



111 SW Fifth Avenue  
Suite 3700  
Portland, OR 97204  
USA

Tel +1 503 227 0634  
Fax +1 503 227 7956

milliman.com

April 13, 2016

**VIA E-MAIL**

Debra Hembree  
Actuarial Services Coordinator  
Oregon PERS

**Re: 2015 Purchasing Power Study**

Dear Debra:

As requested, we updated the annual purchasing power study for 2015 to compare how well monthly benefits paid to retirees and beneficiaries have kept up with inflation since retirement. The previous purchasing power study was conducted before the Supreme Court decision in *Moro v. State of Oregon* altered the cost-of-living adjustment changes made in Senate Bills 822 and 861. After the *Moro* decision, the cost-of-living adjustment payable depends in part on when a member's service was performed. Members who earn service after October 2013 will receive a cost-of-living adjustment that reflects a blend of the benefit provided prior to October 2013 and the reduced cost-of-living adjustment provided by Senate Bills 822 and 861.

Since the last study, the Consumer Price Index for Portland increased 2.41% in 2014. Tier 1/Tier 2 members received a maximum of 2.00% annual cost-of-living adjustment in August 2015, experiencing a decrease in purchasing power over the year. For purposes of this study, we illustrated the purchasing power of Tier 1/Tier 2 members who received the maximum cost-of-living adjustment in August 2015. Members who earned part of their service after October 2013 will receive less than the maximum cost-of-living adjustment and will have lower purchasing power than shown in this study.

Purchasing power in this report is defined as the cumulative post-retirement benefit increases in Tier 1/Tier 2 benefits compared to the cumulative CPI increases since the year of retirement. The chart below shows the change in purchasing power from 2014 to 2015 by year of retirement.

Year Retired	Purchasing Power	
	2014	2015
8/1/1980 – 7/1/1981 & prior	75.9%	75.6%
8/1/1981 – 7/1/1982	78.5%	78.2%
8/1/1982 – 7/1/1983	80.5%	80.2%
8/1/1983 – 7/1/1984	80.7%	80.4%
8/1/1984 – 7/1/1985	78.5%	78.1%
8/1/1985 – 7/1/1986	77.5%	77.2%
8/1/1986 – 7/1/1987	78.4%	78.1%
8/1/1987 – 7/1/1988	78.4%	78.1%
8/1/1988 – 7/1/1989	78.8%	78.5%
8/1/1989 – 7/1/1990	79.9%	79.6%
8/1/1990 – 7/1/1991	82.2%	81.9%
8/1/1991 – 7/1/1992	85.3%	85.0%
8/1/1992 – 7/1/1993	87.9%	87.5%
8/1/1993 – 7/1/1994	90.0%	89.6%
8/1/1994 – 7/1/1995	91.3%	90.9%
8/1/1995 – 7/1/1996	92.1%	91.7%
8/1/1996 – 7/1/1997	92.9%	92.5%

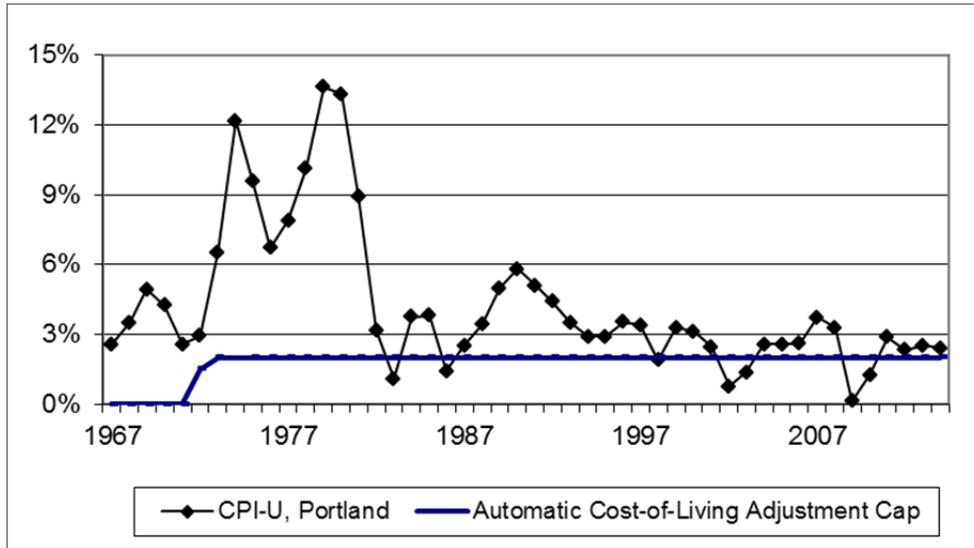
Year Retired	Purchasing Power	
	2014	2015
8/1/1997 – 7/1/1998	94.3%	93.9%
8/1/1998 – 7/1/1999	95.5%	95.1%
8/1/1999 – 7/1/2000	95.5%	95.1%
8/1/2000 – 7/1/2001	96.4%	96.0%
8/1/2001 – 7/1/2002	96.4%	96.0%
8/1/2002 – 7/1/2003	96.4%	96.0%
8/1/2003 – 7/1/2004	96.4%	96.0%
8/1/2004 – 7/1/2005	96.4%	96.0%
8/1/2005 – 7/1/2006	97.0%	96.6%
8/1/2006 – 7/1/2007	97.5%	97.1%
8/1/2007 – 7/1/2008	98.1%	97.7%
8/1/2008 – 7/1/2009	98.4%	98.0%
8/1/2009 – 7/1/2010	98.4%	98.0%
8/1/2010 – 7/1/2011	98.4%	98.0%
8/1/2011 – 7/1/2012	98.4%	98.0%
8/1/2012 – 7/1/2013	99.2%	98.8%
8/1/2013 – 7/1/2014	99.5%	99.1%
8/1/2014 – 7/1/2015	100.0%	99.6%

## Inflation

In 2015 a cost-of-living adjustment (COLA) up to 2.00% was granted to retirees and beneficiaries. In addition, after the *Moro* decision COLA amounts of up to 2.00% were restored for 2013 and 2014. Originally lower COLAs were provided in those years in accordance with Senate Bills 822 and 861. Prior to 2013, automatic COLAs were granted each year up to a maximum of 2.00% based on the Consumer Price Index for Portland (defined by All Items, All Urban Consumers, Portland-Salem, OR-WA, Annual Average) as released by the Department of Labor.

For the COLA applicable to pre-October 2013 service, if the Consumer Price Index for Portland (CPI-Portland) is at least 2.00% larger in one calendar year than in the prior, then retirees and beneficiaries receive a 2.00% COLA in the following year and the remaining percentage is carried forward in a “bank” to be used in future years when the CPI-Portland increased by less than 2.00%. Retirees who had recently retired, and did not have a “bank” balance, receive a COLA equal to the CPI-Portland amount if less than 2.00%, otherwise they received 2.00%. With the enactment of Senate Bills 822 and 861, the COLA “bank” methodology is no longer applicable for service after October 2013, as the annual COLA level for that service is set without regard to current or historic CPI.

The graph below shows the CPI-Portland compared to the COLA cap each year.



The automatic COLA was established in 1972, and there have only been seven years (1983, 1986, 1998, 2002, 2003, 2009 and 2010) when inflation has been below the COLA cap. Consequently, retiree benefits have tended to lose their purchasing power. Attachment A shows the history of increases in CPI-Portland from 1962 through 2014.

The historical COLA amounts granted to retirees and beneficiaries are shown below:

<b>Date</b>	<b>COLA</b>	<b>Exceptions</b>
July 1972	1.50%	
July 1973 - July 2013	2.00% (maximum)	1.08% in July 1984 if retired on or after August 1983 1.41% in July 1987 if retired on or after August 1986 1.89% in July 1999 if retired on or after August 1998 1.24% in July 2003 if retired on or after August 2001 and prior to August 2002 0.77% in July 2003 if retired on or after August 2002 1.73% in July 2004 if retired on or after August 2000 and prior to August 2001 1.36% in July 2004 if retired on or after August 2001 1.40% in July 2010 if retired on or after August 2008 and prior to August 2009 0.12% in July 2010 if retired on or after August 2009 1.25% in July 2011 if retired on or after August 2008
July 2014 – July 2015	2.00% (maximum)	2.00% with bank applicable to service earned prior to October 2013. For service earned later, COLA is 1.25% on the first \$60,000 of annual benefits, and 0.15% on any benefits above that level.

## Benefit Increases

From April 1964 through December 1971 there were some one-time additional payments granted to retirees. These payments are not included in this analysis as they did not affect the ongoing benefit paid to the retiree. A summary of the one-time payments follows:

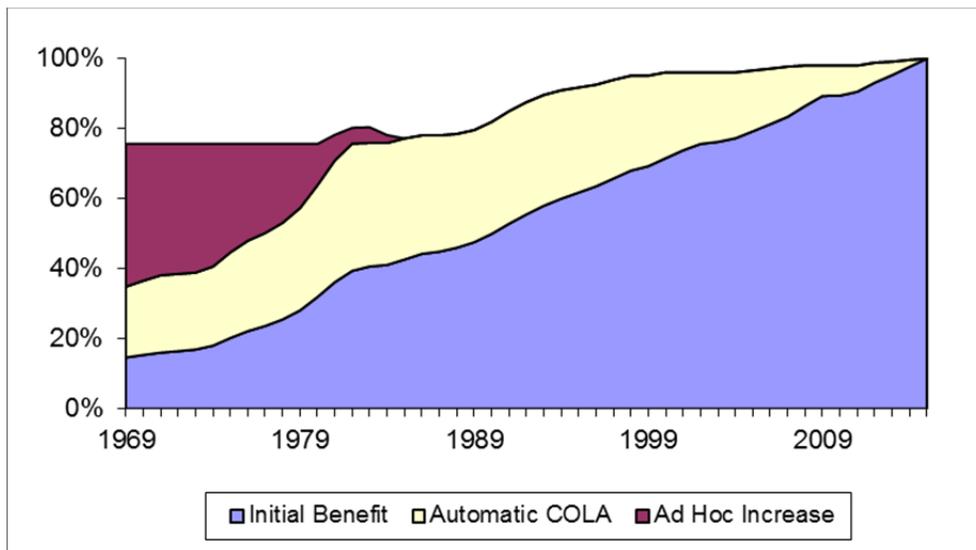
<b>Effective Date</b>	<b>One Time Payment Amount</b>
April 1964	Monthly Benefit
April 1965	1.5 × Monthly Benefit
April 1966, April 1967	2 × Monthly Benefit
April 1968, April 1969, April 1970, April 1971	3 × Monthly Benefit
December 1971	3.5 × Monthly Benefit

In addition, retirees and beneficiaries have been granted ad hoc benefit increases that resulted in increased monthly benefits going forward. A summary of the ad hoc increases granted by legislation is shown below, with the graded increases shown on Attachment B.

Effective Date	Ad Hoc Increase Granted by Legislation
January 1972	25% if retired prior to January 1968 12% if retired after December 1967 and prior to January 1972
January 1974	25% if retired prior to January 1968 20% if retired after December 1967 and prior to January 1972 12% if retired after December 1971 and prior to January 1974
October 1977	25% on first \$50 of monthly benefit 15% on next \$100 10% on next \$100 5% on next \$100 and 1% on monthly benefit over \$350
July 1979	2% for all retirees
July 1980	2% for all retirees
August 1981	Graded table by year of retirement to 11.40%
July 1982	Graded table by year of retirement to 11.40%
July 1985	Graded table by year of retirement to 7.28%
July 1986	Graded table by year of retirement to 7.28%
July 1989	Graded table by year of retirement to produce a 95% replacement of original purchasing power

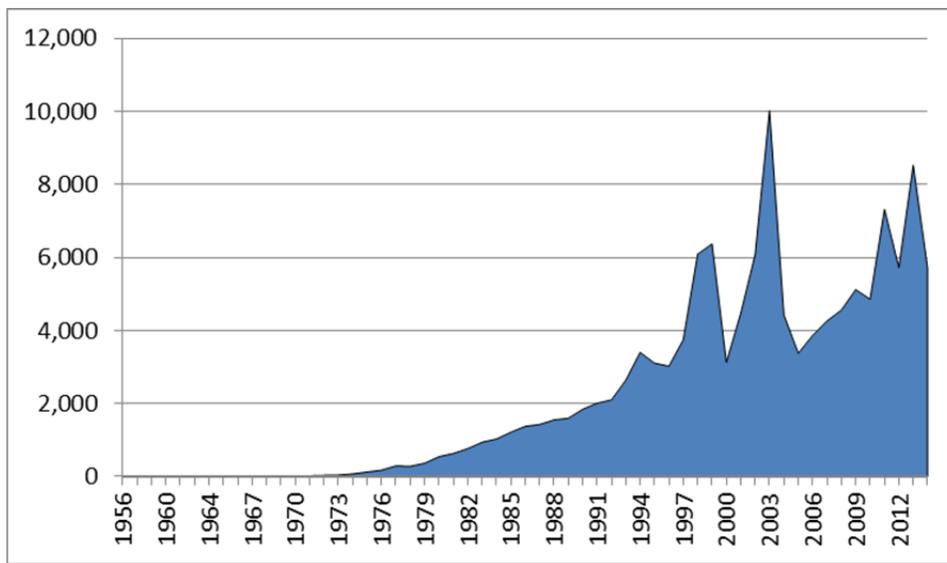
### Current Purchasing Power

The current purchasing power of retirees depends on both the automatic COLA increases and the ad hoc increases granted, compared to the growth in the CPI over the same time period. The graph below shows the cumulative effects of increases granted as a percentage of a benefit adjusted by CPI by year of retirement.



As shown in the graph above, for long-time retired members, the majority of the increases in their benefits since retirement have come from ad hoc increases. Retirees who retired within the past 30 years have not received any ad hoc increases. However, inflation has been significantly lower than in the late 1970's, and the automatic COLA increases have tracked changes in CPI more closely. Purchasing power for retirees since 1994 has remained within 90 percent of original purchasing power.

The following graph shows the distribution of retirees and beneficiaries, from the December 31, 2014 actuarial valuation, by year of retirement. As shown in the graph below, a vast majority of retirees and beneficiaries have retired within the last 30 years and have not received any ad hoc increases. However, as their COLAs have tracked more closely with CPI, their purchasing power has remained higher than long-time retired members who have received ad hoc increases. For retirees/beneficiaries retired in the last 30 years, the average purchasing power is 94.5% compared to the average purchasing power of 77.8% for those retired more than 30 years ago.



Attachment C compares the cumulative post-retirement benefit increases in Tier 1/Tier 2 benefits to the cumulative CPI increases for the last 46 years. The middle columns show the level to which an initial benefit of \$100 per month would have risen, based on CPI increases and increases granted through PERS. The columns on the right show the original \$100 benefit and the PERS-adjusted benefit as a percentage of the CPI-adjusted benefit.

For example, a 1969 retiree with an original benefit of \$100 per month would need to be receiving \$682.44 per month now to have kept pace with inflation. Benefit increases granted through PERS would have increased the \$100 per month benefit to \$515.88 per month. The original benefit of \$100 per month is 14.7% of the CPI-adjusted benefit and the PERS-adjusted benefit of \$515.88 is 75.6% of the CPI-adjusted benefit.

Ms. Debra Hembree  
April 13, 2016  
Page 7

Our analysis and conclusions are based on the data, methods and assumptions described above. Differences in the methods and assumptions may produce different results.

Calculations presented in this letter are for purposes of illustrating how well benefits paid to PERS retirees and beneficiaries have kept up with inflation since retirement. As such, they cannot be relied upon for other purposes, and calculations for purposes other than this use may be significantly different from the results contained in this letter. Accordingly, additional determinations may be needed for other purposes.

Milliman's work is prepared solely for the use of Oregon PERS. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product.

No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are pension actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

If you have any questions about the purchasing power report or need any additional information, please let us know

Sincerely,

  
Scott D. Preppernau, FSA, EA, MAAA  
Principal and Consulting Actuary

encl.

cc: Steve Rodeman  
Matt Larrabee

# ATTACHMENT A

## History of Consumer Price Index — Portland

Year	CPI 1967 Basis	CPI 1982-84 Basis	Annual Percentage Increase	Year	CPI 1982-84 Basis	Annual Percentage Increase
1962	88.5			1988	114.7	3.43%
1963	90.2		1.92%	1989	120.4	4.97%
1964	92.2		2.22%	1990	127.4	5.81%
1965	94.6		2.60%	1991	133.9	5.10%
1966	97.5		3.07%	1992	139.8	4.41%
1967	100.0		2.56%	1993	144.7	3.51%
1968	103.5		3.50%	1994	148.9	2.90%
1969	108.6		4.93%	1995	153.2	2.89%
1970	113.2		4.24%	1996	158.6	3.52%
1971	116.1		2.56%	1997	164.0	3.40%
1972	119.5		2.93%	1998	167.1	1.89%
1973	127.3		6.53%	1999	172.6	3.29%
1974	142.8		12.18%	2000	178.0	3.13%
1975	156.5		9.59%	2001	182.4	2.47%
1976	167.0		6.71%	2002	183.8	0.77%
1977	180.2		7.90%	2003	186.3	1.36%
1978	198.4		10.10%	2004	191.1	2.58%
1979	225.4		13.61%	2005	196.0	2.56%
1980	255.4		13.31%	2006	201.1	2.60%
1981	278.2		8.93%	2007	208.6	3.71%
1982	287.0		3.16%	2008	215.4	3.28%
1983	290.1		1.08%	2009	215.6	0.12%
1984	301.0		3.76%	2010	218.3	1.25%
1985	312.4	106.7	3.79%	2011	224.6	2.86%
1986	316.8	108.2	1.41%	2012	229.8	2.31%
1987	324.7	110.9	2.50%	2013	235.5	2.50%
				2014	241.2	2.41%

Source: U.S. Department of Labor, Bureau of Labor Statistics  
Consumer Price Index, All Items, All Urban Consumers, Portland-Salem, OR-WA, Annual Average

# ATTACHMENT B

Year	Ad Hoc Adjustments by Effective Year					
	Retired	1981	1982	1985	1986	1989
1950		11.40	11.40	7.28	7.28	18.00
1951		10.64	10.64	7.28	7.28	19.00
1952		10.56	10.56	7.28	7.28	10.00
1953		10.16	10.16	7.28	7.28	8.00
1954		10.04	10.04	7.28	7.28	8.00
1955		10.00	10.00	7.25	7.25	7.00
1956		9.68	9.68	7.06	7.06	9.00
1957		9.28	9.28	6.82	6.82	9.00
1958		9.08	9.08	6.70	6.70	5.00
1959		8.96	8.96	6.62	6.62	3.00
1960		8.76	8.76	6.50	6.50	3.00
1961		8.64	8.64	6.42	6.42	2.00
1962		8.56	8.56	6.37	6.37	1.00
1963		8.32	8.32	6.22	6.22	1.00
1964		8.12	8.12	6.09	6.09	–
1965		7.88	7.88	5.94	5.94	–
1966		7.56	7.56	5.73	5.73	–
1967		7.36	7.36	5.60	5.60	–
1968		7.20	7.20	5.49	5.49	7.00
1969		6.88	6.88	5.28	5.28	4.00
1970		6.60	6.60	5.09	5.09	–
1971		6.36	6.36	4.93	4.93	–
1972		6.20	6.20	4.82	4.82	15.00
1973		5.92	5.92	4.63	4.63	14.00
1974		5.28	5.28	4.17	4.17	25.00
1975		4.92	4.92	3.92	3.92	15.00
1976		4.72	4.72	3.77	3.77	7.00
1977		4.44	4.44	3.57	3.57	3.00
1978		4.76	4.76	3.80	3.80	16.00
1979		4.32	4.32	3.48	3.48	11.00
1980		4.00	4.00	3.24	3.24	3.00
1981		–	4.00	3.09	3.09	–
1982			–	3.01	3.01	–
1983				3.00	3.00	–
1984				–	3.00	–
1985				–	–	–
1986					–	–
1987						–
1988						–
1989						–

j:\orr\letters\162001purchasingpowerstudy.docx

*This work product was prepared solely for Oregon PERS for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.*

# ATTACHMENT C

## Comparison of Tier 1/Tier 2 Benefits to CPI at August, 2015

Year Retired	Number of Years	Cumulative Increase		Purchasing Power	
		CPI	Tier 1/Tier 2 Benefit	Initial T1/T2 Benefit	Current T1/T2 Benefit
8/1/1969-7/1/1970	46	682.44	515.88	14.7%	75.6%
8/1/1970-7/1/1971	45	650.38	491.65	15.4%	75.6%
8/1/1971-7/1/1972	44	623.92	471.65	16.0%	75.6%
8/1/1972-7/1/1973	43	608.35	459.88	16.4%	75.6%
8/1/1973-7/1/1974	42	591.03	446.78	16.9%	75.6%
8/1/1974-7/1/1975	41	554.80	419.40	18.0%	75.6%
8/1/1975-7/1/1976	40	494.57	373.86	20.2%	75.6%
8/1/1976-7/1/1977	39	451.29	341.15	22.2%	75.6%
8/1/1977-7/1/1978	38	422.91	319.69	23.6%	75.6%
8/1/1978-7/1/1979	37	391.95	296.29	25.5%	75.6%
8/1/1979-7/1/1980	36	355.99	269.11	28.1%	75.6%
8/1/1980-7/1/1981	35	313.34	236.87	31.9%	75.6%
8/1/1981-7/1/1982	34	276.54	216.31	36.2%	78.2%
8/1/1982-7/1/1983	33	253.87	203.62	39.4%	80.2%
8/1/1983-7/1/1984	32	246.09	197.78	40.6%	80.4%
8/1/1984-7/1/1985	31	243.46	190.24	41.1%	78.1%
8/1/1985-7/1/1986	30	234.64	181.11	42.6%	77.2%
8/1/1986-7/1/1987	29	226.07	176.47	44.2%	78.1%
8/1/1987-7/1/1988	28	222.93	174.02	44.9%	78.1%
8/1/1988-7/1/1989	27	217.49	170.64	46.0%	78.5%
8/1/1989-7/1/1990	26	210.28	167.32	47.6%	79.6%
8/1/1990-7/1/1991	25	200.32	164.04	49.9%	81.9%
8/1/1991-7/1/1992	24	189.32	160.83	52.8%	85.0%
8/1/1992-7/1/1993	23	180.14	157.68	55.5%	87.5%
8/1/1993-7/1/1994	22	172.53	154.58	58.0%	89.6%
8/1/1994-7/1/1995	21	166.68	151.55	60.0%	90.9%
8/1/1995-7/1/1996	20	161.98	148.58	61.7%	91.7%
8/1/1996-7/1/1997	19	157.43	145.66	63.5%	92.5%
8/1/1997-7/1/1998	18	152.08	142.81	65.8%	93.9%
8/1/1998-7/1/1999	17	147.08	139.87	68.0%	95.1%
8/1/1999-7/1/2000	16	144.35	137.27	69.3%	95.1%
8/1/2000-7/1/2001	15	139.75	134.23	71.6%	96.0%
8/1/2001-7/1/2002	14	135.51	130.14	73.8%	96.0%
8/1/2002-7/1/2003	13	132.24	127.00	75.6%	96.0%
8/1/2003-7/1/2004	12	131.23	126.02	76.2%	96.0%
8/1/2004-7/1/2005	11	129.47	124.33	77.2%	96.0%
8/1/2005-7/1/2006	10	126.21	121.89	79.2%	96.6%
8/1/2006-7/1/2007	9	123.06	119.50	81.3%	97.1%
8/1/2007-7/1/2008	8	119.95	117.16	83.4%	97.7%
8/1/2008-7/1/2009	7	115.65	113.35	86.5%	98.0%
8/1/2009-7/1/2010	6	111.98	109.72	89.3%	98.0%
8/1/2010-7/1/2011	5	111.85	109.59	89.4%	98.0%
8/1/2011-7/1/2012	4	110.47	108.24	90.5%	98.0%
8/1/2012-7/1/2013	3	107.40	106.11	93.1%	98.8%
8/1/2013-7/1/2014	2	104.97	104.03	95.3%	99.1%
8/1/2014-7/1/2015	1	102.41	102.00	97.6%	99.6%
8/1/2015-7/1/2016	0	100.00	100.00	100.0%	100.0%

j:\orr\letters\162001purchasingpowerstudy.docx

*This work product was prepared solely for Oregon PERS for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.*