WEST MIDLANDS PENSION FUND

SIAB ANNUAL REVIEW

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Annual Review of SIAB

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Introduction

This paper reviews the Fund's investment objectives and benchmarks, both at a total Fund and individual asset class level. An earlier draft was made available to the Fund's Investment Advisory Panel (IAP) and the current report reflects our understanding of the recommendations made at the IAP's meeting of 20 July 2015.

We look forward to discussing this paper with you at your September meeting.

Key points

- **Benchmarks are an important part of an overall investment strategy in that they help to define the nature of the return (and risk) expected from an investment and help in the assessment of whether a strategy is appropriate for the purpose intended. The Fund's SIAB should be capable of generating returns that, in conjunction with the contribution strategy, will meet the stated funding objectives.**
- **We have updated some of the modelling work done as at the Fund's Valuation of 31 March 2013 and the median 20-year return on assets in these latest projections is around 4% p.a. above CPI inflation. We have no reason to change the view that the current SIAB is appropriate. A more comprehensive update should be carried out in conjunction with the forthcoming Valuation as at 31 March 2016.**
- **Benchmarks are also used to test the performance of an asset class or particular fund manager. In this respect, they are often associated with a performance target, which quantifies expectations about the extent to which actual returns should exceed the benchmark ("beat the market").**
- **For the Fund, anyreturns in excess of the benchmark are intended to reduce the level of expected contributions, rather than representing an essential component of the funding strategy.**
- **Tables 1-3 at the end of this section show the benchmarks and performance targets resulting from proposals in this paper, together with the IAP's recommendations. In many cases, these are in line with the current approach. Where a change is suggested the current position is shown in brackets.**
- **The main changes relate to alternative assets, where the absence of suitable market indices often means that benchmarks are based on cash returns or inflation. Here, we have been keen to ensure that an appropriate premium over the base return is incorporated in the benchmark rather than simply allocated as a performance target.**
- **For some alternative asset classes, no performance target is specified. This reflects the fact that the benchmark is not based on a market index, and so the contribution from active managers is hard to determine.**
- **We provide further comments on each element of the Fund, including our recommendations for change/review, at the end of the report.**

Table 1: Equities

	Benchmark	Performance target (% p.a.)
Quoted	***FTSE All World***	
UK	FTSE All Share	0.0
Continental Europe	FTSE All World Europe ex UK	0.0
North America	FTSE North America	0.0
Japan	FTSE Japan	0.0
Pacific Basin	FTSE Developed Asia Pacific ex Japan	0.0
Emerging Markets	FTSE Emerging Markets	+3.0
Global	FTSE All World	+2.0*
Unquoted	***FTSE All World + 2% p.a.*** (FTSE All World)	***+2.0*** (+4.0)

* To be reviewed as part of broader portfolio restructuring

Table 2: Fixed interest

	Benchmark	Performance target (% p.a.)
Stabilising		
Index Linked Gilts	FTSE UK Gilts Indexed All Stocks	0.0
Conventional Gilts	FTSE UK Gilts All Stocks	0.0
Liquid assets	1-week £ LIBID	0.0
Return Seeking		
Corporate Bonds*	Merrill Lynch £ Non-Gilts All Stocks	+1.0
Other fixed interest*	Merrill Lynch £ Non-Gilts All Stocks	+2.5
Emerging Market Debt	50% JP Morgan EMBI Global Diversified 50% JP Morgan GBI-EM Global Diversified *(JP Morgan EMBI Global Diversified)*	+3.0

* To be reviewed as part of broader portfolio restructuring

Table 3: Alternatives

	Benchmark	Performance target (% p.a.)
Property		
Direct	IPD UK Annual Property Benchmark	+1.0
Indirect	CPI + 6% p.a. *(IPD UK Annual Property Benchmark)*	*(+1.0)*
Real assets & infrastructure		
Infrastructure	CPI + 4% p.a. *(1 month £ LIBOR)*	*(+4.0)*
Real assets	CPI + 4% p.a. *(1 month £ LIBOR)*	*(+4.0)*
Absolute Return		
Insurance-linked	1-month £ LIBOR +3% p.a. *(1 month £ LIBOR)*	*(+3.0)*
Special opportunities *	1-month £ LIBOR +4% p.a. *(1 month £ LIBOR)*	*(+4.0)*

* To be kept under review as portfolio evolves

2 Background

SIAB Review

The Fund's Strategic Investment Allocation Benchmark ("SIAB") is reviewed on an annual basis. The general aims of the annual review are

- to analyse the sources of risk in the portfolio; and
- to suggest potential opportunities to improve the SIAB or its implementation.

This year, the review focuses on the Fund's investment objectives and benchmarks both at total Fund and at individual asset class level. In what follows, therefore, we do not propose any changes to the SIAB.

Benchmarks

A benchmark is a standard against which performance of a fund, a portfolio or another benchmark is compared. Most benchmarks are based on either market indices or peer group performance. Other types of benchmark are encountered, most commonly in alternative asset classes, where neither indices nor peer group results are readily available. These are typically expressed as premiums over cash or inflation – intended to describe the long-term returns expected rather than short- or medium-term patterns of performance.

All of the types of benchmarks mentioned are currently used in the SIAB. Our general view is that indices are preferable to peer groups, although the overriding consideration is that the benchmark should be suitable for the purpose employed. Where some compromise has to be made in benchmark selection, particular care has to be taken in the interpretation of returns. If, for example, an index based on listed assets is used as a benchmark for unlisted investments, the short-term performance of the benchmark is likely to be more volatile than that of the investments. Where a cash-based benchmark is used, it will not capture the medium-term trends in the asset class.

Benchmarks can be used in various contexts. We distinguish a few of the possibilities in what follows:

- At a **strategic** level, benchmarks can define the nature of the return and/or risk expected. So, for example, a broadly-based global index, such as the FTSE All-World Index, would be a suitable strategic benchmark for a global equity exposure.
- Benchmarks can define the **structure** of the intended investment in, say, a particular asset class. Thus, we would describe the SIAB's current aggregate equity benchmark – a combination of regional equity indices weighted by the target exposures to each region – as structural.
- Benchmarks can be **portfolio-specific** – used to test the performance of a particular manager. In this case, a **performance target**, a minimum level by which the manager is expected to outperform the benchmark over the long term, will also usually be specified.

It is not always necessary or desirable to allocate each type of benchmark to every part of the portfolio. There are occasions where the same benchmark would apply for different purposes (i.e. strategic, structural and portfolio-specific). However, there are also occasions where it is appropriate to apply different benchmarks to the same portfolio for different purposes. This can help to separate contributions to performance made by different people or resulting from different decisions. For example:

- In segregated mandates, where the Fund can influence investment policy, the portfolio-specific benchmark will often match the relevant part of a structural benchmark.
- In pooled funds, where the investment strategy is determined by the manager, the portfolio-specific benchmark will often be the one used by the manager.

- In the definition of the SIAB and its components, benchmarks will tend to be strategic or structural in nature.
- In any individual asset category, the benchmark applied to a particular portfolio need not match the benchmark applied to the SIAB. It may also be the case that the portfolio-benchmarks in aggregate do not match the SIAB benchmark. This can be perfectly acceptable. The practical implementation of exposure to an asset class may involve some compromise; there may be a deliberate decision to exploit a particular opportunity within an asset class. Any performance differences that arise should be viewed as a contribution to performance from in-house decisions.

Throughout the report, we will highlight areas where different benchmarks might apply and the potential benefits of analysing the different contributions to performance.

We also note that there will be a contribution to performance arising from the fact that the SIAB is a target and the actual Fund allocation will diverge. Under current governance arrangements, the Fund does not take tactical views relative to the SIAB and so this contribution would be expected to be relatively small, reflecting fluctuations caused by market movements. However, the Fund is undergoing some significant restructuring, some of which may extend over a long period. In current circumstances, therefore, the performance contribution from the divergence between the SIAB and the Fund allocation may not be trivial.

Types of benchmark

Generally, suitable market indices (or appropriate combinations) make for the best benchmarks. For alternative asset classes, in particular, such indices are not always available.

Our preference is then to search for a related index and, if necessary, make adjustments to reflect any systematic differences between the portfolio investments and the universe represented by the index. The approach proposed later for Unquoted equities is an example.

Another approach is to use a proxy for the long-term return expected from the asset class, usually expressed as a premium over either inflation or cash returns, as a benchmark. This is the approach preferred by the IAP for indirect property, infrastructure and insurance-linked and we are satisfied that it is appropriate. We therefore make no further comment on the index-based approaches that might have been considered. However, it is important to note that there will be little useful information to be derived from short- and medium-term performance relative to inflation- and cash-based benchmarks.

Performance targets

For some asset classes, there is a choice between active and passive management; for others, active management is the only option. Nevertheless, whenever portfolios are actively managed, there will generally be an expectation that the manager will deliver performance in excess of the underlying market return (so-called ‘alpha’). The latest performance targets for different asset classes are shown in Table 4 below.

Where the targets are zero, the portfolios are passively managed or, in the case of Liquid Assets, we would view the taking of additional risk as inappropriate.

Table 4: Current performance targets

EQUITIES	% p.a.	FIXED INTEREST	% p.a.	ALTERNATIVES	% p.a.
Quoted		***Stabilising***		***Property***	
UK	0.0	Index Linked Gilts	0.0	Direct	1.0
Continental Europe	0.0	Conventional Gilts	0.0	Indirect	1.0
North America	0.0	Liquid assets	0.0		
Japan	0.0	***Return Seeking***		***Real assets & infrastructure***	***4.0***
Pacific Basin	0.0	Corporate Bonds/Other	1.0		
Emerging Markets	3.0	Other fixed interest	2.5	***Absolute Return***	
Global	2.0	Emerging Market Debt	3.0	Insurance-linked	3.0
Unquoted	***4.0***			Special opportunities *	4.0

Where there are non-zero performance targets, we make some specific comments in section 3. This is mainly in respect of the more traditional asset classes, where the number of portfolios is smaller and there is a typical ‘industry-standard’ range of performance targets. It is also easier to specify a performance target when the actual returns from a portfolio or asset class can be tested against the underlying return on a suitable index.

The key principle is that the performance target should broadly reflect the nature of the investments selected rather than some predetermined number. That said, we would view a target in excess of 2-3% p.a. ahead of the benchmark across an asset class as a whole as representing a relatively high-risk approach to implementation. That may be perfectly acceptable, but it should certainly be deliberate.

For alternative asset classes, there may be no index available or it may be decided to adopt a non-index benchmark. In these cases, we think the most important thing is that the chosen benchmark should reflect expectations about the overall return expected from the asset class. It is more difficult to unbundle this overall return into an underlying market return and a return to manager skill (and the cost of fees as, in many cases returns on alternative investments are calculated net of fees, in contrast to the usual practice for traditional asset classes.) For the following asset classes, we have not attempted to make this distinction and suggest no specific performance target for Indirect property, Infrastructure, Real assets, Insurance-linked or Special opportunities.

However, it should be understood that the actual returns generated will include some contribution from the success or failure of the chosen managers. Generally, we think it is right to be cautious about the achievement of performance targets. They should certainly be seen as a guide to the riskiness of portfolios and the extent to which short-term returns might diverge from the benchmark. They should also reflect the genuine aspirations of the Fund and managers. But the returns implied by the targets should be seen as less reliable than the market returns implied by the SIAB benchmarks.

This view is reflected in the Fund’s investment strategy. It is intended that the SIAB should deliver sufficient return (before any alpha contribution) in conjunction with the contribution strategy to meet the Fund’s objectives. Any returns from above-benchmark performance were intended to be used to reduce contribution levels. For this reason, we think it is important to distinguish between the returns expected from investing in markets and the returns expected from manager skill. This is relatively straightforward for traditional asset classes, where suitable indices or well-established peer group returns are available. For some alternative asset classes, where establishing a suitable benchmark is more difficult, it has to be done approximately.

3 Fund benchmarks

Total Fund

The SIAB as at 30 June 2015 is set out in table 5 below. The benchmark for the SIAB is simply the average of the benchmarks for the constituent asset classes weighted by their strategic allocations. The asset class benchmarks are considered later in this section and so the suitability of the SIAB benchmark relates to the weights used. We have always emphasised in our reviews that the key question is whether the SIAB reflects an investment strategy that, in conjunction with the contribution strategy, is consistent with the objectives of the Fund? We discuss this below.

Table 5: Current SIAB allocation

EQUITIES	%	FIXED INTEREST *	%	ALTERNATIVES	%
Quoted	***48.0***	***Stabilising***	***10.0***	***Property***	***10.0***
UK	8.0	Index Linked Gilts	6.0	Direct	7.0
Continental Europe	7.5	Conventional Gilts	3.0	Indirect	3.0
North America	7.5	Liquid assets	1.0		
Japan	3.75			***Real assets & infrastructure***	***6.0***
Pacific Basin	3.75	***Return Seeking***	***9.0***		
Emerging Markets	7.5	Corporate Bonds/Other	5.5	***Absolute Return***	***7.0***
Global	10.0	Emerging Market Debt	3.5		
Unquoted	***10.0***				

The investment strategy was the subject of the review carried out last year and summarised in a paper, ***Main Fund: 2014 investment strategy review***, which was presented to the Committee on 25 June 2014. The investment strategy review confirmed that the high-level investment strategy was appropriate for the Fund's funding objective in current circumstances.

The position will next be reviewed in detail in conjunction with the Fund's next valuation as at 31 March 2016. In the meantime, we have updated the results of the earlier review, rolling forward the liability cash flows, reflecting recent changes to the SIAB and market conditions. We summarise some of the answers to key questions in table 6 below, which shows comparable numbers from the earlier review in brackets.

Table 6: Funding level analysis

	Mar 2015	*Mar 2013*
Starting funding level	**62%**	*(70%)*
What is the probability of reaching 100% funding by 2025?	**50%**	*(58%)*
What is the probability of reaching 100% funding by 2035?	**76%**	*(80%)*
In which year is the median projected funding level 100%?	**2025**	*(2023)*
What is the average of the worst 5% of projected funding levels in 3 years' time?	**44%**	*(47%)*

All of the measures used are based on a valuation using a discount rate of 1.4% p.a. above gilt yields, comparable to the basis used by the Actuary in the March 2013 valuation. The details underlying the modelling, including the returns and volatilities assumed, are included in the Appendix.

In all cases, the position has deteriorated a little since 2013. This reflects a lower starting funding level, which in turn reflects the lower level of long-dated real yields on index-linked gilts. However, the change would not, in our view, be sufficient to invalidate the view that the current investment strategy is appropriate. The probability of reaching 100% funding in the years between 2025 and 2035 is an important consideration here.

The median 20-year nominal return on assets in these latest projections is 5.6% p.a., which compares with the median projection of 1.4% p.a. for CPI inflation. A return of more than 4% p.a. ahead of CPI represents a higher level of investment risk than assumed in the GAD costings of the LGPS (and therefore higher than might be seen as necessary over the long term). It is, however, consistent with the fact that the Fund is currently in deficit. One of the issues that we believe should be addressed at the next Valuation is how and when the SIAB should be adapted to reflect improvements in funding levels.

We note that our return projections are generally well below the original target of the SIAB – to deliver nominal returns of 7-8% p.a. In an era of low interest rates and gilt yields, we believe it is over optimistic to expect that level of return. More generally, we think it is more appropriate to think in terms of returns in excess of inflation, reflecting the inflation-linkage of benefit payments, and to set the target return in conjunction with the contribution strategy.

The analysis undertaken for this report did not include an assessment of whether the current strategy is optimal. However, we do recommend that the comparison with alternative strategies, planning for the possibility of reducing investment risk and differentiating strategies across employers are all considered as part of the valuation process as at March 2016.

Quoted equities

The current benchmarks for individual portfolios are as follows:

Europe	**FTSE All World Europe ex UK**
Japan	**FTSE Japan**
Pacific Basin	**FTSE Developed Asia Pacific ex Japan**
UK	**FTSE All Share**
US	**FTSE North America**
Global	**FTSE All World**
Emerging Markets	**FTSE Emerging Markets**

- FTSE provides a consistent series of broadly-based indices – the best approach for strategic and structural purposes. There is no particular reason to prefer the MSCI series, which represents the main alternative seen in practice.
- We would suggest that the FTSE All World Index should be viewed as an overall guide to the success of the global equity strategy, as it represents a broad exposure that could be implemented cheaply with minimal governance. In practice it would be used simply to monitor the performance of the actual SIAB benchmark (described below) over the long term.

- The aggregate SIAB benchmark for equities is the weighted average of the underlying regional benchmarks. This is, by our definition, structural, representing the result of decisions taken by the IASC. The current weights are broadly in line with the recommendations of the equity portfolio review carried out last year, as reported in the paper, ***Review of listed equity portfolio***, presented to the IASC in September 2014.
- There is a minor overlap between the benchmark for European equities and the benchmark for Emerging Markets – Poland and Hungary are included in both. Using FTSE Developed Europe ex UK would remove the overlap. However, any impact is trivial. In addition, the current European benchmark is the index against which the in-house portfolio is managed. A change of benchmark could therefore result in some modest transaction activity. We understand that the intention is to tolerate the overlap and agree that represents a sensible, pragmatic approach.
- The global equity portfolio in the process of considerable restructuring. The current performance objective (2% p.a. ahead of the benchmark index) is too high for the portfolio as it is currently constituted. We suggest that no immediate change be made to the performance target, but note that the objective should be reviewed as part of the final decision on restructuring.
- We would view the performance objective of the Fund's actively managed Emerging Markets portfolios (3% p.a. ahead of the benchmark index) as challenging over the long-term.

Unquoted equities

The current benchmark is the FTSE All World Index.

- We think that the use of a quoted equity index as a strategic benchmark is the best approach. It reflects the strategic rationale that private equity is an extension of the universe of equity opportunities rather than a significant diversifier.
- A global index reflects the global nature of the Fund's private equity programme. It would be possible to use instead a weighted combination of regional indices that more closely approximates the desired allocation of the private equity portfolio, although we doubt that any improvement in fit between the benchmark and the Fund's investments would be worthwhile.
- The overall return expected from the private equity programme is 4% p.a. higher than the benchmark. This is typical of the level targeted by private equity investors and we see no reason to change it. However, any added value will represent a combination of a return to illiquidity (a strategic decision) and the relative success of the managers and funds selected (alpha).
- It is impossible to analyse the contributions from these two factors precisely, but an approximate solution may be considered by adding a premium of, say, 2% p.a. to the current strategic benchmark. We believe that the IAP also recommends adopting this solution.

Fixed interest

Orphan assets

The portfolio was selected by the Actuary to match liability cash flows as closely as possible rather than deliver a specific level of performance. We understand that the target return is 1.4% p.a. ahead of the return on gilts, but the objective of the portfolio means that it is not appropriate to set a benchmark in the same way as proposed for the rest of the Fund. We therefore make no further comment on this part of the SIAB. .

Stabilising

Current benchmarks for individual portfolios are as follows:

Gilts	**FTSE UK Gilts All Stocks**
Index-linked	**FTSE UK Gilts Indexed All Stocks**
Liquid assets	**1-week £ LIBID**

- The indices selected for these portfolios are suitable.
- The strategic rationale for this part of the SIAB is to provide a portion of the Fund that typically responds in a different way to changing economic circumstances from the return-seeking assets that constitute the bulk of the Fund's portfolio – low-risk assets that provide stability (and a source of funds) in conditions when other assets come under pressure.
- The obvious assets to include in this sort of portfolio are gilts, index-linked gilts and cash, but there is no single objective answer to what constitutes the 'best' stabilising portfolio. Therefore, we do not suggest that a strategic benchmark is required.
- The structural benchmark for the portfolio should reflect what is viewed as the neutral exposure to appropriate assets. The current benchmark effectively reflects the actual Fund holdings when the distinction between the stabilising and return-seeking portfolios was formally recognised after adjustment for the assets subsequently assigned to orphan liabilities.
- Any variation from the neutral position, in terms of portfolio duration, balance between assets or exposure to credit, reflects a contribution to return from in-house decisions.
- The portfolio currently fulfils no specific hedging or matching function. This may change over time, as the portfolio matures or a need for individual employer strategies is recognised. It would, of course, be appropriate to review the aggregate benchmark to reflect any such evolution in the portfolio.

Return-seeking

Current benchmarks for individual portfolios are as follows:

Emerging market debt	**JP Morgan EMBI Global Diversified**
Corporate bonds	**Merrill Lynch £ Non-Gilts All Stocks**
Other fixed interest	**Merrill Lynch £ Non-Gilts All Stocks**

- There is no obvious strategic benchmark covering all of the potential opportunities and, in our view, there is no need to define one. A structural benchmark that reflects target exposures to individual portfolios is what is required.

Emerging market debt

- The benchmark for Emerging Market Debt (EMD) is based on $-denominated sovereign bonds only. However, the EMD universe is increasingly dominated by local currency markets and corporate bonds are also a bigger part of the market now.
- The existing benchmark is only suitable if the allocation to EMD is intended simply to extend the range of credit markets in which the Fund invests or is there also a desire to exploit emerging market currency risk? Only if the former predominates is the existing benchmark suitable.

- We make the assumption that some exposure to emerging market currency is also part of the strategic rationale for investment. It would therefore be appropriate to amend the structural benchmark to an appropriately weighted combination of the existing benchmark and a suitable local currency index, such as the JP Morgan GBI-EM Global Diversified Index.
- We suggest an equal split as a starting point for discussion, but emphasise that the benchmark finally chosen should reflect the nature of the exposure desired.
- A decision to include strategic exposure to local currency EMD could have knock-on effects for the investments made by the Fund. We understand that this is under consideration by the IAP.
- Whatever structural benchmark is chosen for EMD, it may not be appropriate for individual Fund investments. In such cases, the contribution to performance made by managers should be judged relative to suitable portfolio-specific benchmarks. The aggregate performance of the portfolio-specific benchmarks relative to the structural benchmark represents a contribution from in-house decisions.
- The IAP has suggested a reduction in the performance targets for EMD portfolios from 3% p.a. to 2% p.a. ahead of the benchmark index. This seems challenging but reasonable.

Corporate bonds and other fixed interest

- The benchmark for corporate bonds is suitable for a portfolio dominated by investment-grade bonds and we suggest no immediate change.
- The performance target (1% p.a. ahead of benchmark) is stretching for an investment-grade portfolio. Our experience is that managers achieve outperformance more through systematic exposure to higher credit risk than the benchmark than anything else. Our view is that a strategic exposure to investment-grade corporate bonds is best implemented passively. However, we would suggest there is no need to change the target at the moment, as any change would be superseded by a more comprehensive review of the portfolio that is under consideration.
- We have recommended in the past that this portfolio should be effectively combined with Other Fixed Interest and focus instead on opportunities outside the investment-grade universe. If that change is implemented, then the benchmark for corporate bonds should be determined as described later in this section.
- Our view is that the “other fixed interest” portfolio should aim to generate long-term returns similar to equities, primarily through exploiting credit risk. As long as it remains a small part of the return-seeking bond portfolio, the current benchmark, combined with the performance target of 2.5% p.a., provides a suitable overall guide to the sort of returns expected, even if the allocation between strategic decisions and manager performance is not ideal.
- If the existing corporate bond and other fixed interest portfolios are combined into a broader exposure to credit markets, this could encompass a wide range of markets – high yield bonds, syndicated loans, real estate and infrastructure debt, private lending, etc. Not all of this is easily benchmarked. However, we would suggest that a combination of indices covering the most liquid parts of the market, such as Credit Suisse Leveraged Loans Index and the Merrill Lynch Global High Yield Master, would provide a broad guide to expectations of the long-term returns from such a portfolio as well as a shorter-term guide to movements in broader credit markets.
- In such an expanded credit exposure, portfolio-specific benchmarks may be very different from the strategic one chosen, e.g. the portfolio might cover one area of the market only. It is also quite possible that the aggregate of all the portfolio-specific benchmarks would be different from the strategic benchmark. Any performance difference arising could be considered a contribution from in-house decisions.

Property

Direct

- **The current benchmark is the IPD UK Annual Property Benchmark**. (The IPD UK Quarterly Property Index is used for shorter-term performance monitoring).
- The Annual Benchmark serves well as a benchmark for the direct property, as it provides a broad coverage of institutional investment in UK commercial property.
- The performance target for direct property should be aimed at encouraging the manager to add value to a broad exposure to core UK commercial property. The current level (1% p.a. ahead of benchmark) seems reasonable.

Indirect

- **Currently, the indirect portfolio has the same benchmark as the direct portfolio**. This would be consistent with a view that the indirect property holdings are alternatives to additional direct UK property exposure.
- We understand that the IAP wishes to treat them as simply another alternative asset class and proposes an overall return of CPI + 6% p.a. as a benchmark.
- The proposed benchmark reflects the rationale that the investment in indirect property is intended to produce sterling returns in excess of inflation over the long term.
- We have not analysed the individual holdings, but note that the high level of the premium over CPI proposed suggests that the portfolio is relatively risky. In part, this reflects the inherent illiquidity of the holdings.

Real assets & Infrastructure

Infrastructure

The current benchmark is 1-month £ LIBOR.

- The current benchmark is not suitable. At the very least, a strategic benchmark for infrastructure should incorporate a premium as well. A level of 2% p.a. would be consistent with the idea that the Fund was seeking returns similar to, but perhaps a little lower than returns from equities.
- However, infrastructure is often predicated on some long-term return above inflation. We agree with the IAP's proposal to use an inflation-based benchmark of CPI + 4% p.a.

Real assets

The current benchmark is 1-month £ LIBOR.

- Here, too, the benchmark should be replaced. Similar arguments apply as applied to infrastructure and we are satisfied with the IAP's proposal to adopt the same long-term strategic benchmark of CPI +4% p.a. would be more appropriate than a cash-based benchmark.

Absolute return

Insurance-linked

The current benchmark is 1-month £ LIBOR.

- As with Infrastructure, the minimum change that should be made to for a strategic benchmark is the addition of a premium.
- The nature of the investments means that a CPI-based benchmark is not appropriate.
- We understand that the IAP is recommending a target of LIBOR +3% p.a. and believe this to be appropriate.

Special opportunities

The current benchmark is 1-month £ LIBOR.

- Investment here is opportunistic and potentially very diverse. The simple addition of an appropriate premium to the existing cash benchmark is all that we would suggest here.
- We understand that the IAP proposes that a premium of 4% p.a. be used and think this is reasonable in relation to the portfolio as currently structured. However, it should be noted that the current portfolio contains some legacy assets that would probably not now qualify as “special opportunities".
- The target returns of opportunities considered in the future are likely to vary widely and each investment should be tested against its own target. We therefore suggest that the benchmark premium over cash should be kept under review as the portfolio evolves to ensure that it continues to reflect the returns expected from the opportunities selected.

4 Recommendations

We summarise below the areas where we think a change to or review of current benchmarks or performance targets is appropriate.

Total Fund

- Comparison with alternative strategies, planning for the possibility of reducing investment risk and different employer strategies should all be considered as part of the valuation process as at March 2016.

Quoted equities

- The performance of the Fund's benchmark for quoted equities should be monitored against the FTSE All World index over the long term to assess the effect of the chosen regional allocation.
- The slight overlap between the European and Emerging Markets benchmarks should be noted, but it is reasonable to tolerate it.
- The performance target for the Fund's global equity portfolio should be reviewed as part of the broader review of the structure of the portfolio.

Unquoted equities

- A premium of 2% p.a. should be added to the benchmark to reflect a strategic return expected from accepting the illiquidity involved in unquoted investment. A performance target of 2% p.a. (in addition to the 2% illiquidity premium) would reflect the target level of "alpha" from this investment.

Fixed income – return-seeking

- The benchmark should be amended to include an allocation to local currency markets. We suggest an equal weighting to hard currency and local currency markets, but the eventual choice should reflect the strategic rationale for investment in Emerging Market Debt (EMD).
- The benchmark for Other Fixed Interest should be reviewed as part of the broader review of the structure of the portfolio.

Indirect property

- A benchmark expressed as a premium over inflation should be adopted. The proposed premium of 6% p.a. should be interpreted as an indication that the portfolio is relatively risky, in part because of the illiquidity of the holdings.

Infrastructure

- The change to a benchmark of CPI + 4% p.a. recommended by the IAP should be accepted.

Real assets

- The benchmark should be changed to CPI + 4% p.a.

Insurance-linked

- The IAP's suggestion of LIBOR + 3% p.a. seems suitable as an overall return expectation.

Special opportunities

- A benchmark of LIBOR + 4% p.a. seems appropriate for the current portfolio to reflect the inclusion of some legacy assets. The 4% p.a. premium should be kept under review as the portfolio evolves to reflect future investments specifically selected as "special opportunities".

Appendix – Reliance and Limitations

Cash flows

In projecting forward the evolution of the Scheme, we have used estimated cash flows generated using our actuarial valuation system, based on membership data, assumptions and benefit summary provided by the Actuary, Paul Middleman FIA of Mercer. The data, assumptions and benefit strategy underlying the cash flows is broadly the same as that which applied in the preliminary results of the 2013 actuarial valuation of the Scheme (full details are available from Mercer on request).

We have relied on the accuracy of the data, email correspondence and documents provided by the Actuary.

We have estimated future service benefit cash flows and projected salary roll for new entrants after the valuation date such that target payroll over the long term trends to 80% of starting payroll (i.e. replacement of leavers over the long term results in payroll reducing to 80% of starting payroll). The new entrants joining are assumed to have a 'triangular' distribution between ages 25 and 64 with a (salary-weighted) mode at the average age of new entrants over the past three years. All new entrants are assumed to join and then leave service at SPA, which is a much simplified set of assumptions compared with the modelling of existing members. Nonetheless, we believe that this assumption is reasonable for the purposes of the modelling given the highly significant uncertainty associated with the level of new entrants. Where the Fund subscribes to Club Vita, new entrant mortality is assumed to be in line with an average of individual Vita Curves.

There are a number of different types of increases applied before and after retirement to benefits payable from the Scheme. We have made some simplifying assumptions when modelling the various types of increases.

As with all modelling, the results are dependent on the model itself, the calibration of the model and the various approximations and estimations used. These processes involve an element of subjectivity. No inferences should be drawn from the modelling results other than those confirmed by us in writing.

Asset Liability Model

Except where stated, we do not allow for any variation in actual experience away from the demographic assumptions underlying the cash flows. Variations in demographic assumptions (and experience relative to those assumptions) can result in significant changes to the funding level and contribution rates. We allow for variations in inflation (RPI or CPI as appropriate), inflation expectations (RPI or CPI as appropriate), interest rates, yield curves and asset class returns. Cash flows into and out of the Scheme are projected forward in annual increments and are assumed to occur in the middle of each Scheme year. Investment strategies are assumed to be rebalanced annually.

Unless stated otherwise, we have assumed that all contributions are made and not varied throughout the period of projection irrespective of the funding position. In practice the contributions are likely to vary especially if the funding level changes significantly.

Investment strategy is also likely to change with significant changes in funding level, but unless stated otherwise we have not considered the impact of this in order to focus on the high level investment strategy decision.

In allowing for the simulated economic scenarios, we have used suitable approximations for updating the projected cash flows. The nature of the approximations is such that the major financial and investment risks can be broadly quantified. However, a more detailed analysis is required to understand fully the implications and appropriate implementation of a very low risk or 'cash flow matched' strategy.

We would emphasise that the returns that could be achieved by investing in any of the asset classes will depend on the exact timing of any investment/disinvestment. In addition, there will be costs associated with buying or selling these assets. The model implicitly assumes that all returns are net of costs and that investment/disinvestment and rebalancing are achieved without market impact and without any attempt to 'time' entry or exit.

Asset Model

The distributions of outcomes depend significantly on HRAM, our (proprietary) stochastic asset model. This type of model is known as an economic scenario generator and uses probability distributions to project a range of possible outcomes for the future behaviour of asset returns and economic variables. Some of the parameters of the model are dependent on the current state of financial markets and are updated each month (for example, the current level of equity market volatility) while other more subjective parameters do not change with different calibrations of the model.

Key subjective assumptions are the average excess equity return over the risk free asset (tending to approximately 3% p.a. as the investment horizon is increased), the volatility of equity returns (approximately 18% p.a. over the long term) and the level and volatility of yields, credit spreads, inflation and expected (breakeven) inflation, which affect the projected value placed on the liabilities and bond returns. The market for CPI linked instruments is not well developed and our model for expected CPI in particular may be subject to additional model uncertainty as a consequence. The output of the model is also affected by other more subtle effects, such as the correlations between economic and financial variables.

Our expectation (i.e. the average outcome) is that long term real interest rates will rise from their current low levels. Higher long-term yields in the future will mean a lower value placed on liabilities and therefore our median projection will show, all other things being equal, an improvement in the current funding position (because of the mismatch between assets and liabilities). The mean reversion in yields also affects expected bond returns.

While the model allows for the possibility of scenarios that would be extreme by historical standards, including very significant downturns in equity markets, large systemic and structural dislocations are not captured by the model. Such events are unknowable in effect, magnitude and nature, meaning that the most extreme possibilities are not necessarily captured within the distributions of results.

Given the context of this modelling, we have not undertaken any sensitivity analysis to assess how different the results might be with alternative calibrations of the economic scenario generator.

We would be happy to provide fuller information about the scenario generator, and the sensitivities of the results to some of the parameters, on request.

Expected Rate of Returns and Volatilities

The figures in the table below have been calculated using 5,000 simulations of the Hymans Robertson Asset Model, calibrated using market data as at 31 March 2015. The absolute expected returns shown are the 20 year geometric averages and the absolute volatilities quoted are the first year's standard deviations (all returns shown are net of fees).

It is important to be aware that the volatilities shown are the first year's volatilities and should only be used as such. The probability distributions for different asset classes are complex and attempting to extrapolate this first year volatility over a longer time period will almost certainly result in significant errors.

Asset Class	Expected return	Volatility
Index Linked Gilts (long dated)	0.4%	9%
Fixed Interest Gilts (long dated)	1.9%	13%
UK Equity	5.9%	17%
Overseas Equity	5.6%	20%
Private Equity	7.2%	29%
Property	3.9%	15%
Absolute Return	4.7%	9%
Infrastructure	4.8%	16%
Emerging Market Debt	4.4%	9%

Please note that whilst we comment that the returns shown are "expected", this identifies the level at which 50% of all possible outcomes will be above and 50% will be below – this does not mean that the return quoted is in any way the "most likely" outcome.

In addition, the current calibration of the model indicates that a period of outward yield movement is expected. For example, over the next 20 years our model expects the 17 year maturity annualised real (nominal) interest rate to rise from -0.9% (2.2%) to 1.0% (4.6%).