PTA

William B. Fornia, FSA | President

June 5, 2018

Ms. Bethany Rhodes
Executive Director
Ohio Retirement Study Council

Subject: Review of Ohio Police and Fire Funding Period and Actuarial Status

Dear Bethany:

As required by Section 742.311 of the Ohio Revised Code (ORC), we have reviewed adequacy of the current statutory contribution rates to the Ohio Police and Fire Pension Fund (OP&F).

Our primary findings are that the current statutory contribution rates are adequate to fund the statutory benefits over a period of 25-30 years. This report demonstrates these findings and other issues related to OP&F's progress in meeting the funding objectives.

Topics to be addressed in this report include:

- Adequacy of current statutory contributions rates to fund current statutory benefits
- Requirements of ORC
- Projection methodology
- Impact of Medicare Part B benefits
- Allocation of costs between Police and Fire
- Potential future changes to actuarial assumptions
- Likelihood of necessity for future changes in benefits or contributions
- Health care benefits
- Deferred Retirement Option Plan (DROP) issues
- Reconciliation with earlier reports
- Potential ORSC Recommendations

BACKGROUND

Conduent Human Resource Services, actuary for OP&F, issued the report on Actuarial Valuation of Pension Benefits as of January 1, 2017 in October, 2017. The actuarial report is an essential measure of the funded position of OP&F. While the Actuarial Valuation focuses on pension benefits only, the report also includes the valuation of Medicare Part B premium reimbursements as requested by the Ohio Retirement Study Council (ORSC) so that further analysis of the impact of Part B reimbursements can be conducted.

An actuarial valuation is built upon five pillars:

- All individual demographic data of OP&F members (active terminated and retired)
- OP&F benefit provisions
- Actuarial assumptions as to future contingent events
- Pension fund asset information
- Funding policy and actuarial funding methods

The actuary uses these parameters to determine various actuarial measures, including:

- Actuarial Accrued Liabilities (AAL) for benefits as of the valuation date (January 1, 2017)
- Unfunded Actuarial Accrued Liabilities (UAAL)
- Normal Cost Rate: The contribution requirement to systematically fund the future service liabilities
- Funding Period necessary to completely amortize the UAAL

ADEQUACY

Section 742.311 of the ORC requires an annual review of the adequacy of the contribution rates provided under sections 742.31, 742.33, and 742.34 and the contribution rates recommended in a report by the actuary of OP&F for the forthcoming year. Section 742.31 governs the contributions made by the employees, 742.33 governs the contributions made by police officers' employers and 742.34 governs the contributions made by the firefighter employers.

Conduent made a calculation that the unfunded liability for the statutory pension benefits would be fully amortized over a period of 28 years, based on the current level of contributions. The UAAL of $6.128 billion as of January 1, 2017 would decline to zero by December 31, 2044. We were able to replicate the Conduent calculations and agree that they seem reasonable.

We further computed the amortization period using the current (unsmoothed) Market Value of Assets (MVA) of $6.608 billion. The unfunded liability for the statutory pension benefits would be fully amortized over a period of 33 years, based on the MVA. The UAAL is $6.128 billion, based on a smoothed Actuarial Value of Assets (AVA) which is $480 million more than the current (unsmoothed) Market Value of Assets (MVA) of $6.608 billion. Because of smoothing, this $480 million will be completely recognized within five years – long before the thirty-year funding period. Consequently, an argument could be made that the funding period calculation should be based on the MVA instead of the AVA. If this were the case, the funding period would be 33 years.

When including the liabilities for statutory Medicare Part B reimbursement, the AAL grows by $551 million. The Conduent methodology assumes that $551 million of the $902 billion in assets in the separate Health Care Stabilization Fund (HCSF) are considered to be allocated toward this Medicare Part B AAL. Consequently, there is no impact on <u>Unfunded</u> AAL by including Medicare Part B. We find that this approach is reasonable, although the solvency of the HCSF is weakened. This allocation of $551 million of the $902 million total represents 61% of the HCSF. When this approach was utilized as of January 1, 2015, only 48% of the HCSF was needed to be allocated to the Medicare Part B liability. This is because the Medicare Part B AAL is increasing while the total HCSF has decreased.

Our calculations are summarized in the table below and Appendix I. All dollar figures are in $billions as of January 1, 2017.

Funding Period on Various Bases

Statutory Benefits Considered	Asset Basis	Actuarial Liability	Assets	UAAL	Funding Period
Pension Only	AVA	$20.290	$14.162	$6.182	28 years
Pension Only	MVA	20.290	13.682	6.608	33 years
Pension and Medicare B Reimbursement	AVA	20.841	14.162	6.182	28 years
Pension and Medicare B Reimbursement	MVA	20.841	13.682	6.608	33 years

This shows strong improvement over the past five years. Note that the amortization period has fallen to 47, 33, 30, 29, and 28 years for 2013, 2014, 2015, 2016, and 2017, respectively. Prior to 2013 and Senate Bill 340, the OP&F amortization period was infinite, meaning that the contributions were never projected to pay off the unfunded liability.

REQUIREMENTS OF ORC 742.311

The Ohio Revised Code 742.311, for which this report is written, requires that the ORSC shall annually review the *adequacy* of the OP&F contribution rates. An additional requirement is that the calculations be based on the "entry age normal actuarial cost method" (EAN). We confirm that Conduent is using EAN as the basis for its calculations.

The ORC continues to state that the ORSC "shall make recommendations to the general assembly that it finds necessary for the proper financing of the benefits of [OP&F]."

Conduent reports that:

> *Section 742.16 of the ORC, as adopted by Senate Bill No. 82, sets forth an objective that the funding period is no more than 30 years. If the funding period exceeds 30 years, a plan shall be developed and presented by the Board of Trustees to the ORSC to reduce the funding period to not more than 30 years. Section 742.14 of the ORC, as amended by Senate Bill No. 340, sets forth that the next 30-year funding plan be developed and presented not later than 90 days after the Board of Trustees' receipt of the Jan. 1, 2016 actuarial valuation.*

The funding periods for the statutory benefits is now 28 years. This is expected to improve after strong returns since the January 1, 2017 actuarial valuation. Consequently, we would not expect that the OP&F will need to be developing a modification to meet its 30-year plan in 2019. However, if (1) returns during 2018 are poor, and/or (2) the Health Care Stabilization Fund continues to be depleted, there is some possibility that OP&F will need to develop a 30-year funding plan following the January 1, 2019 actuarial valuation.

PROJECTION METHODOLOGY

While Conduent is using the EAN method, they are reflecting certain future anticipated changes in its projections which determine the funding period. We believe that this approach is reasonable, although

some may argue that the methods do not follow the most traditional use of the EAN method and its corollary amortization period.

Conduent calculates an employer amortization contribution rate toward the unfunded liability of 17.33% in its Table 1. Conduent then goes on to demonstrate that the 17.33% amortization rate with anticipated future adjustments is sufficient to amortize the unfunded liability over 28 years. This is demonstrated in Conduent's Table 7 and verified by PTA/KMS in Appendix 1 of this report. Note that the 17.33% rate is projected to increase to 18.03% by 2044. This is expected to occur because the 17.33% rate is projected to increase since the normal cost for future members is lower than the normal cost for current members. This cost savings is 0.70% of pay.

Note that traditional actuarial methods and their amortization calculations would not reflect this future expectation. Under the traditional calculation method, an actuarial contribution requirement is determined based only on the current normal cost rate plus an amortization of unfunded liability over 30 years based on AVA. If this were used, a rate higher than 17.33% would be required. That demonstrates that if the member contribution rate and future reduced benefit levels were not in effect, the 30-year period would not be met. We believe that it is reasonable and appropriate to include this anticipation of the changes to the normal cost of future members in the funding period calculation as does Conduent.

In our tables above, we calculated the funding period using both AVA and MVA. At this point in the investment cycle, the AVA exceeds the MVA. This is because the significant 2015 investment losses have not been fully recognized in AVA. Conduent's projection calculations used the (higher) AVA. At this time, we believe it would be reasonable to consider the more conservative MVA also. This would mean that the funding period for statutory benefits is 33 years. The use of the lower MVA lengthens the period by 5 years.

In a potential future year when hard decisions may be likely necessary to stay within the 30-year period, we do not anticipate such a disparity between MVA and AVA. The purpose of AVA is to smooth out investment return fluctuations and not make panic decisions based on short term results. But 742.14 only requires a triennial report for a funding plan. This also has an effect of smoothing out fluctuations. We recommend that all decisions pertaining to plan changes be based on considering both MVA and AVA. ORSC requires reporting on an AVA basis only.

MEDICARE PART B IMPACT

As stated previously, the Conduent 30-year funding period calculation did not explicitly reflect the non-pension statutory benefit of the reimbursement of Medicare Part B premiums. The inclusion of this benefit increases both the liabilities and assets and has no impact on the UAAL and therefore no impact on the funding period at this time.

There may be some ambiguity in this requirement, because 742.16 of the ORC, which discusses the thirty-year funding plan specifies "unfunded actuarial accrued pension liabilities." While Conduent's funding period calculation did not explicitly address the Medicare Part B issue, because there are sufficient assets in the Health Care Stabilization Fund ($902 million) to cover these liabilities ($551 million) at this time, the issue is moot. If experience deteriorates, there might not be sufficient assets in the future and the distinction might be relevant.

The $551 million is not explicitly segregated for Medicare Part B payments, and is likely to decline in the future years as other health benefits (beyond Medicare Part B payments) are provided. In particular, 0.50% of pay is allocated to the HCSF, but 0.47% is the normal cost for the Medicare Part B benefits. This means that almost no allocation can be explicitly attributed to health care benefits other than Medicare Part B. The 0.47% contribution and the $551 million AAL attributed to Medicare Part B reimbursements are not dedicated or segregated, but comingled with other HCSF assets and liabilities.

During 2015 and 2016, the HCSF had the following cash flow, as shown in Table 2 (2016) and Table 4 (2017) of the Conduent Health Care Actuarial Reports (all values in thousands):

Item	2016	2015
Market Value of HCSF as of January 1,	$929,362	$1,031,941
Contributions		
Employer	10,709	10,212
Member Premiums	73,162	71,187
Total	83,871	81,399
Benefits and Administrative Expenses	224,334	213,918
Investment Income	84,899	6,673
Other Income	27,856	23,267
Market Value of HCSF as of December 31	901,654	929,362

In very approximate terms, the HCSF is decreasing each year by $200 million due to benefits and increasing by $100 million due to contributions plus other income. If investment return on the $900 million fund is 4.25% as assumed, that would generate roughly $40 million. So the HCSF is expected to drop by about $60 million per year. The roughly $550 million AAL for Medicare Part B Reimbursements is expected to increase each year by about $10 million per year from Normal Cost, plus at least $20 million due to interest on the AAL. (Although not reported, we would anticipate that about 10% of the $200 million in benefits is for Medicare Part B reimbursements; this would improve the situation somewhat). This means that the gap between the total HCSF which is now roughly $350 million ($902 minus $551) is expected to decrease by nearly $100 million per year. Within roughly five to ten years, unless experience changes in an actuarially favorable manner, there will not be sufficient assets in the HCSF to cover the AAL attributable to Medicare Part B reimbursements. Conduent develops the projection of the balance of the HCSF in Table 2 of the 2017 report, and projects that the HCSF is expected to deplete in 2026.

ALLOCATION BETWEEN POLICE AND FIRE

Contributions to OP&F come from three sources:

- 12.25% Employee Contributions
- 19.50% Police Employer Contributions
- 24.00% Firefighter Employer Contributions

Because of the disparity between police and firefighter employer contributions, it could be argued that firefighter employers are paying a larger share of the unfunded liability than are police employers. While this is accurate, the police and fire components of OP&F are completely merged and the assets are not explicitly separated between Police and Fire. Conduent does do an allocation of assets between P&F based on the AAL for purposes of its Table 1 and Table 1A. But during the year, contributions are pooled and not separated into different Police and Fire asset accounts. Consequently, each year the assets would be allocated between the Police and Fire in accordance with AAL and the two components would be amortized in the same year.

If, however, the plans were separated and contributions allocated based on employer, the results would be quite different. We estimate that rather than both being fully funded in 28 years (based on AVA), the fire would be fully funded in 20 years while police would be fully funded only after 45 years. This also assumes that Fire UAAL amortization contributions (currently 19.66% of pay) would not be required after 28 years, but would either cease, or be directed toward retiree healthcare benefits. Under the current Conduent projection approach, both Police and Fire employers would continue toward the UAAL until fully funded.

CHANGES TO ACTUARIAL ASSUMPTIONS

Conduent conducted an actuarial review of the demographic and economic experience for the five-year period from 2012 through 2016. As a result of this experience review, certain actuarial assumption changes were adopted by the Board and effective for the January 1, 2017 actuarial valuation.

Along with modifications to certain demographic assumptions, including turnover and mortality, OP&F adopted the following changes to the economic assumptions:

- Reduced investment return rate from 8.25% to 8.00%
- Reduced the payroll growth rate from 3.75% to 3.25%
- Reduced salary scale at all ages by 0.5% to reflect the decrease in inflation assumption

Although the assumed rate of investment return was reduced to 8.00%, when assumptions are next reviewed, we would anticipate another strong consideration in a reduction in the 8.00% assumed rate of investment return. This is for two related reasons.

First is that the low interest rate environment which began with the 2008 financial crisis shows little sign of abating. Long term treasury rates are still at near historic lows and long term inflation expectations remain at low rates. For example, Conduent's 8.00% rate is built upon a pillar of 2.75% inflation. Long term inflation predictions generally call for an inflation rate somewhat less than this.

Second is that public plans around the country, based on their actuaries' advice, are reducing their assumed rate of investment return. OP&F's current 8.00% rate is still among the highest currently. According to a recent NASRA Public Fund Survey of 129 large plans, only about 10% of the plans use an investment return of 8.00% or higher.

LIKELIHOOD OF NECESSITY FOR FUTURE CHANGES

Based on the actuarial valuation as of January 1, 2017, Conduent has projected that a statutorily required 30-year maximum funding period for statutory benefits will likely continue to be met. This is based on the Actuarial Value of Assets. Based on the Market Value of Assets, we calculated a 33-year period. We do

know that investment returns were quite strong during 2017. Based on returns of 14.3%, we estimate that the thirty-year maximum period would still be met as of January 1, 2018.

Of course, the January 1, 2018 actuarial valuation will measure all variables, some of which might turn out to be more favorable during 2017 than expected. But all things being equal, we concur that it is not likely that the funding period as of January 1, 2018 will be longer than 30 years.

Because of potential weak returns into 2018, however, it may be prudent for ORSC and OP&F to begin to consider potential actions necessary to improve the funding period position to the thirty-year standard. This could occur following the 2019 actuarial valuation based on a combination of potential unfavorable developments:

- Poor investment returns from January 1, 2018 through December 31, 2018
- Further reductions in the Health Care Stabilization Fund

While even more difficult to estimate, our calculations indicate that as long as 2018 returns are about 3% or higher, the thirty-year period would still be met as of January 1, 2019. This does not reflect any other experience during 2017 and 2018 which would be considered in those actuarial valuations.

HEALTH CARE BENEFITS

The actuarial analysis discussed above and presented in the Conduent report are based on statutory pension benefits, the statutory Medicare Part B reimbursement benefit, and a contribution to retiree health care benefits of only 0.50%.

This level of 0.50% is not sufficient to provide meaningful retiree health benefits. Conduent has not conducted an Actuarial Valuation of Retiree Health Care Benefits as of January 1, 2017, but has only prepared an Actuarial Solvency Projection of the HCSF. However, it did report key facts in its October, 2016 Actuarial Valuation of Retiree Health Care Benefits as of January 1, 2016. These include:

- The Normal Cost rate for the current level of benefits is 9.66% of pay
- The annual rate for amortizing the unfunded liability is 7.53% of pay
- The employer contribution toward the health care stabilization fund is 0.50% of pay
- The funded ratio (Assets divided by AAL) is 18%

From the 1/1/2017 Solvency Projection, Conduent reports that:

- Employer contributions plus member contributions were $84 million during 2016
- Benefits and administrative expenses were $200 million during 2016

This all means that the current contribution rate is nowhere near adequate to fund the current level of healthcare benefits in the long term.

DEFERRED OPTION RETIREMENT PLAN ISSUES

ORC 742.14(E) states that:

> *At least once in each quinquennial period, the board shall have prepared by or under the supervision of an actuary an actuarial investigation of the deferred retirement option plan established under section 742.43 of the Revised Code. The investigation shall include an examination of the financial impact, if any, on the fund of offering the plan to members.*

This was last completed in February, 2013 and has been performed again in October, 2017. We have reviewed this report and concur with its conclusion that DROP has had a modest favorable financial impact on the fund.

DROP has two somewhat competing impacts. Pension benefits start earlier, while members are still working and enter DROP, but the workers tend to stay in service to a later age because they are not concerned with foregoing pension benefits. Actuaries have no foolproof specific plan experience on which to make their actuarial assumptions on these contradictory trends.

At one extreme counterfactual, one could assume that every individual who enters DROP knew exactly when he or she was going to retire and is merely entering DROP at the exact time in advance of their planned retirement. In that case, the DROP cost is based on comparing the value of a smaller benefit beginning earlier (plus interest and contributions with a larger benefit beginning later.

At the other extreme, one could assume that individuals who enter DROP would have retired at that same time, so that DROP does not generate any benefits which would have been paid anyway.

In reality, while many individuals may enter DROP earlier than they would have retired under the non-DROP counterfactual, they delay this and end up working longer than they otherwise would have. In these last two cases, there is a lesser pension DROP cost plus savings from retiree healthcare and deferred training costs.

DROP design
Many specific features in the DROP and underlying plan design impact the costs. These vary from plan to plan based on the nuances of the plan.

For example, the current plan limits benefit accruals so that firefighters will maximize their accruals at 72%, which is thirty-three years of service. This means that anyone entering DROP so that their DROP period will end beyond the thirty-three-year period is not giving up as much pension accrual.

At the opposite end of the spectrum, those that retire when first eligible for normal retirement benefits (25 years of service) would give up larger accruals as a percentage of their benefit.

Other features which impact cost include:

- Interest rate credited to the DROP accounts
- Whether employee contributions are made to the individual DROP accounts or retained by the pension system
- Length of DROP period
- Whether COLA applies to benefits during the DROP period

The OP&F Plan is designed to provide these DROP features so that the plan is cost neutral.

Illustrations

We analyzed several sample employees with several potential provisions. Our analysis was not based on a complete actuarial valuation, but on the two extreme counterfactual cases: one where the firefighter knew in advance when he (all examples were males) would retire; and the other where the firefighter would have retired at the date he entered DROP. For the "high cost" case, we compared the present value of benefit from entering DROP and retiring three years later, or simply waiting three years to retire with a larger benefit. For the "low cost" case, we compared the present values between retiring today and entering DROP today. The "low cost" case always generated a savings because of the savings in health insurance costs and the interest credit during the DROP period being less than the assumed rate of fund investment return.

The table below is a simple summary which compares benefits for four individuals. For the detailed first illustration, no interest is granted on the DROP account for those that retire in three years, employee contributions went into the DROP accounts at scheduled rates, and benefits do not receive COLA during the DROP period.

Sample DROP Illustrations	Firefighter A	Police Officer B	Firefighter C	Police Officer D
Age at DROP entry	48	52	55	56
Service at DROP entry	25	25	25	25
Years in DROP	3	8	3	5
Benefit if retires today	$44,613	$45,729	$50,190	$49,495
Value of benefit if retires today	$770,073	$799,503	$793,183	$791,991
Value of member contributions	$39,581	$86,423	$44,528	$65,890
Benefit if retires later without DROP	$53,559	$73,668	$60,254	$66,935
Value of benefit if retires later	$671,661	$541,081	$676,790	$606,087
DROP balance at end of DROP period	$149,097	$432,756	$167,734	$291,168
Value of all benefits under DROP (Actuarial Liability as of DROP age)	$677,829	$578,391	$696,897	$646,333
Increase in Actuarial Liability – assuming would have waited anyway "High Cost"	$6,168 increase	$71,685 decrease	$20,107 increase	$8,225 decrease
Decrease in Actuarial Liability – assuming would have retired anyway "Low Cost"	$92,244 decrease	$221,112 decrease	$96,286 decrease	$145,658 decrease

This illustrates that the cost of DROP varies based on the individual circumstances of the member.

CONSISTENCY WITH PRIOR REVIEWS

In 2013, we were requested by ORSC to analyze OP&F's progress in meeting its funding objectives. Some of our key findings from 2013 follow and are still germane:

> *In order to provide context, we reviewed several important policy and operational issues that will help the ORSC and the systems monitor the success of the initiatives taken and establish the groundwork for policy decisions affecting the need for, and timing of, possible additional initiatives.*
>
> *PTA/KMS agrees with the 30-year funding target for the retirement systems as a reasonable funding standard as noted in our report. However, we also recommended that the 30-year period begin in 2013 and decline by one year each year in the future so that Unfunded Liabilities are fully amortized by 2043. In other words, the funding period would decline to 29 years in 2014, 28 years in 2015, etc.*
>
> *In addition, we recommended a long-term solvency objective for the healthcare plans for now based on a defined minimum level of healthcare benefits, but eventually working toward an actuarially based advance-funding model.*
>
> *Meeting both of these funding objectives is important to avoid solving a deficiency in one benefit plan at the expense of the other.*
>
> *It is important for ORSC to endorse these funding standards for both the retirement systems and the healthcare benefits (or agree to alternatives) to establish an objective basis to judge the funding progress of the systems.*
>
> *ANNUAL ACTUARIAL VALUATIONS/ANALYSIS OF 30-YEAR FUNDING PROGRESS*
>
> *PTA/KMS strongly supports the continuation of annual actuarial valuations of each system as well as an annual measurement of the success in meeting the funding objectives described above. To enhance the understanding of the actuarial valuation results and their effect on meeting the funding objectives, we recommend development of a standardized reporting format by each system as described below.*
>
> *In addition, if the current annual actuarial valuation does not result in the funding objectives being met based on the conditions and actuarial methods in effect, we support the development of a detailed plan by each system specifying the additional benefit and/or employee contribution changes that will satisfy the funding objectives at that time. To be specific, unrecognized investment gains should not be counted in determining eventual compliance with the funding objectives because it is inconsistent with ignoring unrecognized investment losses. The use of a smoothed asset value is intended to provide a more stable asset value in determining the plan contribution requirements and lessen the volatility. In addition, forecasting the impact of better than expected investment and/or other system experience may be useful in assessing the extent of the current short fall as noted below, but by itself does not in our opinion meet the requirement of developing a detailed plan for corrective actions.*

This disciplined approach will:

- *Continue the past annual reporting requirements for each system*
- *Identify positive and negative trends in a timely fashion*
- *Meet typical actuarial practices*
- *Provide policy makers with a meaningful and timely comparison and history of each system's progress in meeting the funding objectives each year*
- *Quantify any shortfall in an understandable format, and*
- *Provide the specifics of changes that would be required to meet the funding objectives.*

It also provides an opportunity for each system to assess and prioritize the changes that would be best suited for its membership based on current requirements as well as possible worst and best case future scenarios. Additionally, the communication of these results allows the membership of each system to prepare for potential future changes.

TIMING OF ADDITIONAL CHANGES/BOARD DISCRETION

*As noted above, PTA/KMS cautioned in our [*2012 comprehensive*] report that additional changes to the systems benefit structure and/or member funding would likely be required in the future to meet the funding objectives.*

To avoid frequent changes, we suggested that greater cuts than the minimum currently needed be considered, automatic cuts be implemented triggered by current funding measures, and reserves be established during good times to avoid reductions in poor times. PTA/KMS also encouraged limited discretion for the board of each system to make adjustments as needed. For example, we noted the following:

> *"**We strongly encourage an immediate and disciplined mechanism to adjust for future unanticipated actuarial experience** (favorable as well as unfavorable). This mechanism at the very least should include limited pension system board discretion to adjust benefits or contributions as included in several of the Senate bills. A more rigorous alternative would be a flexible Cost-of-Living-Adjustment based on funded position."*

PTA/KMS envisioned a dynamic and disciplined effort by the systems utilizing some or all of the above suggestions to meet the funding objectives at each actuarial valuation date or to immediately make additional changes if the funding objectives were not met starting with the initial valuation after the changes were implemented and fully reflected in the actuarial valuation.

Our rationale is as follows:

- *These pension reform plans were based on best efforts and conditions that existed at the time the plans were developed and finalized. Conditions change and several attempts may be required to find a structure that works long-term under varying economic conditions.*
- *The actuarial valuation process provides significant smoothing of favorable and unfavorable experience based on the asset valuation methodology and the 30-year funding of Unfunded Liabilities over an expanding payroll.*
- *The funding standards proposed are minimum standards*
- *Advisable changes are best made sooner rather than later*

- *If the benefit reductions result in the system exceeding the funding objectives in the future, consideration can be given to reversing a portion or all of the changes*

Our thoughts with regard to proposing limited board discretion for benefit and contribution changes were as follows:

- *Limited changes could be implemented on a timely basis*
- *The responsibility for meeting the funding objectives would be shared by each board as part of its fiduciary responsibility*
- *Changes would be made to meet the ORSC approved funding standards*
- *Potential changes would be continuously assessed and a priority for necessary changes maintained by the board to facilitate prompt action*

PTA/KMS does not agree with any restrictions on the time periods in which board action may be taken.

OHIO POLICE AND FIRE PENSION FUND

SB 340 implemented the OP&F 30-year plan and also included some unique reporting and operational provisions that do not meet the uniform recommendations discussed above. Specifically, SB 340 provides for:

- *Triennial, rather than annual, actuarial valuations beginning in 2013*
- *Triennial, rather than annual, development of a plan to meet the 30-year funding objective (if not currently met) also beginning in 2013*
- *Limited board discretion to make changes to member contribution rates and retirement eligibility provisions, but not permitted before 2017 and then only every five years thereafter following the experience analysis*

PTA/KMS recommends that these provisions be amended to meet the annual reporting and disclosure requirements discussed above and remove the time restriction on board action as explained above.

Our review of the OP&F 30-year plan in our July, 2012 report concluded that the retirement changes were nearly adequate to meet the funding objective at the 2010 actuarial valuation date, but as of 2011 would not accomplish the twin funding objectives for both retirement and health care benefits long-term. We concluded:

> *"This was due to a variety of factors, including:*
>
> - *The 2010 30-year plan was not implemented as of 2010*
> - *The 2010 30-year plan was calculated on a long-term basis as if member contributions of 12.25% commenced in 2010 rather than being phased in through 2015*
> - *The 2010 30-year plan resulted in a health care contribution which was only projected to be solvent until 2027, not indefinitely as we would recommend*
> - *Even though both 2009 and 2010 were good investment years, the 2010 30-year plan did not reflect even greater actuarial investment losses (from 2008) expected to be recognized after January 2010. These totaled $1.6 billion as of January 2011*

> *As a result, further reductions in benefits of approximately 8% must occur in order to maintain the funding objectives based on conditions as of January 1, 2011, and assuming all assumptions are met after that time."*

PTA/KMS also concluded that further benefit reductions would likely be required after the January 1, 2012 actuarial valuation because of investment results during 2011 and earlier.

This was confirmed in Buck's [Conduent's] *December 12, 2012 report. After the provisions of SB 340 are taken into account, the funding objectives are not met for either program as of January 1, 2012, and the deficit has increased primarily due to 2012 and earlier recognized investment results.*

…

SUMMARY OF CONCLUSIONS

- *We agree with* [Conduent's] *calculations that based on investment returns through mid-2013 and a modest return for the last half of 2013 and healthcare contributions reduced to 2.85% of pay, the retirement plan is expected to be fully funded within 30 years, but the annual actuarial valuations will continue to show a short fall for some time due to the smoothing techniques and the healthcare plan would be insolvent in 18 years.*
- *Although there is no statutory requirement for health care funding, OP&F does not meet our recommended threshold for solvency.*
- *We encourage the ORSC to develop a more clear definition of what it means to have met the thirty year funding requirement. This would include the following parameters:*
    - *Based on the most recent actuarial valuation, and under the current contribution rates and schedule of benefits, employee contribution rates and healthcare contribution rates, the pension is expected to be 100% funded by 2043.*
    - *Based on the above, the healthcare fund is expected to remain solvent for that time.*
    - *This analysis will be based on an actuarial value (smoothed value) of assets for the retirement plan*
- *We recommend that this determination be made annually, not triennially and each system follow a uniform format for reporting to the ORSC its current status*
- *If the funding objectives are not met currently, each system should provide a detailed plan for meeting the objectives in the future*

We believe that for the most part, these conclusions are still relevant. OP&F has further reduced the allocation of contribution toward retiree health care benefits to 0.50% of payroll. While the increased allocation toward pensions as well as strong investment performance has improved the statutory benefit funding period, it has further jeopardized retiree health benefits. As mentioned previously, this situation is not likely to improve on its own. Some reduction in benefits or increase in contributions is likely necessary. Although this may not be required in 2016, there is a reasonable probability that they will be required in 2019.

Milliman last reviewed OP&F in 2006. Some of their conclusions included:

> *The valuation report indicates that, based on the current allocation of the statutory contribution rates, the Unfunded Actuarial Accrued Liability, "UAL", has an infinite funding period; i.e., the UAL can be expected to grow indefinitely into the future. An infinite funding period was reported in each of the prior two valuation reports also. Thus OP&F's current statutory contribution rates are not adequate to support both:*
>
> 1. *the statutory mandated benefits within the 30 year limitation on the funding period in Section 742.16 of the ORC; and,*
> 2. *the discretionary health insurance benefits provided by the Board to retirees and their dependents and beneficiaries in accordance with Section 742.45 of the ORC.*

This is still substantially accurate nearly ten years later, although:

- pension benefits have been reduced as a result of reforms taken in accordance with SB 340
- contributions made by police officers and firefighters have increased to 12.25% of pay
- OP&F has reduced the allocation of contribution toward health benefits, improving the funding period for pension and statutory benefits at a further cost to the long term solvency of the retiree health care fund
- Investment returns were very poor for the two years following the 2006 report, followed by strong returns, although not strong enough to compensate for the losses from the great recession based on expected return of 8.25%

POTENTIAL ORSC RECOMMENDATIONS

It is encouraging that OP&F is meeting the target funding period of 30 years for statutory benefits. However, the 30-year funding period required by 742.16 might not be satisfied in subsequent years once the triennial actuarial valuation and review are conducted. ORSC and OP&F may wish to begin to encourage review of potential changes which may be necessary.

The improved funding period is partly due to the increase in allocation of employer contributions toward statutory pension benefits, leaving reduced contributions toward health care. This has the impact of further jeopardizing the solvency of the retiree health trust. ORSC may wish to encourage further analysis of potential changes to rectify this long term problem.

RECAP OF FINDINGS

- OP&F reported a funding period of 28 years. We confirm the calculations.
- If based on the market value of assets, the funding period is 33 years.
- This is a substantial improvement over prior years.
- If investment returns after 2017 are poor and actuarial assumptions are materially changed in the next few years, we anticipate that the 30-year period may not be met. This may trigger a need for further modifications.

Actuarial calculations were performed under my direction. I am a Member of the American Academy of Actuaries and qualified to render this actuarial opinion. We are available to discuss these findings and recommendations in more detail.

Sincerely,

William B. Fornia, FSA

Cc: Linda Bournival KMS

APPENDIX I – Funding Period Calculations

Replication of Conduent Calculation – Based on Actuarial Value of Assets

Year	Plan Year	Outstanding Balance at Beginning of Year (UAAL)	Assumed Amortization Contribution Rate	Assumed Payroll @ 3.75% Growth Rate	Mid-Year Amortization Contribution Amount	Outstanding Balance at End of Year (UAAL)
1	2017	6,127,905,826	17.330%	2,213,954,094	383,678,244	6,219,408,164
2	2018	6,219,408,164	17.420%	2,285,907,602	398,205,104	6,303,133,934
3	2019	6,303,133,934	17.500%	2,360,199,599	413,034,930	6,378,146,158
4	2020	6,378,146,158	17.560%	2,436,906,086	427,920,709	6,443,689,605
5	2021	6,443,689,605	17.630%	2,516,105,534	443,589,406	6,498,193,141
6	2022	6,498,193,141	17.680%	2,597,878,964	459,305,001	6,540,724,834
7	2023	6,540,724,834	17.720%	2,682,310,030	475,305,337	6,570,031,024
8	2024	6,570,031,024	17.760%	2,769,485,106	491,860,555	6,584,477,024
9	2025	6,584,477,024	17.790%	2,859,493,372	508,703,871	6,582,574,615
10	2026	6,582,574,615	17.820%	2,952,426,907	526,122,475	6,562,418,070
11	2027	6,562,418,070	17.850%	3,048,380,781	544,135,969	6,521,928,829
12	2028	6,521,928,829	17.880%	3,147,453,156	562,764,624	6,458,840,982
13	2029	6,458,840,982	17.920%	3,249,745,384	582,354,373	6,370,347,843
14	2030	6,370,347,843	17.940%	3,355,362,109	601,951,962	6,254,408,841
15	2031	6,254,408,841	17.970%	3,464,411,378	622,554,725	6,107,783,700
16	2032	6,107,783,700	17.980%	3,577,004,747	643,145,454	5,928,030,035
17	2033	5,928,030,035	17.990%	3,693,257,402	664,417,007	5,711,790,030
18	2034	5,711,790,030	17.990%	3,813,288,267	686,010,559	5,455,810,147
19	2035	5,455,810,147	17.990%	3,937,220,136	708,305,902	5,156,181,872
20	2036	5,156,181,872	18.000%	4,065,179,790	731,732,362	4,808,237,845
21	2037	4,808,237,845	18.000%	4,197,298,133	755,513,664	4,407,744,041
22	2038	4,407,744,041	18.000%	4,333,710,323	780,067,858	3,949,693,266
23	2039	3,949,693,266	18.010%	4,474,555,908	805,867,519	3,428,186,635
24	2040	3,428,186,635	18.010%	4,619,978,975	832,058,213	2,837,741,306
25	2041	2,837,741,306	18.020%	4,770,128,292	859,577,118	2,171,461,865
26	2042	2,171,461,865	18.020%	4,925,157,461	887,513,375	1,422,847,860
27	2043	1,422,847,860	18.030%	5,085,225,079	916,866,082	583,840,506
28	2044	**583,840,506**	18.030%	5,250,494,894	946,664,229	0

Resulting Funding Period = 28 Years

APPENDIX I – Funding Period Calculations (continued)

Alternate Calculation – Based on Market Value of Assets

Year	Plan Year	Outstanding Balance at Beginning of Year (UAAL)	Assumed Amortization Contribution Rate	Assumed Payroll @ 3.75% Growth Rate	Mid-Year Amortization Contribution Amount	Outstanding Balance at End of Year (UAAL)
1	2017	6,608,004,393	17.330%	2,213,954,094	383,678,244	6,737,914,617
2	2018	6,737,914,617	17.420%	2,285,907,602	398,205,104	6,863,120,902
3	2019	6,863,120,902	17.500%	2,360,199,599	413,034,930	6,982,932,084
4	2020	6,982,932,084	17.560%	2,436,906,086	427,920,709	7,096,858,406
5	2021	7,096,858,406	17.630%	2,516,105,534	443,589,406	7,203,615,445
6	2022	7,203,615,445	17.680%	2,597,878,964	459,305,001	7,302,580,922
7	2023	7,302,580,922	17.720%	2,682,310,030	475,305,337	7,392,835,600
8	2024	7,392,835,600	17.760%	2,769,485,106	491,860,555	7,473,105,965
9	2025	7,473,105,965	17.790%	2,859,493,372	508,703,871	7,542,293,872
10	2026	7,542,293,872	17.820%	2,952,426,907	526,122,475	7,598,914,868
11	2027	7,598,914,868	17.850%	3,048,380,781	544,135,969	7,641,345,370
12	2028	7,641,345,370	17.880%	3,147,453,156	562,764,624	7,667,810,846
13	2029	7,667,810,846	17.920%	3,249,745,384	582,354,373	7,676,035,297
14	2030	7,676,035,297	17.940%	3,355,362,109	601,951,962	7,664,551,291
15	2031	7,664,551,291	17.970%	3,464,411,378	622,554,725	7,630,737,546
16	2032	7,630,737,546	17.980%	3,577,004,747	643,145,454	7,572,820,189
17	2033	7,572,820,189	17.990%	3,693,257,402	664,417,007	7,488,163,396
18	2034	7,488,163,396	17.990%	3,813,288,267	686,010,559	7,374,293,382
19	2035	7,374,293,382	17.990%	3,937,220,136	708,305,902	7,228,143,766
20	2036	7,228,143,766	18.000%	4,065,179,790	731,732,362	7,045,956,690
21	2037	7,045,956,690	18.000%	4,197,298,133	755,513,664	6,824,480,394
22	2038	6,824,480,394	18.000%	4,333,710,323	780,067,858	6,559,768,528
23	2039	6,559,768,528	18.010%	4,474,555,908	805,867,519	6,247,067,917
24	2040	6,247,067,917	18.010%	4,619,978,975	832,058,213	5,882,133,091
25	2041	5,882,133,091	18.020%	4,770,128,292	859,577,118	5,459,404,993
26	2042	5,459,404,993	18.020%	4,925,157,461	887,513,375	4,973,826,438
27	2043	4,973,826,438	18.030%	5,085,225,079	916,866,082	4,418,897,371
28	2044	4,418,897,371	18.030%	5,250,494,894	946,664,229	3,788,606,834
29	2045	3,788,606,834	18.040%	5,421,135,978	977,972,930	3,075,356,099
30	2046	3,075,356,099	18.040%	5,597,322,897	1,009,757,051	2,272,014,278
31	2047	2,272,014,278	18.040%	5,779,235,892	1,042,574,155	1,370,300,576
32	2048	1,370,300,576	18.040%	5,967,061,058	1,076,457,815	361,236,845
33	2049	**361,236,845**	18.040%	6,160,990,542	1,111,442,694	0

Resulting Funding Period = 33 Years