

# Required Supplementary Information

## Schedule of Changes in the Employers' Net Pension Liability

Year Ended December 31

(in thousands)

	2019	2018	2017	2016
Total pension liability				
Service cost	\$ 404,539	404,391	403,981	407,690
Interest	1,989,449	1,920,238	1,877,576	1,764,653
Benefit changes	—	—	—	48,400
Difference between actual and expected experience	234,989	32,680	(84,234)	6,408
Assumption changes	—	—	642,187	563,741
Benefit payments	(1,396,983)	(1,320,214)	(1,248,037)	(1,184,317)
Refunds	(3,127)	(2,766)	(4,635)	(4,366)
Net change in total pension liability	1,228,867	1,034,329	1,586,838	1,602,209
Total pension liability — beginning	29,122,948	28,088,619	26,501,781	24,899,572
Total pension liability — ending (a)	30,351,815	29,122,948	28,088,619	26,501,781
Plan fiduciary net position				
Contributions — member	11,730	14,602	17,285	16,308
Contributions — employer	888,078	858,444	854,255	831,631
Court fees and fire insurance tax	—	—	—	—
Net investment income	3,499,188	(92,207)	2,987,282	1,783,911
Benefit payments	(1,396,983)	(1,320,214)	(1,248,037)	(1,184,317)
Refunds	(3,127)	(2,766)	(4,635)	(4,366)
Administrative expense	(9,411)	(9,962)	(9,579)	(8,856)
Net transfers with affiliated systems	(19,611)	13,035	(10,187)	(8,005)
Net change in plan fiduciary net position	2,969,864	(539,068)	2,586,384	1,426,306
Plan fiduciary net position — beginning	24,666,059	25,205,127	22,618,743	21,192,437
Plan fiduciary net position — ending (b)	27,635,923	24,666,059	25,205,127	22,618,743
Net pension liability/(asset) — ending (a-b)	\$ 2,715,892	4,456,889	2,883,492	3,883,038
Plan fiduciary net position as a percentage of the total pension liability	91.1%	84.7%	89.7%	85.3%
Projected covered payroll	\$ 3,328,314	3,330,548	3,375,321	3,406,567
Net pension liability/(asset) as a percentage of covered payroll	81.6%	133.8%	85.4%	114.0%

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

Utah Retirement Systems

Noncontributory Retirement System			Contributory Retirement System						
2015	2014	2013	2019	2018	2017	2016	2015	2014	2013
394,798	407,992	441,320	3,536	4,044	4,801	5,673	8,672	9,580	10,997
1,775,819	1,699,693	1,646,213	86,205	87,297	90,124	91,894	95,463	93,819	93,750
—	—	23,123	—	—	—	(45,057)	—	—	721
(188,166)	(204,823)	(208,501)	(12,817)	(17,249)	(24,988)	(13,801)	(15,289)	(22,839)	(20,520)
—	(157,921)	—	—	—	22,108	22,909	—	(4,233)	—
(1,123,647)	(1,043,798)	(974,684)	(88,162)	(86,795)	(84,761)	(83,447)	(81,390)	(77,015)	(74,158)
(2,496)	(2,204)	(2,454)	(2,660)	(1,471)	(1,613)	(1,700)	(1,215)	(2,433)	(1,922)
856,308	698,939	925,017	(13,898)	(14,174)	5,671	(23,529)	6,241	(3,121)	8,868
24,043,264	23,344,325	22,419,308	1,284,009	1,298,183	1,292,512	1,316,041	1,309,800	1,312,921	1,304,053
24,899,572	24,043,264	23,344,325	1,270,111	1,284,009	1,298,183	1,292,512	1,316,041	1,309,800	1,312,921
17,020	13,587	14,208	1,950	2,455	2,675	3,420	4,771	5,461	6,376
813,449	772,420	710,933	5,433	6,027	7,946	8,188	11,719	12,954	12,874
—	—	—	—	—	—	—	—	—	—
366,748	1,419,053	2,588,981	163,935	(4,513)	155,949	97,693	21,251	87,577	169,510
(1,123,647)	(1,043,798)	(974,684)	(88,162)	(86,795)	(84,761)	(83,447)	(81,390)	(77,015)	(74,158)
(2,496)	(2,204)	(2,454)	(2,660)	(1,471)	(1,613)	(1,700)	(1,215)	(2,433)	(1,922)
(8,797)	(8,828)	(8,329)	(408)	(454)	(457)	(446)	(478)	(494)	(480)
33,648	30,467	(42,277)	9,775	(26,286)	(1,177)	(1,895)	(41,558)	(38,004)	33,094
95,925	1,180,697	2,286,378	89,863	(111,037)	78,562	21,813	(86,900)	(11,954)	145,294
21,096,512	19,915,815	17,629,437	1,172,429	1,283,466	1,204,904	1,183,091	1,269,991	1,281,945	1,136,651
21,192,437	21,096,512	19,915,815	1,262,292	1,172,429	1,283,466	1,204,904	1,183,091	1,269,991	1,281,945
3,707,135	2,946,752	3,428,510	7,819	111,580	14,717	87,608	132,950	39,809	30,976
85.1%	87.7%	85.3%	99.4%	91.3%	98.9%	93.2%	89.9%	97.0%	97.6%
3,458,286	3,570,912	3,705,771	34,317	39,279	45,177	53,615	82,426	90,623	98,023
107.2%	82.5%	92.5%	22.8%	284.1%	32.6%	163.4%	161.3%	43.9%	31.6%

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**Utah Retirement Systems**  
**Required Supplementary Information** (Continued)

**Schedules of Changes in the Employers' Net Pension Liability** (Continued)

Year Ended December 31

(in thousands)

	2019	2018	2017	2016
Total pension liability				
Service cost	\$ 78,229	80,296	78,272	78,843
Interest	291,647	280,149	269,818	249,722
Benefit changes	—	—	—	—
Difference between actual and expected experience	34,291	1,441	(3,041)	9,358
Assumption changes	—	—	118,370	110,373
Benefit payments	(201,923)	(188,414)	(172,870)	(164,508)
Refunds	(76)	(428)	(226)	(183)
Net change in total pension liability	202,168	173,044	290,323	283,605
Total pension liability — beginning	4,258,247	4,085,203	3,794,880	3,511,275
Total pension liability — ending (a)	4,460,415	4,258,247	4,085,203	3,794,880
Plan fiduciary net position				
Contributions — member	856	895	793	830
Contributions — employer	150,467	147,101	145,814	147,099
Court fees and fire insurance tax	—	—	—	—
Net investment income	502,657	(13,134)	421,917	249,027
Benefit payments	(201,923)	(188,414)	(172,870)	(164,508)
Refunds	(76)	(428)	(226)	(183)
Administrative expense	(1,376)	(1,450)	(1,382)	(1,260)
Net transfers with affiliated systems	5,512	6,982	5,926	6,701
Net change in plan fiduciary net position	456,117	(48,448)	399,972	237,706
Plan fiduciary net position — beginning	3,528,069	3,576,517	3,176,545	2,938,839
Plan fiduciary net position — ending (b)	3,984,186	3,528,069	3,576,517	3,176,545
Net pension liability/(asset) — ending (a-b)	\$ 476,229	730,178	508,686	618,335
Plan fiduciary net position as a percentage of the total pension liability	89.3%	82.9%	87.5%	83.7%
Projected covered payroll	\$ 339,705	348,475	350,782	352,407
Net pension liability/(asset) as a percentage of covered payroll	140.2%	209.5%	145.0%	175.5%

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

Utah Retirement Systems

Public Safety Retirement System			Firefighters Retirement System						
2015	2014	2013	2019	2018	2017	2016	2015	2014	2013
75,352	76,681	81,736	29,281	29,378	28,775	28,652	27,182	27,266	29,577
248,980	236,803	229,965	86,589	82,819	80,386	75,334	75,212	71,490	70,259
—	—	—	—	—	—	—	—	—	—
(17,164)	(25,225)	(29,228)	(437)	937	(9,216)	(5,525)	(8,259)	(15,077)	(13,083)
—	(52,410)	—	—	—	31,357	25,572	—	(20,372)	—
(155,387)	(144,763)	(137,486)	(59,847)	(57,440)	(54,793)	(52,102)	(49,671)	(47,710)	(44,747)
(533)	(199)	(467)	(255)	(132)	(511)	(466)	(528)	(293)	(106)
151,248	90,887	144,520	55,331	55,562	75,998	71,465	43,936	15,304	41,900
3,360,027	3,269,140	3,124,620	1,261,289	1,205,727	1,129,729	1,058,264	1,014,328	999,024	957,124
3,511,275	3,360,027	3,269,140	1,316,620	1,261,289	1,205,727	1,129,729	1,058,264	1,014,328	999,024
905	835	1,258	18,701	18,305	18,460	18,729	18,175	18,300	18,325
141,024	135,588	128,744	7,443	7,021	6,715	6,954	6,690	5,514	3,494
—	—	—	41,859	8,747	1,223	10,569	17,218	14,154	11,285
50,654	194,222	350,563	174,141	(4,509)	146,736	87,746	17,934	69,070	125,685
(155,387)	(144,763)	(137,486)	(59,847)	(57,440)	(54,793)	(52,102)	(49,671)	(47,710)	(44,747)
(533)	(199)	(467)	(255)	(132)	(511)	(466)	(528)	(293)	(106)
(1,233)	(1,227)	(1,161)	(405)	(427)	(408)	(374)	(371)	(370)	(355)
4,023	2,746	4,676	2,027	1,917	1,259	1,611	2,573	3,713	1,302
39,453	187,202	346,127	183,664	(26,518)	118,681	72,667	12,020	62,378	114,883
2,899,386	2,712,184	2,366,057	1,207,889	1,234,407	1,115,726	1,043,059	1,031,039	968,661	853,778
2,938,839	2,899,386	2,712,184	1,391,553	1,207,889	1,234,407	1,115,726	1,043,059	1,031,039	968,661
572,436	460,641	556,956	(74,933)	53,400	(28,680)	14,003	15,205	(16,711)	30,363
83.7%	86.3%	83.0%	105.7%	95.8%	102.4%	98.8%	98.6%	101.6%	97.0%
355,171	360,750	365,998	113,330	113,587	112,953	112,322	111,133	111,305	110,741
161.2%	127.7%	152.2%	(66.1)%	47.0%	(25.4)%	12.5%	13.7%	(15.0)%	27.4%

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**Utah Retirement Systems**  
**Required Supplementary Information** (Continued)

**Schedules of Changes in the Employers' Net Pension Liability** (Continued)

Year Ended December 31

(in thousands)

	2019	2018	2017	2016
Total pension liability				
Service cost	\$ 6,054	5,682	5,325	5,023
Interest	16,649	15,697	14,866	14,064
Benefit changes	—	—	—	—
Difference between actual and expected experience	7,615	7,872	809	1,995
Assumption changes	—	—	13,067	2,885
Benefit payments	(15,346)	(16,111)	(13,621)	(12,330)
Refunds	—	—	—	—
Net change in total pension liability	14,972	13,140	20,446	11,637
Total pension liability — beginning	244,209	231,069	210,623	198,986
Total pension liability — ending (a)	259,181	244,209	231,069	210,623
Plan fiduciary net position				
Contributions — member	—	—	—	—
Contributions — employer	8,500	8,091	7,563	7,382
Court fees and fire insurance tax	1,536	1,518	1,477	1,470
Net investment income	27,775	(730)	23,435	13,820
Benefit payments	(15,346)	(16,111)	(13,621)	(12,330)
Refunds	—	—	—	—
Administrative expense	(81)	(84)	(79)	(71)
Net transfers with affiliated systems	2,339	4,403	4,090	1,600
Net change in plan fiduciary net position	24,723	(2,913)	22,865	11,871
Plan fiduciary net position — beginning	195,570	198,483	175,618	163,747
Plan fiduciary net position — ending (b)	220,293	195,570	198,483	175,618
Net pension liability/(asset) — ending (a-b)	\$ 38,888	48,639	32,586	35,005
Plan fiduciary net position as a percentage of the total pension liability	85.0%	80.1%	85.9%	83.4%
Projected covered payroll	\$ 19,596	18,802	18,661	16,755
Net pension liability/(asset) as a percentage of covered payroll	198.4%	258.7%	174.6%	208.9%

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

Utah Retirement Systems

Judges Retirement System			Utah Governors and Legislators Retirement Plan						
2015	2014	2013	2019	2018	2017	2016	2015	2014	2013
4,794	4,895	4,537	59	65	68	89	99	106	100
14,136	13,641	12,924	883	877	879	851	890	884	860
—	—	—	—	—	—	—	—	—	—
171	2,602	(569)	(54)	139	182	167	(105)	307	(233)
—	(130)	—	—	—	264	241	—	—	—
(12,400)	(11,361)	(10,189)	(1,012)	(978)	(973)	(941)	(904)	(909)	(892)
—	—	—	—	—	—	—	—	—	—
6,701	9,647	6,703	(124)	103	420	407	(20)	388	(165)
192,285	182,638	175,935	13,177	13,074	12,654	12,247	12,267	11,879	12,044
198,986	192,285	182,638	13,053	13,177	13,074	12,654	12,247	12,267	11,879
—	317	—	—	—	—	—	—	—	—
6,555	5,627	4,990	384	392	404	421	421	411	252
1,653	1,486	1,498	—	—	—	—	—	—	—
2,842	11,068	20,130	1,481	(41)	1,353	849	181	717	1,346
(12,400)	(11,361)	(10,189)	(1,012)	(978)	(973)	(941)	(904)	(909)	(892)
—	—	—	—	—	—	—	—	—	—
(71)	(71)	(66)	(4)	(5)	(5)	(4)	(5)	(5)	(4)
1,334	1,092	3,186	(42)	(51)	89	(12)	(20)	(14)	19
(87)	8,158	19,549	807	(683)	868	313	(327)	200	721
163,834	155,676	136,127	10,537	11,220	10,352	10,039	10,366	10,166	9,445
163,747	163,834	155,676	11,344	10,537	11,220	10,352	10,039	10,366	10,166
35,239	28,451	26,962	1,709	2,640	1,854	2,302	2,208	1,901	1,713
82.3%	85.2%	85.2%	86.9%	80.0%	85.8%	81.8%	82.0%	84.5%	85.6%
15,832	16,072	15,195	639	639	722	799	943	928	390
222.6%	177.0%	177.4%	267.4%	413.1%	256.6%	288.1%	234.1%	204.8%	439.2%

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**Utah Retirement Systems**  
**Required Supplementary Information** (Continued)

**Schedules of Changes in the Employers' Net Pension Liability** (Continued)

Year Ended December 31

(in thousands)

	2019	2018	2017	2016
Total pension liability				
Service cost	\$ 124,244	104,736	84,388	69,887
Interest	36,773	27,109	19,471	12,608
Benefit changes	—	—	—	—
Difference between actual and expected experience	6,561	(1,727)	357	(1,917)
Assumption changes	—	—	5,786	7,867
Benefit payments	(965)	(692)	(417)	(316)
Refunds	—	—	—	—
Net change in total pension liability	166,613	129,426	109,585	88,129
Total pension liability — beginning	467,461	338,035	228,450	140,321
Total pension liability — ending (a)	634,074	467,461	338,035	228,450
Plan fiduciary net position				
Contributions — member	—	—	—	—
Contributions — employer	119,839	97,680	79,175	63,062
Court fees and fire insurance tax	—	—	—	—
Net investment income	68,228	(1,454)	33,249	14,059
Benefit payments	(965)	(692)	(417)	(316)
Refunds	—	—	—	—
Administrative expense	(152)	(119)	(82)	(51)
Net transfers with affiliated systems	—	—	—	—
Net change in plan fiduciary net position	186,950	95,415	111,925	76,754
Plan fiduciary net position — beginning	424,633	329,218	217,293	140,539
Plan fiduciary net position — ending (b)	611,583	424,633	329,218	217,293
Net pension liability/(asset) — ending (a-b)	\$ 22,491	42,828	8,817	11,157
Plan fiduciary net position as a percentage of the total pension liability	96.5%	90.8%	97.4%	95.1%
Projected covered payroll	\$ 1,380,488	1,171,543	996,965	822,196
Net pension liability/(asset) as a percentage of covered payroll	1.6%	3.7%	0.9%	1.4%

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

Utah Retirement Systems

Tier 2 Public Employees Retirement System			Tier 2 Public Safety and Firefighter Retirement System						
2015	2014	2013	2019	2018	2017	2016	2015	2014	2013
51,005	39,283	29,318	24,849	13,998	10,763	8,164	5,466	3,579	2,151
8,370	4,648	2,351	4,811	3,199	2,133	1,274	746	379	159
—	—	(119)	2,537	—	—	—	—	—	(7)
(4,982)	(4,577)	(4,459)	1,839	621	(2)	425	220	50	106
—	(1,385)	—	—	—	1,924	803	—	(127)	—
(333)	—	—	(90)	—	(61)	(28)	(30)	—	—
—	—	—	—	—	—	—	—	—	—
54,060	37,969	27,091	33,946	17,818	14,757	10,638	6,402	3,881	2,409
86,261	48,292	21,201	56,841	39,023	24,266	13,628	7,226	3,345	936
140,321	86,261	48,292	90,787	56,841	39,023	24,266	13,628	7,226	3,345
—	—	—	—	55	—	—	—	—	—
49,645	37,299	25,743	18,197	14,295	11,126	8,488	6,221	4,365	2,451
—	—	—	—	—	—	—	—	—	—
1,963	4,320	4,017	8,958	(180)	3,989	1,591	199	404	316
(333)	—	—	(90)	—	(61)	(28)	(30)	—	—
—	—	—	—	—	—	—	—	—	—
(30)	(16)	(6)	(20)	(14)	(9)	(5)	(3)	(1)	—
3	(2)	3	—	—	—	—	(3)	2	(3)
51,248	41,601	29,757	27,045	14,156	15,045	10,046	6,384	4,770	2,764
89,291	47,690	17,933	54,336	40,180	25,135	15,089	8,705	3,935	1,171
140,539	89,291	47,690	81,381	54,336	40,180	25,135	15,089	8,705	3,935
(218)	(3,030)	602	9,406	2,505	(1,157)	(869)	(1,461)	(1,479)	(590)
100.2%	103.5%	98.8%	89.6%	95.6%	103.0%	103.6%	110.7%	120.5%	117.6%
637,560	492,882	353,227	156,778	123,439	98,113	74,834	53,276	35,019	20,215
(0.0)%	(0.6)%	0.2%	6.0%	2.0%	(1.2)%	(1.2)%	(2.7)%	(4.2)%	(2.9)%

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**Utah Retirement Systems**  
**Required Supplementary Information** (Continued)

**Schedules of Changes in the Employers' Net Pension Liability** (Concluded)

Year Ended December 31

(in thousands)

	2019	2018	2017
Total pension liability			
Service cost	\$ 670,791	642,590	616,373
Interest	2,513,006	2,417,385	2,355,253
Benefit changes	2,537	—	—
Difference between actual and expected experience	271,987	24,714	(120,133)
Assumption changes	—	—	835,063
Benefit payments	(1,764,328)	(1,670,644)	(1,575,533)
Refunds	(6,118)	(4,797)	(6,985)
Net change in total pension liability	1,687,875	1,409,248	2,104,038
Total pension liability — beginning	36,708,181	35,298,933	33,194,895
Total pension liability — ending (a)	38,396,056	36,708,181	35,298,933
Plan fiduciary net position			
Contributions — member	33,237	36,312	39,213
Contributions — employer	1,198,341	1,139,051	1,112,998
Court fees and fire insurance tax	43,395	10,265	2,700
Net investment income	4,446,363	(116,768)	3,773,910
Benefit payments	(1,764,328)	(1,670,644)	(1,575,533)
Refunds	(6,118)	(4,797)	(6,985)
Administrative expense	(11,857)	(12,515)	(12,001)
Net transfers with affiliated systems	—	—	—
Net change in plan fiduciary net position	3,939,033	(619,096)	3,334,302
Plan fiduciary net position — beginning	31,259,522	31,878,618	28,544,316
Plan fiduciary net position — ending (b)	35,198,555	31,259,522	31,878,618
Net pension liability/(asset) — ending (a-b)	\$ 3,197,501	5,448,659	3,420,315
Plan fiduciary net position as a percentage of the total pension liability	91.7%	85.2%	90.3%
Projected covered payroll	\$ 5,373,167	5,146,312	4,998,694
Net pension liability/(asset) as a percentage of covered payroll	59.5%	105.9%	68.4%

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

Utah Retirement Systems

Total All Retirement Systems			
2016	2015	2014	2013
604,021	567,368	569,382	599,736
2,210,400	2,219,616	2,121,357	2,056,481
3,343	—	—	23,718
(2,890)	(233,574)	(269,582)	(276,487)
734,391	—	(236,578)	—
(1,497,989)	(1,423,762)	(1,325,556)	(1,242,156)
(6,715)	(4,772)	(5,129)	(4,949)
2,044,561	1,124,876	853,894	1,156,343
31,150,334	30,025,458	29,171,564	28,015,221
33,194,895	31,150,334	30,025,458	29,171,564
39,287	40,871	38,500	40,167
1,073,225	1,035,724	974,178	889,481
12,039	18,871	15,640	12,783
2,248,696	461,772	1,786,431	3,260,548
(1,497,989)	(1,423,762)	(1,325,556)	(1,242,156)
(6,715)	(4,772)	(5,129)	(4,949)
(11,067)	(10,988)	(11,012)	(10,401)
—	—	—	—
1,857,476	117,716	1,473,052	2,945,473
26,686,840	26,569,124	25,096,072	22,150,599
28,544,316	26,686,840	26,569,124	25,096,072
4,650,579	4,463,494	3,456,334	4,075,492
86.0%	85.7%	88.5%	86.0%
4,839,495	4,714,627	4,678,491	4,669,560
96.1%	94.7%	73.9%	87.3%