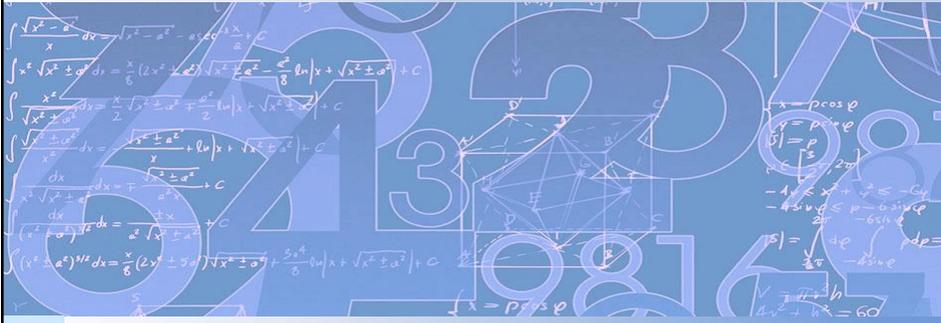


Actuarial Update On The State Retirement Plans

Lisa Won, ASA, FCA, MAAA
Senior Actuary

Presentation to
DRS Advisory Committee



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

November 14, 2014

Today's Presentation

- Current actuarial valuation results
- Contribution rate adoption process
- New financial reporting



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Office of the State Actuary

Key Pension Plan Measures

- Funded status (FS)
- Unfunded Actuarial Accrued Liabilities (UAAL)
- Contribution rates

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Funded Status Compares Assets To Liabilities

- FS equals Actuarial Value of Assets divided by Accrued Liabilities
- Actuarial Value of Assets
 - Investment gains or losses smoothed over a period up to eight years
 - Limits the annual volatility in contribution rates and funded status that would result if the market value of assets was used
- Accrued Liabilities or “earned” benefits
 - Obligations of the plan for current members
 - Based on service earned at the measurement date



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Funded Status Is A Measure Of Plan Health

- FS more than 100 percent
 - More than \$1 of assets for every \$1 of earned benefits
 - On track with systematic actuarial funding plan
- FS less than 100 percent
 - Plan needs additional assets to get it back on track to full funding
 - UAAL payment needed in addition to payments for the next year of pensions earned

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4

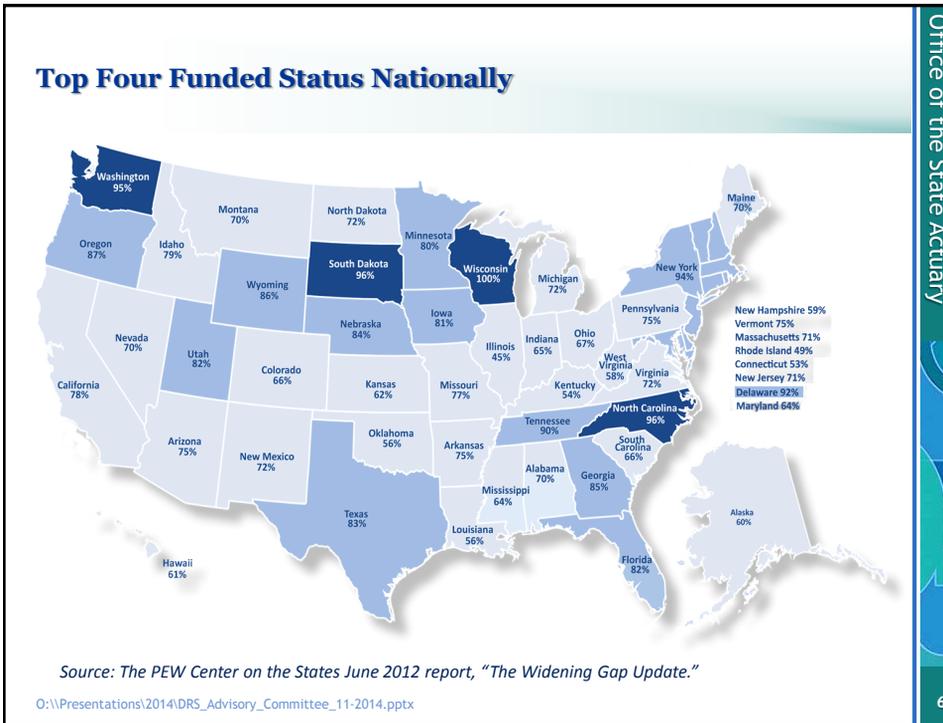
Washington Plans Well-Funded Overall

Funded Status at June 30		
(Dollars in Millions)	2013	2012
All Systems		
a. Accrued Liability	\$69,828	\$62,578
b. Market Value of Assets	62,213	56,753
c. Deferred Gains/(Losses)	(3,245)	(6,369)
d. Actuarial Value of Assets (b-c)	65,458	63,122
e. Unfunded Liability (a-d)	\$4,370	(\$544)
f. Funded Ratio (d/a)	94%	101%

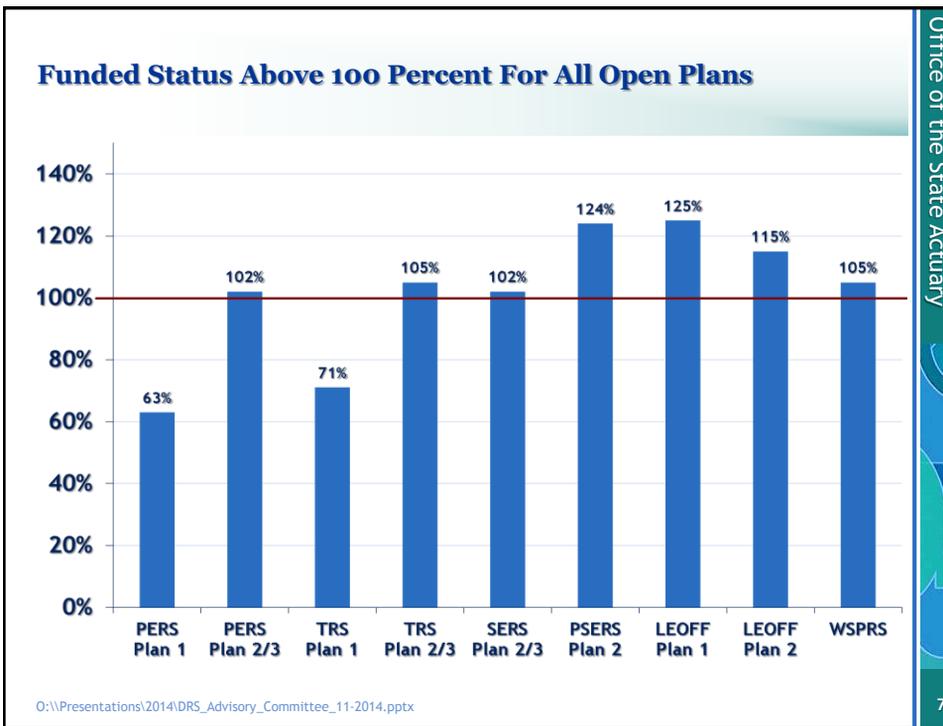
Note: Totals may not agree due to rounding.

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5



Office of the State Actuary



Office of the State Actuary

Funded Status By Plan At June 30, 2013

Funded Status on an Actuarial Value Basis										
(Dollars in Millions)	PERS		TRS		SERS	PSERS	LEOFF		WSPRS	Total
	Plan 1	Plan 2/3	Plan 1	Plan 2/3	Plan 2/3	Plan 2	Plan 1	Plan 2		
Accrued Liability	\$12,884	\$23,798	\$9,449	\$8,016	\$3,273	\$180	\$4,410	\$6,859	\$959	\$69,828
Valuation Assets	\$8,053	\$24,335	\$6,717	\$8,406	\$3,335	\$224	\$5,516	\$7,862	\$1,009	\$65,458
Unfunded Liability	\$4,831	(\$537)	\$2,732	(\$390)	(\$62)	(\$44)	(\$1,107)	(\$1,003)	(\$50)	\$4,370
Funded Ratio										
2013 *	63%	102%	71%	105%	102%	124%	125%	115%	105%	94%
2012	69%	111%	79%	114%	110%	134%	135%	119%	114%	101%
2011 *	71%	112%	81%	113%	110%	132%	135%	119%	115%	101%
2010 *	74%	113%	84%	116%	113%	129%	127%	119%	118%	102%
2009 *	70%	116%	75%	118%	116%	128%	125%	128%	119%	99%
2008 *	71%	119%	77%	125%	121%	127%	128%	133%	121%	100%
2007 *	71%	120%	76%	130%	126%	120%	123%	129%	118%	99%
2006 *	74%	121%	80%	133%	125%	99%	117%	116%	114%	100%
2005 *	74%	127%	80%	134%	122%	N/A	114%	114%	113%	99%
2004	81%	134%	88%	153%	137%	N/A	109%	117%	118%	105%
2003	82%	142%	89%	155%	138%	N/A	112%	125%	123%	107%
2002	92%	158%	98%	182%	169%	N/A	119%	137%	135%	118%
2001 *	97%	179%	100%	197%	197%	N/A	129%	154%	147%	126%
2000 *	98%	190%	100%	196%	170%	N/A	136%	161%	152%	131%

*Assumption or method change.

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Legacy Costs Exist In Closed PERS And TRS Plans 1

- FS below 100 percent
 - PERS 1 is 63 percent
 - TRS 1 is 71 percent
- UAAL contributions needed in addition to “normal cost” contributions
- Employer pays UAAL rates, no member payments to UAAL
 - PERS 1 UAAL paid by PERS, SERS, and PSERS employers
 - TRS 1 UAAL paid by TRS employers



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PERS 1 And TRS 1 UAAL At June 30, 2013

Funded Status on an Actuarial Value Basis										
(Dollars in Millions)	PERS		TRS		SERS	PSERS	LEOFF		WSPRS	Total
	Plan 1	Plans 2/3	Plan 1	Plans 2/3	Plans 2/3	Plan 2	Plan 1	Plan 2		
Accrued Liability	\$12,884	\$23,798	\$9,449	\$8,016	\$3,273	\$180	\$4,410	\$6,859	\$959	\$69,828
Valuation Assets	\$8,053	\$24,335	\$6,717	\$8,406	\$3,335	\$224	\$5,516	\$7,862	\$1,009	\$65,458
Unfunded Liability	\$4,831	(\$537)	\$2,732	(\$390)	(\$62)	(\$44)	(\$1,107)	(\$1,003)	(\$50)	\$4,370

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Key Factors Of PERS 1 And TRS 1 Legacy Costs

- Underfunding
- Providing benefit enhancements for past service without full funding
- Negative amortization payment schedule
- Additional detail available in [2010 Risk Assessment Report](#)



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Plan For Getting PERS 1 And TRS 1 Back On Track

- New funding method adopted in 2009
- Requires higher employer UAAL contribution rates
- Phasing in higher UAAL rate requirements
 - Full requirements begin in 2015
- Expected full funding dates
 - 2027 in PERS 1; 2026 in TRS 1
 - Assumes required contributions are made and actuarial assumptions are realized
 - Full funding will occur sooner/later under optimistic/pessimistic outcomes

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Contribution Rate Adoption Process Occurs In Even Years

- Contribution rates are calculated as part of an actuarial valuation
 - Performed by the Office of the State Actuary (OSA)
 - Audited by an outside actuary
- Pension Funding Council and LEOFF 2 Board adopt contribution rates
 - Rates are effective for the following biennium
 - 2014 rate adoption process for 2015-17 rates
- Rates can be revised by the Legislature



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Key Inputs For The Actuarial Valuation

- Member data
 - Provided by DRS
- Assets of the pension trust fund
 - Provided by WSIB and DRS
- Assumptions about the future
- Funding policy
 - Set in statute

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Assumptions Are Reviewed And Updated Regularly

- To ensure they remain reasonable over the long term
- Economic assumptions
 - Formally reviewed at least every two years by OSA
 - Reviewed and adopted by the PFC and LEOFF 2 Board in odd years
 - Include inflation, investment returns, general salary growth, and growth in plan membership
- Demographic assumptions
 - Formally reviewed at least every six years by OSA
 - Reviewed/adopted by the PFC and LEOFF 2 Board during a 'rate setting' cycle as part of the contribution rate adoption process
 - Include assumptions such as termination rates, retirement rates, merit salary increases, etc.

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Demographic Experience Study Completed In 2014

- Contribution rates for 2015-17 incorporate demographic assumption updates
- Main impact resulted from updating the mortality assumption
 - Research and actual plan experience show people are living longer
 - OSA recommended moving from 50 percent of Scale AA to 100 percent of Scale BB to model future improvements in mortality



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16

National Studies Show People Are Living Longer

- Life expectancy has increased about two years per decade since 1960

Year	Life Expectancy
1900	47.3
1920	54.1
1940	62.9
1960	69.7
1980	73.7
2000	76.8
2010	78.8

Life expectancy from birth. U.S. Census Bureau; all races, all genders.

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17

Observed Mortality Improvement In Washington Retirement Systems Consistent With 100 Percent Of Scale BB

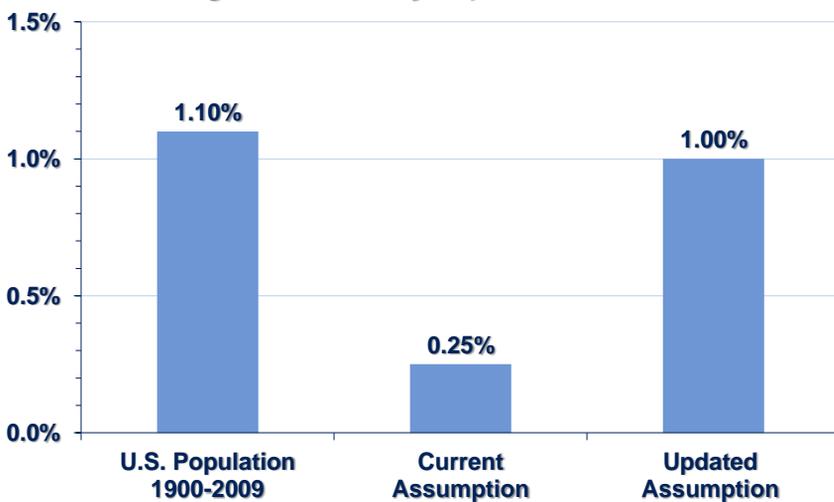
Comparison of Observed Mortality Improvement in Washington to SOA Mortality Projection Scales

	% of Scale AA	% of Scale BB
1984-2012	109%	78%
1990-2012	152%	97%
1996-2012	204%	127%
2001-2012	143%	136%

For PERS, TRS, SERS, PSERS, LEOFF, and WSPRS combined.

Current Assumption Less Than One Quarter Of Observed Long-Term Improvement in U.S.

Long-Term Mortality Improvement Rates



Contribution Rates Adopted For 2015-17

	Current Rates 2013-15		Adopted Rates 2015-17	
	Member*	Employer**	Member*	Employer**
PERS	4.92%	9.03%	6.12%	11.00%
TRS	4.96%	10.21%	5.95%	12.95%
SERS	4.64%	9.64%	5.63%	11.40%
PSERS	6.36%	10.36%	6.59%	11.36%
LEOFF***	8.41%	8.41%	8.41%	8.41%
WSPRS	6.59%	7.91%	6.69%	8.01%

*Plan 2 members only. Plan 3 members do not contribute to the defined benefit portion of their plan and Plan 1 members contribute a fixed 6%.

**Does not include the DRS administration fee.

***No contributions are required to LEOFF Plan 1 when the plan is fully funded. LEOFF 2 Employer rates are state and local employer combined.

Future Contribution Increases Expected

- Still recognizing deferred asset losses under asset smoothing method
- Three-biennia phase-in of higher requirements resulting from new mortality assumption
- Lowering assumed rate of investment return
 - 7.8 percent assumed ROR for 2015-17
 - 7.7 percent assumed ROR for 2017+
- Creates short-term pressure on state and local government budgets
 - Pay now or pay more later



New Changes In Financial Reporting For Pensions

- New reporting of pension liability and funded status from Governmental Accounting Standards Board (GASB)
- Aimed at more comparability across plans
- Accounting standards don't determine the funding requirements
 - OSA valuations—funding
 - GASB—accounting

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Two Statements: GASB 67 And 68

- GASB 67: Reporting at plan level
 - In effect now
 - Impacts DRS reporting
- GASB 68: Reporting at employer level
 - Not in effect until FY 2015
 - Impacts OFM and local government reporting



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How Funding And Accounting Measures Differ

	Funding Actuarial Valuation Report (AVR)	Accounting Comprehensive Annual Financial Report (CAFR)
Timing	Measurement Date Date of AVR	Fiscal Year End Roll Forward Prior AVR results
Asset Method	Actuarial Value of Assets "smoothed assets"	Market Value of Assets
Discount Rate*	Established in Statute 2015-17: 7.8% 2017:* 7.7%	Long-term Expected Rate of Return when plan remains solvent** 7.5%

*7.5% Funding rate for LEOFF2.

**Accounting rate is municipal bond rate for period when plan is expected to be insolvent.

Comparison Of Funding And Accounting Results

Funding (6/30/2013)	PERS		TRS		Total
	Plan 1	Plans 2/3	Plan 1	Plans 2/3	
PUC Liability*	\$12,884	\$23,798	\$9,449	\$8,016	\$69,828
Actuarial Value of Assets	\$8,053	\$24,335	\$6,717	\$8,406	\$65,458
Unfunded Liability	\$4,831	(\$537)	\$2,732	(\$390)	\$4,370
Funded Ratio	63%	102%	71%	105%	94%
Accounting (6/30/2014)	PERS		TRS		Total
Total Pension Liability (TPL)**	\$12,979	\$30,120	\$9,444	\$10,113	
Market Value of Assets (MVA)	\$7,942	\$28,099	\$6,494	\$9,790	\$72,553
Net Pension Liability (TPL-MVA)	\$5,038	\$2,021	\$2,949	\$323	\$7,961
MVA/TPL	61%	93%	69%	97%	90%

*PUC Liability is based on the Projected Unit Credit actuarial cost method.

**TPL is based on the Entry Age Normal actuarial cost method.

- Total represents all plans in PERS, TRS, SERS, PSERS, LEOFF, and WSPRS

Conclusion

- Among best funded systems nationally
- Pension plans require consistent, stable, and adequate funding to remain affordable over the long term
- Stay on track with the funding plan
 - Future rate increases expected
 - Funding shortfalls today increase future contribution requirements
 - Pay now or pay more later
- Regularly review plan experience and assumptions used to model experience
 - Update assumptions when appropriate
- Different measures for the pension plans have different purposes
 - Actuarial valuation report – funding: how to pay for the plans
 - Financial reporting (CAFR) – accounting

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Additional Pension References

- [Office of the State Actuary](#)
 - [2013 Actuarial Valuation Report](#)
 - [Report on Financial Condition and Economic Experience Study](#)
 - [Risk Assessment Report](#)
 - [Demographic Experience Study](#)

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Appendix



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More Information

- Additional funded status results
- Additional information on mortality study

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Funded Status By Plan With Different Interest Rate Assumption

Funded Status at a 1% Lower Interest Rate Assumption										
(Dollars in Millions)	PERS		TRS		SERS	PSERS	LEOFF		WSPRS	Total
	Plan 1	Plan 2/3	Plan 1	Plan 2/3	Plan 2/3	Plan 2	Plan 1	Plan 2		
Accrued Liability	\$14,012	\$27,818	\$10,272	\$9,523	\$3,806	\$226	\$4,844	\$8,212	\$1,105	\$79,818
Valuation Assets	\$8,053	\$24,335	\$6,717	\$8,406	\$3,335	\$224	\$5,516	\$7,862	\$1,009	\$65,458
Unfunded Liability	\$5,959	\$3,484	\$3,555	\$1,117	\$471	\$2	(\$673)	\$349	\$96	\$14,360
Funded Ratio										
2013	57%	87%	65%	88%	88%	99%	114%	96%	91%	82%
2012	64%	96%	73%	97%	95%	108%	124%	100%	100%	89%

Funded Status at a 1% Higher Interest Rate Assumption										
(Dollars in Millions)	PERS		TRS		SERS	PSERS	LEOFF		WSPRS	Total
	Plan 1	Plan 2/3	Plan 1	Plan 2/3	Plan 2/3	Plan 2	Plan 1	Plan 2		
Accrued Liability	\$11,914	\$20,600	\$8,741	\$6,838	\$2,845	\$147	\$4,039	\$5,808	\$843	\$61,775
Valuation Assets	\$8,053	\$24,335	\$6,717	\$8,406	\$3,335	\$224	\$5,516	\$7,862	\$1,009	\$65,458
Unfunded Liability	\$3,861	(\$3,735)	\$2,023	(\$1,568)	(\$490)	(\$78)	(\$1,477)	(\$2,054)	(\$167)	(\$3,683)
Funded Ratio										
2013	68%	118%	77%	123%	117%	153%	137%	135%	120%	106%
2012	74%	128%	85%	133%	126%	162%	146%	140%	129%	113%

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Several Mortality Projection Scales Available From SOA

- Mortality projection scales
 - Scale AA (0.5 percent long-term improvement rate)
 - Scale BB (1.0 percent long-term improvement rate)
 - MP-2014 (published October 2014)
- Represent annual rates of improvement (decreases) in future mortality rates
 - Separate rates by gender



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Long-Term Rates Of Improvement In U.S. Hovered Around 1 Percent

- According to the Society of Actuaries (SOA), long-term averages of U.S. population mortality improvement rates generally hovered around 1 percent
 - Between 1900 and 2009, the age-sex-adjusted death rate in U.S. declined at an average rate of 1.10 percent per year
 - From 1982 to 2009, the same death rate declined at an average rate of 0.92 percent per year
- In 2011, life expectancies recommended by an outside Technical Panel to SSA for their intermediate cost projections equate to a long-term improvement rate of 1.26 percent
- In 2013, the CBO assumed a long-term improvement rate of 1.17 percent in their Long-Term Budget Outlook report
- According to SOA, there's a long-standing pattern of lower mortality rates among retirement program participants compared to the general U.S. population

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32

Many Factors Will Affect Future Mortality Trends

- According to Office of the Chief Actuary (OCACT) for SSA, factors contributing to generally rapid overall rate of improvement during past century
 - Access to primary medical care
 - Discovery of and general availability of antibiotics and immunizations
 - Clean water supply and waste removal
 - Rapid rate of growth in standard of living
- According to OCACT, each of these developments is expected to make a substantially smaller contribution to future improvement rates
- According to OCACT, future improvements will depend on
 - Medical technology and innovation
 - Treatment and evolution of existing disease; emergence of new disease
 - Changes in amount/type of physical activity; changes in nutrition
 - Prevalence of obesity and cigarette smoking
 - Other factors not summarized here

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33

Life Expectancies For A 65-Year Old In 2034 Increase Over Two Years Under Updated Assumption*

	50% of Scale AA (Current Assumption)	100% of Scale AA	100% of Scale BB (Updated Assumption)
In 2014			
Male	83.1	83.7	84.1
Female	85.4	85.7	86.4
In 2024			
Male	83.5	84.4	85.1
Female	85.6	86.1	87.3
In 2034			
Male	83.9	85.1	86.2
Female	85.8	86.6	88.2

**All based on RP-2000 combined mortality table with mortality projection to the year indicated above. No projection of mortality improvement beyond the year indicated above.*

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