




Office of the State Actuary
Securing tomorrow's pensions today.



Disability Experience Study





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State Actuary



June 16, 2010

Today's Presentation

- Why now?
- Background
- Methods, data, and results
- Recommended rates
- Preliminary contribution rate/budget impacts
- Next steps
 - No Board action required today

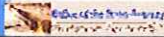


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2

Why Now?

- RCW 41.45.090 requires that OSA perform demographic experience studies at least every six years
- Last full study performed in 2008
 - The 2001-2006 Experience Study
- Actuarial standards of practice require actuaries to review assumptions for reasonableness with each valuation



What Is An Experience Study?

- Review of current assumptions
 - How do they compare with actual experience?
 - Do they need to change?
- Assumptions help us estimate
 - When benefits are paid
 - How much is paid
 - How long they're paid



Why Do We Perform Them?

- Things change
- Ensure assumptions remain reasonable
 - Reasonable assumptions contribute to reasonable funding
- Important part of systematic actuarial funding
- Risk management



How Do We Perform Them?

- They're data driven
 - Over 20 years of experience in some cases
- They also involve professional judgment
 - Past not always the best predictor of future
- Because they involve professional judgment and expertise
 - You hire an actuary to perform study and make recommendations
 - You hire an outside actuary to review reasonableness



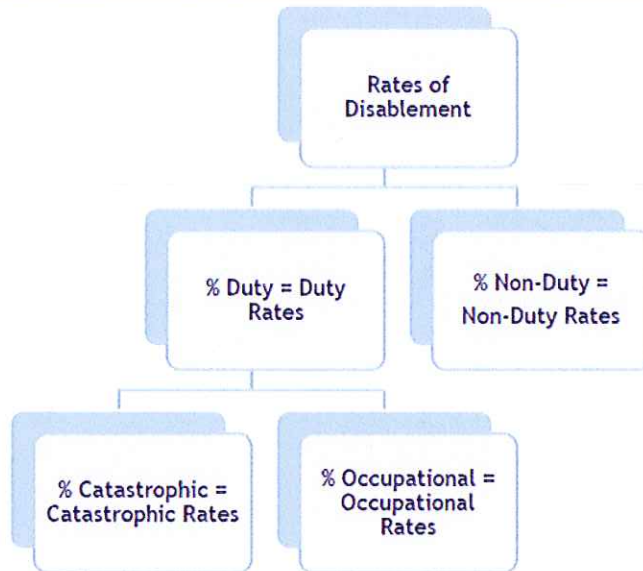
Last Disability Experience Study

- We concluded: Insufficient historical data under new benefit provisions
 - We now have three more years of data
- We said: We will continue to monitor experience
 - We did and we're presenting that experience today

History Of Disability Plan Provisions

- Prior to 2004
 - No distinction between duty and non-duty disablements
- 2004 (C4, L04)
 - Choice of 150 percent refund or actuarially reduced benefit with 10 percent minimum for duty-related disablement
- 2005 (C451, L05)
 - Unreduced duty-disability benefit added (occupational)
- 2006 (C39, L06)
 - Catastrophic duty-disability benefit added

Actuarial Model



Current Assumptions

- Based mainly on future expectations since we have limited past experience data
 - Relied mostly on rates from Colorado (similar benefits)
- Assumptions for
 - Disablement: (incidence - duty and non-duty)
 - "Percent duty related"
 - Percent non-duty = $(1 - \text{percent duty})$
 - "Percent catastrophic"
 - Percent occupational = $(1 - \text{percent catastrophic})$

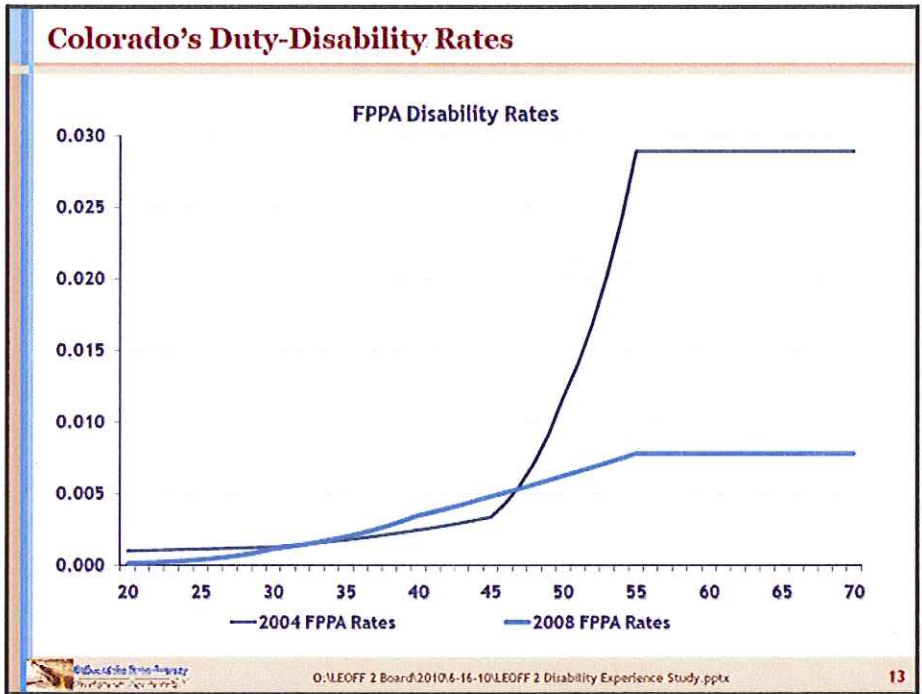


Methods And Data

- We compared actual to expected disablements from 2005-09 for LEOFF 2:
 - Longest period available under current plan provisions (2007-09 for catastrophic rates)
- We reviewed Colorado's latest experience study (2008 report)
 - FPPA = Fire and Police Pension Association of Colorado

Summary Of Results

- Colorado's rates provided a poor fit to LEOFF 2's actual experience during the study period;
- Colorado lowered their disability rates during their 2008 experience study;
- Assumptions for "percent duty related" provided good fit;
- Assumptions for "percent catastrophic" overestimated number of catastrophic disablements;
- Recommending assumption changes;



2005-09 Disablements (Duty and Non-Duty) Current Assumptions

Age	Exposed (All Actives)	Observed (Actual)	Expected	Actual ÷ Expected
20-24	816	0	0.86	0.00
25-29	6,113	2	7.00	0.29
30-34	11,832	1	16.47	0.06
35-39	16,637	9	31.41	0.29
40-44	15,289	14	38.76	0.31
45-49	13,202	22	67.11	0.31
50-54	9,819	50	139.47	0.31
55-59	3,769	30	90.94	0.24
60-64	816	11	19.69	0.51
65+	108	1	2.61	0.38
Total	78,401	140	414.32	0.34

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2005-09 Percent Duty Related - Current Assumptions

Age	Observed (Actual)	Expected	Actual ÷ Expected
20-24	0.00%	96.16%	0.00
25-29	100.00%	95.03%	1.05
30-34	100.00%	93.66%	1.07
35-39	100.00%	92.28%	1.08
40-44	85.71%	90.32%	0.95
45-49	95.45%	87.49%	1.09
50-54	86.00%	84.73%	1.02
55-59	73.33%	82.90%	0.88
60-64	90.91%	82.90%	1.10
65+	100.00%	82.90%	1.21
Total	86.43%	90.05%	0.96



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15

2007-09 Percent Catastrophic – Current Assumptions

Age	Exposed (All Actives)	Duty Disablements	Catastrophic Disablements	% Cat (Actual)	% Cat (Expected)	Actual ÷ Expected
20-24	556	0	0	0.00%	18%	0.00
25-29	3,774	0	0	0.00%	18%	0.00
30-34	6,804	0	0	0.00%	18%	0.00
35-39	10,027	2	0	0.00%	18%	0.00
40-44	9,405	8	1	12.50%	18%	0.69
45-49	8,170	12	1	8.33%	18%	0.46
50-54	6,387	28	1	3.57%	18%	0.20
55-59	2,665	12	1	8.33%	18%	0.46
60-64	583	5	0	0.00%	18%	0.00
65+	86	0	0	0.00%	18%	0.00
Total	48,457	67	4	5.97%	18%	0.33



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16

Recommended Rates

- Handout attached
- Lower rates of disablement
- No change to "percent duty"
- Lower "percent catastrophic" from 18 to 12 percent
- Avoid excessive change in one experience study
- Continue to monitor experience



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17

2005-09 Disablements (Duty and Non-Duty) New Assumptions

Age	Observed (Actual)	Expected (Old Rates)	Expected (New Rates)	Actual ÷ Expected (New)
20-24	0	0.86	0.20	0.00
25-29	2	7.00	3.07	0.65
30-34	1	16.47	11.71	0.09
35-39	9	31.41	29.27	0.31
40-44	14	38.76	38.76	0.36
45-49	22	67.11	50.48	0.44
50-54	50	139.47	63.39	0.79
55-59	30	90.94	32.76	0.92
60-64	11	19.69	8.56	1.29
65+	1	2.61	1.32	0.76
Total	140	414.32	239.50	0.58



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18

2007-09 Percent Catastrophic – New Assumptions

Age	Exposed (All Actives)	Duty Disablements	Catastrophic Disablements	% Cat (Actual)	% Cat (New Expected)	Actual + Expected (New)
20-24	556	0	0	0.00%	12%	0.00
25-29	3,774	0	0	0.00%	12%	0.00
30-34	6,804	0	0	0.00%	12%	0.00
35-39	10,027	2	0	0.00%	12%	0.00
40-44	9,405	8	1	12.50%	12%	1.04
45-49	8,170	12	1	8.33%	12%	0.69
50-54	6,387	28	1	3.57%	12%	0.30
55-59	2,665	12	1	8.33%	12%	0.69
60-64	583	5	0	0.00%	12%	0.00
65+	86	0	0	0.00%	12%	0.00
Total	48,457	67	4	5.97%	12%	0.50



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19

Contribution Rate/Budget Impacts Are Short-Term

- All assumptions revisited in four years
 - Based on 2007-12 full experience study
- Assumption changes don't change the actual cost of benefits
- Actual plan costs come from actual plan experience
- Assumption changes impact when the costs occur
 - Financing costs versus actual costs



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20

Contribution Rate Impact

- Recommended assumption changes will
 - Decrease contribution rates for disability benefits
 - Increase contribution rates for all other benefits
- Overall impact: increase in plan rates
- Why?
 - Disability benefits are cheaper for the plan
 - Shorter assumed lifetime payout
 - Catastrophic benefit has offsets (plan pays less)

Preliminary Contribution Rate Impact

Increase in 2011-13 Contribution Rates

Employee	0.35%
Employer	0.21%
State	0.14%

Preliminary Budget Impact

2011-13 Budget Impact (\$ in Millions)	
General Fund	\$4.6
Non-General Fund	<u>0.0</u>
Total State	4.6
Local Government	<u>6.9</u>
Total Employer	11.5
Total Employee	\$11.5

Next Steps

- Receive preliminary audit report
- Finalize assumptions/contribution rates in July
- Adopt assumptions/contribution rates by July 31, 2010





LEOFF Plan 2 Disability Experience Study

June 16, 2010

The Office of the State Actuary recommends the following disability assumption changes for LEOFF Plan 2. We recommend no change to the percent duty disability assumption.*

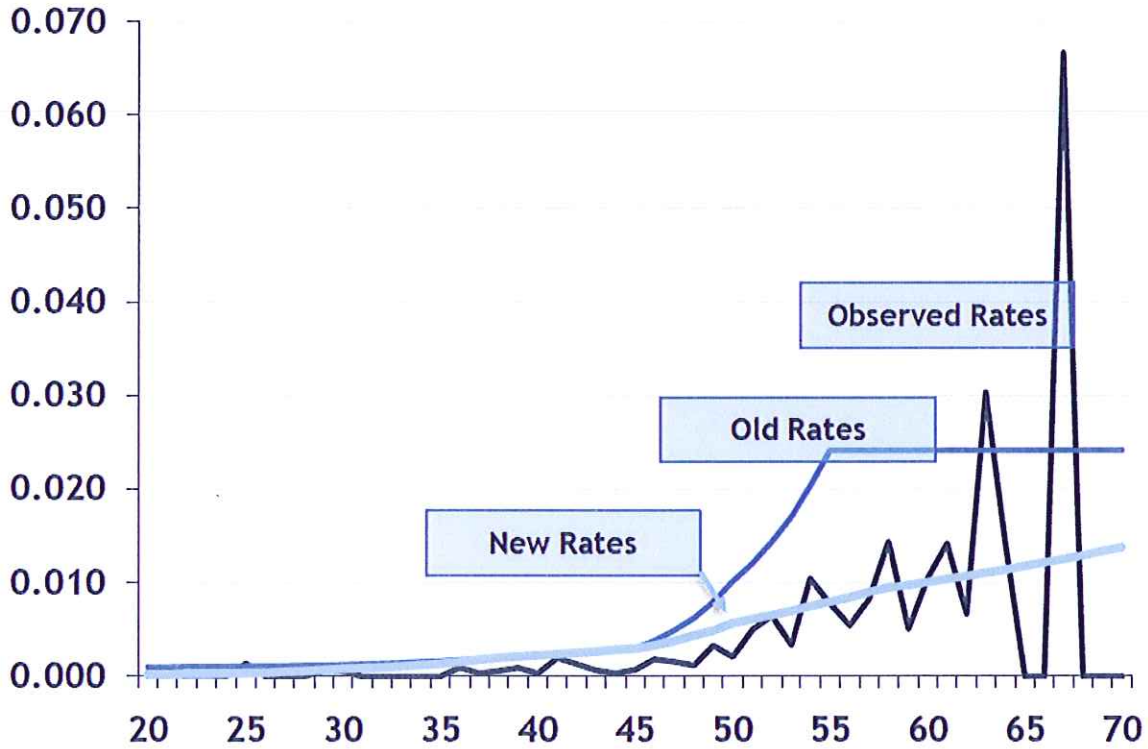
LEOFF 2 Percent Catastrophic Disability Assumption		
	Current	Recommended
All Ages	18%	12%

LEOFF 2 Disability Assumptions					
Age	Old Rates	New Rates	Age	Old Rates	New Rates
20	0.000982	0.000124	46	0.003823	0.003282
21	0.001002	0.000152	47	0.004881	0.003762
22	0.001023	0.000185	48	0.006232	0.004365
23	0.001045	0.000223	49	0.007958	0.004904
24	0.001067	0.000267	50	0.010162	0.005635
25	0.001089	0.000319	51	0.012082	0.006144
26	0.001112	0.000381	52	0.014366	0.006515
27	0.001135	0.000455	53	0.017085	0.007005
28	0.001159	0.000543	54	0.020312	0.007517
29	0.001184	0.000650	55	0.024129	0.007955
30	0.001209	0.000779	56	0.024129	0.008433
31	0.001287	0.000865	57	0.024129	0.009020
32	0.001370	0.000960	58	0.024129	0.009487
33	0.001459	0.001066	59	0.024129	0.009724
34	0.001554	0.001181	60	0.024129	0.010041
35	0.001654	0.001345	61	0.024129	0.010367
36	0.001762	0.001500	62	0.024129	0.010703
37	0.001876	0.001783	63	0.024129	0.011048
38	0.001998	0.001998	64	0.024129	0.011403
39	0.002128	0.002128	65	0.024129	0.011769
40	0.002266	0.002266	66	0.024129	0.012144
41	0.002396	0.002396	67	0.024129	0.012529
42	0.002533	0.002533	68	0.024129	0.012923
43	0.002678	0.002678	69	0.024129	0.013327
44	0.002832	0.002832	70	0.024129	0.013740
45	0.002994	0.002994			

*Pending audit results.



LEOFF 2 Disability Rates by Age





LEOFF 2 Duty-Related Disability Assumptions					
Age	Old Rates	New Rates*	Age	Old Rates	New Rates*
20	0.000954	0.000120	46	0.003365	0.002889
21	0.000971	0.000147	47	0.004268	0.003289
22	0.000988	0.000179	48	0.005414	0.003792
23	0.001006	0.000215	49	0.006868	0.004232
24	0.001024	0.000257	50	0.008714	0.004832
25	0.001042	0.000306	51	0.010290	0.005232
26	0.001061	0.000364	52	0.012152	0.005511
27	0.001080	0.000433	53	0.014355	0.005885
28	0.001100	0.000515	54	0.016951	0.006273
29	0.001120	0.000615	55	0.020003	0.006595
30	0.001140	0.000735	56	0.020003	0.006991
31	0.001210	0.000814	57	0.020003	0.007478
32	0.001284	0.000900	58	0.020003	0.007865
33	0.001363	0.000996	59	0.020003	0.008061
34	0.001447	0.001100	60	0.020003	0.008324
35	0.001536	0.001249	61	0.020003	0.008594
36	0.001631	0.001389	62	0.020003	0.008873
37	0.001731	0.001645	63	0.020003	0.009159
38	0.001838	0.001838	64	0.020003	0.009453
39	0.001952	0.001952	65	0.020003	0.009757
40	0.002073	0.002073	66	0.020003	0.010068
41	0.002177	0.002177	67	0.020003	0.010387
42	0.002287	0.002287	68	0.020003	0.010713
43	0.002403	0.002403	69	0.020003	0.011048
44	0.002525	0.002525	70	0.020003	0.011390
45	0.002653	0.002653			

*Pending audit results.



LEOFF 2 Non-Duty-Related Disability Assumptions					
Age	Old Rates	New Rates*	Age	Old Rates	New Rates*
20	0.000028	0.000004	46	0.000458	0.000393
21	0.000031	0.000005	47	0.000613	0.000473
22	0.000035	0.000006	48	0.000818	0.000573
23	0.000039	0.000008	49	0.001090	0.000672
24	0.000043	0.000011	50	0.001448	0.000803
25	0.000047	0.000014	51	0.001793	0.000912
26	0.000051	0.000017	52	0.002214	0.001004
27	0.000055	0.000022	53	0.002731	0.001120
28	0.000060	0.000028	54	0.003361	0.001244
29	0.000064	0.000035	55	0.004126	0.001360
30	0.000069	0.000044	56	0.004126	0.001442
31	0.000077	0.000052	57	0.004126	0.001542
32	0.000086	0.000060	58	0.004126	0.001622
33	0.000096	0.000070	59	0.004126	0.001663
34	0.000107	0.000081	60	0.004126	0.001717
35	0.000118	0.000096	61	0.004126	0.001773
36	0.000131	0.000111	62	0.004126	0.001830
37	0.000145	0.000137	63	0.004126	0.001889
38	0.000160	0.000160	64	0.004126	0.001950
39	0.000176	0.000176	65	0.004126	0.002012
40	0.000194	0.000194	66	0.004126	0.002077
41	0.000219	0.000219	67	0.004126	0.002142
42	0.000246	0.000246	68	0.004126	0.002210
43	0.000275	0.000275	69	0.004126	0.002279
44	0.000307	0.000307	70	0.004126	0.002350
45	0.000341	0.000341			

*Pending audit results.