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THAT DRIVE  
ENTERPRISE  
SUCCESS**



**PERIOD ENDING: DECEMBER 31, 2022**

Participant Plan Performance Review for

**West Virginia Investment Management Board**

# Participant Plans Allocation & Performance Net of Fees

Period Ending: December 31, 2022

	6/30/2022		12/31/2022		Performance %							
	Asset (\$000)	%	Asset (\$000)	%	1 Month	3 Month	FYTD	1 Year	3 Year	5 Year	10 Year	20 Year
<b>WVIMB Fund Assets</b>	<b>22,991,842</b>	<b>100.0</b>	<b>23,050,264</b>	<b>100.0</b>								
<b>Pension Assets</b>	<b>18,829,116</b>	<b>81.9</b>	<b>18,781,464</b>	<b>81.5</b>								
Public Employees' Retirement System	8,004,835	34.8	7,976,415	34.6	(1.8)	5.4	1.6	(8.3)	6.9	7.0	8.4	8.2
Teachers' Retirement System	8,980,424	39.1	8,847,259	38.4	(1.8)	5.4	1.6	(8.3)	6.9	6.9	8.4	8.0
EMS Retirement System	112,407	0.5	114,156	0.5	(1.8)	5.4	1.6	(8.3)	6.9	6.9	8.4	
Public Safety Retirement System	767,508	3.3	753,135	3.3	(1.8)	5.4	1.6	(8.3)	7.0	7.0	8.4	8.3
Judges' Retirement System	259,323	1.1	262,264	1.1	(1.8)	5.4	1.6	(8.3)	6.9	7.0	8.5	8.2
State Police Retirement System	289,417	1.3	295,806	1.3	(1.8)	5.4	1.5	(8.4)	6.9	7.0	8.4	8.2
Deputy Sheriffs' Retirement System	293,315	1.3	296,265	1.3	(1.8)	5.4	1.6	(8.3)	6.9	7.0	8.4	8.2
Municipal Police & Firefighter Retirement System	26,796	0.1	29,316	0.1	(1.8)	5.3	1.5	(8.3)	6.9	6.9	8.2	
Natural Resources Police Office Retirement System	24,467	0.1	25,182	0.1	(1.8)	5.4	1.5	(8.3)				
Municipal Model A (I)	68,337	0.3	179,356	0.8	(1.8)	5.5	2.4	(7.2)	7.5	7.4		
Municipal Model B (I)	2,287	0.0	2,310	0.0	(1.9)	6.7	0.8	(14.3)	2.0			
<b>Insurance Assets</b>	<b>3,007,901</b>	<b>13.1</b>	<b>3,116,189</b>	<b>13.5</b>								
Workers' Compensation Old Fund	881,990	3.8	842,342	3.6	(0.8)	4.2	0.2	(11.1)	1.9	2.9	4.0	
Workers' Comp. Self-Insured Guaranty Risk Pool	35,691	0.1	35,501	0.1	(0.8)	4.2	0.4	(10.2)	2.3	3.2	4.3	
Workers' Comp. Self-Insured Security Risk Pool	48,590	0.2	47,372	0.2	(0.8)	4.3	0.4	(10.2)	2.3	3.2		
Workers' Comp. Uninsured Employers' Fund	15,559	0.1	15,813	0.1	(0.8)	4.2	0.4	(10.2)	2.2	3.1	4.2	
Pneumoconiosis	207,487	0.9	199,076	0.9	(0.8)	4.3	0.4	(10.2)	2.3	3.2	4.3	5.1
Board of Risk & Insurance Management	175,463	0.8	175,272	0.8	(0.8)	4.3	0.5	(10.2)	2.4	3.2	4.3	
Public Employees' Insurance Agency	134,812	0.6	168,715	0.7	(0.5)	4.2	0.3	(10.4)	1.8	2.9	4.1	
WV Retiree Health Benefit Trust Fund	1,508,309	6.6	1,632,098	7.1	(1.7)	5.5	1.6	(8.3)	6.9	7.0	8.4	
<b>Endowment Assets</b>	<b>1,154,825</b>	<b>5.0</b>	<b>1,152,611</b>	<b>5.0</b>								
Berkeley County Development Authority	7,886	0.0	8,010	0.0	(1.8)	5.4	1.6	(8.4)	6.9	7.0		
Wildlife Fund	73,641	0.3	71,038	0.3	(1.8)	5.5	1.6	(8.3)	6.9	6.9	8.4	8.2
WV State Parks and Recreation Endowment Fund	14,770	0.1	25,570	0.1	(1.7)	5.3	2.0	(7.6)				
Revenue Shortfall Reserve Fund	329,802	1.4	322,516	1.4	(0.8)	2.2	(2.3)	(11.8)	(1.8)	0.4	1.0	
Revenue Shortfall Reserve Fund - Part B	498,719	2.2	492,859	2.1	(0.9)	3.8	(1.2)	(13.2)	0.5	2.1	3.5	
WV DEP Trust	10,357	0.0	10,604	0.1	(1.9)	7.7	2.4	(12.4)	4.2	4.5	6.9	
WV DEP Agency	219,650	1.0	222,014	1.0	(1.0)	5.4	1.1	(11.2)	2.6	3.4		

# Composite Asset Allocation & Performance Net of Fees

Period Ending: December 31, 2022

	Asset (\$000)	%	Performance %							
			1 Month	3 Month	FYTD	1 Year	3 Year	5 Year	10 Year	20 Year
Investment Pools Composite	23,059,908	100.00								
Portable Alpha Composite +/- S&P 500 Index	4,709,682	20.43	(6.32) (0.56)	6.04 (1.52)	1.62 (0.69)	(18.70) (0.59)				
Large Cap Domestic Equity Composite +/- S&P 500 Index	274,923	1.19	(5.76) 0.00	7.31 (0.25)	2.18 (0.13)	(18.31) (0.20)	7.64 (0.02)	9.20 (0.22)	12.47 (0.09)	9.82 0.02
Non-Large Cap Domestic Equity Composite +/- Russell 2500 Index	994,969	4.31	(6.34) (0.39)	11.37 3.94	10.44 6.04	(16.99) 1.38	6.08 1.08	6.50 0.61	10.11 0.08	10.50 0.24
International Equity Composite +/- MSCI AC World ex US IMI Index (b)	4,526,802	19.63	0.38 0.96	14.72 0.49	2.03 (1.25)	(15.47) 0.68	1.29 0.64	1.01 (0.31)	5.29 0.88	7.99 0.72
Fixed Income Composite +/- Bloomberg Universal (c)	3,369,402	14.61	(0.05) 0.29	2.41 0.17	(1.38) 0.93	(11.69) 1.30	(1.63) 0.91	0.78 0.60	2.06 0.73	3.85 0.52
Core Fixed Income Composite +/- Bloomberg US Aggregate	1,003,373	4.35	(0.28) 0.17	1.49 (0.38)	(2.83) 0.14	(12.03) 0.98	(1.72) 0.99	0.77 0.75	1.65 0.59	
Total Return Fixed Income Composite (j) +/- Bloomberg Universal	2,366,029	10.26	0.04 0.38	2.81 0.57	(0.76) 1.55	(11.56) 1.43	(1.62) 0.92	0.76 0.58	2.23 0.90	4.22 0.78
TIPS Composite +/- Bloomberg US TIPS	388,276	1.68	(1.19) (0.17)	1.91 (0.13)	(3.33) (0.12)	(11.91) (0.06)	1.24 0.03	2.15 0.04	1.13 0.02	
Cash Composite +/- FTSE 3 Month US T-Bill (d)	236,477	1.03	0.34 0.00	0.85 (0.02)	1.34 0.01	1.46 (0.04)	0.62 (0.09)	1.17 (0.08)	0.74 (0.02)	1.32 (0.03)
Private Equity Composite +/- Russell 3000 + 3% (e, f)	2,669,861	11.58	(0.98) 4.63	(0.52) (8.44)	(0.65) (4.54)	1.33 17.54	24.65 14.58	23.21 11.42	18.23 3.00	
Real Estate Composite +/- NCREIF + 1% (e)	2,491,913	10.81	(0.16) (0.43)	0.64 (0.18)	(0.24) (4.56)	10.00 (7.08)	8.47 (2.45)	8.25 (1.37)	9.11 (1.37)	
Hedge Fund Composite +/- HFRI FOF + 1% (g)	2,484,055	10.77	1.65 1.23	2.54 0.50	3.48 1.54	4.33 8.58	6.72 2.01	5.68 1.66	5.21 1.26	
Private Credit & Income Composite +/- CS Leveraged Loan + 2% (e, k)	913,548	3.96	(1.10) (1.62)	3.34 0.51	0.78 (3.76)	7.16 6.22	6.65 2.31	6.69 1.45		

# Participant Plans Allocation vs. Strategy

Period Ending: December 31, 2022

	Equity		Fixed Income		Private Equity		Real Estate		Private Credit & Income		Hedge Funds		Cash	
	Actual %	Strategy %	Actual %	Strategy %	Actual %	Strategy %	Actual %	Strategy %	Actual %	Strategy %	Actual %	Strategy %	Actual %	Strategy %

## Pension Assets

Public Employees' Retirement System	48.7	50.0	11.9	15.0	12.6	10.0	11.8	10.0	4.3	5.0	10.7	10.0	0.0	0.0
Teachers' Retirement System	48.7	50.0	11.8	15.0	12.7	10.0	11.8	10.0	4.3	5.0	10.7	10.0	0.0	0.0
EMS Retirement System	48.6	50.0	12.0	15.0	12.6	10.0	11.8	10.0	4.3	5.0	10.6	10.0	0.1	0.0
Public Safety Retirement System	48.8	50.0	11.6	15.0	12.7	10.0	11.8	10.0	4.3	5.0	10.7	10.0	0.1	0.0
Judges' Retirement System	48.7	50.0	12.0	15.0	12.6	10.0	11.8	10.0	4.3	5.0	10.6	10.0	0.0	0.0
State Police Retirement System	48.6	50.0	12.2	15.0	12.6	10.0	11.7	10.0	4.3	5.0	10.6	10.0	0.0	0.0
Deputy Sheriffs' Retirement System	48.6	50.0	12.0	15.0	12.6	10.0	11.8	10.0	4.3	5.0	10.6	10.0	0.1	0.0
Municipal Police & Firefighter Retirement System	48.6	50.0	12.2	15.0	12.6	10.0	11.7	10.0	4.3	5.0	10.6	10.0	0.0	0.0
Natural Resources Police Office Retirement System	48.6	50.0	12.0	15.0	12.6	10.0	11.7	10.0	4.3	5.0	10.6	10.0	0.2	0.0
Municipal Model A	48.4	50.0	11.7	15.0	12.7	10.0	11.8	10.0	4.3	5.0	10.7	10.0	0.4	0.0
Municipal Model B	56.0	55.0	42.8	45.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0

## Insurance Assets

Workers' Compensation Old Fund	25.2	25.0	42.7	45.0	5.0	4.0	4.6	4.0	1.7	2.0	15.6	15.0	5.2	5.0
Workers' Comp. Self-Insured Guaranty Risk Pool	25.2	25.0	43.0	45.0	5.0	4.0	4.6	4.0	1.7	2.0	15.7	15.0	4.8	5.0
Workers' Comp. Self-Insured Security Risk Pool	25.3	25.0	43.1	45.0	5.0	4.0	4.7	4.0	1.7	2.0	15.8	15.0	4.4	5.0
Workers' Comp. Uninsured Employers Fund	25.1	25.0	42.9	45.0	5.0	4.0	4.6	4.0	1.7	2.0	15.7	15.0	5.0	5.0
Pneumoconiosis	25.5	25.0	43.3	45.0	5.0	4.0	4.7	4.0	1.7	2.0	15.8	15.0	4.0	5.0
Board of Risk & Insurance Mgmt.	23.6	25.0	41.7	45.0	4.8	4.0	4.5	4.0	1.6	2.0	15.0	15.0	8.8	5.0
Public Employees' Insurance Agency	16.8	20.0	43.6	55.0	2.0	2.0	1.9	2.0	0.7	1.0	17.2	20.0	17.8	0.0
WV Retiree Health Benefit Trust Fund	45.6	50.0	11.4	15.0	11.8	10.0	11.0	10.0	4.1	5.0	9.9	10.0	6.2	0.0

## Endowment Assets

Berkeley County Development Authority	48.6	50.0	12.2	15.0	12.6	10.0	11.7	10.0	4.3	5.0	10.6	10.0	0.0	0.0
Wildlife Fund	48.3	50.0	12.2	15.0	12.6	10.0	11.8	10.0	4.3	5.0	10.6	10.0	0.2	0.0
WV State Parks and Recreation Endowment Fund	45.6	50.0	11.3	15.0	11.7	10.0	10.9	10.0	4.0	5.0	9.9	10.0	6.6	0.0
Revenue Shortfall Reserve Fund	10.2	10.0	79.9	80.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.9	10.0
Revenue Shortfall Reserve Fund - Part B	17.9	17.5	71.2	72.5	2.5	2.0	2.3	2.0	0.9	1.0	5.2	5.0	0.0	0.0
WV DEP Trust	65.9	65.0	13.4	15.0	0.0	0.0	0.0	0.0	0.0	0.0	20.7	20.0	0.0	0.0
WV DEP Agency	35.7	35.0	37.9	40.0	2.5	2.0	2.3	2.0	0.8	1.0	20.8	20.0	0.0	0.0

- (a) As of January 2019, the PERS Base is 60% MSCI ACWI Gross and 40% Bloomberg Universal. From January 2014 to December 2018, the PERS Base was 30% Russell 3000, 30% MSCI ACWI ex USA (IMI), and 40% Bloomberg Universal. From April 2008 to December 2013, the PERS Base was 30% Russell 3000, 30% MSCI ACWI ex USA (Standard), and 40% Bloomberg Universal. Prior periods were 42% Russell 3000, 18% MSCI ACWI ex USA, and 40% Bloomberg US Aggregate.
- (b) Prior to January 2014, the index was the MSCI ACW ex USA (Standard).
- (c) Prior to April 2008, the index was Bloomberg US Aggregate.
- (d) Prior to January 2014, the index was FTSE 3 Month US T-Bill plus 15 basis points.
- (e) Private Equity, Real Estate, and Private Credit & Income consist primarily of private market investments. The time lag in determining the fair value of these investments makes the comparison to their public market benchmarks less meaningful over shorter time periods.
- (f) Prior to January 2014, the index was S&P 500 plus 500 basis points.
- (g) Prior to January 2014, the index was Libor plus 400 basis points.
- (h) As of July 2019, the Franklin Benchmark is 50% JPM EMBI Global Diversified ex GCC and 50% JPM GBIEM Diversified. Prior periods were 50% JPM EMBI Global Diversified and 50% JPM GBIEM Diversified.
- (i) Prior to April 2008, the index was a custom index.
- (j) From October 2015 to March 2017, performance returns from the Opportunistic Income Pool were included in the Total Return Fixed Income Composite.
- (k) Prior to April 2017, the index was CS Leveraged Loan plus 250 basis points.
- (l) In July 2020 the municipal plan potential investment models were condensed to Model A and Model B. The June 30, 2020 asset values for Model C and Model D are included in Model A. Model B was formerly Model F.
- (m) From September 2021 to September 2022, the index was S&P 500 Index 2.5x minus 3 Month Libor minus 15 basis points. From January 2021 to August 2021, the index was S&P 500 Index 2.2x minus 3 Month Libor minus 15 basis points. Prior to January 2021, the index was S&P 500 Index 2.5x minus 3 Month Libor minus 15 basis points.

Note: Participant returns are net of fees. Portfolio returns are net of management fees. Returns shorter than one year are unannualized.

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