

State of Alaska

Alaska Pension Obligation Bond Corporation

Updated POB Structuring Analysis (TRS and PERS)



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Summary

The following TRS and PERS POB structures are modelled using the State's FY2016 funding levels and create level annual debt service while also evaluating the incorporation of variable rate debt into the POB program

TRS Parameters and Assumptions

- 90% Structuring Funding Level (deposit of \$1.095 billion)
- Baseline State contribution level of FY 2016 (\$130.109 million)
- Baseline grown at 2.25% per year until level debt service can be achieved while meeting desired funding ratio
- All fixed-rate scenario run as Base Case
 - Variable rate assumed at all-in initial cost of 1.00%
 - Increased 0.50% every six months until all-in rate achieves 4.5% (consistent with historical averages)

PERS Parameters and Assumptions

- Structuring Funded to SB-125 cap of 22% with no reduction in local contributions (deposit of \$1.435 billion)
- Baseline State contribution level of FY 2016 (\$126.520 million)
- Baseline grown at 2.25% per year until level debt service can be achieved while meeting desired funding ratio
- All fixed-rate scenario run as Base Case
- 25% variable rate included as an Alternative Case (mirrors fixed rate amortization)
 - Variable rate assumed at all-in initial cost of 1.00%
 - Increased 0.50% every six months until all-in rate achieves 4.5% (consistent with historical averages)

Combined TRS and PERS Issuance

- Combined results for all fixed rate and fixed and variable rate structures are provided as well

Alaska Pension Obligation Bond Corporation
Series 2016
Fixed Rate Only Structure

Delivery Date: 3/1/2016
PV Rate: 5.25%

Level Debt Service Structuring Scenario Results

	TRS (SB125 Only)	PERS (SB125 Only)	TRS + PERS
SCENARIO ASSUMPTIONS			
Fixed Rate Par	1,101,180,000	1,443,035,000	2,544,215,000
Variable Rate Par	-	-	-
Total Par Amount	1,101,180,000	1,443,035,000	2,544,215,000
Term (Years)	24	24	24
First Maturity (5/1)	2017	2017	2017
PLAN FUNDING*			
Total Deposit	1,095,670,528	1,435,819,801	2,531,490,330
New Funded Ratio	90%	81%	85%
Capitalized Interest	N/A	N/A	N/A
SUMMARY STATISTICS			
TIC	5.030%	5.027%	5.028%
All-In Cost	5.083%	5.080%	5.081%
Average Life (Years)	14.1	14.0	14.1
CASH FLOW DIFFERENCE			
PV of UAAL Payments	1,421,688,505	1,862,050,671	3,283,739,176
PV of Total Debt Service	1,078,345,512	1,412,874,176	2,491,219,688
PV Difference	343,342,993	449,176,495	792,519,488
Difference (as % of UAAL Deposit)	31.34%	31.28%	31.31%
ANNUAL CASH FLOW DIFFERENCE (UAAL LESS POB DS)			
2016	-	-	-
2017	(16,340,702)	(30,200,986)	(46,541,688)
2018	(4,989,526)	(5,980,093)	(10,969,619)
2019	(2,186,846)	(2,295,573)	(4,482,419)
2020	663,615	1,553,805	2,217,420
2021	3,615,766	5,643,976	9,259,741
2022	6,766,176	9,596,001	16,362,177
2023	9,997,969	13,688,031	23,686,000
2024	13,269,934	18,227,561	31,497,495
2025	16,789,854	22,674,941	39,464,795
2026	20,412,784	27,470,651	47,883,435
2027	24,080,464	32,100,781	56,181,245
2028	27,847,919	37,212,596	65,060,515
2029	31,801,804	42,206,221	74,008,025
2030	35,971,509	47,778,516	83,750,025
2031	40,133,689	53,234,851	93,368,540
2032	44,575,934	59,197,975	103,773,909
2033	49,264,855	65,092,808	114,357,663
2034	54,066,237	71,263,090	125,329,327
2035	58,845,672	77,779,293	136,624,965
2036	63,974,022	84,000,693	147,974,714
2037	69,419,414	91,239,641	160,659,055
2038	74,674,516	98,312,026	172,986,542
2039	80,700,798	106,226,736	186,927,533
Total	703,355,851	926,023,539	1,629,379,389

Analysis as of 11/18/15; Preliminary - Subject to Change

These cash flows reflect current assumptions regarding future actuarially required past service contributions. A number of factors such as investment performance or other actuarial changes could impact the cash flow differences.

UAAL Amortizations derived from 10/27/15 Buck Consultants Actuarial Report

*Deposits based on remaining 2016 projected balances.

TRS & PERS POB Deposits have been inflated from their previously calculated totals (\$1,078,260,000 & \$1,412,980,000 respectively) to account for interest accrual from 12/15/15 to new assumed delivery date of 3/1/16 at a rate of 8.00%

Interest accruals total \$17,410,528 for TRS and \$22,839,801 for PERS. The above displayed Total Plan Deposits reflect Buck Study FY 2016 Payments less previously contributed amounts of \$130,109,000 for TRS and \$126,520,000 for PERS, plus their respective interest accruals.

Alaska Pension Obligation Bond Corporation
Series 2016
Fixed Rate Only Structure

Delivery Date: 3/1/2016
 PV Rate: 5.25%

Level Debt Service Structuring Scenario Results

Date	TRS (SB125 Payments)							PERS (SB125 Payments)							TRS + PERS				
	Prior TRS Obligation	Refunded TRS UAAL	Remaining TRS UAAL	POB Debt Service	State Payment After Transaction	State Payment Growth Rate	Cash Flow Difference	Prior PERS Obligation	Refunded PERS UAAL	Remaining PERS UAAL	POB Debt Service	State Payment After Transaction	State Payment Growth Rate	Cash Flow Difference	Prior TRS + PERS Obligations	Total POB Debt Service	Total State Payment	State Payment Growth Rate	Aggregate Cash Flow Difference
Totals	5,055,284	2,597,074	2,458,210	1,893,718	4,351,928		703,356	5,075,186	3,398,728	1,676,458	2,472,704	4,149,162		926,024	10,130,470	4,366,423	8,501,091		1,629,379
PV		1,421,689		1,078,346			343,343		1,862,051		1,412,874			449,176		2,491,220			792,519
	[A]	[B]	[C] = [A-B]	[D]	[E] = [C+D]		[F] = [A-E]	[G]	[H]	[I] = [G-H]	[J]	[K] = [I+J]		[L] = [G-K]	[M] = [A+G]	[N] = [D+J]	[O] = [E+K]		[P] = [M-O]
2016	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-		-
2017	116,700	73,256	43,444	89,597	133,041		(16,341)	99,167	99,167	-	129,368	129,368		(30,201)	215,867	218,965	262,409		(46,542)
2018	129,115	77,016	52,099	82,006	134,105	0.80%	(4,990)	113,793	100,534	13,259	106,514	119,773	-7.42%	(5,980)	242,908	188,520	253,878	-3.25%	(10,970)
2019	140,180	79,818	60,362	82,005	142,367	6.16%	(2,187)	126,830	104,220	22,610	106,516	129,126	7.81%	(2,296)	267,010	188,520	271,492	6.94%	(4,482)
2020	151,461	82,669	68,792	82,005	150,797	5.92%	664	141,031	108,071	32,960	106,517	139,477	8.02%	1,554	292,492	188,523	290,275	6.92%	2,217
2021	158,081	85,621	72,460	82,005	154,465	2.43%	3,616	145,483	112,156	33,327	106,512	139,839	0.26%	5,644	303,564	188,517	294,304	1.39%	9,260
2022	165,237	88,775	76,462	82,009	158,471	2.59%	6,766	150,842	116,112	34,730	106,516	141,246	1.01%	9,596	316,079	188,525	299,717	1.84%	16,362
2023	172,382	92,001	80,381	82,003	162,384	2.47%	9,998	156,947	120,202	36,745	106,514	143,259	1.43%	13,688	329,329	188,517	305,643	1.98%	23,686
2024	180,058	95,278	84,780	82,008	166,788	2.71%	13,270	164,306	124,744	39,562	106,516	146,078	1.97%	18,228	344,364	188,525	312,867	2.36%	31,497
2025	188,623	98,794	89,829	82,004	171,833	3.02%	16,790	173,390	129,193	44,197	106,518	150,715	3.17%	22,675	362,013	188,522	322,548	3.09%	39,465
2026	196,996	102,419	94,577	82,006	176,583	2.76%	20,413	181,658	133,986	47,672	106,515	154,187	2.30%	27,471	378,654	188,522	330,771	2.55%	47,883
2027	205,526	106,086	99,440	82,006	181,446	2.75%	24,080	191,069	138,615	52,454	106,514	158,968	3.10%	32,101	396,595	188,520	340,414	2.92%	56,181
2028	214,406	109,851	104,555	82,003	186,558	2.82%	27,848	201,603	143,725	57,878	106,512	164,390	3.41%	37,213	416,009	188,515	350,948	3.09%	65,061
2029	223,461	113,811	109,650	82,009	191,659	2.73%	31,802	212,435	148,725	63,710	106,519	170,229	3.55%	42,206	435,896	188,528	361,888	3.12%	74,008
2030	232,888	117,975	114,913	82,003	196,916	2.74%	35,972	224,912	154,295	70,617	106,516	177,133	4.06%	47,779	457,800	188,520	374,050	3.36%	83,750
2031	242,514	122,140	120,374	82,006	202,380	2.77%	40,134	237,464	159,749	77,715	106,514	184,229	4.01%	53,235	479,978	188,520	386,609	3.36%	93,369
2032	252,591	126,582	126,009	82,006	208,015	2.78%	44,576	251,754	165,710	86,044	106,512	192,556	4.52%	59,198	504,345	188,518	400,571	3.61%	103,774
2033	263,063	131,268	131,795	82,003	213,798	2.78%	49,265	266,731	171,611	95,120	106,518	201,638	4.72%	65,093	529,794	188,521	415,436	3.71%	114,358
2034	273,798	136,071	137,727	82,005	219,732	2.78%	54,066	282,771	177,780	104,991	106,517	211,508	4.89%	71,263	556,569	188,522	431,240	3.80%	125,329
2035	285,029	140,853	144,176	82,007	226,183	2.94%	58,846	299,987	184,292	115,695	106,513	222,208	5.06%	77,779	585,016	188,520	448,391	3.98%	136,625
2036	296,427	145,981	150,446	82,007	232,453	2.77%	63,974	318,134	190,515	127,619	106,514	234,133	5.37%	84,001	614,561	188,521	466,586	4.06%	147,975
2037	308,562	151,424	157,138	82,005	239,143	2.88%	69,419	339,681	197,759	141,922	106,519	248,441	6.11%	91,240	648,243	188,524	487,584	4.50%	160,659
2038	320,886	156,680	164,206	82,005	246,211	2.96%	74,675	365,518	204,827	160,691	106,515	267,206	7.55%	98,312	686,404	188,520	513,417	5.30%	172,987
2039	337,300	162,705	174,595	82,004	256,599	4.22%	80,701	429,680	212,740	216,940	106,513	323,453	21.05%	106,227	766,980	188,517	580,052	12.98%	186,928

Notes:
 Analysis as of 11/18/15; Preliminary - Subject to Change
 Assumes delivery date of 3/1/2016. UAAL Amortizations derived from Buck Actuarial Study 10/27/15

Alaska Pension Obligation Bond Corporation
Series 2016
Blended Fixed-Variable Structures

Delivery Date: 3/1/2016
PV Rate: 5.25%

Level Debt Service Structuring Scenario Results

	TRS (SB125 Only)	PERS (SB125 Only)	TRS + PERS
SCENARIO ASSUMPTIONS			
Fixed Rate Par	825,885,000	1,082,275,000	1,908,160,000
Variable Rate Par	275,295,000	360,760,000	636,055,000
Total Par Amount	1,101,180,000	1,443,035,000	2,544,215,000
Term (Years)	24	24	24
First Maturity (5/1)	2017	2017	2017
PLAN FUNDING*			
Total Deposit	1,095,670,528	1,435,819,801	2,531,490,330
New Funded Ratio	90%	81%	85%
Capitalized Interest	N/A	N/A	N/A
SUMMARY STATISTICS			
TIC	4.751%	4.745%	4.748%
All-In Cost	4.803%	4.798%	4.800%
VR Max Rate (11%) TIC	6.527%	6.535%	6.532%
Average Life (Years)			
Fixed Rate	13.8	13.7	13.8
Variable Rate	14.1	14.1	14.1
Blended	13.9	13.8	13.9
CASH FLOW DIFFERENCE			
PV of UAAL Payments	1,421,688,505	1,862,050,671	3,283,739,176
PV of Total Debt Service	1,049,720,161	1,375,362,110	2,425,082,271
PV Difference	371,968,345	486,688,560	858,656,905
Difference (as % of UAAL Deposit)	33.95%	33.90%	33.92%
ANNUAL CASH FLOW DIFFERENCE (UAAL LESS POB DS)			
2016	-	-	-
2017	(16,343,479)	(30,197,985)	(46,541,464)
2018	(2,653,814)	(2,923,224)	(5,577,037)
2019	149,879	765,037	914,916
2020	2,997,207	4,617,411	7,614,618
2021	5,955,018	8,700,853	14,655,871
2022	9,106,270	12,657,213	21,763,483
2023	12,328,888	16,747,282	29,076,170
2024	15,607,113	21,286,922	36,894,035
2025	19,123,788	25,740,712	44,864,500
2026	22,747,403	30,531,327	53,278,730
2027	26,417,898	35,163,007	61,580,905
2028	30,183,593	40,270,482	70,454,075
2029	34,141,043	45,268,717	79,409,760
2030	38,304,048	50,838,757	89,142,805
2031	42,469,428	56,295,832	98,765,260
2032	46,909,830	62,253,069	109,162,899
2033	51,604,213	68,160,606	119,764,819
2034	56,397,159	74,325,043	130,722,201
2035	61,183,911	80,836,460	142,020,370
2036	66,308,545	87,062,799	153,371,343
2037	71,758,573	94,304,408	166,062,981
2038	77,005,146	101,365,754	178,370,900
2039	83,039,074	109,289,796	192,328,870
Total	754,740,727	993,360,275	1,748,101,002

Analysis as of 11/18/15; Preliminary - Subject to Change

These cash flows reflect current assumptions regarding future actuarially required past service contributions. A number of factors such as investment performance or other actuarial changes could impact the cash flow differences.

UAAL Amortizations derived from 10/27/15 Buck Consultants Actuarial Report

*Deposits based on remaining 2016 projected balances.

Base variable interest rate of 1.00% (all-in) increases by .50% each 6 months up to a max of 4.50%

TRS & PERS POB Deposits have been inflated from their previously calculated totals (\$1,078,260,000 & \$1,412,980,000 respectively) to account for interest accrual from 12/15/15 to new assumed delivery date of 3/1/16 at a rate of 8.00%

Interest accruals total \$17,410,528 for TRS and \$22,839,801 for PERS. The above displayed Total Plan Deposits reflect Buck Study FY 2016 Payments less previously contributed amounts of \$130,109,000 for TRS and \$126,520,000 for PERS, plus their respective interest accruals.

Alaska Pension Obligation Bond Corporation
Series 2016
Blended Fixed-Variable Structure

Delivery Date: 3/1/2016
 PV Rate: 5.25%

Level Debt Service Structuring Scenario Results

Date	TRS (SB125 Payments)							PERS (SB125 Payments)							TRS + PERS						
	Prior TRS Obligation	Refunded TRS UAAL	Remaining TRS UAAL	POB Debt Service	Payment After Transaction	State Payment Growth Rate	State Payment Growth Rate	Cash Flow Difference	Prior PERS Obligation	Refunded PERS UAAL	Remaining PERS UAAL	POB Debt Service	Payment After Transaction	State Payment Growth Rate	State Payment Growth Rate	Cash Flow Difference	Prior TRS + PERS Obligations	Total POB Debt Service	Total State Payment	State Payment Growth Rate	Aggregate Cash Flow Difference
Totals PV	5,055,284	2,597,074	2,458,210	1,842,333	4,300,543			754,741	5,075,186	3,398,728	1,676,458	2,405,368	4,081,826			993,360	10,130,470	4,247,701	8,382,369		1,748,101
	[A]	[B]	[C] = [A-B]	[D]	[E] = [C+D]			[F] = [A-E]	[G]	[H]	[I] = [G-H]	[J]	[K] = [I+J]			[L] = [G-K]	[M] = [A+G]	[N] = [D+J]	[O] = [E+K]		[P] = [M-O]
2016	-	-	-	-	-			-	-	-	-	-	-			-	-	-		-	-
2017	116,700	73,256	43,444	89,599	133,043			(16,343)	99,167	99,167	-	129,365	129,365			(30,198)	215,867	218,964	262,408		(46,541)
2018	129,115	77,016	52,099	79,670	131,769	-0.96%		(2,654)	113,793	100,534	13,259	103,457	116,716	-9.78%		(2,923)	242,908	183,127	248,485	-5.31%	(5,577)
2019	140,180	79,818	60,362	79,668	140,030	6.27%		150	126,830	104,220	22,610	103,455	126,065	8.01%		765	267,010	183,123	266,095	7.09%	915
2020	151,461	82,669	68,792	79,672	148,464	6.02%		2,997	141,031	108,071	32,960	103,454	136,414	8.21%		4,617	292,492	183,125	284,877	7.06%	7,615
2021	158,081	85,621	72,460	79,666	152,126	2.47%		5,955	145,483	112,156	33,327	103,455	136,782	0.27%		8,701	303,564	183,121	288,908	1.41%	14,656
2022	165,237	88,775	76,462	79,669	156,131	2.63%		9,106	150,842	116,112	34,730	103,455	138,185	1.03%		12,657	316,079	183,124	294,316	1.87%	21,763
2023	172,382	92,001	80,381	79,672	160,053	2.51%		12,329	156,947	120,202	36,745	103,455	140,200	1.46%		16,747	329,329	183,127	300,253	2.02%	29,076
2024	180,058	95,278	84,780	79,671	164,451	2.75%		15,607	164,306	124,744	39,562	103,457	143,019	2.01%		21,287	344,364	183,128	307,470	2.40%	36,894
2025	188,623	98,794	89,829	79,670	169,499	3.07%		19,124	173,390	129,193	44,197	103,452	147,649	3.24%		25,741	362,013	183,123	317,149	3.15%	44,864
2026	196,996	102,419	94,577	79,672	174,249	2.80%		22,747	181,658	133,986	47,672	103,455	151,127	2.36%		30,531	378,654	183,126	325,375	2.59%	53,279
2027	205,526	106,086	99,440	79,668	179,108	2.79%		26,418	191,069	138,615	52,454	103,452	155,906	3.16%		35,163	396,595	183,120	335,014	2.96%	61,581
2028	214,406	109,851	104,555	79,667	184,222	2.86%		30,184	201,603	143,725	57,878	103,455	161,333	3.48%		40,270	416,009	183,122	345,555	3.15%	70,454
2029	223,461	113,811	109,650	79,670	189,320	2.77%		34,141	212,435	148,725	63,710	103,456	167,166	3.62%		45,269	435,896	183,126	356,466	3.16%	79,410
2030	232,888	117,975	114,913	79,671	194,584	2.78%		38,304	224,912	154,295	70,617	103,456	174,073	4.13%		50,839	457,800	183,127	368,657	3.41%	89,143
2031	242,514	122,140	120,374	79,671	200,045	2.81%		42,469	237,464	159,749	77,715	103,453	181,168	4.08%		56,296	479,978	183,124	381,213	3.41%	98,765
2032	252,591	126,582	126,009	79,672	205,681	2.82%		46,910	251,754	165,710	86,044	103,457	189,501	4.60%		62,253	504,345	183,129	395,182	3.66%	109,163
2033	263,063	131,268	131,795	79,664	211,459	2.81%		51,604	266,731	171,611	95,120	103,450	198,570	4.79%		68,161	529,794	183,114	410,029	3.76%	119,765
2034	273,798	136,071	137,727	79,674	217,401	2.81%		56,397	282,771	177,780	104,991	103,455	208,446	4.97%		74,325	556,569	183,129	425,847	3.86%	130,722
2035	285,029	140,853	144,176	79,669	223,845	2.96%		61,184	299,987	184,292	115,695	103,456	219,151	5.14%		80,836	585,016	183,125	442,996	4.03%	142,020
2036	296,427	145,981	150,446	79,672	230,118	2.80%		66,309	318,134	190,515	127,619	103,452	231,071	5.44%		87,063	614,561	183,125	461,190	4.11%	153,371
2037	308,562	151,424	157,138	79,665	236,803	2.91%		71,759	339,681	197,759	141,922	103,455	245,377	6.19%		94,304	648,243	183,120	482,180	4.55%	166,063
2038	320,886	156,680	164,206	79,675	243,881	2.99%		77,005	365,518	204,827	160,691	103,461	264,152	7.65%		101,366	686,404	183,136	508,033	5.36%	178,371
2039	337,300	162,705	174,595	79,666	254,261	4.26%		83,039	429,680	212,740	216,940	103,450	320,390	21.29%		109,290	766,980	183,116	574,651	13.11%	192,329

Notes:
 Analysis as of 11/18/15; Preliminary - Subject to Change
 Assumes delivery date of 3/1/2016. UAAL Amortizations derived from Buck Actuarial Study 10/27/15
 Base variable interest rate of 1.00% (all-in) increases by .50% each 6 months up to a max of 4.50%



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