BUDGET 2020:
PSPRS FUNDING POLICY AND STRATEGY

February 14th, 2019

PURPOSE & GOAL TODAY

General Understanding of

Some mechanics, factors, risks and benefits when designing strategies to pay down the PSPRS Unfunded Actuarial Liability.

Factors the Town can control and acknowledgment of what is not within the Town's control in the balance of the Total Pension Actuarial Liability.

Receive direction

Information and scenarios to assist Council for action on a new State required PSPRS funding policy and budget 2020.

Questions / Clarifications

If there are questions or need for clarification, please ask so we can get it straight or determine if its not for this discussion but follow up for later topic.

TOPICS

PSPRS Documentation

Key Terminology

Reporting relationships of Actuarial and Financial statements

Town's contribution rates

Investments (Town and PSPRS)

State required PSPRS funding policy

Impacts on Total Pension Liability (Accrued Liability)

Investment income – Pension Plan

Recent trends

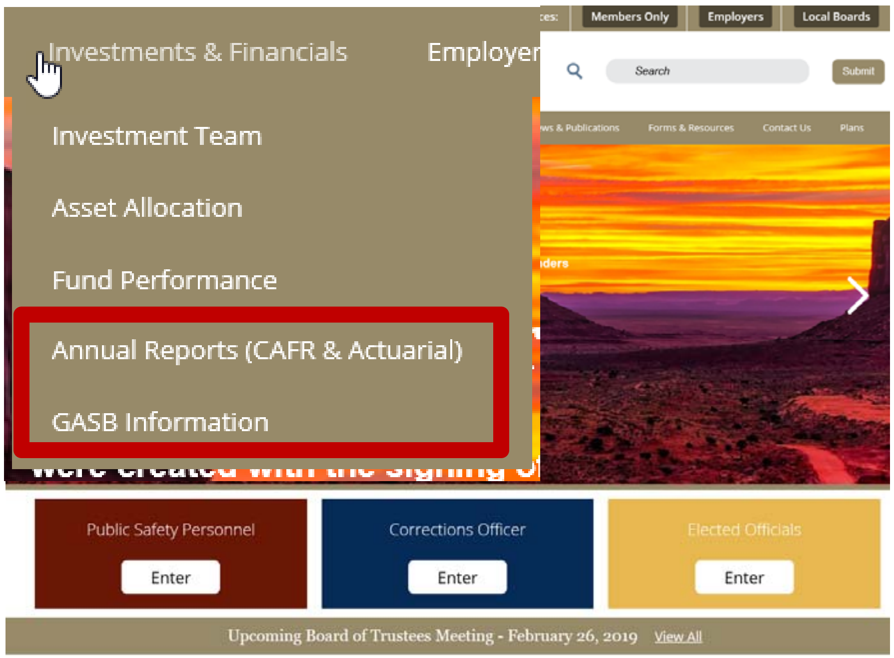
Discount rate Sensitivity

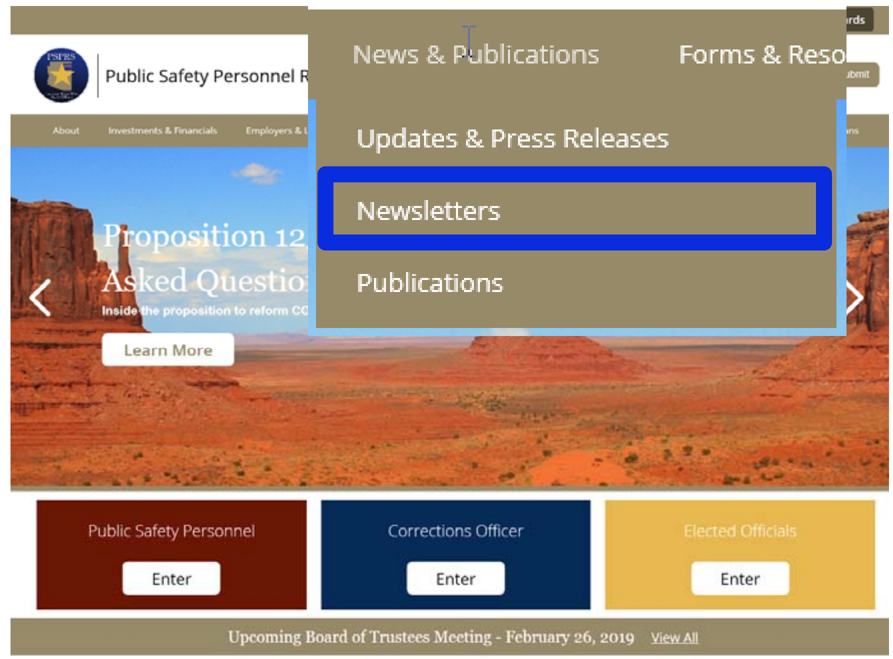
Options and considerations

Bonds vs Cash

Requested Direction

PSPRS DOCUMENTATION On the PSPRS website





Documents are available: On line, hard copy or email

Reports Publications

KEY TERMINOLOGY (Not-so) Common Language

Actuarial Accrued Liability (AAL): The difference between (i) the actuarial present value of future plan benefits, and (ii) the actuarial present value of future normal cost. Sometimes referred to as "accrued liability" or "past service liability".

Unfunded Actuarial Accrued Liability (UAAL): The positive difference, if any, between the actuarial accrued liability and valuation assets. Sometimes referred to as "unfunded accrued liability".

Funding Value of Assets: The value of current plan assets recognized for valuation purposes. Generally based on a phased-in recognition of all or a portion of market related investment return. Sometimes referred to as Actuarial Value of Assets.

Actuarial Value of Assets - The value of pension plan investments and other property used by the actuary for the purpose of an actuarial valuation (sometimes referred to as valuation assets). Actuaries often select an asset valuation method that smoothes the effects of short-term volatility in the market value of assets.

Normal Cost (NC): The annual cost assigned, under the actuarial funding method, to current and subsequent plan years. Sometimes referred to as "current service cost". Any payment toward the unfunded actuarial accrued liability is not part of the normal cost.

Market Value of Assets: The fair value of plan assets as reported in the plan's audited financial statements.

Actuarial

Total Pension Liability (TPL) The TPL is the portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service.

Net Pension Liability (NPL) The NPL is the liability of employers and non-employer contribution entities to plan members for benefits provided through a defined benefit pension plan.

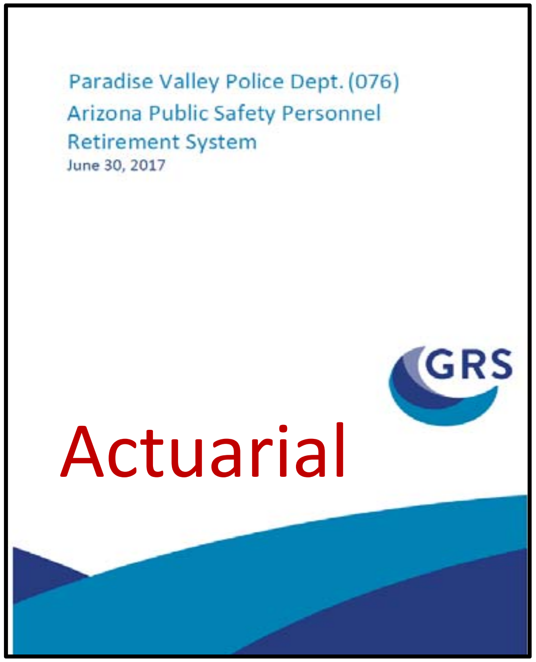
Fiduciary Net Position The fiduciary net position is the market value of the assets of the trust dedicated to the defined benefit provisions.

Valuation Assets The valuation assets are the assets used in determining the unfunded liability of the plan. For purposes of GASB Statement Nos. 67 and 68, the valuation assets are equal to the market value of assets.

Service Cost The service cost is the portion of the actuarial present value of projected benefit payments that is attributed to a valuation year.

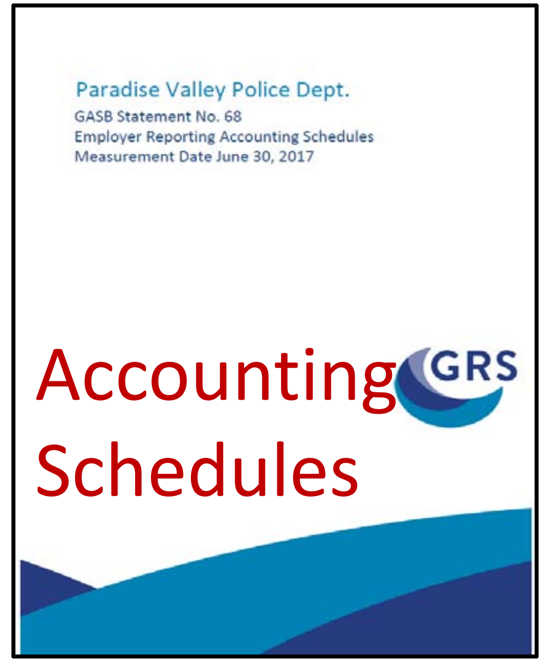
Acct. Schedules

GRS – TWO REPORTS: Actuarial & Acct. Schedules



PURPOSE OF TWO REPORTS
(ASRS IS ONE)

Budget	CAFR
Rates	Financial
Legislative	Position



"For Public Safety Personnel Retirement System ("PSPRS") liability, like the PSPRS the town uses actuarial reports for budgeting and rate setting, then applies different assumptions as required under GASB 68 for audited financial statements. Both reports are available on the PSPRS website."

GRS – TWO REPORTS: Actuarial & Acct. Schedules

Present Value of Future Benefits and Accrued Liability – Tier 1 & 2

	June 30, 2017	June 30, 2018
Pension		
A. Accrued Liability		
1. For retirees and beneficiaries	$ 25,443,427	$ 26,740,337
2. For DROP members	811,986	-
3. For inactive/vested members	147,938	52,654
4. For present active members		
a. Value of expected future benefit payments	13,506,649	14,719,820
b. Value of future normal costs	(4,961,815)	(5,170,014)
c. Active member accrued liability: (a) - (b)	8,544,834	9,549,806
5. Total accrued liability	34,948,185	36,342,797
B. Present Assets (Funding Value)	17,549,901	19,020,328
C. Unfunded Accrued Liability: (A.5) - (B)	17,398,284	17,322,469
D. Stabilization Reserve	-	-
E. Net Unfunded Accrued Liability: (C) + (D)	$ 17,398,284	$ 17,322,469
F. Funding Ratio: (B) / (A.5)	50.2%	52.3%

A. Total pension liability		
1. Service Cost	$	625,699
2. Interest on the Total Pension Liability		2,325,975
3. Changes of benefit terms		388,150
4. Difference between expected and actual experience of the Total Pension Liability		572,004
5. Changes of assumptions		1,461,598
6. Benefit payments, including refunds of employee contributions		(2,250,789)
7. Net change in total pension liability	$	3,122,637
8. Total pension liability – beginning		31,825,548
9. Total pension liability – ending	$	**34,948,185**
B. Plan fiduciary net position		
1. Contributions – employer	$	8,029,673
2. Contributions – employee		320,063
3. Net investment income		1,380,854
4. Benefit payments, including refunds of employee contributions		(2,250,789)
5. Pension Plan Administrative Expense		(12,618)
6. Other*		182,874
7. Net change in plan fiduciary net position	$	7,650,057
8. Plan fiduciary net position – beginning		9,349,880
9. Plan fiduciary net position – ending	$	**16,999,937**
C. Net pension liability/(asset)	$	**17,948,248**
D. Plan fiduciary net position as a percentage of the total pension liability		**48.64%**

Position Actuarial Acct. Schedules Change in

GRS – TWO REPORTS: Actuarial & Acct. Schedules

Two Reports:
Ticks & ties

	Total Pension Liability (a)	–	Plan Fiduciary Net Position (b)	=	Net Pension Liability (a) - (b)
Balance at June 30, 2017	$ 31,825,548		$ 9,349,880		$ 22,475,668
Changes for the Year:					
Service Cost	625,699		-		625,699
Interest on the Total Pension Liability	2,325,975		-		2,325,975
Changes of Benefit Terms	388,150		-		388,150
Differences Between Expected and Actual Experience in the Measurement of the Pension Liability	572,004		-		572,004
Changes of Assumptions or Other Inputs	1,461,598		-		1,461,598
Contributions - Employer	-		8,029,673		(8,029,673)
Contributions - Employee	-		320,063		(320,063)
Net Investment Income	-		1,380,854		(1,380,854)
Benefit Payments, Including Refunds of Employee Contributions	(2,250,789)		(2,250,789)		-
Administrative Expenses	-		(12,618)		12,618
Other Changes	-		182,874		(182,874)
Net Changes	3,122,637		7,650,057		(4,527,420)
Balances as of June 30, 2018	$ 34,948,185		$ 16,999,937		$ 17,948,248

Town CAFR

A. Total pension liability		
1. Service Cost	$	625,699
2. Interest on the Total Pension Liability		2,325,975
3. Changes of benefit terms		388,150
4. Difference between expected and actual experience of the Total Pension Liability		572,004
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Acct. Schedules

GRS – TWO REPORTS: Actuarial & Acct. Schedules

Two Reports: Ticks & ties

	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)
Balance at June 30, 2017	$ 31,825,548	$ 9,349,880	$ 22,475,668
Changes for the Year:			
Service Cost	625,699	-	625,699
Interest on the Total Pension Liability	2,325,975	-	2,325,975
Changes of Benefit Terms	388,150	-	388,150
Differences Between Expected and Actual Experience in the Measurement of the Pension Liability	572,004	-	572,004
Changes of Assumptions or Other Inputs	1,461,598	-	1,461,598
Contributions - Employer	-	8,029,673	(8,029,673)
Contributions - Employee	-	320,063	(320,063)
Net Investment Income	-	1,380,854	(1,380,854)
Benefit Payments, Including Refunds of Employee Contributions	(2,250,789)	(2,250,789)	-
Administrative Expenses	-	(12,618)	12,618
Other Changes	-	182,874	(182,874)
Net Changes	3,122,637	7,650,057	(4,527,420)
Balances as of June 30, 2018	$ 34,948,185	$ 16,999,937	$ 17,948,248

Starting in 2018

Derivation of Experience Gain/(Loss) Tier 1 & 2

Actual experience will never (except by coincidence) exactly match assumed experience. Gains and losses often cancel each other over a period of years, but sizable year-to-year fluctuations are common. Detail on the derivation of the experience gain/(loss) is shown below, along with a year-by-year comparative schedule.

	2018
(1) UAAL* at start of year	$17,398,284
(2) Normal cost from last valuation	653,388
(3) Actual contributions	3,208,818
(4) Interest accrual	1,210,903
(5) Expected UAAL before changes: (1) + (2) - (3) + (4)	16,053,756
(6) Changes from benefit increases, methods and assumptions	485,958
(7) Change in reserve for future pension increases	-
(8) Expected UAAL after changes: (5) + (6) + (7)	16,539,714
(9) Actual UAAL at end of year	17,322,469
(10) Experience Gain/(Loss): (8) - (9)	$ (782,755)

** Unfunded Actuarial Accrued Liability*

Town CAFR Actuarial Change in

TOWN'S RATES: Historical & Projected

Historical Summary of Employer Pension Rates - Tier 1 & 2

Valuation Date June 30	Fiscal Year Ending June 30	Normal Cost	Unfunded Actuarial Accrued Liability	Total
2011	2013	13.57 %	37.45 %	51.02 %
2012	2014	12.71	39.21	51.92
2013	2015	12.27	50.17	62.44
2014* (before phase-in)	2016	11.66	60.12	71.78
2014* (after phase-in)	2016	11.66	52.57	64.23
2015 (before phase-in)	2017	10.96	59.20	70.16
2015 (after phase-in)	2017	10.96	55.97	66.93
2016	2018	15.04	52.21	67.25
2017	2019	14.65	44.53	59.18
2018	**2020**	**14.81**	**42.48**	**57.29**

** Beginning with the June 30, 2014 valuation, the rates are for pension only.*

Intergenerational equity – Ensures that no generation is burdened by substantially more or less pension costs than past or future generations.

Pension Contribution Projection

Fiscal Year Ending June 30	Contribution Rate	Contribution Amount (Estimate)
2020	57.29 %	$ 1,767,242
2021	57.27	1,860,434
2022	57.47	1,932,273
2023	57.92	2,015,563
2024	58.05	2,090,790
2025	57.80	2,154,648
2026	57.68	2,225,431
2027	57.67	2,302,921
2028	57.62	2,381,457
2029	57.61	2,464,380
2030	57.66	2,552,847

Contribution Amount estimated based on June 30, 2018 valuation data, methods, and assumptions, including 7.40% investment return and 3.50% payroll growth. Future years incorporated emerging Tier 3 normal cost.

Actuarial - Historical

Actuarial - Projected

TOWN'S RATES: Reduction Chart

Impact of Extra Contributions

Extra Contribution in $(000)	$0	$100	$200	$300	$400	$500	$600	$700	$800	$900	$1,000
Impact on:											
- June 30, 2018 Funded Status	52.3%	52.6%	52.9%	53.2%	53.5%	53.7%	54.0%	54.3%	54.6%	54.9%	55.1%
- FYE 2020 Contribution Rate	57.29%	57.02%	56.75%	56.48%	56.21%	55.94%	55.67%	55.40%	55.13%	54.86%	54.59%

Based on the June 30, 2018 actuarial valuation, the table above shows the hypothetical change in the funded status and contribution rate due to each additional $100,000 in market value.

Actuarial

INVESTMENTS: PSPRS and the Town

TOWN OF PARADISE VALLEY 2018 CAFR & PAFR

Investment Type	Amount	Percent of Town Investments
U.S. Treasury Bonds	$ 6,720,095	16.7%
Corporate Bonds and Notes	9,022,387	22.4%
Supra-National Agency Bonds	567,497	1.4%
U.S. Agency Securities	6,385,866	15.8%
Money Market Funds	1,440,431	3.6%
State Treasurer's Investment	16,215,062	40.2%
	$ 40,351,338	100.0%

PSPRS CAFRs; Note 5; Money-weighted rate of return

Fiscal Year	2018	2017	2016	2015	2014
Rate of Return	7.010%	12.250%	0.405%	3.980%	13.300%

Town is seeing 2-year rates greater than 2.50 and less than 3.0% for two-years.

PSPRS 2017 FOR PARADISE VALLEY'S 2018 CAFR

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return*
U.S. Equity	16.00%	7.60%
Non-U.S. Equity	14.00%	8.70%
Private Equity	12.00%	6.75%
Fixed Income	5.00%	1.25%
Private Credit	16.00%	5.83%
Absolute Return	2.00%	3.75%
GTAA	10.00%	3.96%
Real Assets	9.00%	4.52%
Real Estate	10.00%	3.75%
Risk Parity	4.00%	5.00%
Short Term Inv	2.00%	0.25%
Total	100.00%	

Town & PSPRS CAFRs Accounting Schedules

STATE REQUIREMENT

Adopt Funding Policy

Town of Choose an item.
Public Safety Personnel Retirement System
Pension Funding Policy

The intent of this policy is to clearly communicate the Council's pension funding objectives and its commitment to our employees and the sound financial management of the Town and to comply with new statutory requirements of Laws 2018, Chapter 112.

Several terms are used throughout this policy:

Unfunded Actuarial Accrued Liability (UAAL) – Is the difference between trust assets and the estimated future cost of pensions earned by employees. This UAAL results from actual results (interest earnings, member mortality, disability rates, etc.) being different from the assumptions used in previous actuarial valuations.

Annual Required Contribution (ARC) – Is the annual amount required to pay into the pension funds, as determined through annual actuarial valuations. It is comprised of two primary components: normal pension cost – which is the estimated cost of pension benefits earned by employees in the current year; and, amortization of UAAL – which is the cost needed to cover the unfunded portion of pensions earned by employees in previous years. The UAAL is collected over a period of time referred to as the amortization period. The ARC is a percentage of the current payroll.

Funded Ratio – Is a ratio of fund assets to actuarial accrued liability. The higher the ratio the better funded the pension is with 100% being fully funded.

Intergenerational equity – Ensures that no generation is burdened by substantially more or less pension costs than past or future generations.

The Town's Choose an item. employees who are regularly assigned hazardous duty participate in the Public Safety Personnel Retirement System (PSPRS).

Public Safety Personnel Retirement System (PSPRS)

PSPRS is administered as an agent multiple-employer pension plan. An agent multiple-employer plan has two main functions: 1) to comingle assets of all plans under its administration, thus achieving economy of scale for more cost efficient investments, and invest those assets for the benefit of all members under its administration and 2) serve as the statewide uniform administrator for the distribution of benefits.

Under an agent multiple-employer plan each agency participating in the plan has an individual trust fund reflecting that agencies' assets and liabilities. Under this plan all contributions are deposited to and distributions are made from that fund's assets, each fund has its own funded ratio and contribution rate, and each fund has a unique annual actuarial valuation. The Town of Click or tap here to enter text. has Choose an item..
Council formally accepts the assets, liabilities, and current funding ratio of the Town's PSPRS trust funds from the June 30, 2017 actuarial valuation, which are detailed below.

Trust Fund	Assets	Accrued Liability	Unfunded Actuarial Accrued Liability	Funded Ratio
Click or tap here to enter text. Police Click or tap here to enter text. Fire	Pg. B-1	Pg. B-1	Pg. B-1	Pg. B-1
Town of Click or tap here to enter text. Totals	Sum of Above	Sum of Above	Sum of Above	Assets ÷ Accrued Liability

PSPRS Funding Goal

Pensions that are less than fully funded place the cost of service provided in earlier periods (amortization of UAAL) on the current taxpayers. Fully funded pension plans are the best way to achieve taxpayer and member intergenerational equity. Most funds in PSPRS are significantly underfunded and falling well short of the goal of intergenerational equity.

The Council's PSPRS funding ratio goal is 100% (fully funded) by June 30, 2036.
Council established this goal for the following reasons:

- The PSPRS trust funds represent only the Town of Click or tap here to enter text.'s liability
- The fluctuating cost of an UAAL causes strain on the Town's budget, affecting our ability to provide services
- A fully funded pension is the best way to achieve taxpayer and member intergenerational equity

Council has taken the following actions to achieve this goal:

- Maintain ARC payment from operating revenues – Council is committed to maintaining the full ARC payment (normal cost and UAAL amortization) from operating funds. The estimated combined ARC for FY19 is $X (page A-2) and will be able to be paid from operating funds without diminishing Town services.
- Additional payments above the ARC
  - Reserve payment, amount, date
  - Annually evaluate prior year budget compared to actual expenditures and made an excess payment of $X on date
- Dedicated revenue –

Based on these actions the Council plans to achieve its goal of 100% funding by June 30, 2036, in accordance with the amortization timeline set forth by the PSPRS June 30, 2017 Actuarial Valuation.

State law requires adoption of PSPRS funding policy

STATE REQUIREMENT

Adopt Funding Policy

(PSPRS) UNFUNDED LIABILITY A PRIORITY;

WHEREAS, the Town has a PSPRS unfunded liability exceeding $18 million; and

WHEREAS, the Town is assessed an 8% annual fee on any outstanding balance; and

WHEREAS, the State Legislature amended state law to correct the structural issues which would generate future increases to the unfunded liability; and

WHEREAS, the Town Council has established a Council goal of a long term balanced budget;

NOW, THEREFORE, BE IT RESOLVED BY THE MAYOR AND COUNCIL OF THE TOWN OF PARADISE VALLEY, ARIZONA THAT:

The expedient resolution of the PSPRS unfunded liability is a Council priority. It is the Council's intent to pay off the liability as quickly as reasonably possible. The Town will plan through its budgeting processes to pay the unfunded liability over a three-year period in an effort to avoid significant future assessment costs. Each year the Town will revisit the schedule to ensure that current revenues are sufficient to allow for the continuation of the aggressive payment schedule.

PASSED AND ADOPTED by the Town Council this 13th day of October 2016.

POLICY ADOPTED
OCTOBER 2016

Resolution has aggressive schedule;

Resolution allows flexibility & stability;

State policy template less flexible;

Can set rate earlier than 2036 and add policy language that the Town intends to “pay off the liability as quickly as reasonably possible”.

IMPACTS ON Pension Liability (Accrued Liability)

Year ending June 30,	2017	2016	2015	2014
Total Pension Liability				
Service Cost	$ 625,699	$ 503,757	$ 413,268	$ 359,518
Interest on the Total Pension Liability	2,325,975	2,201,463	2,160,197	1,795,059
Benefit Changes	388,150	745,131	0	710,651
Difference between Expected and Actual Experience	572,004	692,654	24,766	514,325
Assumption Changes	1,461,598	1,116,822	0	3,303,865
Benefit payments, including refunds of employee contributions	(2,250,789)	(2,453,037)	(1,782,549)	(2,335,144)
Net Change in Total Pension Liability	3,122,637	2,806,790	815,682	4,348,274
Total Pension Liability - Beginning	31,825,548	29,018,758	28,203,076	23,854,802
Total Pension Liability - Ending (a)	$ 34,948,185	$ 31,825,548	$ 29,018,758	$ 28,203,076
Plan Fiduciary Net Position				
Employer Contributions	$ 8,029,673	$ 3,056,411	$ 1,708,529	$ 1,045,144
Employee Contributions	320,063	312,821	411,948	303,349
Pension Plan Net Investment Income	1,380,854	57,574	307,573	910,490
Benefit payments, including refunds of employee contributions	(2,250,789)	(2,453,037)	(1,782,549)	(2,335,144)
Pension Plan Administrative Expense	(12,618)	(8,686)	(7,885)	0
Other*	182,874	679,608	(5,169)	(324,575)
Net Change in Plan Fiduciary Net Position	7,650,057	1,644,691	632,447	(400,736)
Plan Fiduciary Net Position - Beginning	9,349,880	7,705,189	7,072,742	7,473,478
Plan Fiduciary Net Position - Ending (b)	$ 16,999,937	$ 9,349,880	$ 7,705,189	$ 7,072,742
Net Pension Liability/(Asset) - Ending (a) - (b)	17,948,248	22,475,668	21,313,569	21,130,334
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	48.64%	29.38%	26.55%	25.08%

Schedules of Required Supplementary Information
Multiyear Schedule of Changes in Net Pension Liability and Related Ratios

IMPACTS ON Pension Liability (Accrued Liability)

Year ending June 30,	2017	2016	2015	2014
Total Pension Liability				
Service Cost	$ 625,699	$ 503,757	$ 413,268	$ 359,518
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Plan Fiduciary N		,880	$ 7,705,189	$ 7,072,742
Net Pension Li		,475,668	,313,569	21,130,334

PSPRS FY 2017: Interest on the Total Pension Liability	
Beginning balance of Total Pension Liability	**$ 31,825,548**
Plus 50% of Service costs of $625,699	312,850
Less 50% of Benefit payments of ($2,250,789)	(1,125,395)
Subtotal	31,013,003
Multiply times the earnings rate	**7.50%**
Interest on the Total Pension Liability	**$ 2,325,975**

PSPRS FY 2017: Beginning Total Pension Liability (Total Accrued Liability)	
Ending 2016 Plan fiduciary net position (Present assets)	$ 9,349,880
Ending 2016 Net pension liability (Unfunded accrued liability)	22,475,668
Beginning 2017 Total Pension liability (Total Accrued Liability)	**$ 31,825,548**

ted Ratios

IMPACTS ON Pension Liability (Accrued Liability)

Year ending June 30,	2017	2016	2015	2014
Total Pension Liability				
Service Cost	$ 625,699	$ 503,757	$ 413,268	$ 359,518
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Total Pension Liability - Ending (a)	$ 34,948,185	$ 31,825,548	$ 29,018,758	$ 28,203,076
Plan Fiduciary Net Position - Ending (b)				
Net Pension Liability/(Asset) - Ending (a) - (b)				

Interest rate on Total Pension Liability

2013 and prior = 8.0%

2014 – 2016 = 7.85%

2017 = 7.50%

2018 = 7.40%

INVESTMENT INCOME   Pension Plan (Present Assets)

Year ending June 30,	2017	2016	2015	2014

Lump sum payments for the "Unfunded Liability" can be made annually, quarterly, monthly, or bi-weekly.

Plan Fiduciary Net Position				
Employer Contributions	$ 8,029,673	$ 3,056,411	$ 1,708,529	$ 1,045,144
Employee Contributions	320,063	312,821	411,948	303,349
Pension Plan Net Investment Income	1,380,854	57,574	307,573	910,490
Benefit payments, including refunds of employee contributions	(2,250,789)	(2,453,037)	(1,782,549)	(2,335,144)
Per PSPRS CAFR: Return on Investment	12.25%	0.405%	3.98%	13.30%
Other*	182,874	679,608	(5,169)	(324,575)

"Present Assets" are in the PSPRS investment pool.
"Net Investment Income" is based on "average daily equity balance".

Pre-Payment of estimated contributions at the beginning of the year allows participation in pool earlier.

RECENT TRENDS

Fiscal Year Reported in		Town's Contribution				Interest on "Total Pension Liability"		Plan Net Investment Income		Difference in Interest
PSPRS	Town CAFR	Rate	Lump Sum	Via Rates	Total	Amount	Percentage	Amount	PSPRS %	
2014	2015	$ 62.44	$ -	$ 1,045,144	$ 1,045,144	$ 1,795,059	7.85%	$ 910,490	13.300%	$ (884,569)
2015	2016	64.23	-	1,708,529	1,708,529	2,160,197	7.85%	307,573	3.980%	(1,852,624)
2016	2017	66.93	-	3,056,411	3,056,411	2,201,463	7.85%	57,574	0.405%	(2,143,889)
2017 (1)	2018	67.25	5,000,000	3,029,673	8,029,673	2,325,975	7.50%	1,380,854	12.250%	(945,121)
2018 (2)	2019	59.18	985,945	1,748,183	2,734,128	2,602,861	7.40%	1,391,958	7.010%	(1,210,903)
2019 (3)	2020	57.29	6,000,000	1,767,242	7,767,242	2,705,628	n/a	n/a	n/a	n/a
2020	2021	n/a	6,000,000	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Fiscal Year Reported in		Total Pension Liability (Accrued Liability)		Plan fiduciary (Present Assets)		Net Pension Liability (Unfunded Actuarial Liability)		% of Total Pension Liability (% Accrued Liability)	
PSPRS	Town CAFR	at June 30, 20xx	Change in	at June 30, 20xx	Change in	at June 30, 20xx	Change in	Funded	Unfunded
2014	2015	$ 28,203,076	$ 4,348,274	$ 7,072,742	$ (400,736)	$ 21,130,334	$4,749,010	25.1%	74.9%
2015	2016	29,018,758	815,682	7,705,189	632,447	21,313,569	183,235	26.6%	73.4%
2016	2017	31,825,548	2,806,790	9,349,880	1,644,691	22,475,668	1,162,099	29.4%	70.6%
2017	2018	34,948,185	3,122,637	16,999,937	7,650,057	17,948,248	(4,527,420)	48.6%	51.4%
2018	2019	36,342,797	1,394,612	19,020,328	2,020,391	17,322,469	(625,779)	52.3%	47.7%
2019	2020	n/a	n/a	Paid $5M July '19; Plan $1M in June '20		n/a	n/a	n/a	n/a
2020	2021	n/a	n/a	Forecast planned on $6M		n/a	n/a	n/a	n/a
2021	2022	n/a	n/a	Forecasted $1.78M; cur. est. need + $4M		n/a	n/a	n/a	n/a

(1) Payment of $5M had authorized budget in 2018, but expenditure recognized in 2017.
(2) Return on investment of 7.010% is from the PSPRS fiscal year 2018 CAFR;
Lump sum included Hall/Parker settlement applied to the unfunded liability.
Interest and investment income based on Actuarial report.
(3) Amounts from the Financial Forecast; actual appropriations occur with respective budget year.

DISCOUNT RATE   Sensitivity of Net Pension

Sensitivity of Net Pension Liability/(Asset) to the Single Discount Rate Assumption

Regarding the sensitivity of the net pension liability/(asset) to changes in the Single Discount Rate, the following presents the plan's net pension liability/(asset), calculated using a Single Discount Rate of 7.40%, as well as what the plan's net pension liability/(asset) would be if it were calculated using a Single Discount Rate that is one percent lower or one percent higher:

Summary of Actuarial Methods and Assumptions Used in the Calculation of the Total Pension Liability

Methods and Assumptions Used to Determine Total Pension Liability:

Actuarial Cost Method	Entry Age Normal
Asset Valuation Method	Fair Value of Assets

	1% Decrease 6.40%	Current Single Discount Rate Assumption 7.40%	1% Increase 8.40%
Total Pension Liability	$ 39,429,712	$ 34,948,185	$ 31,259,791
Plan Fiduciary Net Position	16,999,937	16,999,937	16,999,937
Net Pension Liability/(Asset)	$ 22,429,775	$ 17,948,248	$ 14,259,854

the United States Department of Labor, Bureau of Statistics. We have assumed that to be 1.75% for this valuation.

A detailed description of the actuarial assumptions and methods can be found in the June 30, 2017 Arizona Public Safety Personnel Retirement System annual actuarial valuation report.

TOWN OF PARADISE VALLEY INCORPORATED MAY 1961

Accounting Schedules

OPTIONS AHEAD

Other Considerations

MOMENTUM: The “Unfunded Liability” was $22.5M at the end of 2016; $11.0M has been applied to the “Unfunded Liability” bringing the “Unfunded Liability Contribution Rate” to 42.48% from 55.97%.

Every additional dollar applied to the “Unfunded Liability” increases “Present Assets”, decreases “Unfunded liability” (and the contribution rate), but “Total Pension (Accrued) Liability” is not impacted.

Total Pension (Accrued) Liability of $36.3M is assessed interest annually (7.4% in 2018).

The Town’s “Present Assets” are pooled with PSPRS and realize investment income.

Thinking long term: Actuarial uses “7-year smoothing” when recognizing investment income for the “Value of Pension Assets”; accounting using different valuations.

Year-to-year fluctuations will occur, and expected. Examples:
“Investment earnings”, “Changes in assumptions”, “Difference in expected and actual experience”.

OPTIONS AHEAD

Normal cost contribution rate is 14.81%.

State law prohibits issuing tax-exempt bonds to pay pension liabilities.

LH: Taxable bonds are allowed and are excluded from the Expenditure limitation.

Inverted yield curve:
2-year Treasury yields more than a 5-year.
(2.52% and 2.51% opening February 4th)

Other Considerations

The Town is not losing ground when paying the "Unfunded Liability"; there are other factors increasing the liability.

Not all factors are in Council's control. Example: Market performance.

Town has and / or is implementing safe guards to protect all resources: Cash, revenue, pledged revenues, time, and expenditure limitation.

The PSPRS funding policy is one of many monetary policies guiding the Town's governance.

OPTIONS AHEAD

Bond vs. Cash

TAXABLE BONDS

Upside

- Pays entire balance with proceeds.
- Assets in PSPRS investment pool.
- Town pays "normal cost contr. rate".
- Cash on-hand invested to partially offset bond costs; or use for other projects.
- Expenditure limitation exempt.

Downside

- No flexibility; repayment due in 2 years.
- Interest rates around 3.5% for taxable.

CASH

Upside

- Flexible, pay as resources available, stop should economic triggers indicate.
- Can pay quarterly, monthly, etc.
- Investments allocated on "average daily equity balance".
- Once paid in full, Town pays "normal costs rate" and assets in PSPRS pool.

Downside

- Uses cash and expenditure limitation capacity that could defer projects and other priorities.

REQUESTED DIRECTION

FY2020 budget preparation

- Impacts of paying the Unfunded Liability with: Cash? Bonds? Rates only?
- Impacts of paying Unfunded Liability: in full over 1, 2, 3 years? Up to $22.5M? or $18M? (Resolution amounts)
- Strategies & policy development to keep an Unfunded Liability balance of zero? Or maintain a range such as 90-110%; or 80%-120%; or 100-120%?

State required policy

- Use the "Unfunded Liability Rate" amortized through 2036 (Recommended)? Or something sooner?
- Insert language regarding Council's intent to "pay off the liability as quickly as reasonably possible" (Recommended)?

Presenting to Council

Present **only** the Actuarial report for strategies; but monitor and validate that differences with the statements are not significant? Present using both tools? Allow staff discretion for what is most appropriate?

BUDGET 2020:
PSPRS FUNDING POLICY AND STRATEGY

February 14th, 2019