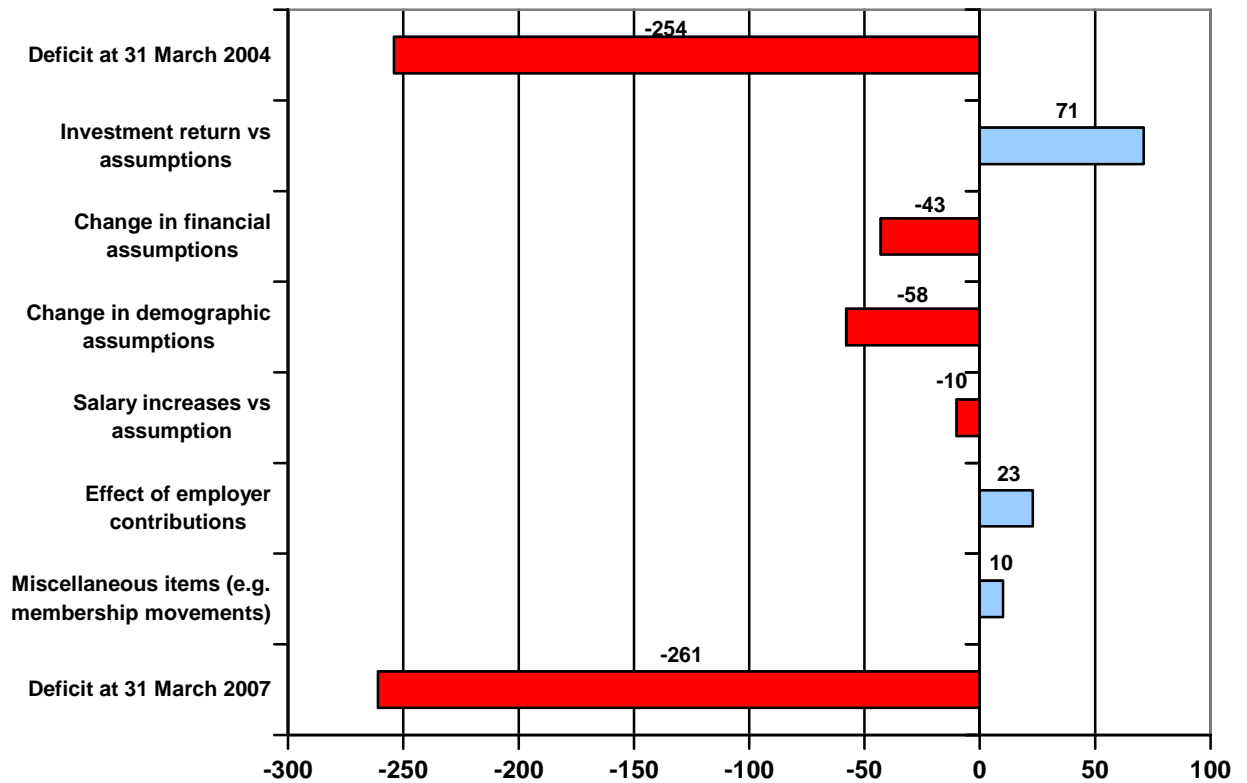
- 3.1 The market value of the Fund's assets at the valuation date is compared with the value of the Fund's past service liabilities (the funding target) below. The funding position at the previous valuation is shown for comparison (figures in £m).

Value of liabilities	31 March 2007	31 March 2004
▪ members in service	344	271
▪ deferred pensioners	130	90
▪ pensioners	332	238
▪ smoothing adjustment	0	(5)
Total liabilities funding target	806	594
Market value of assets (excluding AVCs)	545	340
Deficit	261	254
Funding level	68%	57%

- 3.2 The shortfall against the funding target at the valuation date was £261 million. This represents a funding level of 68% relative to the funding target.

## Analysis of change in funding position

3.3 The key factors influencing the change in the value of the liabilities since the previous valuation are shown below (figures in £m):



3.4 The above analysis highlights a number of material developments affecting the Fund since the previous valuation:

- Investment returns have been very strong, and have more than offset the increases in liabilities due to the change in financial assumptions;
- The effect of assuming longer life expectancy has had a significant impact on the valuation results.

# 4

## Funding results – contribution requirements

- 4.1 This section provides details of the contribution requirements assessed for the Fund as a whole. The contributions payable by the employers for the period 1 April 2008 to 31 March 2011, and the timing and frequency of the contributions, have been certified in Appendices H and I, as is required in accordance with the LGPS Regulations.
- 4.2 These contributions have been determined using the funding objective described in Section 2, and are made up of the following elements:
- a contribution to cover the cost of the future service accrual (including death benefits and expenses);
  - an adjustment to address any imbalance of assets relative to the funding target.
- 4.3 In practice, each employer's position is separately assessed. The individual rates shown in Appendix I take into account the differing circumstances of each employer and the funding plan, as laid down in the Funding Strategy Statement, in particular in relation to deficit recovery period, assumed level of investment returns over the deficit recovery period, and implementation of changes in employer contributions where these are required.

### Normal cost

- 4.4 The table below shows the cost of future service accrual (the "normal cost"). This cost is calculated as the value of benefits expected to accrue to the membership in respect of one year's service based on projected salaries. To this is added an allowance for expenses. The figures are expressed as percentages of Pensionable Pay (as defined in Appendix H) and apply for the period to the next formal actuarial valuation.

	2007 %	2004 %
Normal contribution rate for retirement and death benefits	20.4	16.4
Allowance for administrative expenses	0.4	0.4
Total normal contribution rate	20.8	16.8
Average member contribution rate	6.7	5.9
Employer normal contribution	14.1	10.9

### Contributions to address shortfall

- 4.5 The funding objective is to achieve and maintain a funding level of 100% of liabilities (the funding target). Adopting the same method and assumptions as used for calculating the funding target, the deficit of £261 million could be eliminated by an average contribution addition of 9.1% of Pensionable Pay for 25 years. This would imply an average employer contribution rate of 23.2% (20.9% at the previous valuation) of Pensionable Pay.
- 4.6 The Schedule to the Rates and Adjustments Certificate (attached as Appendix I) sets out the contribution rates for each employer over the three year period to 31 March 2011 towards the shortfall against the funding target. The corresponding figures for 2007/08 are set out in our report on the actuarial valuation of the Fund as at 31 March 2004.

## 5

## Method and assumptions

### Funding method

- 5.1 The funding method adopted is known as the projected unit method. Under the projected unit method, if the membership profile remains stable in terms of age and sex, and the assumptions are borne out, then the normal contribution rate (as a percentage of salaries) will remain stable. The method therefore implicitly allows for new entrants replacing leavers.
- 5.2 For those employers which are closed to new entrants an alternative method may be adopted, known as the attained age method. This method makes advance allowance for the anticipated future ageing of the current closed membership group.
- 5.3 The method as specified above is the same as was used at the previous valuation.

### Assumptions

- 5.4 The financial and demographic assumptions used to assess the funding target, the normal cost of benefit accrual and the recovery plan are set out in Appendix D.
- 5.5 The table below sets out a summary of the market (gilts) yields at the valuation date, together with the yields at the date of the previous valuation:

	31 March 2007	31 March 2004
Long-dated gilt yield	4.4%	4.6%
Long-dated index-linked gilt yield	1.3%	1.8%
Market expectation for inflation (long-term)	3.1%	2.8%

- 5.6 The key assumptions to which the valuation results are particularly sensitive are shown below. A number of changes have been made to the assumptions used, compared with the previous valuation, and these are as noted below and in Appendix D.

	2007 funding target	2007 normal cost	2004 funding target	2004 normal cost
Investment return pre-retirement	5.9% p.a.	6.5% p.a.	6.1% p.a.	6.5% p.a.
Investment return post-retirement	5.9% p.a.	6.5% p.a.	6.1% p.a.	6.5% p.a.
Salary increases	4.7% p.a.	4.5% p.a.	4.55% p.a.	4.25% p.a.
Pension increases in payment	2.95% p.a.	2.75% p.a.	2.8% p.a.	2.5% p.a.
Non-retired members' mortality	PA92 MC YoB tables + 1 year		PA92 Base tables – 2 years	
Retired members' mortality	PA92 MC YoB tables + 1 year		PA92 Base tables	

- 5.7 The mortality rates shown above relate to members retiring in normal health. At this valuation, members retiring in ill-health are assumed to be 5 years older than the above tables.
- 5.8 At this valuation, it has been assumed that, on average, 50% of retiring members will take the maximum tax-free cash available at retirement and 50% will take the standard 3/80ths cash sum. The option which members have to commute part of their pension at retirement in return for a lump sum is a rate of £12 cash for each £1 p.a. of pension given up. This assumption did not apply at the last actuarial valuation, as the option to commute additional pension on these terms is a feature which was introduced from 6 April 2006.
- 5.9 The contributions payable under the recovery plan are calculated using the same assumptions as those used to calculate the funding target.

- 5.10 As an illustration of the mortality rates included in the above table, the future life expectancies for a male/female at age 65 are shown below:

Non-retired members' mortality - current age 45	PA92(YOB) MC + 1	PA92 Base - 2
	22/25 years	19/22 years
Retired members' mortality - current age 65	PA92(YOB) MC + 1	PA92 Base
	21/24 years	17/20 years

- 5.11 The basis of valuing the assets (market value) is consistent with the assumptions used in assessing the funding target and the recovery plan.

6

## Least risk funding results

- 6.1 The results of the 2007 valuation show the funding target to be 68% covered by the current assets.
- 6.2 In assessing the value of the Fund's liabilities (the funding target), allowance has been made for asset out-performance as described in Section 5, taking into account the investment strategy adopted by the Fund, as set out in the Fund's Statement of Investment Principles (SIP).
- 6.3 It is not possible to construct a portfolio of investments which produces a stream of income exactly matching the expected liability outgo. However, it is possible to construct a portfolio which closely matches the liabilities and represents the least risk investment position. Such a portfolio would consist mainly of a mixture of long-term index-linked and fixed interest gilts. Investment of the Fund's assets in line with the least risk portfolio would minimise fluctuations in the Fund's ongoing funding level between successive actuarial valuations.
- 6.4 If, at the valuation date, the Fund had been invested in this portfolio, then in carrying out the valuation it would not be appropriate to make any allowance for out-performance of the Fund investments. On this basis of assessment, the assessed value of the Fund's liabilities at the 2007 valuation would have been significantly higher, by approximately 30% and the declared funding level would be correspondingly reduced to approximately 52%.
- 6.5 Departure from a least risk investment strategy, in particular to include equity investments, gives the prospect that out-performance by the assets will, over time, reduce the contribution requirements. The funding target might in practice therefore be achieved by a range of combinations of funding plan, investment strategy and investment performance.

## 7

## Variability and risks

- 7.1 The employer contributions set out in the Schedule to the Rates and Adjustments Certificate have been determined as described in section 4 of this report. These in turn depend on the financial and demographic assumptions used as described in section 5.
- 7.2 It is likely, especially in the short-term, that these assumptions will not be borne out in practice. It is therefore important to consider the potential impact on the employer contribution rates of actual experience differing from what has been assumed. The details in this section do this, based on the valuation results for the Fund as a whole.

### Sensitivity to key assumptions

- 7.3 Real investment return, salary increase and life expectancy assumptions impact significantly on the funding position and the following table illustrates the sensitivity to variations in these key assumptions over the long term. The base point is the funding level of 68% shown in section 3.2. Each row of the table considers one change in isolation, with all other assumptions being unaltered. An equivalent change in the assumption in the opposite direction would change the funding level value by the equivalent amount in the opposite direction.

Change in assumption	Revised funding level at 31 March 2007
Pre and post-retirement return reduced by 0.25%	65%
Salary increases reduced by 0.25% p.a.	69%
Life expectancy increased by 1 year	66%

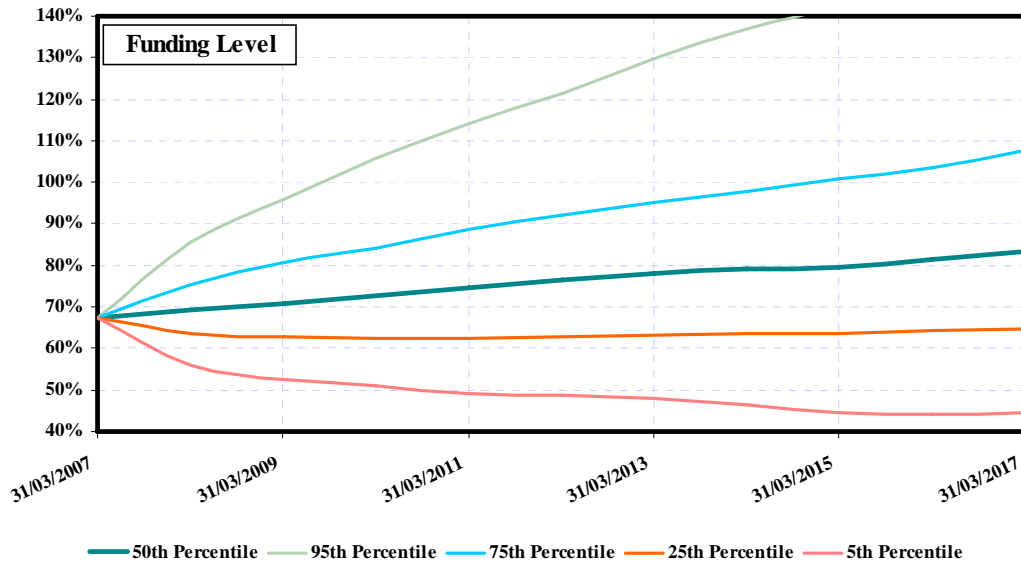
- 7.4 Similarly these assumptions impact significantly on the cost of the benefits accruing over the year. The following table illustrates the sensitivity to variations in these key assumptions over the long term. The starting point is the normal contribution rate of 14.1% of Pensionable Pay shown in section 4.4. Each row of

the table considers one change in isolation, with all other assumptions being unaltered. As before, a change in the assumption in the opposite direction would give rise to a change in the employer normal contribution rate of an equivalent amount in the opposite direction.

Change in assumption	Revised employer normal contribution rate at valuation date (% of Pensionable Pay)
Pre and post-retirement return reduced by 0.25%	15.2
Real salary growth reduced by 0.25% p.a.	13.7
Life expectancy increased by 1 year	14.4

## Investment risks

- 7.5 The funding of defined benefits is by its nature uncertain. Funding of the Fund is based on both financial and demographic assumptions. These assumptions are specified in the actuarial valuation report. When actual experience is not in line with the assumptions adopted a surplus or shortfall will emerge at the next actuarial assessment and will require a subsequent contribution adjustment to bring the funding back into line with the target.
- 7.6 The greatest risk to the Fund's funding is the investment risk inherent in the predominantly equity-based strategy, so that actual asset out-performance between successive valuations could diverge significantly from the investment return assumptions made as set out in Appendix D.
- 7.7 The chart below shows a "funnel of doubt" funding level graph, which illustrates the range and uncertainty in the future progression of the funding level, relative to the funding target adopted at the valuation. Using a simplified model, the chart shows the probability of exceeding a certain funding level over a 10 year period from the valuation date. For example, the top line shows the 95th percentile level (i.e. there is a 5% chance of the funding level at each point in time being better than the funding level shown, and a 95% chance of the funding level being lower). The graph adopts the 2007 actuarial valuation results as a starting point, and allows for the planned contributions into the Fund based on the valuation and funding strategy. The chart assumes median investment returns in line with "best estimate" market expectations, and variability of those returns broadly in line with historic experience.



7.8 The above chart assumes that the Fund's current investment strategy, which involves investing a significant proportion of its assets in equities, will continue.

7.9 As mentioned in Section 6, alternative investment strategies could be followed that would minimise the risk of deterioration in the funding position assessed relative to the funding target, for example by raising the proportion of bond investment. Such a strategy would reduce the risk that changing economic conditions would cause deterioration in the Fund's funding position. It would also tend to produce a more stable contribution rate but at a higher overall level than indicated in Section 4.

### Risks associated with the policy for meeting the funding target

7.10 The Fund's policy for meeting the funding target carries a number of risks. The following paragraphs comment on the following potentially material risks:

- some of the employers may not be able to continue to pay contributions or make good deficits in the future;
- the future investment return on assets may be insufficient to meet the funding objective;
- falls in asset values may occur that are not matched by similar falls in the values of liabilities;
- unanticipated future changes in mortality may occur, increasing the cost of the benefits;
- members may exercise options against the Fund, for example, a lower take-up for retirement cash than that assumed in the valuation;


- additional pay growth from that assumed in the valuation, including as a result of job evaluation exercises or equal pay claims.
- 7.11 If an employer becomes unable to pay contributions, or is unable to make good deficits in the future, the Fund's assets will be lower than expected and the funding position will be worse than expected. Any shortfall could then become the responsibility of other employers within the Fund.
- 7.12 If the future investment return on assets falls short of the rates assumed in the calculation of the funding target and the recovery plan, the funding position would be worse than expected. It is likely that an increase in future employer contributions would be required. The analysis shown earlier in this section illustrates the potential volatility of contribution rates and funding levels to future investment returns.
- 7.13 If market levels and/or gilt yields changed such that the liability values increase by more than the assets, or decrease by less than the assets, the funding position would be worse than expected. An increase in employer contributions would be expected as a result. The same comments would apply if general population mortality studies and analysis of the Fund show that pensioners are living longer. The analysis shown earlier in this section illustrates the quantitative impact of such changes.
- 7.14 If members made decisions around their options such that those decisions increased the Fund's liabilities (e.g. by not commuting pensions for cash to the extent assumed), the funding position would be worse than expected. As a result, future employer contributions might then need to be increased.

8

## Conclusions

- 8.1 The required overall employer contribution rate is, on average, 23.2% of Pensionable Pay subject to any transitional phasing arrangements in accordance with the FSS. These contributions will commence from 1 April 2008.
- 8.2 No additional contributions are required from the employers to meet the Fund's normal administration expenses, since allowance for these is included in the contributions specified. Member contributions (including any additional voluntary contributions) are payable in addition to the employer contributions.
- 8.3 The employer contributions for the period 1 April 2008 to 31 March 2011 are set out in the Schedule to the Rates and Adjustments Certificate, enclosed as Appendix I to this report.

Signature



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Fund Actuary

John Livesey

Date of signing

28 March 2008

Qualification

Fellow of the Institute of Actuaries

## Appendix A

### Summary of benefits

#### Local Government Pension Scheme 1997

The benefits and contributions payable under the Fund are set out in the Local Government Pension Scheme Regulations 1997 (as amended). Since the date the report on the 2004 actuarial valuation of the Fund was signed, the following amendments to those Regulations have been issued:

- The Local Government Pension Scheme (Amendment) Regulations 2005 (SI2005/1903)
- The Local Government Pension Scheme and Management and Investment of Funds (Amendment) Regulations 2005 (SI2005/2004)
- The Local Government Pension Scheme (Civil Partnership) (Amendment) (England and Wales) Regulations 2005 (SI2005/3069)
- The Local Government Pension Scheme (Amendment) (No. 2) Regulations 2005 (SI2005/3199)
- The Local Government Pension Scheme (Amendment) Regulations 2006 (SI2006/966)
- The Local Government Pension Scheme (Amendment) (No. 2) Regulations 2006 (SI2006/2008)
- The Local Government (Early Termination of Employment) (Discretionary Compensation) (England and Wales) Regulations 2006 (SI2006/2914)
- The Local Government Pension Scheme (Amendment) Regulations 2007 (SI2007/228)
- The Local Government Pension Scheme (Amendment) (No.2) Regulations 2007 (SI2007/1488)
- The Local Government Pension Scheme (Amendment) (No.3) Regulations 2007 (SI2007/1561)

The most notable changes since the last valuation are the reinstatement of the Rule of 85 retirement provisions in August 2005 (SI2005/1903), and the further removal of those provisions from 1 October 2006 (for new entrants) and from 1 April 2008 for current members, subject to certain protections (SI2006/966 and SI 2006/2008).

## Local Government Pension Scheme 2008

With effect from 1 April 2008 a new scheme is being introduced as a replacement for the 1997 Scheme, under the provisions of the Local Government Pension Scheme (Benefits, Membership and Contributions) Regulations 2007 (SI2007/1166). The principal changes from the 1997 Scheme are: the replacement, for future service, of the existing benefits structure based on a pension of 1/80th of Pensionable Pay for each year of pensionable service plus an automatic lump sum of three times this amount by one based on 1/60th of Pensionable Pay for each year of pensionable service; and an increase in the average level of employee contributions from that date. The following supplementary Regulations have also been laid in relation to the new scheme:

- The Local Government Pension Scheme (Transitional Provisions) Regulations 2008 (SI2008/238)
- Local Government Pension Scheme (Administration) Regulations 2008 (SI2008/239)

In relation to ill-health benefits, there is currently no experience on which to estimate the costs arising in the future under the new provisions of the Scheme. The valuation therefore includes the same cost allowance for ill-health retirements as would have applied had the 1997 LGPS Regulations remained in force.

We have made no allowance for other changes which may be introduced in the future.

Benefits recharged to individual employers on a £ for £ basis have been excluded from the calculation of the valuation liabilities.

The benefits that will emerge from money purchase AVCs paid by members, and SCAVCs paid by employers, and the corresponding invested assets in respect of these AVCs and SCAVCs, have been excluded from the valuation.

UK and European law requires pension schemes to provide equal benefits to men and women in respect of service after 17 May 1990 (the date of the “Barber” judgement). There is still no general agreement on whether this applies to inequalities caused by Guaranteed Minimum Pensions (GMPs) and, if it does, what adjustments have to be made to scheme benefits to correct these inequalities. The valuation makes no allowance for equalisation of these inequalities. It is consequently possible that additional funding will be required for equalisation once the law has been clarified.

Appendix B

## Summary of membership data

### Pensionable Employees

	At 31 March 2004	At 31 March 2007	Increase (%)
Number	6,539	6,101	-6.7
Annual Pensionable Pay <sup>1</sup> (£m)	118,653	129,882	9.4
Average Pensionable Pay (£)	18,145	21,289	17.2
Average Age <sup>2</sup> (years)	49.7	50.4	N/A
Average Pensionable Service (years)	8.1	8.5	4.9

### Preserved Pensioners\*

	At 31 March 2004	At 31 March 2007	Increase (%)
Number	4,059	5,156	27.0
Annual Pensions inclusive of Pension Increase (£m)	6,647	8,472	27.5
Average Pension including Pension Increase (£)	1,637	1,643	0.3
Average Age <sup>2</sup> (years)	47.4	48.2	N/A

\* including frozen refunds and leaver options pending

**Current Pensioners**

	At 31 March 2004	At 31 March 2007	Increase (%)
Number	3,991	4,360	10.9
Annual Pensions inclusive of Pension Increase (£m)	18,097	22,105	23.4
Average Pension including Pension Increase (£)	4,534	5,070	11.3
Average Age <sup>2</sup> (years)	69.1	69.2	N/A

**Current Widow/Widower Pensioners etc.**

	At 31 March 2004	At 31 March 2007	Increase (%)
Number	856	828	10.9
Annual Pensions inclusive of Pension Increase (£m)	1,956	2,035	23.4
Average Pension including Pension Increase (£)	2,286	2,458	11.3
Average Age <sup>2</sup> (years)	76.3	76.7	N/A

Note: 1 - Pensionable Pay figures include actual pay for part-time employees.

2 – Weighted by accrued/current pension.

In addition there were 36 current dependant pensioners as at 31 March 2007 with pensions in payment totalling £44,000 per annum.

The data as summarised above has undergone some changes since it was originally supplied to us, and we understand this is largely as a result of the subsequent processing of membership movements which had actually occurred prior to the valuation date. Whilst we do not anticipate the changes in data will have had a material effect on the valuation results, they could be affected if the membership were substantially different from that advised to us.

Appendix C

## Distribution of membership by employing bodies

Employing Body	Pensionable Employees	Preserved Pensioners	Pensioners <sup>1</sup>
Brit School	28	15	5
Cleanaway	16	2	5
Fairfield	29	33	44
Harris City Technology College	2	1	4
Interserve	72	1	1
London Borough of Croydon and Grouped Scheduled Bodies <sup>2,3</sup>	5,805	4,963	5,086
NCP Car Parks	13	10	9
Other Grouped Bodies <sup>3</sup>	136	131	69
Reedham School	0	0	1
<b>Totals</b>	<b>6,101</b>	<b>5,156</b>	<b>5,224</b>

### Notes:

1. Includes widow/widower pensioners etc and dependants.
2. Including schools
3. See Appendix I for details

## Appendix D

### Actuarial assumptions used

### Funding target and recovery plan assumptions

#### Financial assumptions

##### **Investment return (discount rate)**

A yield based on market returns on UK Government gilt stocks and other instruments which reflect a market consistent discount rate for the profile and duration of the Scheme's accrued liabilities, plus an Asset Out-performance Assumption ("AOA") of 1.5% p.a.

The asset out-performance assumption represents the allowance made, in calculating the funding target, for the long term additional investment performance on the assets of the Fund relative to the yields available on long dated gilt stocks as at the valuation date.

##### **Individual Employers**

It is important to consider how the financial assumptions in particular impact on individual participating employers. The general Fund practice, as set out in the FSS, is to allocate the effects of actual investment performance pro rata across all employers based on a "mirror image" investment strategy to the whole Fund. In completing the calculations for individual employers therefore, the same actuarial assumptions have been adopted regardless of the individual employer liability profiles

##### **Inflation (Retail Prices Index)**

The inflation assumption will be taken to be the investment market's expectation for inflation as indicated by the difference between yields derived from market instruments, principally conventional and index-linked UK Government gilts as at the valuation date, reflecting the profile and duration of the Scheme's accrued liabilities. A reduction of 0.15% p.a. is then applied to the inflation assumption to reflect the fact that yields could be considered to be distorted by market supply/demand issues.

## **Salary increases**

The assumption for real salary increases (salary increases in excess of price inflation) will be determined by an allowance of 1.75% p.a. over the inflation assumption as described above. This includes allowance for promotional increases.

## **Pension increases**

Increases to pensions are assumed to be in line with the inflation (RPI) assumption described above. The pension increase assumption is modified appropriately to reflect any benefits which are not fully indexed in line with the RPI (e.g. Guaranteed Minimum Pensions in respect of service prior to April 1997).

## Demographic assumptions

### **Mortality**

The mortality assumptions will be based on the most up-to-date information published by the Continuous Mortality Investigation Bureau, making allowance for future improvements in longevity and the experience of the scheme. The mortality tables used are PA92 Year of Birth tables with medium cohort improvements, with an age rating reflecting Scheme specific experience of +1 year.

Members who retire on the grounds of ill health are assumed to exhibit average mortality equivalent to that for a good health retiree at an age 5 years older.

### **Early retirement**

Some members are entitled to receive their benefits (or a part of their benefits) unreduced from an age prior to the Fund's normal pension age under the "Rule of 85" provisions of the Regulations. This age will be at some point between ages 60 and 65, depending on the length of a member's pensionable service. The calculations in respect of past service allow for a proportion of the active membership to retire in normal health prior to age 65, as set out below.

Age	% retiring per annum	
	Males	Females
60	24	41
61	15	20
62	21	20
63	22	19
64	26	23

For future service the situation is different since the “Rule of 85” rule has been removed for service from April 2008 (October 2006 for new entrants to the Scheme). For future service we have assumed the earliest age at which unreduced benefits become an entitlement is 65 except for those members who have protected status under the transitional provisions.

No allowance has been made for non-ill health early retirements prior to the ages specified above. Additional capital contributions will be paid by employers in respect of the cost of these retirements.

### Ill health retirement

A small proportion of the active membership has been assumed to retire owing to ill health. As an example of the rates assumed, the following is an extract from the decrement table used:

Age	% leaving per annum	
	Males	Females
35	0.06	0.11
45	0.28	0.38
55	1.25	1.69

### Withdrawals

This assumption relates to those members who leave the scheme with an entitlement to a deferred pension or transfer value. It has been assumed that active members will leave the Scheme at the following sample rates:

Age	% leaving per annum	% leaving per annum
	Males	Females
25	13.50	14.92
35	3.39	4.18
45	1.69	2.59

## Commutation

It has been assumed that, on average, 50% of retiring members will take the maximum tax-free cash available at retirement and 50% will take the standard 3/80ths cash sum. The option which members have to commute part of their pension at retirement in return for a lump sum is a rate of £12 cash for each £1 p.a. of pension given up.

## Proportion married/in civil partnership and age difference

It has been assumed that the proportions of members below will on death give rise to a spouse's/civil partner's/dependant's pension, and that spouses/partners of female (male) members are three years older (younger), on average than the member.

Age	% spouse/partner	% spouse/partner
	Males	Females
25	34	56
35	81	84
45	92	93

## Expenses

Expenses are met out the Fund, in accordance with the Regulations. This is allowed for by adding 0.4% of Pensionable Pay to the contributions as required from participating employers. This addition is reassessed at each valuation. Investment expenses have been allowed for implicitly in determining the discount rates.

## Discretionary Benefits

The costs of any discretion exercised by an employer in order to enhance benefits for a member through the Fund will be subject to additional contributions from the employer as required by the Regulations as and when the event occurs. As a result, no allowance for such discretionary benefits has been made in the valuation.

## Assumptions used in calculating the cost of future accrual

The cost of future accrual (normal cost) has been calculated using the same actuarial assumptions as used to calculate the funding target and recovery plan as set out above except that the financial assumptions adopted are as described below.

The financial assumptions for assessing the future service contribution rate should take account of the following points:

- contributions will be invested in market conditions applying at future dates, which are unknown at the effective date of the valuation, and which are not directly linked to market conditions at the valuation date; and
- the future service liabilities for which these contributions will be paid have a longer average duration than the past service liabilities.

The financial assumptions in relation to future service (i.e. the normal cost) are not specifically linked to investment conditions as at the valuation date itself, and are based on an overall assumed real return (i.e. return in excess of price inflation) of 3.75% per annum, with a long term average assumption for price inflation of 2.75% per annum. These two assumptions give rise to an overall discount rate of 6.5% p.a.

Adopting this approach the future service rate is not subject to variation solely due to different market conditions applying at each successive valuation, which reflects the requirement in the Regulations for stability in the "Common Rate" of contributions. In market conditions at the effective date of the 2007 valuation this approach gives rise to a somewhat more optimistic stance in relation to the cost of accrual of future benefits compared to the market related basis used for the assessment of the funding target.

At each valuation the cost of the benefits accrued since the previous valuation will become a past service liability. At that time any mismatch against gilt yields and the asset out-performance assumptions used for the funding target is fully taken into account in assessing the funding position.

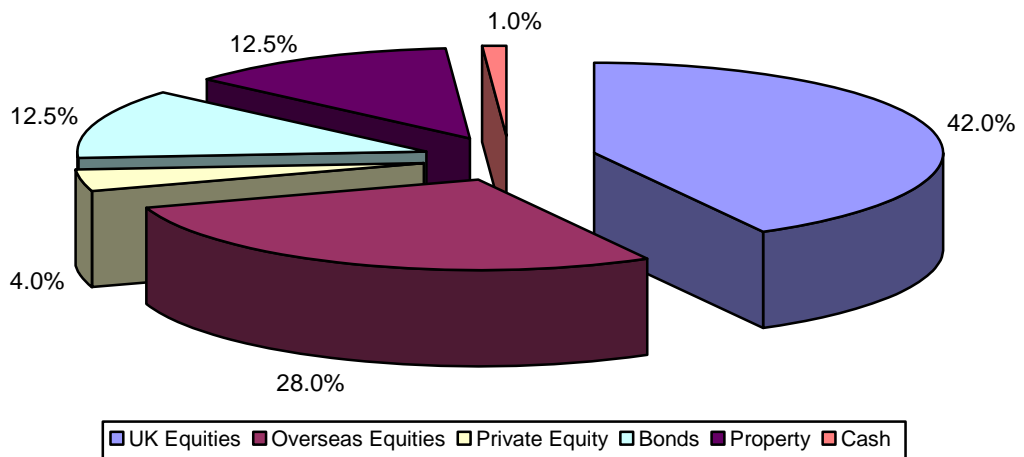
Summary of key whole Fund assumptions used for calculating funding target, recovery plan and cost of future accrual (the "normal cost") for the 2007 actuarial valuation

Long-term gilt yields	
Fixed interest	4.4% p.a.
Index linked	1.3% p.a.
Implied RPI price inflation	3.1% p.a.
Past service Funding Target financial assumptions	
Investment return pre-retirement	5.90% p.a.
Investment return post-retirement	5.90% p.a.
Salary increases	4.7% p.a.
Pension increases	2.95% p.a.
Future service accrual financial assumptions	
Investment return	6.5% p.a.
RPI price inflation	2.75% p.a.
Salary increases	4.5% p.a.
Pension increases	2.75% p.a.
Demographic assumptions	
Non-retired members' mortality	PA92 MC YoB tables + 1 year (+6 years for retirements in ill health)
Retired members' mortality	PA92 MC YoB tables + 1 year (+6 years for retirements in ill health)
Commutation	One half of members take maximum lump sum, others take 3/80ths
Withdrawal	Increased allowance compared to 2004 valuation for younger members to leave service
Other demographics	As for 2004 Valuation



## Summary of assets

Based on the information supplied, the market value of the assets of the Fund (excluding AVCs) at the valuation date is £545 million. The target distribution of assets as per the Fund's Statement of Investment Principles is as follows:-



Appendix F

## Summary of income and expenditure

<b>INCOME</b>	<b>Year ending 31 March</b>			<b>Total</b>
	<b>2005</b>	<b>2006</b>	<b>2007</b>	
	£000s	£000s	£000s	£000s
Fund at beginning of year	340,458	389,506	501,214	340,458
Contributions to Fund:				
Employees	7,393	7,457	7,466	22,316
Employers	19,332	20,846	21,906	62,084
Transfer Values received	3,916	4,417	3,702	12,035
Investment income	9,035	10,765	13,196	32,996
Change in market value of investments	37,332	97,930	30,357	165,619
<b>TOTAL:</b>	<b>417,466</b>	<b>530,921</b>	<b>577,841</b>	<b>635,508</b>
<b>EXPENDITURE</b>	<b>Year ending 31 March</b>			<b>Total</b>
	<b>2005</b>	<b>2006</b>	<b>2007</b>	
	£000s	£000s	£000s	£000s
Pensions for members/spouses/partners/dependants	18,769	20,227	20,958	59,954
Lump sum benefits	4,251	4,169	6,449	14,869
Refunds on withdrawal	105	111	34	250
Transfer values paid	3,603	3,872	4,317	11,792
Investment expenses	414	503	480	1,397
Administration expenses	818	825	950	2,593
Fund at end of year	389,506	501,214	544,653	544,653
<b>TOTAL:</b>	<b>417,466</b>	<b>530,921</b>	<b>577,841</b>	<b>635,508</b>

Appendix G

## Experience analysis of the Membership of the Fund based on the period 1 April 2004 to 31 March 2007

The analysis below compares the actual experience over the 3 year period with the assumptions used for the 2007 valuation.

### 1. III Health Retirements

	Actual	Expected	%
Males	6	38	16
Females	26	114	23
Total	32	152	21

### 2. Withdrawals

	Actual	Expected	%
Males	441	123	359
Females	1,055	399	264
Total	1,496	522	287

Note that actual withdrawals include members moving to another LGPS Fund, bulk transfers and also transfers under the special transfer club terms.

### 3. Pensioner Deaths

#### a. Based on amounts of pension payable

	Actual (£000s)	Expected (£000s)	%
Males	1,096	1,096	100
Females	891	742	120
Total	1,987	1,838	108

#### b. Based on number of pensions in payment

	Actual	Expected	%
Males	239	193	124
Females	365	261	140
Total	604	454	133

Appendix H

## Rates and Adjustments Certificate issued in accordance with Regulation 77

**Name of Fund**

**London Borough of Croydon Pension Fund**

**Regulation 77(3)**

I hereby certify that, in my opinion, the Common Rate of employers' contributions payable in each year of the period of three years beginning 1 April 2008 should be at the rate of 14.1 per cent of Pensionable Pay.

I hereby certify that, in my opinion, the amount of the employers' contribution rate payable in each year of the period of three years beginning with 1 April 2008, as set out above, should be individually adjusted as set out in the attached Schedule.


Contributions will be payable monthly in arrears with each payment due by the 19th of each month. Pensionable Pay is pay as determined under the LGPS Regulations for the calculation of employee contributions.

A further individual adjustment shall be applied in respect of each non-ill health early retirement occurring in the period of the Rates and Adjustments Certificate. This further individual adjustment will be calculated in accordance with methods agreed from time to time between the Fund's actuary and the Administering Authority.

The contribution rates set out in the attached Schedule represent the minimum contribution which may be paid by each employer. Additional contributions may be paid if requested by the employer concerned.

**Regulation 77(7)**

No allowance for non-ill health early retirements has been made in determining the results of the valuation, on the basis that the costs arising will be met by additional contributions. Allowance for ill health retirements has been included in each employer's contribution rate, on the basis of the method and assumptions set out in the report.

**Signature**

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**Name** John Livesey**Date of signing** 28 March 2008

## Appendix I

## Schedule to the Rates and Adjustment Certificate dated 28 March 2008

Employer	2008/09		2009/10		2010/11	
	Individual Adjustment %	Total Contribution Rate %	Individual Adjustment %	Total Contribution Rate %	Individual Adjustment %	Total Contribution Rate %
London Borough of Croydon and Grouped Scheduled Bodies	6.4	20.5	8.0	22.1	9.1	23.2
Other Grouped Bodies	3.6	17.7	3.8	17.9	4.1	18.2
BRIT School	-0.8	13.3	-0.1	14	0.7	14.8
Harris City Technology College	13.2	27.3	15.1	29.2	17.1	31.2
Fairfield	14.3	28.4	15.7	29.8	17.2	31.3
Cleanaway	-7.3	6.8	-7.3	6.8	-7.3	6.8
NCP Car Parks	Tbc	Tbc	Tbc	Tbc	Tbc	Tbc
Interserve	2.8	16.9	2.8	16.9	2.8	16.9

**Grouped Scheduled Bodies**

Croydon College  
Coulsdon College  
John Ruskin College  
St Joseph's College

**Other Grouped Bodies**

Age Concern (Croydon)  
Croydon Voluntary Action  
Catholic Children's Society  
Croydon Citizens Advice Bureau  
Croydon Community Mediation  
Croydon Environmental Networks  
Croydon Meals Agency  
New Addington Education Action Zone  
New Addington Women's Centre





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