Alberta Federation of Labour (AFL) - Coalition on Pensions

Review of Future Sustainability for Local Authorities Pension Plan (LAPP) and Public Service Pension Plan (PSPP)

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Section 1 - Background and Purpose

The Alberta government has proposed to make a number of changes to the LAPP and PSPP pension Plans for service after January 1, 2016, in order to reduce the total contribution rates for LAPP and PSPP. A summary of the current Plan designs for LAPP and PSPP is included in Appendix A of this report.

We have been requested by the AFL to determine whether LAPP and PSPP are “sustainable” in their current forms i.e. without any changes to Plan benefits. For the purpose of our analysis we have defined sustainability as the ability to keep the total contribution rate below 25% of salary. As requested by AFL, we have used 25% of salary since we understand that this is the maximum contribution rate proposed by the Alberta government. The purpose of this report is to summarize the results of our analysis.

Note that the starting date for our analysis is December 31, 2011 for LAPP and PSPP, since this is the date of the most recently filed valuation reports for both Plans.

Section 2 – Plan Risk Factors

Both LAPP and PSPP face the same risk factors in future, which could lead to lower funding ratios and higher contribution rates:

Major Risks:

1. Investment returns: risk of lower investment returns than assumed in the valuations:
    - 5.75% for LAPP
    - 6.35% for PSPP

Other Risks:

1. Salary increases: risk of higher salary increases than assumed in the valuations:
    - 3.75% for LAPP and PSPP

2. Mortality rates: retiree life expectancy improving more than expected. Currently the LAPP and PSPP valuations use the following mortality assumptions:
    - LAPP: UP94 Generational table
    - PSPP: 93% of UP94 Generational table

    Note that the Canadian Institute of Actuaries has recently released a new Canadian mortality table for review and comment. The draft table has mortality rates of 80% - 90% of the UP94 Generational Table, resulting in an increase in pension costs by 5-10%. The draft table is expected to be revised and released in 2014.

3. Inflation rate: risk of higher inflation than assumed in the valuations:
    - 2.5% for LAPP and PSPP

4. Early retirement assumptions: risk of members retiring earlier than expected.

5. Plan growth: risk that the active membership of the Plans shrinks over time.

6. New entrant demographics: risk that the new Plan members are older than current new entrants.

We have tested the sensitivity of the LAPP and PSPP to different future investment returns, Plan growth rates, inflation rates and salary increase rates, since these are the major risk factors for the Plans. If requested, we could test the sensitivity of Plan costs to other risk factors.

Section 3 - Methodology

We undertook the following process in our analysis:

1. We reproduced the results of the December 31, 2011 valuation for LAPP and PSPP based on December 31, 2011 data and assumptions (see Appendix F for results). We feel that we have reproduced the LAPP and PSPP valuation results with sufficient accuracy in order to perform the analysis requested by the AFL.

2. We projected the valuation results for LAPP and PSPP over the next 25 years under a base case scenario. For the base case scenario we assumed that actual Plan experience for both Plans follows the assumptions used in the December 31, 2011 valuations. We used the Plan's actual rates of return for 2012: 10.8% for LAPP and 11.1% for PSPP.

   For the purpose of our projections, we assumed that the active member population in both Plans increases by 1.5% per year for the next 25 years. Alberta Finance has projected the growth of the Alberta population to be 1.5% per year from 2012 to 2041 in their most recent population projection.

   The assumed new entrant profile we used for both Plans is summarized in Appendix C. The new entrant profile was determined from the data summaries in the December 31, 2011 valuation reports for LAPP and PSPP.

   In addition we have used the following funding policies in our projections:
   - Valuations performed every 3 years starting on December 31, 2011;
   - Future valuation assumptions remain the same as the December 31, 2011 assumptions for both Plans;
   - Contribution rates change 1 year after the valuation date. The current practice for LAPP and PSPP is to introduce the new contribution rates either 1 or 2 years after the valuation date.
   - Contribution rates include annual administration expenses of 0.5% of earnings for PSPP and $35 million for LAPP, as per the December 31, 2011 valuations.
   - We used the smoothed value of assets in our projections as described in the December 31, 2011 valuations of both Plans.
   - Previous deficits continue to be funded over the amortization periods already established. New deficits funded over a 15-year period;
   - Surpluses maintained as a contingency reserve i.e. not used for contribution holidays.

3. We also projected the valuation results for LAPP and PSPP over the next 25 years under two alternative scenarios: Optimistic and Pessimistic. The changes from the Base Case scenario are summarized below:

	LAPP	PSPP
Optimistic Scenario		
Active population growth rate per year:	2.5%	1.5%
Inflation rate per year:	2%	2%
Salary increases per year:	3%	3%
2012 investment return:	10.8%	11.1%
Investment return per year (after 2012):	7%	7%
Pessimistic Scenario		
Active population growth rate per year:	1.5%	0%
2012 investment return:	10.8%	11.1%
Investment return per year (after 2012):	5%	5%
Mortality table used in all valuations:	93% of UP94 GEN	No change
Future population mortality:	93% of UP94 GEN	No change

For comparison purposes we have estimated the expected long-term (i.e. 30-year) rates of return for LAPP and PSPP based on the two Plans' current long-term asset mixes and our current modelling assumptions. The results of our calculations are as follows:

LAPP expected long-term return: 6.6% per year

PSPP expected long-term return: 6.9% per year

Our projections were adjusted to reflect any differences between our results and the LAPP and PSPP Plan actuaries' results for the base December 31, 2011 valuations.

Note that the results should be treated as estimates at this stage, since the results were based on the member data summaries in the PSPP and LAPP December 31, 2011 valuation reports. In addition we have not performed any data tests, membership reconciliation, asset reconciliation or gain/loss analysis.

A summary of the assumptions and data used in our analysis is included in Appendices B, C, D and E.

Section 4 – Results

Tables 1 and 2 below summarize the results of our calculations for future triennial valuation dates: Table 1 for LAPP and Table 2 for PSPP.

We summarized the following results in Tables 1 and 2:

Funding ratio (%): this is the ratio of the smoothed asset value divided by the Plan's going concern past service liability.

Normal cost (% of pay): this represents the cost of benefits accruing over the next year and is sometimes called the current service cost. The normal cost excludes the administration expenses.

Total contribution rate (% of pay): this is the total of the normal cost, administration expenses and the past service cost required to amortize any unfunded liabilities.

Table 1: LAPP Projections

	Year-end December 31, 2011	Year-end December 31, 2014	Year-end December 31, 2017	Year-end December 31, 2020	Year-end December 31, 2023	Year-end December 31, 2026	Year-end December 31, 2029	Year-end December 31, 2032	Year-end December 31, 2035
Base Case Scenario:									
1. Funding Ratio:	80%	82%	89%	96%	101%	102%	102%	102%	101%
2. Normal cost for following year (% of pay)	16.4%	16.4%	18%	18.4%	18.8%	19.1%	18.9%	19.5%	19.7%
3. Total Contribution rate for following year	24.1%	25.3%	26.8%	25.5%	19.1%	19.4%	19.2%	19.9%	20.0%
Optimistic Scenario:									
1. Funding Ratio:	80%	83%	95%	106%	110%	114%	119%	123%	127%
2. Normal cost for following year (% of pay)	16.4%	16.5%	18.0%	18.4%	18.8%	19.1%	18.9%	19.5%	19.7%
3. Total Contribution rate for following year	24.1%	25.0%	24.9%	18.8%	19.1%	19.4%	19.2%	19.8%	19.9%
Pessimistic Scenario:									
1. Funding Ratio:	78%	80%	89%	94%	98%	98%	98%	98%	97%
2. Normal cost for following year (% of pay)	16.6%	16.6%	18.2%	18.6%	19.0%	19.3%	19.1%	19.7%	19.9%
3. Total Contribution rate for following year	24.7%	26.1%	27.2%	26.7%	22.0%	22.9%	22.4%	22.0%	23.2%

Table 2: PSPP Projections

	Year-end December 31, 2011	Year-end December 31, 2014	Year-end December 31, 2017	Year-end December 31, 2020	Year-end December 31, 2023	Year-end December 31, 2026	Year-end December 31, 2029	Year-end December 31, 2032	Year-end December 31, 2035
Base Case Scenario:									
1. Funding Ratio	77%	82%	90%	96%	100%	102%	102%	102%	103%
2. Normal cost for following year (% of pay)	15.8%	16.4%	15.6%	16.0%	15.8%	15.6%	16.0%	15.9%	15.6%
3. Total Contribution rate for following year	25.6%	26.6%	22.6%	22.7%	16.3%	16.0%	16.4%	16.2%	15.9%
Optimistic Scenario:									
1. Funding Ratio	77%	82%	92%	98%	104%	108%	110%	113%	116%
2. Normal cost for following year (% of pay)	15.8%	16.4%	15.6%	16.1%	15.9%	15.7%	16.2%	16.0%	15.8%
3. Total Contribution rate for following year	25.6%	26.7%	22.3%	21.7%	16.3%	16.1%	16.6%	16.4%	16.1%
Pessimistic Scenario:									
1. Funding Ratio	77%	81%	87%	89%	91%	92%	92%	91%	89%
2. Normal cost for following year (% of pay)	15.8%	16.5%	15.7%	16.32	16.1%	15.8%	16.4%	16.1%	15.7%
3. Total Contribution rate for following year	25.6%	27.2%	24.3%	25.8%	23.1%	22.9%	20.7%	19.7%	18.4%

Section 5 – Commentary on Results

LAPP:

1. Base Case scenario:
    - Funding ratio steadily increases from 80% to 101% by 2023; funding ratio does not increase much above 100% since the Plan experience is assumed to follow the valuation assumptions;
    - Normal cost increases slowly to 19.7% by 2035;
    - Total cost increases to 26.8% in 2017 and then steadily decreases to 20.0% by 2035;
    - The difference between the total cost and the normal cost in later years is the administration expenses.

2. Optimistic Scenario:
    - Funding ratio increases above 100% by 2020 and increases to 127% by 2035, since we have assumed that there will be no contribution holidays in future;
    - Normal cost increases slowly to 19.7% by 2035;
    - Total cost decreases to 18.8% by 2020 and remains between 19% and 20% for the remainder of the projection.

3. Pessimistic Scenario:
    - Funding ratio increases slowly to 98% by 2023 and then remains fairly constant;
    - Normal cost increases slowly to 19.9% by 2035;
    - Total cost increases to 27.2% by 2017; total cost remains close to 23% after 2020.

4. Total contribution rates are likely to remain close to 25% for the next 3 valuations i.e. until December 31, 2020. Based on our analysis we conclude that in the long-term the Plan will be able to maintain contribution rates below 25% even in our Pessimistic Scenario. In our Base Case and Optimistic Scenarios the long-term contribution rates remain close to 20%.

PSPP:

1. Base Case scenario:
    - The funding ratio improves to 100% by 2023; funding ratio does not increase much above 100% since the Plan experience is assumed to follow the valuation assumptions;
    - Normal cost remains close to 16% of salary for the whole period;
    - Total cost decreases to 22.7% by 2020 and then remains close to 16% for the rest of the projection period;
    - The difference between the total cost and the normal cost in later years is the administration expenses.

2. Optimistic Scenario:
    - Funding ratio improves to 104% by 2023 and 116% by the end of the projection period, since we have assumed that there will be no contribution holidays in future;
    - Normal cost remains close to 16% of salary for the whole period;
    - Total cost decreases to 21.7% by 2020 and then remains close to 16% for the rest of the projection period.

3. Pessimistic Scenario:
    - Funding ratio steadily improves to 92% by 2026 and does not increase above 100%;
    - Normal cost remains close to 16% of salary for the whole period;
    - Total cost initially increases to 27.2% then steadily decreases to 22.9% by 2026 and remains close to 20% for the rest of the projection period.

4. Total contribution rates are likely to remain close to 25% for the next 2 valuations i.e. until December 31, 2017. Based on our analysis we conclude that in the long-term the Plan will be able to maintain contribution rates below 25% even in our Pessimistic Scenario. In our Base Case and Optimistic Scenarios the long-term contribution rates remain close to 16%.

Appendix A: Summary of Plan Designs

Plan Provisions	Present LAPP	Present PSPP
Pension Formula	1.4% up to YMPE, plus 2.0% over YMPE	1.4% up to YMPE, plus 2.0% over YMPE
Service Cap	35 years	35 years
Average Period	5 years	5 years
Maximum Covered Earnings	$150,000	$150,000
Early Retirement **- Unreduced** - age only - age + service **- Reduced** - reduction - minimum age	 Age 55 and 85 points 3% per year early 55	 Age 55 and 85 points 3% per year early 55
Vesting	2 years of LAPP service	2 years of PSPP service
Normal form of pension	Life, guaranteed 5 years	Life, guaranteed 5 years
Death before retirement **- no spouse** **- with spouse**	 Commuted value of accrued pension Spouse pension as if member had retired immediately and chosen a J&S 100% pension	 Commuted value of accrued pension (only if vested; otherwise member contributions with interest) Spouse pension as if member had retired immediately and chosen a J&S 100% pension (only if vested; otherwise member contributions with interest)
Indexing	Guaranteed at 60% of AB CPI	Guaranteed at 60% of AB CPI
Termination of service: **- non vested** **- vested**	 Member contributions with interest Deferred pension from age 55 or commuted value; plus 50% rule contributions	 Member contributions with interest Deferred pension from age 55 or commuted value; plus 50% rule contributions

Appendix B: Summary of Assumptions

Summary Actuarial Assumptions	LAPP December 31, 2011	PSPP December 31, 2011
Discount rate:	5.75%	6.35%
Earnings Increases:	LAPP SMP scale plus general increases of: 3.25% in 2012 grading to 3.75% in 2019 and after	PSPP SMP scale plus general increases of: 3% for 3 years; 3.75% thereafter
Indexing:	1.5%	1.5%
YMPE Increases:	2.875% in 2012, grading to 3.75% in 2019	3.75%
Early Retirement:	Two scales for > 85 pts and < 85 pts > 85pts includes: Age 55 – 33% Age 57 – 22% Age 59 – 19% Age 60 – 27% Age 62 – 22%	Based on gender, age and service; from age 55 to 65
Spouse:	80% of members have spouse; spouse 3 years younger	100% Married; female spouse 3 years younger
Mortality Rates:	UP94 tables Gen proj AA	93% of UP94 tables Gen proj AA
Termination Rates:	After 2 year select period Age 30 – 4.00%M, 9.50% F Age 35 – 4.70% , 7.30% Age 40 – 3.20%, 5.40% Age 45 – 2.70%, 4.50% Age 50 – 4.20%, 5.55%	Based on gender, age and service; from age 21 to 54
Percent electing deferred pension on termination:	25%	20% if service less than 5 years 50% if service greater than 5 years
Load added to going concern liability to determine commuted value:	40%	Commuted value based on solvency interest rate of 4.1% and indexing rate of 1.5%

Appendix C: Assumed New Entrant Profiles for Projections

	LAPP	PSPP
Average age at hire:	35	35
Average salary at hire:	$60,000	$55,000
Gender split:	30%M; 70%F	30%M; 70%F

Appendix D: LAPP Data as at December 31, 2011

Active Members	
Number:	140,417
Expected average annualized pay for following year:	$69,110
Average years of pensionable service:	8.8 years
Average age:	45.3 years
Average employee contributions with interest:	$36,953

Deferred Pensioners	
Number:	17,116
Average annual deferred pension at normal retirement, with COLA to January 1 of following year:	$6,081
Average age:	47.3 years

Hold-on-Deposits	
Number:	8,776
Average contributions with interest:	$2,607
Average age:	46.1 years

Pensioners and Survivors	
Number:	46,256
Average annual pension at January 1 of following year:	$14,456
Average age:	70.8 years

Appendix E: PSPP Data as at December 31, 2011

Active Members	
Number:	
Male	12,803
Female	27,457
Total	**40,260**
Average Age:	
Male	44.1
Female	44.1
Total	**44.1**
Average PSPP Service:	
Male	10.6
Female	10.1
Total	**10.2**
Average 2011 Annualized Earnings:	
Male	$69,097
Female	$57,900
Total	**$61,461**

CPS Suspended Member Data:	
Number:	
Male	1,409
Female	1,527
Total	**2,936**
Average Age:	
Male	48.2
Female	47.3
Total	**47.7**
Average PSPP Service:	
Male	10.3
Female	10.5
Total	**10.4**
Average CPS:	
Male	17.3
Female	16.5
Total	**16.9**
Average 2011 Annualized Earnings:	
Male	$103,563
Female	$96,952
Total	**$100,125**
Deferred and Hold-on-Deposit Member Data	
Number:	
Male	4,029
Female	8,171
Total	**12,200**
Average Age:	
Male	48.5
Female	46.8
Total	**47.3**
Average Deferred Pension:	
Male	$7,429
Female	$5,601
Total	**$6,212**

Pensioner/Beneficiary Data	
Number:	
Male	8,436
Female	12,745
Total	**21,181**
Average Age:	
Male	72.1
Female	72.1
Total	**72.1**
Average Current Pension:	
(including any coordination)	
Male	$15,379
Female	$10,979
Total	**$12,732**

Appendix F: Reproduction of December 31, 2011 Valuation Results for LAPP and PSPP

	LAPP Results ($M)	G&B ($M)	% Difference
LAPP Going Concern Liabilities:			
- Active and Disabled Members	$16,670	$16,100	-3%
- Deferred Members	$1,069	$1,039	-3%
- Retirees	$8,658	$8,017	-7%
LAPP Normal Cost	$1,373	$1,496	9%
LAPP Normal Cost (% of Plan Earnings)	16.76%	18.27%	9%

	PSPP Results ($M)	G&B ($M)	% Difference
PSPP Going Concern Liabilities:			
- Active and Disabled Members	$4,408	$4,303	-2%
- Deferred and CPS Suspended Members	$1,090	$695	-36%
- Retirees	$3,218	$2,936	-9%
PSPP Normal Cost	$364	$319	-12%
PSPP Normal Cost (% of Plan Earnings)	16.27%	14.32%	-12%

Commentary on reproduction:

We believe that the main reason for the differences in results between our numbers and those produced by the LAPP and PSPP actuaries is that we do not have individual member data. In particular, we do not have any detailed data for the deferred and retired Plan members. Our results are based on the data summaries in the LAPP and PSPP valuation reports.

P/G&B/Client Work/AFL/131224 Review of Future Sustainability