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October 26, 2022

Board of Trustees
Ohio Police & Fire Pension Fund
140 East Town Street
Columbus, Ohio 43215

Re: Actuarial Investigation of the DROP Required under §742.14(E) of the Ohio Revised Code

Members of the Board:

This report presents the results of the actuarial investigation of the DROP of the Ohio Police & Fire Pension Fund. This report was prepared in accordance with §742.14(E) of the Ohio Revised Code, which states:

> 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 OP&F of offering the plan to members.
>
> The actuary shall prepare a report of the actuarial investigation. The report shall include a determination of whether the plan, as established or modified, has a negative financial impact on OF&F and, if so, recommendations on how to modify the plan to eliminate the negative financial impact. If the actuarial report indicates that the plan has a negative financial impact on OP&F, the Board may modify the plan or cease to allow members who have not already done so to elect to participate in the plan. The firefighter and police officers employers' contributions shall not be increased to offset any negative financial impact of the plan.
>
> If the Board ceases to allow members to elect to participate in the plan, the rights and obligations of members who have already elected to participate shall not be altered.

Our analysis shows that the DROP, as currently in effect, is cost neutral. This report documents the basis for that conclusion.

Background

The Deferred Retirement Option Plan (DROP) is a voluntary benefit introduced in 2002 by Senate Bill 134 with the goal of encouraging members to defer retirement. Effective January 1, 2003, active members of OP&F could elect to enter the DROP if eligible for Normal Retirement. Briefly, when a member elects to enter the DROP:

- The member's pension benefit is calculated upon entry into the DROP as if the DROP entry date was the member's retirement date.

- The DROP account balance is credited until retirement with the member's retirement benefit amount for the year, adjusted for cost-of-living, (except those that enter DROP after July 1, 2013 will not receive a COLA during DROP) plus a portion of the member's contribution for the year, plus interest credited at the 10-year U.S. Treasury Note Business Day Series, as published by the United States Federal Reserve, and capped at the maximum of 5.00% and a minimum of 2.50% compounded annually.

- Annual member contributions are credited to the DROP account based on the following schedule:

    - Years 1 and 2 (years 1, 2 and 3 for those who enter DROP after July 1, 2013) – 50% of member's contribution
    - Year 3 (years 4 and 5 for those that enter DROP after July 1, 2013) – 75% of member's contribution
    - Years 4-8 (years 6, 7 and 8 for those that enter DROP after July 1, 2013) – 100% of member's contribution

- Upon retirement, the member receives the monthly benefits calculated upon entry into the DROP, with COLAs as appropriate, and can begin to withdraw funds from the DROP account.

The DROP was implemented with the stipulation that it would not have a negative financial impact on OP&F. A DROP that has no negative financial impact on a Fund is also said to be "cost neutral". To be cost neutral, the savings or revenues generated by the DROP must cover the costs of the additional DROP benefits.

The DROP does generate savings and contribution revenue through the extension of careers. The DROP participants do not receive retiree health care benefits while in the DROP, so the cost of OP&F's retiree health care decreases. OP&F continues to receive all employer and some member contributions on behalf of the DROP participants. The longer that a member delays retirement, the higher the amount of retiree health care savings and contribution revenues generated for OP&F.

The DROP does increase the cost of the pension benefits provided. The DROP enables members to start to collect their pension payments in the DROP account before they retire. While the member does receive a smaller annuity benefit under the DROP because that benefit is calculated based on service and average annual salary as of the DROP entry date, these benefits are paid over a longer period of time. In addition, the DROP account is credited with a portion of the member contributions and interest.

The question central to determining if the DROP is cost neutral is this: How long does the DROP delay retirements? If members retiree at the same time with the DROP than they would have without the DROP, then no retiree health care savings or contribution revenue would be generated to cover the higher cost of the DROP benefits. The DROP must change member behavior by encouraging a significant delay in retirement to result in a cost neutral DROP. If retirement is delayed, the annual cost of providing benefits is lower because there is a longer period of time to fund for these benefits.

Extensive actuarial analysis was done before the January 1, 2003 effective date of the DROP to determine if the OP&F DROP was cost neutral.

- Reports by Watson Wyatt Worldwide dated March 16, 1999 and July 19, 2001

- Report by The Segal Company dated November 21, 2002.

After the January 1, 2003 effective date of the DROP, another extensive actuarial analysis was done to determine if the OP&F DROP was cost neutral:

- Reports by Buck Consultants dated April 28, 2008, February 19, 2013 and October 27, 2017.

Readers of this report are encouraged to read those reports.

All six reports concluded that the OP&F DROP design was cost neutral. The key conclusion in all six reports was that retirements needed to be delayed for the DROP design to be cost neutral. The first four reports were all based on projected retirement patterns under the OP&F DROP design, rather than actual experience, because no members had been exposed to a full eight-year DROP period. To the extent that actual retirement patterns differ from the retirement pattern projected in those reports, the cost neutral conclusion could be reversed. The fifth report reflected experience for the first full eight-year period and was based on new assumed rates of retirement adopted as of January 1, 2012 based on the quinquennial actuarial experience study for the years 2007 through 2011. The sixth report reflected experience through December 31, 2016 and was based on new assumed rates of retirement adopted as of January 1, 2017 based on the quinquennial actuarial experience study for the years 2012 through 2016. The conclusion of the last two reports was that DROP was extending employee careers even further than projected by the original four reports, and that DROP was cost neutral.

Basis for Analysis

§742.14(E) of the Ohio Revised Code is silent as to how the determination of no financial impact, or cost neutrality, is to be determined. This determination can be made using several methods. For the 2008 report, because the DROP experience was incomplete it did not have the benefit of at least a full maximum DROP period of eight years, the method used was to compare the present value of projected cash flows with the DROP to the present values without the DROP for all members of OP&F through the date of the analysis. The present values that were compared included: pension benefits paid from OP&F, employer and employee contributions made to OP&F, retiree heath care benefits paid from OP&F, and administrative expenses. The 2008 report, and the prior reports, made use of the present value comparison basis and came to the same conclusion – that DROP would be cost neutral if the trend in the delay in retirements continued.

Starting with the February 19, 2013 analysis, OP&F had enough DROP experience to reflect that experience in the assumptions used for the actuarial valuations and the DROP studies. As a result, the 2013 and 2017 analysis and this 2022 analysis were able to use a different method to determine cost neutrality. The new methods reviews the normal cost, which is the annual cost of providing benefits for future retirees, based on two scenarios:

- Normal Cost with DROP – actuarial normal cost based on the current DROP program and the January 1, 2022 actuarial valuation

- Normal Cost without DROP – actuarial normal cost, assuming there is no DROP program, based on the January 1, 2022 actuarial valuation, adjusted as follows:

    - DROP provisions are not included

    - Normal and disability retirement rates are based upon on the January 1, 2002 actuarial valuation retirement patterns to estimate retirement behavior if no DROP program was in place.

We determined these amounts for both pensions and retiree health care. If the Normal Cost with DROP is no greater than the Normal Cost without DROP, the DROP is deemed cost neutral. It is our opinion that use of other methods, including the present value basis that was used in the past, would result in similar conclusions.

Unless otherwise noted, this report is based on the same census information, assumptions and methods and plan provisions used for the January 1, 2022 actuarial valuations. For details, please refer to Cavanaugh Macdonald's reports of the January 1, 2022 actuarial valuations for pension and health care. The 2002 service retirement and disability retirement rates used for the Normal Cost without DROP are attached to this report in Table 1.

Some key changes in the assumptions adopted by the Board of Trustees as of January 1, 2022 and used in this analysis compared to the prior DROP analysis include:

- The investment return assumption was lowered from 8.00% to 7.50%

- The DROP interest crediting rate was lowered from 4.00% to 3.75%

- The mortality assumption, withdrawal rates, retirement rates, and disability rates were changed

- The DROP participation rate was lowered from 90% to 80%

- The percent married assumption was changed from assuming 75% of members are married to 80%

- The percentage of members assumed to elect a joint annuity was changed from 33% to 40% for service retirees and from 10% to 15% for disabled retirees. The percentage continued to the joint annuitant assumption was changed from 40% to 45%.

Overall, the changes in assumptions increased the normal costs compared to the prior assumptions.

Financial Analysis of Impact of DROP on OP&F

The financial impact of the DROP is measured in terms of the increase or decrease in normal cost as a percentage of pay. The normal cost is based on the entry age normal, level percentage of pay method and is net of administrative expenses. To be deemed cost neutral, the Normal Cost with DROP should be less than or equal to the Normal Cost without DROP, resulting in a savings due to DROP.

The following table shows that for both pension and retiree health care, the difference in normal cost is negative and therefore the DROP is cost neutral. The DROP results in a savings in normal cost of 3.54% of payroll for pension and 0.60% of payroll for retiree health care, for a total contribution savings of 4.13% of payroll per year.

Comparison of Normal Costs on a With DROP and Without DROP Basis as of January 1, 2022			
Item	Pensions	Retiree Healthcare	Total
Cost (Savings) due to DROP as a percentage of pay			
• Normal Cost with DROP	15.91%	0.73%	16.64%
• Normal Cost without DROP	19.45%	1.33%	20.77%
• Cost (Savings) due to DROP	(3.54)%	(0.60)%	(4.13)%
Cost (Savings) due to DROP in $ Millions (2022)			
• Normal Cost with DROP	$330.79	$15.08	$345.87
• Normal Cost without DROP	400.78	27.34	428.12
• Cost (Savings) due to DROP	($69.99)	($12.26)	($82.25)

To simplify the analysis, the figures above are for active members currently not in DROP. These figures reflect the retirement experience of those in DROP through the assumptions used in the actuarial valuation. In our opinion, including all members would not materially impact the conclusion. We have not included administrative costs in our analysis. However, given the magnitude of the administrative costs for DROP on an ongoing basis being less than $100,000 annually, as estimated by OP&F, when compared to the numbers above, it is reasonable to conclude that the administrative expenses do not change the conclusion of this analysis.

The number of active members counted in this analysis consisted of 13,146 whose normal retirement age is 48 with 25 years of credited service and 11,847 whose normal retirement age is 52 with 25 years of credited service. The average expected retirement age is 58.22 based on the 2022 actuarial assumptions. Without DROP, using the 2002 retirement rates, the average retirement age would be 55.70 or 2.52 years earlier, and with the 2002 retirement and disability rates, the average retirement age would be 55.31, or a total of 2.91 years earlier than based on the with-DROP assumptions.

It is worth noting that when DROP was introduced, it was expected to increase pension costs by an amount that would be offset by savings in retiree health care costs. Based on the 2022 assumptions, which reflect retirements occurring later than the assumptions used in the original analyses for DROP and a significant reduction in assumed disability retirements, and due to changes made to the DROP program itself to reduce cost, such as eliminating COLAs during DROP for members who enter DROP after July 1, 2013, the DROP has reduced pension costs and is cost neutral even without the savings from retiree health care.

We stress tested our analysis on the pension results for variances in the pre-DROP assumptions and we concluded there is enough normal cost savings in the analysis to withstand some significant variances in the without-DROP assumptions.

- We replaced the without-DROP disability rates with the 2022 disability rates, which could be appropriate if it is assumed DROP had nothing to do with the significant reduction in disability retirements since 2002. The result was the normal cost savings decreased from 3.54% to 0.68%, but there was still savings.

- We then replaced both the without-DROP retirement and disability rates with the 2022 retirement and disability rates, which would be appropriate if it is assumed DROP had nothing to do with the significant reduction in disabilities and the delayed retirement ages since 2002. The result in this case was the normal cost savings 3.54% of pay for DROP became a cost increase of 0.34% of pay. Thus, in the unlikely and, in our opinion, improbable event retirement patterns would have reached the current levels even without DROP, DROP would result in a cost to OP&F. However, if we assume a more reasonable alternative assumption, that behavior without DROP is somewhere in between the 2002 assumptions and 2022 assumptions, DROP would still produce cost savings for OP&F.

Conclusions and Recommendations

Based on the results of this actuarial investigation, it does appear that the DROP has continued to achieve a primary objective of providing an incentive for the most experienced officers on the job to continue working by extending careers by about three years on average. As a result of this extension of careers, the annual cost of providing pensions and retiree health care benefits is less under DROP. Because offering DROP does not result in additional annual costs to OP&F, the DROP is cost neutral. While we have significant experience upon which to base future retirement patterns, we recommend that the Board of Trustees direct Conduent to continue to review the emerging retirement experience under the DROP annually with each actuarial valuation for the foreseeable future and report on whether the delay in retirement is being maintained.

The purpose of this report is to analyze the OP&F DROP program as required under §742.14(E) of the Ohio Revised Code. Use of this report for any other purpose may not be appropriate and may result in mistaken conclusions due to failure to understand applicable assumptions, methodologies, or inapplicability of the report for that purpose. Conduent will not accept any liability for any statement made about this report without prior review by Conduent.

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. Because of limited scope, Conduent performed no analysis of the potential range of such future differences.

We, Larry F. Langer, ASA and Wendy T. Ludbrook, FSA are Members of the American Academy of Actuaries and meet the Academy's Qualification Standards to issue the Statement of Actuarial Opinion.

We are available to answer any questions on the material contained in this report or to provide explanations or further details as may be appropriate.

Respectfully submitted,

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TABLE 1

Supplement to the Summary of Actuarial Assumptions

The 2022 Actuarial Investigation of the DROP, required under §742.14(E) of the Ohio Revised Code, uses the actuarial assumptions and methods used for the January 1, 2022 actuarial valuations for pension and retiree health care. Please refer to Cavanaugh Macdonald's January 1, 2022 Actuarial Valuation Reports for a summary of those assumptions.

The analysis for without-DROP uses the same assumptions as for with-DROP except for the service retirement and disability retirement rates, which are the rates in effect for the January 1, 2002 actuarial valuation, before DROP was effective. The 2002 rates were based on a normal retirement age of 48 with 25 years of credited service. SB 340 increased the normal retirement age to 52 for members hired post-July 1 2013, so this analysis developed a version of the 2002 retirement rates for post-July 1 2013 hires. The retirement rates for post-July 1, 2013 hires are the same as the 2002 rates used for the pre-July 2013 hires except the rates for ages 52 to 57 have been replaced with the rates for ages 48 to 53 and the rates for under age 52 are zero.

Retirement Rate

	Police		Fire	
Age	**Hired After July 1, 2013**	**Hired After July 1, 2013**	**Hired After July 1, 2013**	**Hired After July 1, 2013**
48	35%		35%	
49	25%		25%	
50	25%		25%	
51	25%		25%	
52	25%	35%	25%	35%
53	25%	25%	25%	25%
54	20%	25%	25%	25%
55	20%	25%	25%	25%
56	20%	25%	25%	25%
57	20%	25%	25%	25%
58	20%	20%	25%	25%
59	20%	20%	25%	25%
60	20%	20%	35%	35%
61	25%	25%	35%	35%
62	25%	25%	35%	35%
63	25%	25%	35%	35%
64	25%	25%	35%	35%
>=65	100%	100%	100%	100%

TABLE 1

Supplement to the Summary of Actuarial Assumptions (Continued)

Rates of Disability

Age	Police	Fire	Age	Police	Fire
<=18	0.000%	0.000%	51	2.471%	2.607%
19	0.002%	0.004%	52	2.559%	2.843%
20	0.002%	0.004%	53	2.604%	3.089%
21	0.002%	0.004%	54	2.611%	3.327%
22	0.002%	0.004%	55	2.583%	3.526%
23	0.005%	0.004%	56	2.547%	3.737%
24	0.012%	0.008%	57	2.513%	3.885%
25	0.020%	0.015%	58	2.507%	4.008%
26	0.032%	0.036%	59	2.507%	4.100%
27	0.055%	0.049%	60	2.513%	4.172%
28	0.084%	0.063%	61	2.532%	4.075%
29	0.125%	0.079%	62	2.545%	3.964%
30	0.177%	0.100%	63	2.539%	3.787%
31	0.240%	0.125%	64	2.540%	3.679%
32	0.313%	0.157%	>=65	0.000%	0.000%
33	0.394%	0.195%			
34	0.485%	0.231%			
35	0.584%	0.266%			
36	0.688%	0.303%			
37	0.793%	0.341%			
38	0.901%	0.381%			
39	1.002%	0.430%			
40	1.102%	0.494%			
41	1.204%	0.582%			
42	1.314%	0.699%			
43	1.430%	0.852%			
44	1.158%	1.048%			
45	1.189%	1.270%			
46	1.825%	1.503%			
47	1.958%	1.740%			
48	2.092%	1.965%			
49	2.226%	2.175%			
50	2.359%	2.390%			