Prepared for:

The Defined Contribution and Retirement Study Committee

Informational Presentation on Defined Contribution Plans Administered by the State of Arizona, the Arizona State Retirement System and Public Safety Personnel Retirement System

Prepared by:
Arizona State Retirement System

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Investment Management Theory Applied to Defined Contribution (DC) Plans

A. Risk/Return: Tradeoff, Definitions, Assumptions

B. Time Horizon

C. Asset Allocation

D. Active/Passive Investment Management

Three Approaches to Participant Investment Offerings

1. Traditional

The participant makes the following decisions:

- Asset Allocation
- Investment selection
- Changes to both asset allocation and investment selection

➢ Relies on participant being knowledgeable about risk and return relationships.

2. Risk Based

The participant, usually guided by a questionnaire, makes the following decision:

- Acceptable risk (This should incorporate the aggregate wealth of participant)

➢ Relies on correct connection between questionnaire and participant's investment risk profile.

3. Retirement Date Based

The participant makes the following decision:

- Expected retirement date (Does not incorporate a participant's aggregate wealth position)

➢ Relies on generic age based asset allocation glide paths.

ASRS Supplemental Retirement Savings Plan Investment Options

Stable Value Fund

Morley Stable Value Retirement Fund

Bond Funds

Vanguard Total Bond Market Index Fund
PIMCO Total Return Fund A

Asset Allocation Fund: Active

Ivy Asset Strategy Fund A

Asset Allocation Funds: Risk Profile

Nationwide Investor Destinations Conservative Fund Svc
Nationwide Investor Destinations Moderate Fund Svc
Nationwide Investor Destinations Aggressive Fund Svc

Large Cap Equity Funds

Vanguard 500 Index Fund
Davis NY Venture Fund A

Mid Cap Equity Funds

Vanguard Mid Cap Index Fund – Investor Shares
Dreyfus Premier Structured Mid Cap Fund I

Small Cap Equity Funds

Vanguard Small Cap Index Fund
JP Morgan Small Cap Equity Fund

International Equity Funds

Vanguard Total International Stock Index Fund
American Funds EuroPacific Growth Fund R4

Emerging Markets Equity

Lazard Emerging Markets Fund – Open Class

Real Estate Fund

INVESCO Global Real Estate Fund A

Charles Schwab Self Directed Brokerage Option

Note: All investment options have a benchmark for performance measurement and are analyzed based upon a number of characteristics including rates of return, risk, fees, and organizational changes.

ASRS Supplemental Salary Deferral Plan Investment Options

Stable Value/Guaranteed
TIAA Traditional RCP
Money Market
Vanguard Prime Money Market Inv
Inflation-Linked Bond
Blackrock Inflation Protected Bond Inv A
Core Fixed Income
PIMCO Total Return A Vanguard Total Bond market Index Inv
Asset Allocation Funds: Risk Profile
Manning & Napier Pro-Blend Cnsrv Term S (Conservative) Manning & Napier Pro-Blend Extnd Term S (Moderate) Manning & Napier Pro-Blend Max Term S (Aggressive)
Risk Profile Funds – Global Tactical Allocation
Ivy Asset Strategy A
Social Responsible
CREF Social Choice Composite
Large Cap Blend
CREF Stock TIAA-CREF S&P 500 Index Retire Davis NY Venture Y

Mid Cap Blend
Invesco Mid Cap Core Equity A Vanguard Mid Cap Index Inv
Small Cap Blend
Royce Pennsylvania Mutual Svc TIAA-CREF Small-Cap Blend Index Retire
World Bond
Templeton Global Bond A
World Stock
American Funds Capital World G/I R4
International Equity
American Funds EuroPacific Gr R4 TIAA-CREF International Equity Index Retire
Emerging Markets Equity
Lazard Emerging Markets Equity Open
Real Estate Fund
ING Global Real Estate A
TIAA-CREF Self Directed Brokerage Account

Note: All investment options have a benchmark for performance measurement and are analyzed based upon a number of characteristics including rates of return, risk, fees and organizational changes.

State and PSPRS Investment Options

Fixed Investment Option

Arizona Fixed Fund[1]
Arizona Credit Union
NW Fixed 401(a)/403(b) only

Bonds

Neuberger Berman High Income Bond Fund
PIMCO Total Return Fund
Vanguard Total Bond Index Fund

Balanced

Am Funds Income Fund of America

Asset Allocation

Nationwide Inv Dest Aggr Fund
Nationwide Inv Dest Mod Aggr Fund
Nationwide Inv Dest Moderate Fund
Nationwide Inv Dest Cons Fund
Nationwide Inv Dest Cons Fund

Asset Allocation: Retirement Date

NW Destination 2015 Fund Inst Svc
NW Destination 2020 Fund Inst Svc
NW Destination 2025 Fund Inst Svc
NW Destination 2030 Fund Inst Svc
NW Destination 2035 Fund Inst Svc
NW Destination 2040 Fund Inst Svc
NW Destination 2045 Fund Inst Svc
NW Destination 2050 Fund Inst Svc
NW Retirement Income Fd Inst Svc

Large Cap

American Century equity-Income Fund
Am Funds The Growth Fund of America
Davis New York venture Fund
Dodge & Cox Stock Fund
Dreyfus Appreciation Fund, Inc.
Fidelity Contrafund
Fidelity Equity-Income Fund
Nationwide Fund
Janus Twenty Fund Class T
Neuberger Berman Soc Resp Fund
Vanguard Growth Index Fund
Vanguard Institutional Index Fund
Wells Fargo Advantage Growth Fund
American Funds Washington Mutual

Mid Cap

Dreyfus Mid Cap Index Fund
Goldman Sachs Mid Cap Value A
T. Rowe Price Mid-Cap Growth Fund

Small Cap

Allianz NFJ Small Cap Value Fund
Brown Capital Mgmt Small Co Fund
Neuberger Berman Genesis Fund
Vanguard Small Cap Index Fund

International

Am Funds Capital World Growth & Income
Dodge & Cox International Stock Fund
DWS EAFE Equity Index Fund

Charles Schwab Self Directed Brokerage Option

Note: All investment options have a benchmark for performance measurement and are analyzed based upon a number of characteristics including rates of return, risk, fees and organizational changes..
Note[1]: PSPRS plans have a different investment option referred to as a fixed annuity contract.

Arizona State
Retirement System

"Typical" Defined Benefit Asset Allocation (ASRS)

Investment Category		Policy Target	Policy Range
U.S. Fixed Income		26%	16-36%
Core	24%		
High Yield	2%		
U.S. Equity		40%	30-50%
Large Cap	28%		
Mid Cap	6%		
Small Cap	6%		
International Equity		18%	8-28%
Developed Large Cap	13%		
Developed Small Cap	2%		
Emerging Markets	3%		
Private Equity		7%	5-9%
Real Estate		6%	4-8%
Inflation Linked Assets		3%	0-10%
Commodities	3%		0-5%
TIPS	0%		0-5%
Risk Parity		0%	0-5%
Absolute Return		0%	0-5%
Opportunistic		0%	0-10%
GTAA* (Included in allocation above)		10%	8-12%

Green: Denotes asset classes typically absent from DC investment options, and difficult to include.
Blue: Denotes asset classes typically absent from DC investment options, and moderately easy to include.

Current Arizona Defined Contribution Plans

Plan Sponsor: Arizona State Retirement System – Supplemental Retirement Savings Plan (SRSP) – Available Since: November 2006

Vender Name	Type of Plan	Employee Participation	Employer Participation	Assets Under Management	Annual Account Fees	Wrap Fee[1]	Self Directed Fees	Number of Investments Choices	Number of Asset Classes/Strategy Choices *	Aggregate Expense Ratios
Nationwide Retirement Solutions	401(a)	172	18	$3,869,876	Current = $25 per year Loan Initiation = $50 Annual Loan Fee = $50	0.00%	Setup = $50 Annual Fee = $50	17 plus a Brokerage Window	9	Average: 0.80% Range: 0.17% - 1.49%

Key Features:

- Statutorily available to non-state employees only.
- 2011 Maximum Deferral: lesser of 100% of compensation or $49,000 per year
- Enrollment Limitation Period: 2 years from start date of plan or hire date (whichever is later) and upon meeting age requirement, age 40 (or age selected by the Employer).
- Employee contribution amounts <u>may not be changed</u>.
- Rollovers are permitted into the SRSP Plan.
- Financial hardship withdrawals are not available.
- Loans are available if adopted by the individual employer.

The SRSP is a very structured program based upon IRS regulations, and as such has a very limited level of interest by most employees.

Data as of June 30, 2011

*Risk Profile funds have been categorized as representing one asset class/strategy.

1- No wrap fee during tenure of the contract, however, the vendor considers a wrap fee to be chargeable.

Current Arizona Defined Contribution Plans

Plan Sponsor: Arizona State Retirement System – Supplemental Salary Deferral Plan (SSDP) – Available Since: September 2010

Vender Name	Type of Plan	Employee Participation	Employer Participation	Assets Under Management	Annual Account Fees	Wrap Fee	Self Directed Fees	Number of Investments Choices	Number of Asset Classes/Strategy Choices *	Aggregate Expense Ratios
TIAA CREF	403(b) and 457	65	17	$701,988	Current = $0 per year Loan Initiation = $75	0.12%	Annual Fee = $40	23 plus a Brokerage Window	14	Average: 0.76% Range: 0.22% - 1.49%

Key Features of the Plans:

- Statutorily available to non-state employees only.
- 2011 Maximum Deferral $16,500
- Enrollment Limitation Period: Members may enroll at any time
- Employees may change their contribution amount at any time.
- Rollovers are permitted into the SSDP Plan.
- Financial hardship withdrawals are available if adopted by the individual employer.
- Loans are available if adopted by the individual employer.

The SSDP is a new offering whose purpose is to offer a DC option to employers, that has the following characteristics:

1. Low Total Costs
2. Efficient Investment Structure
3. Professional Oversight

The SSDP is expected to see growth as various employers, specifically school districts, review their current program(s) and contract(s).

Data as of June 30, 2011

*Risk Profile funds have been categorized as representing one asset class/strategy.

Current Arizona Defined Contribution Plans

Plan Sponsor: State of Arizona – Available Since: 457 - June 1975 ; 403(b) - May 1994; 401(a) - January 2008

Vender Name	Type of Plan	Employee Participation	Employer Participation	Assets Under Management	Annual Account Fees	Wrap Fee	Self Directed Fees	Number of Investments Choices[1]	Number of Asset Classes/Strategy Choices *	Aggregate Expense Ratios
Nationwide Retirement Solutions	457 403(b) 401(a)	25,932 52 177	1	$842,895,711 $2,589,789 $6,374,180	Current = $0 Loan Initiation = $50 Annual Loan Fee = $0	0.00%	Setup = $50 Annual Fee = $50	44 plus a Brokerage Window	8	Average: 0.79% Range: 0.04% - 1.19%

Key Features of the Plans:

- Available to State employees only.
- 2011 Maximum Deferral:
  - 457 and 403(b) plans: $16,500: $22,000 if over 50 years of age
  - 401(a) plan: lesser of 100% of compensation or $49,000 per year
- Enrollment Period:
  - 457 and 403(b) plans: Any time.
  - 401(a) plan: 2 years from start date of plan or hire date (whichever is later) and upon meeting age requirement at age 30 for Public Safety Participants, age 40 for all others.
- Employee Contribution Amounts:
  - 457 and 403(b) plans: can be changed at any time
  - 401(a) plan: may not be changed
- Rollovers are permitted into all plans.
- Financial hardship withdrawals:
  - 457 and 403(b) plans: are available
  - 401(a) plan: are not available
- Loans available in all Plans

Data as of June 30, 2010

*Risk Profile funds have been categorized as representing one asset class/strategy and Asset Allocation funds are split into two asset classes/strategies.

1 - Investment Choices as of September 30, 2011

Current Arizona Defined Contribution Plans

Plan Sponsor: Public Safety Personnel Retirement System – Defined Contribution Money Purchase Plan (DCMPP) - Available Since: August 1999

Vender Name	Type of Plan	Employee Participation	Employer Participation	Assets Under Management	Annual Account Fees	Wrap Fee	Self Directed Fees	Number of Investments Choices[1]	Number of Asset Classes/Strategy Choices *	Aggregate Expense Ratios
Nationwide Retirement Solutions	401(a)	17	1	$116,660	Current = $0	0.00%	Setup = $50 Annual Fee = $50	44 plus a Brokerage Window	8	Average: 0.79% Range: 0.04% - 1.19%

Key Features of the Plans:

- Eligibility: Population consisted of current Employees of the Arizona State Legislature or hired after August 6, 1999. Must have opted out of ASRS, however must leave funds on account with ASRS.
- 2011 Maximum Deferral: lesser of 100% of compensation or $49,000 per year.
- Employee contribution amounts: 0
- Employer contribution amounts: 5%
- Plan requires an irrevocable election.
- Rollovers are not permitted into the Plan.
- Financial hardship withdrawals are not available.
- Loans are not available.
- Plan ended December 1, 2000.

Data as of June 30, 2010

*Risk Profile funds have been categorized as representing one asset class/strategy and Asset Allocation funds are split into two asset classes/strategies.

1 - Investment Choices as of September 30, 2011

Current Arizona Defined Contribution Plans

Plan Sponsor: Public Safety Personnel Retirement System – Defined Contribution Plan (DCP) - Available Since: December 1, 2000

Vender Name	Type of Plan	Employee Participation	Employer Participation	Assets Under Management	Annual Account Fees	Wrap Fee	Self Directed Fees	Number of Investments Choices[1]	Number of Asset Classes/Strategy Choices *	Aggregate Expense Ratios
Nationwide Retirement Solutions	401(a)	51	1	$2,723,565	Current = $25	0.00%	Setup = $50 Annual Fee = $50	44 plus a Brokerage Window	8	Average: 0.79% Range: 0.04% - 1.19%

Key Features of the Plans:

- Eligibility: State Elected Officials and Exempt State Officers and Employees. Must have opted out of ASRS, and could transfer the actuarial accrued liability of the employee's defined benefit plan into the Defined Contribution Plan.
- 2011 Maximum Deferral: lesser of 100% of compensation or $49,000 per year.
- Employee contribution amounts: 2.66%
- Employer contribution amounts: 2.66%
- Plan requires an irrevocable election.
- Rollovers are not permitted into the Plan.
- Financial hardship withdrawals are not available.
- Loans are not available.
- Plan ended December 31, 2000.

Data as of June 30, 2010

*Risk Profile funds have been categorized as representing one asset class/strategy and Asset Allocation funds are split into two asset classes/strategies.

1 - Investment Choices as of September 30, 2011

Current Arizona Defined Contribution Plans

Plan Sponsor: Public Safety Personnel Retirement System – Supplemental Defined Contribution Plan (SDCP)- Available Since: August 2000

Vender Name	Type of Plan	Employee Participation	Employer Participation	Assets Under Management	Annual Account Fees	Wrap Fee	Self Directed Fees	Number of Investments Choices[1]	Number of Asset Classes/Strategy Choices *	Aggregate Expense Ratios
Nationwide Retirement Solutions	401(a)	Approximately 500	13	$19,413,875	Current = $25	0.00%	Setup = $50 Annual Fee = $50	44 plus a Brokerage Window	8	Average: 0.79% Range: 0.04% - 1.19%

Key Features of the Plans:

- Eligibility: All PSPRS member municipalities. Employees are eligible tow years from plan adoption by entry or two years from employment start date, whichever is later.
- 2011 Maximum Deferral: lesser of 100% of compensation or $49,000 per year.
- Employee contribution amounts between 1% and 100% and may not be changed.
- Employer contribution may be offered by each employer and can be changed on an annual basis.
- Rollovers are not permitted into the Plan.
- Financial hardship withdrawals are not available.
- Loans are not available.
- Plan ended December 31, 2000.

Data as of June 30, 2010

*Risk Profile funds have been categorized as representing one asset class/strategy

1 - Investment Choices as of September 30, 2011

Appendix

Typical Attributes

Typical Defined Benefit	Pro/Con	Typical Defined Contribution
+ Guaranteed lifetime benefit	+/- Individualized investment decision making	+ Less complex
+ Predictability of future retirement benefit	+/- All risk held by employee	+ More portable
+ Greater retirement equity		
+ Less Expensive per benefit level		