



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**



PERIOD ENDING: OCTOBER 31, 2022

Participant Plan Performance Review for

West Virginia Investment Management Board

Participant Plans Allocation & Performance Net of Fees

Period Ending: October 31, 2022

| | 6/30/2022 | | 10/31/2022 | | Performance % | | | | | | | |
|---|-------------------|--------------|-------------------|--------------|---------------|---------|-------|--------|--------|--------|---------|---------|
| | Asset (\$000) | % | Asset (\$000) | % | 1 Month | 3 Month | FYTD | 1 Year | 3 Year | 5 Year | 10 Year | 20 Year |
| WVIMB Fund Assets | 22,991,842 | 100.0 | 22,482,810 | 100.0 | | | | | | | | |
| Pension Assets | 18,829,116 | 81.9 | 18,447,766 | 82.0 | | | | | | | | |
| Public Employees' Retirement System | 8,004,835 | 34.8 | 7,826,954 | 34.8 | 2.8 | (4.2) | (1.0) | (9.2) | 7.4 | 6.9 | 8.4 | 8.2 |
| Teachers' Retirement System | 8,980,424 | 39.1 | 8,703,818 | 38.7 | 2.8 | (4.2) | (1.0) | (9.1) | 7.4 | 6.9 | 8.4 | 8.0 |
| EMS Retirement System | 112,407 | 0.5 | 111,356 | 0.5 | 2.8 | (4.2) | (1.0) | (9.2) | 7.4 | 6.9 | 8.4 | |
| Public Safety Retirement System | 767,508 | 3.3 | 742,393 | 3.3 | 2.8 | (4.2) | (1.0) | (9.1) | 7.4 | 6.9 | 8.4 | 8.2 |
| Judges' Retirement System | 259,323 | 1.1 | 256,164 | 1.1 | 2.8 | (4.2) | (1.0) | (9.2) | 7.4 | 6.9 | 8.4 | 8.2 |
| State Police Retirement System | 289,417 | 1.3 | 287,471 | 1.3 | 2.8 | (4.2) | (1.0) | (9.2) | 7.4 | 6.9 | 8.4 | 8.2 |
| Deputy Sheriffs' Retirement System | 293,315 | 1.3 | 289,406 | 1.3 | 2.8 | (4.2) | (1.0) | (9.2) | 7.4 | 6.9 | 8.4 | 8.2 |
| Municipal Police & Firefighter Retirement System | 26,796 | 0.1 | 27,874 | 0.1 | 2.7 | (4.2) | (1.0) | (9.1) | 7.4 | 6.9 | 8.2 | |
| Natural Resources Police Office Retirement System | 24,467 | 0.1 | 24,402 | 0.1 | 2.8 | (4.2) | (1.0) | (9.2) | | | | |
| Municipal Model A (I) | 68,337 | 0.3 | 175,675 | 0.8 | 2.8 | (3.4) | (0.1) | (8.0) | 8.0 | 7.3 | | |
| Municipal Model B (I) | 2,287 | 0.0 | 2,253 | 0.0 | 2.7 | (6.7) | (3.0) | (16.9) | 1.9 | | | |
| Insurance Assets | 3,007,901 | 13.1 | 2,917,674 | 13.0 | | | | | | | | |
| Workers' Compensation Old Fund | 881,990 | 3.8 | 825,882 | 3.7 | 1.4 | (5.4) | (2.6) | (13.2) | 1.8 | 2.7 | 3.8 | |
| Workers' Comp. Self-Insured Guaranty Risk Pool | 35,691 | 0.1 | 34,641 | 0.1 | 1.4 | (5.0) | (2.3) | (12.3) | 2.3 | 3.0 | 4.2 | |
| Workers' Comp. Self-Insured Security Risk Pool | 48,590 | 0.2 | 46,549 | 0.2 | 1.4 | (5.0) | (2.3) | (12.3) | 2.3 | 2.9 | | |
| Workers' Comp. Uninsured Employers' Fund | 15,559 | 0.1 | 15,352 | 0.1 | 1.4 | (5.0) | (2.3) | (12.3) | 2.2 | 2.8 | 4.0 | |
| Pneumoconiosis | 207,487 | 0.9 | 197,162 | 0.9 | 1.5 | (5.0) | (2.3) | (12.4) | 2.3 | 2.9 | 4.2 | 5.2 |
| Board of Risk & Insurance Management | 175,463 | 0.8 | 170,453 | 0.8 | 1.4 | (5.0) | (2.3) | (12.4) | 2.3 | 3.0 | 4.2 | |
| Public Employees' Insurance Agency | 134,812 | 0.6 | 134,742 | 0.6 | 1.1 | (5.4) | (2.6) | (12.7) | 1.6 | 2.6 | 4.0 | |
| WV Retiree Health Benefit Trust Fund | 1,508,309 | 6.6 | 1,492,893 | 6.6 | 2.8 | (4.2) | (1.0) | (9.2) | 7.4 | 6.9 | 8.4 | |
| Endowment Assets | 1,154,825 | 5.0 | 1,117,370 | 5.0 | | | | | | | | |
| Berkeley County Development Authority | 7,886 | 0.0 | 7,806 | 0.0 | 2.8 | (4.2) | (1.0) | (9.2) | 7.4 | 6.9 | | |
| Wildlife Fund | 73,641 | 0.3 | 68,966 | 0.3 | 2.8 | (4.2) | (1.0) | (9.2) | 7.3 | 6.9 | 8.4 | 8.2 |
| WV State Parks and Recreation Endowment Fund | 14,770 | 0.1 | 20,742 | 0.1 | 2.7 | (3.6) | (0.5) | (8.5) | | | | |
| Revenue Shortfall Reserve Fund | 329,802 | 1.4 | 315,632 | 1.4 | 0.0 | (7.2) | (4.4) | (13.2) | (2.3) | 0.2 | 0.8 | |
| Revenue Shortfall Reserve Fund - Part B | 498,719 | 2.2 | 479,399 | 2.1 | 1.0 | (6.9) | (3.9) | (15.1) | 0.2 | 1.8 | 3.3 | |
| WV DEP Trust | 10,357 | 0.0 | 10,213 | 0.1 | 3.7 | (5.4) | (1.4) | (15.0) | 4.4 | 4.2 | 6.8 | |
| WV DEP Agency | 219,650 | 1.0 | 214,612 | 1.0 | 1.8 | (5.2) | (2.3) | (13.9) | 2.5 | 3.1 | | |

Composite Asset Allocation & Performance Net of Fees

Period Ending: October 31, 2022

| | Asset (\$000) | % | Performance % | | | | | | | | |
|---|---------------|--------|------------------|------------------|------------------|-------------------|----------------|------------------|-----------------|----------------|--|
| | | | 1 Month | 3 Month | FYTD | 1 Year | 3 Year | 5 Year | 10 Year | 20 Year | |
| Investment Pools Composite | 22,494,666 | 100.00 | | | | | | | | | |
| Portable Alpha Composite +/- S&P 500 Index | 4,915,657 | 21.85 | 7.37 (0.73) | (5.94) (0.08) | 2.89 0.07 | (14.32) 0.29 | | | | | |
| Large Cap Domestic Equity Composite +/- S&P 500 Index | 313,443 | 1.39 | 7.92 (0.18) | (5.95) (0.09) | 2.76 (0.06) | (14.75) (0.14) | 10.23 0.02 | 10.00 (0.44) | 12.70 (0.09) | 9.78 (0.03) | |
| Non-Large Cap Domestic Equity Composite +/- Russell 2500 Index | 1,006,268 | 4.47 | 13.11 3.52 | 1.04 4.52 | 12.17 5.66 | (14.48) 3.10 | 8.92 0.98 | 7.71 0.64 | 10.79 0.09 | 10.77 0.23 | |
| International Equity Composite +/- MSCI AC World ex US IMI Index (b) | 3,918,952 | 17.42 | 2.79 (0.25) | (10.16) 0.08 | (8.58) (1.75) | (25.10) (0.30) | (0.52) 0.48 | (0.50) (0.40) | 4.69 0.80 | 7.43 0.63 | |
| Fixed Income Composite +/- Bloomberg Universal (c) | 3,197,970 | 14.22 | (1.18) (0.08) | (6.45) 1.37 | (4.85) 0.65 | (14.90) 0.89 | (2.57) 1.00 | 0.23 0.65 | 1.74 0.72 | 3.85 0.59 | |
| Core Fixed Income Composite +/- Bloomberg US Aggregate | 951,313 | 4.23 | (1.47) (0.17) | (7.49) 0.74 | (5.67) 0.32 | (14.56) 1.12 | (2.77) 1.00 | 0.25 0.79 | 1.37 0.63 | | |
| Total Return Fixed Income Composite (j) +/- Bloomberg Universal | 2,246,657 | 9.99 | (1.06) 0.04 | (6.01) 1.81 | (4.50) 1.00 | (15.06) 0.73 | (2.51) 1.06 | 0.20 0.62 | 1.90 0.88 | 4.22 0.83 | |
| TIPS Composite +/- Bloomberg US TIPS | 414,888 | 1.85 | 1.28 0.04 | (7.93) 0.04 | (3.92) 0.05 | (11.43) 0.04 | 1.22 0.10 | 2.24 0.08 | 1.05 0.03 | | |
| Cash Composite +/- FTSE 3 Month US T-Bill (d) | 96,515 | 0.43 | 0.23 (0.02) | 0.60 0.01 | 0.72 0.02 | 0.84 (0.04) | 0.51 (0.09) | 1.08 (0.08) | 0.68 (0.02) | 1.31 (0.02) | |
| Private Equity Composite +/- Russell 3000 + 3% (e, f) | 2,715,345 | 12.07 | 0.03 (8.42) | (0.11) 4.64 | (0.11) (4.47) | 7.55 21.07 | 26.19 13.41 | 23.90 11.03 | 18.48 2.94 | | |
| Real Estate Composite +/- NCREIF + 1% (e) | 2,481,977 | 11.03 | 0.29 0.02 | (1.08) (3.67) | (0.59) (4.35) | 12.05 (8.59) | 8.53 (2.59) | 8.42 (1.36) | 9.25 (1.36) | | |
| Hedge Fund Composite +/- HFRI FOF + 1% (g) | 2,549,833 | 11.34 | (0.32) (1.27) | 0.47 0.28 | 0.60 (0.43) | 0.58 6.57 | 6.44 1.10 | 5.15 1.09 | 5.13 1.20 | | |
| Private Credit & Income Composite +/- CS Leveraged Loan + 2% (e, k) | 883,818 | 3.93 | 2.69 1.68 | (1.19) (1.87) | 0.15 (2.56) | 6.82 6.85 | 7.08 2.51 | 6.74 1.70 | | | |

Participant Plans Allocation vs. Strategy

Period Ending: October 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 | 47.5 | 50.0 | 10.8 | 15.0 | 13.5 | 10.0 | 12.4 | 10.0 | 4.4 | 5.0 | 11.1 | 10.0 | 0.3 | 0.0 |
| Teachers' Retirement System | 47.6 | 50.0 | 10.7 | 15.0 | 13.6 | 10.0 | 12.4 | 10.0 | 4.4 | 5.0 | 11.1 | 10.0 | 0.2 | 0.0 |
| EMS Retirement System | 47.3 | 50.0 | 11.1 | 15.0 | 13.5 | 10.0 | 12.3 | 10.0 | 4.4 | 5.0 | 11.0 | 10.0 | 0.4 | 0.0 |
| Public Safety Retirement System | 47.6 | 50.0 | 10.6 | 15.0 | 13.6 | 10.0 | 12.5 | 10.0 | 4.4 | 5.0 | 11.2 | 10.0 | 0.1 | 0.0 |
| Judges' Retirement System | 47.3 | 50.0 | 11.0 | 15.0 | 13.5 | 10.0 | 12.3 | 10.0 | 4.4 | 5.0 | 11.0 | 10.0 | 0.5 | 0.0 |
| State Police Retirement System | 47.3 | 50.0 | 11.2 | 15.0 | 13.5 | 10.0 | 12.3 | 10.0 | 4.4 | 5.0 | 11.0 | 10.0 | 0.3 | 0.0 |
| Deputy Sheriffs' Retirement System | 47.4 | 50.0 | 11.1 | 15.0 | 13.5 | 10.0 | 12.4 | 10.0 | 4.4 | 5.0 | 11.1 | 10.0 | 0.1 | 0.0 |
| Municipal Police & Firefighter Retirement System | 47.2 | 50.0 | 11.2 | 15.0 | 13.3 | 10.0 | 12.2 | 10.0 | 4.3 | 5.0 | 10.9 | 10.0 | 0.9 | 0.0 |
| Natural Resources Police Office Retirement System | 47.3 | 50.0 | 11.1 | 15.0 | 13.5 | 10.0 | 12.3 | 10.0 | 4.4 | 5.0 | 11.0 | 10.0 | 0.4 | 0.0 |
| Municipal Model A | 47.9 | 50.0 | 10.6 | 15.0 | 13.4 | 10.0 | 12.3 | 10.0 | 4.4 | 5.0 | 11.0 | 10.0 | 0.4 | 0.0 |
| Municipal Model B | 52.9 | 55.0 | 41.5 | 45.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.6 | 0.0 |

Insurance Assets

| | | | | | | | | | | | | | | |
|--|------|------|------|------|------|------|------|------|-----|-----|------|------|-----|-----|
| Workers' Compensation Old Fund | 30.1 | 30.0 | 48.6 | 50.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.1 | 15.0 | 4.2 | 5.0 |
| Workers' Comp. Self-Insured Guaranty Risk Pool | 29.7 | 30.0 | 42.7 | 45.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22.6 | 20.0 | 5.0 | 5.0 |
| Workers' Comp. Self-Insured Security Risk Pool | 29.8 | 30.0 | 42.8 | 45.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22.7 | 20.0 | 4.7 | 5.0 |
| Workers' Comp. Uninsured Employers Fund | 29.4 | 30.0 | 42.6 | 45.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22.5 | 20.0 | 5.5 | 5.0 |
| Pneumoconiosis | 29.9 | 30.0 | 42.9 | 45.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22.7 | 20.0 | 4.5 | 5.0 |
| Board of Risk & Insurance Mgmt. | 29.7 | 30.0 | 42.6 | 45.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22.6 | 20.0 | 5.1 | 5.0 |
| Public Employees' Insurance Agency | 24.5 | 25.0 | 52.9 | 55.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22.6 | 20.0 | 0.0 | 0.0 |
| WV Retiree Health Benefit Trust Fund | 47.3 | 50.0 | 11.3 | 15.0 | 13.5 | 10.0 | 12.4 | 10.0 | 4.4 | 5.0 | 11.1 | 10.0 | 0.0 | 0.0 |

Endowment Assets

| | | | | | | | | | | | | | | |
|--|------|------|-------|-------|------|------|------|------|-----|-----|------|------|-----|-----|
| Berkeley County Development Authority | 47.3 | 50.0 | 11.3 | 15.0 | 13.5 | 10.0 | 12.4 | 10.0 | 4.4 | 5.0 | 11.1 | 10.0 | 0.0 | 0.0 |
| Wildlife Fund | 47.5 | 50.0 | 10.7 | 15.0 | 13.6 | 10.0 | 12.4 | 10.0 | 4.4 | 5.0 | 11.1 | 10.0 | 0.3 | 0.0 |
| WV State Parks and Recreation Endowment Fund | 46.6 | 50.0 | 10.5 | 15.0 | 12.4 | 10.0 | 11.4 | 10.0 | 4.0 | 5.0 | 10.2 | 10.0 | 4.9 | 0.0 |
| Revenue Shortfall Reserve Fund | 0.0 | 0.0 | 100.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Revenue Shortfall Reserve Fund - Part B | 22.6 | 22.5 | 77.4 | 77.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| WV DEP Trust | 64.2 | 65.0 | 13.3 | 15.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22.5 | 20.0 | 0.0 | 0.0 |
| WV DEP Agency | 39.7 | 40.0 | 37.7 | 40.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22.6 | 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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