DATE: October 16, 2017

TO: BWC Investment Committee
BWC Board of Directors

FROM: Bruce Dunn, CFA, Chief Investment Officer

SUBJECT: **Asset Class Annual Report for Fiscal Year 2017**

Ohio Revised Code section 4121.12(F) (12) states that the BWC Board of Directors shall "submit a report annually on the performance and value of each investment class to the governor, the president and minority leader of the senate, and the speaker and minority leader of the house of representatives".

The following proposed Asset Class Annual Report for Fiscal Year 2017 in draft form is provided for your review. This proposed Annual Report will be presented and discussed for a first read at the Investment Committee meeting of October 25, 2017.

Ohio BWC FY17 ORC Asset Class Annual Report
Executive Summary

- **Total net return** of 7.5% in FY17 for BWC investment portfolio with annualized returns of 5.1% for three years, 6.5% for five years and 6.9% for ten years ending 6/30/17

- **Net investment income** for FY17 was $1,878 million ($1.878 billion)

- **Asset allocation mix** of investment portfolio at 6/30/17 market values was 55.1% bonds, 32.8% stocks, 10.5% real estate and 1.6% cash as compared to 58.8% bonds, 31.1% stocks, 8.9% real estate and 1.2% cash on 6/30/16

- **Bond portfolio** returned 1.4% in FY17 with interest income earned yielding an average of 3.6%; bond portfolio had weighted average duration of 10.7 years on 6/30/17 which closely matches estimated duration of BWC estimated future liability payments

- **High quality bond portfolio** held at end of FY17 with average quality of bonds between "AA" and "A", with 35% of bond market value being U.S. government issues of "AAA" quality; below investment grade "high yield" bonds represented 4.3% of total bond market value and 2.4% of total invested assets market value

- **Stock portfolio** returned 19.3% in FY17 with U.S. stock portfolio comprising 69.5% of total stock portfolio at end of FY17 returning 18.8% and non-U.S. stocks representing remaining 30.5% of total stock portfolio returning 20.4%

- **Real estate portfolio** returned 7.6% in FY17 after management fees

- **Total fair value of invested assets** was $26.795 billion on 6/30/17 compared to $25.248 billion on 6/30/16

- **Active management** of designated SIF bond and stock portfolio sectors in FY17 contributed an estimated $138 million of net incremental return above respective benchmarks: $71mm from core plus bonds, $40mm from long credit bonds and $27mm from mid/small-cap stocks

- **Investment management fees** of $60 million in FY17 represented annual fee of between 23-24 basis points (23/100 of 1%) of average month-end invested assets (excluding cash) compared to $50 million (21 bp) in FY16 with YOY increase mostly from more real estate assets managed

- **Ten Year Fiduciary Performance Audit** completed in FY17 resulted in zero control deficiency covering policies, procedures and governance

Prepared by Bruce Dunn, CFA
BWC Chief Investment Officer
October 16, 2017

Ohio Bureau of Workers' Compensation

Fiscal Year 2017 Investment Class Annual Report Comments

U.S. Economy

The U.S. economy continued to grow at a respectable rate in fiscal year 2017 (FY17), sustaining its eighth consecutive year of economic growth following the financial shocks and recessionary period of FY09. The current U.S. economic expansion beginning in July 2009 (99 months through September 2017) is the third-longest between recessions in U.S. history covering 33 business cycles to date going back to 1854. Only the U.S. economic expansions from March 1991 to March 2001 (120 months) and from February 1961 to December 1969 (106 months) have been longer to date. Real Gross Domestic Product (GDP) averaged 2.2% growth quarter-over-quarter for the four quarters of FY17 which was an improvement over the tepid 1.3% average quarter-to-quarter growth for FY16 but less than exhibited in FY15 (+3.0%) and FY14 (+2.5%). The FY17 first quarter (calendar year 3Q2016) and last quarter (calendar year 2Q17) exhibited stronger real GDP growth of 2.8% and 3.1%, respectively, whereas the two middle quarters of FY17 covering the autumn and winter periods of 4Q16 and 1Q17, had slower but still positive real GDP growth of 1.8% and 1.2%, respectively.

The national unemployment rate continued its decline in FY17 from 4.9% in June 2016 to 4.4% in June 2017 which is a continuation of a more moderate decline from 5.3% in June 2015 after declining from 7.5% in June 2013. There is an assertion that the U.S. is nearing full employment as there will always be a certain amount of "frictional unemployment". The Federal Reserve and others emphasize the mismatch in the labor market between a shortage of labor for skilled jobs and a still significant number of unemployed and part-time workers lacking the necessary skills to fill these more demanding jobs. This predicament has led to a continued widening in the gap in compensation paid to skilled, highly educated "knowledge" workers and less skilled, less educated workers. The U.S. civilian worker employment cost index showed a modest but higher 2.4% increase over FY17 after increasing 2.3% for FY16 which is an improvement from an annual 2.0% or lesser increase over the prior several fiscal year periods 2012-2015. This low level of wage growth is also occurring within a broader context of even slower growth in labor productivity, which has increased an average of less than 1% in each of the past five years.

After finally raising the benchmark federal funds rate by 0.25% in December 2015 for the first time since before the Great Financial Crisis of 2008-2009, the Federal Reserve raised the federal funds rate on three occasions during FY17 by 0.25% each including in June 2017 to a range of 1.0%-1.25%. This somewhat less accommodative monetary policy was the result of the Fed desiring to move towards a more normalization of interest rate levels and its belief its interest rate increases would not harm U.S. economic growth. These interest rate increases made by the Fed are in contrast to the very accommodative monetary policies maintained by the two most important other central banks, the European Central Bank (ECB) and the Bank of Japan, that want to stimulate economic growth in their regions and prevent sliding back into recession. These accommodative policies, especially that of the ECB, have been successful in stimulating economic growth in FY17 in the Eurozone and in Japan.

Inflation continued to be benign over FY17 with the annualized growth in the Consumer Price Index (CPI) being 1.6% for all items and 1.7% for all items except food and energy. The CPI in FY17 was 0.9% for food and 2.3% for energy. The Federal Reserve has stated it wants the U.S. inflationary rates to rise to its 2.0% target but the pace of hitting that target has been frustratingly slow.

U.S. Financial Markets

The U.S. equity markets exhibited very strong performance in FY17 and were on a consistent upward trajectory during each of the four quarters of FY17, with only small pullbacks exhibited that were quickly seized as buying opportunities by investors. The major U.S. equity market indexes hit more record highs as FY17 ended. The Fed interest rate hikes were perceived as representing Fed confidence in a stronger U.S. economy allowing for such hikes to be easily absorbed by the economy which they were in hindsight. The U.S. equity markets reacted positively to the surprise election of Donald Trump as U.S. President in November 2016 as investors projected the likelihood of both corporate and individual tax cuts, significant deregulation and infrastructure spending which fueled U.S. stock indexes to record highs. In addition, the economies of important continental European countries began rebounding by exhibiting modest but accelerating growth. The Chinese economy maintained its strong economic growth near 7.0% GDP throughout FY17. These encouraging overseas developments resulted in higher export activity of goods and services by U.S. corporations which was fueled by a U.S. dollar weakening in exchange values versus the Euro by 8.5% from January-June 2017. In addition to the strengthening European economy, the Dutch and French elections of pro-Eurozone, anti-populist candidates friendly to business interests also encouraged investors throughout the world.

Bond yields of U.S. government and corporate issues had an upward bias in FY17. After a relatively quiet 3Q2016 with only minor month-to-month movement, medium-term and long-term investment grade U.S. bond yields rose between 0.50% and 0.75% (50-75 basis points) in 4Q2016, with most of the yield increase occurring after the presidential election. Whereas the prospect of tax cuts, deregulation and infrastructure spending was viewed as positive by equity investors, bond investors viewed these as a negative which could result in higher economic growth and inflation. After the excitement of 4Q2016 events, U.S. market bond yields traded in a relatively narrow range over the first half of the calendar 2017 period with long-term maturity bond yields declining 0.20%-0.30% (20-30 basis points) and medium-term maturity bond yields being virtually unchanged.

In summary, FY17 exhibited strong and consistent U.S. equity market momentum throughout the period with the broad Russell 3000 index up 18.5%, the large-cap S&P 500 index up 17.9% and the small-cap Russell 2000 index up 24.6%. The broad non-U.S. equity MSCI ACWI ex-U.S. index was up 20.4% for FY17. Although there was month-to-month currency exchange rate volatility for FY17, the overall currency exchange impact to this broad non-U.S. equity index was only a negative 0.7% in reduced performance for FY17 for the non-U.S. equity portfolio owned by BWC. The BWC equities portfolio exhibited positive monthly returns for eleven of the twelve months of FY17, the exception being October 2016. The three intermediate-term bond indexes serving as benchmarks for BWC fixed income portfolios returned between negative 0.2% to negative 0.6%, whereas the most important long credit bond index representing one-half of BWC fixed income assets at the end of FY17 returned a positive 3.0% in FY17.

<u>Portfolio Returns</u>

The BWC investment portfolio in FY17 provided a total return (net of management fees) of 7.5% and net investment income of $1,878 million. The annualized net return of the BWC investment portfolio for the three-year and five-year fiscal periods ending June 30, 2017 were 5.1% and 6.5%, respectively, and was 6.9% for the ten-year fiscal period ending June 30, 2017. As a result, the FY17 portfolio return of 7.5% was above the annualized ten-year portfolio return of 6.9%. Each of these returns exceeded the 4.0% discount rate applied to future liabilities.

The BWC fixed income portfolio returned 1.4% in FY17 from a combination of bond interest income earned of 3.6% and market value depreciation of 2.2% resulting from the slight increase in U.S. interest rate levels for the portfolio over the course of FY17. The BWC equity portfolio returned a very strong 19.3% in FY17 and was comprised of an 18.8% net return for its U.S. equity portfolio and a 20.4% net return for its non-U.S. equity portfolio. The growing BWC real estate portfolio comprised of twenty-one pooled real estate commingled funds at the end of FY17 provided a net return after management fees of 7.6% in FY17, which was an expected moderation in performance of this asset class. The BWC real estate strategy has an emphasis on core real estate assets with only moderate leverage utilized. The real estate asset class provided strong but not continuously sustainable net returns of 10.2% in FY16, 14.5% in FY15 and 11.4% in FY14.

<u>Asset Allocation Revisions</u>

BWC investment consultant RVK completed and presented asset-liability modeling studies on four of the five specialty funds (all but the Self-Insured Employers Guarantee Fund) over the months of April-July 2015 for review by the Investment Committee. The studies resulted in one asset allocation strategy change that involved the Disabled Workers' Relief Fund II (DWRF II) that was approved by the Investment Committee and Board on October 2015. This change involved revising the DWRF II targeted 34% asset allocation from a passive managed intermediate-duration benchmarked fixed income mandate to a new passive managed long-duration U.S. long government/credit index benchmarked fixed income mandate. Due to the very long-term DWRF II liabilities that have an estimated average duration of 18 years with few liability payments projected over the next ten years, converting this 34% asset allocation target from an intermediate-duration benchmarked mandate to a long-duration benchmarked mandate results in an improved duration matching of DWRF II assets and liabilities as well as increased interest income earned. This DWRF II fixed income portfolio transition involving $560 million of assets was implemented and completed in September 2016 with the chosen commingled fund manager of this new mandate selected as a result of the BWC Passive Index Management RFP issued in June 2016 with manager recommendations approved by the Investment Committee and Board in August 2016.

The second investment policy asset allocation change occurring in FY17 involved the Minority and/or Women-Owned Business Enterprise (MWBE) investment program of the State Insurance Fund (SIF). The Investment Committee and Board did approve in June 2017 the recommendation of RVK to convert the SIF MWBE investment program representing a targeted 1% of SIF assets (approximately $250 million) to passive management from active management (via manager-of-managers oversight) and that its U.S. equity benchmark be changed from the All-Cap Russell 3000 index to the Large-Cap Russell Top 200 index. This decision was made largely due to the consistent underperformance of the active management MWBE program compared to the returns of its broad benchmark index (Russell 3000 All-Cap U.S. Equity index) over its five-year period from its April 2012 inception through March 2017. The Investment Committee and Board also approved in June 2017 the issuance by BWC staff of a RFP for MWBE passive investment management services. This RFP was subsequently issued in late June 2017 with bids received in mid-July 2017. The BWC RFP Evaluation Committee completed its review of the bids and its due diligence and recommended a MWBE Finalist Manager at the August 2017 Investment Committee meeting whereby BWC Board members also heard a presentation of the Finalist Manager. The recommended Finalist Manager was approved as the new MWBE investment manager for SIF assets. It is anticipated the transition of assets from the current fourteen active MWBE sub-investment manager accounts to a single passive MWBE investment manager account will be completed in 4Q2017.

<u>Ten Year Fiduciary Investment Performance Audit</u>

The presentation of the BWC Fiduciary Investment Performance Audit conducted over several months by Clark Schaefer Hackett (CSH) occurred at the August 2016 BWC Audit Committee meeting. As required by Ohio Revised Code 4121.125(l), a fiduciary performance audit of the BWC investment program is required to be performed once every ten years. CSH represented there were zero internal control deficiency findings in their Fiduciary Audit with BWC showing great improvement in policies, procedures and governance. CSH presented in their Fiduciary Audit several suggested improvements directed towards specific policies and procedures. The CIO and Co-CIO presented their responses and recommendations at the December 2016

Investment Committee meeting regarding the five Fiduciary Audit comments assigned by the BWC Board to the Investment Division or Investment Committee for review and recommendation. Each of these respective recommendations addressing these five Fiduciary Audit comments that were made by the CIO and Co-CIO were accepted by the Investment Committee at this December 2016 meeting. These recommendations consisted of two accepted action items to be addressed and three suggested items that, in the opinion of the CIO, Co-CIO and BWC directors, no action need occur as such suggestions are already being satisfied by processes, procedures or reports already in place.

The two approved Fiduciary Audit action items involve (1) the inclusion of a specific benchmark index for the Cash and Cash Equivalents investment category for all BWC trust fund portfolios and (2) the creation of a written termination policy for underperforming investment managers. The specific benchmark for the Cash and Cash Equivalents category (Bank of America Merrill Lynch 3-Month Treasury Bill Index) was approved by the Board in April 2017 and is reflected in the BWC Investment Policy Statement (IPS). The Outside Investment Manager and Investment Consultant Termination Policy was created by the Investment Division in January 2017 with comments provided by investment consultant RVK and BWC Internal Audit.

<u>Portfolio Compliance</u>

The investment portfolios were in compliance with the BWC Investment Policy at the end of each month of FY17 except for three matters, one of which involved an external investment manager and two of which involved a specific asset class slightly exceeding its defined upper limit ownership range per the BWC investment policy. It is also understood that the SIF MWBE 1% asset allocation investment strategy change from an active to passive managed U.S. equity mandate approved in June 2017 and reflected as the SIF investment policy will not be completed until sometime in 4Q2017with the transition of approximately $250 million in assets.

The SIF active managed Long Credit fixed income portfolio managed by PIMCO had a market value of approximately $1,693 million on September 30, 2016. PIMCO is one of six SIF active long credit managers. One of the investment guidelines of the PIMCO managed long credit portfolio for SIF is a restriction whereby below investment-grade High Yield securities are limited to a maximum of 5% of total portfolio market value. At the end of September 2016, the market value of High Yield securities owned in the PIMCO managed long credit portfolio of SIF was 5.12% of portfolio total market value of $1,693 million or approximately $2.0 million above the 5% limit. The CIO discussed this slight investment guideline violation with PIMCO on October 5, 2016 and it was quickly addressed by PIMCO with the sale of one high yield bond holding on October 6, 2016 that brought the portfolio back in compliance with this below investment-grade limit guideline.

The U.S. equity asset class portfolio allocation for the Coal Workers' Pneumoconiosis Fund (CWPF) has a 13% ownership target with an ownership limit range of 10-16%. Its upper limit target of 16% was exceeded by 0.03% or by approximately $100,000 at the end of December 2016. This development was attributable to the positive return of 4.2% for its U.S. equity assets in 4Q2016 combined with the negative 2.7% return for its fixed income assets in 4Q2016 which comprised 77% of total CWPF assets on December 31, 2016. As a result, the BWC Senior Officers Review Team Portfolio Rebalancing Committee met to consider a portfolio rebalancing recommendation whereby it was also indicated that $280,000 would be needed in cash to fund projected 1Q2017 CWPF operating expenses. After discussion, the BWC Portfolio Rebalancing Committee approved a rounded $300,000 redemption from the CWPF U.S. equity commingled fund which was executed on January 11, 2017 to enable the U.S equity class of CWPF to be back in compliance as well as to meet operational cash requirements.

Due to the continued outperformance of the U.S. equity asset class compared to the fixed income asset class of CWPF in 1Q2017, the U.S. equity asset class of CWPF again exceeded its 16% upper limit ownership range by 0.5% or by approximately $1.8 million at the end of March 2017. The BWC Senior Officer Review Team Portfolio Rebalancing Committee met on April 12, 2017 to consider a portfolio rebalancing recommendation made by the CIO whereby a targeted amount of funds ($6.0 million) would be sold from the U.S. equity asset class in order to achieve an allocation for U.S. equity of 14.5% which was midway between its targeted portfolio allocation of 13% and its upper limit of 16% as consistent with the rebalancing policy stated in the BWC investment policy statement. It was recommended that this $6.0 million redeemed from U.S. equities be reinvested in each of U.S. TIPS ($3.5 million) and U.S. Aggregate fixed income ($2.5 million) as both of these CWPF fixed income asset classes were underallocated to their respective target allocations of 40% and 39% by 1.6% and 1.4%, respectively, on March 31, 2017. Upon this recommended reinvestment of the $6.0 million to be redeemed from the U.S. Equity class, both fixed income asset classes would be below their respective target asset allocations by only 0.6% each. After some discussion, the BWC Portfolio Rebalancing Committee approved this CIO portfolio rebalancing recommendation for CWPF. The Investment Division subsequently executed this portfolio rebalancing activity for CWPF on April 18, 2017.

<u>Valuation and Performance</u>

As reflected in Columns A and B of the table provided at the end of this Annual Report, total investment assets at fair value held by BWC were $26,795 million on June 30, 2017 which represented an increase of $1,547 million when compared to $25,248 million on June 30, 2016. SIF invested assets were $24,704 million at fair value on June 30, 2017 which represented 92.2% of total BWC invested assets at FY17 year-end. As stated earlier, the total rate of return on invested assets of BWC for FY17 ended June 30, 2017 was 7.5% net of management fees. The total rate of return on SIF invested assets for FY17 was 7.8% net of management fees.

BWC net investment income was $1,878 million for FY17, comprised of $522 million of interest income, $104 million of stock dividend income, $101 million of real estate dividend income, $6 million of miscellaneous investment income (from corporate and legal actions) and $1,206 million appreciation in fair value of investments, offset by $61.1 million investment expenses including $59.8 million in investment manager fees.

Investment Manager Fees

The investment manager fees for FY17 totaling $59.8 million represented an annual fee of between 23-24 basis points (23/100 of 1%) of total average month-end market value of fixed income equity and real estate assets (all invested assets excluding cash and cash equivalents).

The investment expenses of $61.1 million for FY17, including $59.8 million in investment management fees, compares to $51.4 million of total investment expenses for FY16, including $50.1 million in investment management fees (21 basis points of average month-end investment assets excluding cash). The increase in investment management fees of $9.7 million in FY17 was largely attributable to the following:

(a) an additional $446 million of new capital invested in SIF commingled real estate funds, led by $313 million invested in five new core plus real estate funds in FY17 that had no capital invested by SIF in FY16 plus the $125 million PRISA II core plus fund that had only one quarter of management fees in FY16 but a full twelve months in FY17. Total commingled real estate management fees were $27.1 million in FY17 and $19.8 million in FY16, an increase of $7.3 million of which an increase of $5.0 million was attributable to the significant increase in the core plus real estate fund portfolio due to commitments being funded in FY17;

(b) an increase in active manager U.S. equity management fees (based on month-end market values) of $1.6 million from $12.7 million in FY16 to $14.3 million in FY17 due to the significant market value increase during FY17 of these portfolios which comprised the thirteen active mid-cap and small-cap U.S. equity managers and the MWBE active U.S. equity managers.

Active Manager Performance

The six active long credit bond managers in the aggregate provided a combined return for FY17 on SIF assets of 3.70% before management fees and 3.54% after management fees which exceeded the Long Credit benchmark index return of 2.98% by 0.72% gross of fees and 0.56% net of fees. It is estimated that this excess net return of 0.56% above the benchmark in the aggregate provided incremental net income for SIF of $40 million in FY17. This estimated incremental net income is based on an average-month-end balance of $7.14 billion in asset market value under management for long credit bonds in FY17. These six active long credit managers have collectively outperformed the benchmark index by an annualized 0.60% net of fees from their inception date of June 1, 2012.

The four SIF active core plus intermediate duration bond managers provided a combined total return of 2.11% gross of fees and 1.96% net of fees in FY17, which exceeded the U.S. Aggregate benchmark return of negative 0.31% by 2.42% gross of fees and 2.27% net of fees. Based on an average month-end balance of asset market value of $3.13 billion under management for this asset class, it is estimated that the excess net returns of 2.27% above the benchmark in the aggregate provided incremental net income for SIF of $71 million in FY17.

The thirteen SIF active mid-cap and small-cap U.S. equity managers provided a combined total return for FY17 of 19.97% gross of fees and 19.31% net of fees, which exceeded the Russell composite small/mid cap custom blended index return of 18.14% by 1.83% gross of fees and 1.17% net of fees. The nine active mid-cap U.S. equity managers provided a combined total return of 19.13% gross of fees and 18.57% net of fees for FY17, which exceeded the Russell mid-cap U.S. equity benchmark index of 16.48% by 2.65% gross of fees and 2.09% net of fees. The four active small-cap U.S. equity managers provided a combined total return of 23.33% gross of fees and 22.30% net of fees which trailed the Russell 2000 small-cap equity benchmark return of 24.60% by 1.27% gross of fees and 2.30% net of fees. Based on an average month-end market value of assets under management of $2.33 billion for these thirteen SIF equity managers for FY17, it is estimated that the aggregate net excess performance of these managers to the BWC custom blended benchmark represented an incremental increase of SIF net investment income of $27 million for FY17.

<u>Asset Allocation Mix</u>

The asset allocation mix of the BWC investment portfolio based on represented fair value on June 30, 2017 was 55.1% bonds, 32.8% equities, 10.5% real estate and 1.6% cash and equivalents. This asset mix compares to 58.8% bonds, 31.1% equities , 8.9% real estate and 1.2% cash and equivalents on June 30, 2016.

<u>Asset Class Transfer Activity</u>

Columns D, E and F of the table provided at the end of this Annual Report summarizes the asset class transfer activity occurring over FY17. These activities are important to highlight because they had a material impact on the respective fair value levels of the bond, equity and real estate portfolios over the course of FY17. The asset transfer activity shown in Column D reflects that a net of $169 million of U.S. TIPS government bonds and $160 million of net U.S. equities were redeemed by the Investment Division to fund real estate investments. The U.S. equity redemptions were made as this exceptionally high performing asset class for FY17 was nearing its upper ownership asset allocation target range of 25% for the SIF portfolio. Column E reflects the redemption activity initiated by the Investment Division to provide cash needed to fund operational requirements of BWC. Redemptions from U.S. equity accounts were emphasized in FY17 to fund BWC operations as this asset class had the highest portfolio ownership asset allocation percentage above its target allocation percentage. A total of $267 million of U.S. equity redemptions were executed to fund BWC normal operational needs and an additional $95 million was redeemed from active managed U.S. equity accounts (including $70 million from the MWBE portfolio) at the end of June 2017 to be prepositioned to fund the first stage of the Third Billion Back premium rebate program. The $140 million of bond redemptions shown in Column E for operational needs consisted of $90 million of U.S. TIPS redemptions and $50 million of long credit bonds, with these long credit bonds redeemed from one active manager at the end of June 2017 also to be prepositioned to fund the Third Billion Back Program. There was only one quarter-end actual asset class rebalancing action required during FY17 which was for the CWPF account whereby $6 million of U.S. equities were redeemed and transferred to bonds.

Bond Portfolio Values and Return

The total fair value of the BWC bond portfolio was $14,763 million on June 30, 2017 compared to $14,852 million on June 30, 2016. The bond portfolio had net outflows totaling $309 million during FY17 (see Column F of table) resulting largely from (a) $265 million of SIF U.S. TIPS redemptions to fund both real estate investments and operations and (b) $50 million of long credit bond redemptions for the Third Billion Back Program. Adjusted for these net bond sale outflows, the fair value change of the BWC bond portfolio was an increase of $220 million which represented a total return of 1.4% for FY17.

The BWC bond portfolio return of 1.4% in FY17 consisted of bond interest income yielding an average of 3.6% and market value decline of 2.2%. The bond portfolio in FY17 earned $520 million in interest income and had net realized/unrealized losses of $292 million that resulted from interest rate levels for the total BWC portfolio being slightly higher at the end of FY17 compared to the start of the fiscal year. The SIF long duration credit portfolio which represented 50% of total market value of the BWC bond portfolio as of June 30, 2017 was the best performing bond asset class sector for BWC in FY17. The actively managed long credit portfolio returned 3.54% net of fees in FY17. The second best bond asset class performance came from the actively managed SIF intermediate-duration U.S. Aggregate portfolio which provided a net return of 1.96% and represented 21% of the BWC bond portfolio market value as of June 30, 2017. The overall return of the BWC bond portfolio for FY17 was dragged down by its U.S. government portfolio of both long duration U.S. governments (negative 7.05% return) and U.S. TIPS (negative 0.65% return) which represented 7% and 17% of the BWC bond portfolio, respectively, as of June 30, 2017.

Bond Portfolio Quality and Duration

The BWC bond portfolio had an average quality of between “AA” and “A” at the end of June 30, 2017, with 35% of the fair value of bonds held on June 30, 2017 being U.S. government issues of “AAA” quality (by credit rating agencies Moody’s and Fitch) and “AA” rated (by Standard & Poor’s notable downgrade in August 2011). A total of 31.7% of fair value of bonds owned on June 30, 2017 were U.S. Treasury issues including 18.2% represented by U.S. TIPS. Issues held on June 30, 2017 rated below investment grade represented 4.3% of total fair value of bonds owned and were owned mostly in the active core plus fixed income managed accounts with a modest amount owned in active long duration credit managed accounts. These specified accounts are permitted to own such below investment grade bonds within BWC imposed percentage ownership limits. The weighted average effective duration of the bond portfolio on June 30, 2017 was 10.7 years, based on the individual asset class duration calculations of the BWC investment accounting vendor as represented in the FY17 audited financial statements. This effective duration of the bond portfolio matches well with the projected duration of future liability payments of the SIF portfolio which is between 10-11 years as provided by the BWC Actuarial Division.

Equity Portfolio Values and Return

The total fair value of the BWC equities portfolio was $8,794 million on June 30, 2017, an increase of $950 million compared to $7,844 million on June 30, 2016. There were net outflows of $522 million (see table Column F) from the BWC equities portfolio which were all from its U.S. equities portfolio during FY17. There were $154 million of U.S. equities redemptions to fund real estate investments and $6 million in redemptions to rebalance the CWPF portfolio. There were U.S. equities redemptions of $362 million to fund BWC operations, including $95 million redeemed at the end of June 30, 2017 that was prepositioned to fund a portion of the Third Billion Back Program. Accounting for these significant outflows, the adjusted fair value increase in the BWC total equities portfolio was $1,472 million in FY17. The total net return of the BWC equities portfolio was 19.3% for FY17.

The total fair value of the BWC U.S. equities portfolio was $6,112 million on June 30, 2017, an increase of $495 million compared to the fair value of $5,617 million on June 30, 2016. Accounting for the $522 million of net outflows during FY17, the adjusted fair value increase of the U.S. equities portfolio was $1,017 million during FY17 which represented a net return of 18.8%. The U.S. equities portfolio represented 69.5% of the fair value of the BWC total public equities portfolio on June 30, 2017.

The total fair value of the BWC non-U.S. equities portfolio was $2,682 million on June 30, 2017, an increase of $455 million in fair value compared to $2,227 million on June 30, 2016. There were no inflows or outflows of funds during FY17 involving the passively managed non-U.S. equity commingled fund utilized by each of SIF, DWRF II and CWPF for all assets owned by

BWC in this asset class. The BWC non-U.S. equities portfolio had a total net return of 20.4% for FY17. Similar to FY16 and unlike FY15, the U.S. dollar strengthened slightly (+0.7%) from the beginning to end of FY17 versus the composite basket of foreign currency stocks of the BWC owned commingled fund portfolio for this asset class. The BWC passive investment manager replicates the benchmark index holdings of foreign currency denominated stocks. As a result, the total net return of 20.4% was comprised of a 21.1% in increased fair value of all local currency stocks owned in this passive commingled fund that was reduced by 0.7% due to the modest negative foreign currency translation impact to the U.S. dollar. The BWC commingled fund portfolio owned stocks were denominated in 39 separate foreign currencies as of June 30, 2017. The most prominent currencies represented in the BWC non-U.S. equities portfolio are the Euro, Japanese Yen and British Pound in that order which combined represented 50.7% of this portfolio's fair value as represented in the FY17 audited financial statements.

<u>Real Estate Portfolio Values and Return</u>

The total fair value of the BWC real estate portfolio was $2,806 million on June 30, 2017, an increase of $553 million in fair value compared to $2,253 million on June 30, 2016. There were additional capital investments totaling $447 million made towards real estate funds in FY17. New capital investments totaling $313 million were made towards four core plus real estate funds, with $84 million made towards six value-added real estate funds and $50 million made towards one core real estate fund that completed the fundings of all capital committed towards core real estate funds. There was also one core real estate fund full redemption made in FY17 that totaled $71 million in proceeds, initiated by the Investment Division with approval provided by the Board due to significant concerns about the new restructuring strategy of that fund. This core real estate fund full redemption resulted in a realized capital gain of $13.5 million and an internal rate of return of 9.58%. BWC also received $15 million in distributions from four closed-end value-added real estate funds in FY17 that are not subject to reinvestment within these funds. As a result, total net inflows towards real estate funds amounted to $361 million (see table Column F) during FY17. Due to this investment activity, the adjusted fair value increase for real estate assets in FY17 is $192 million as reflected in Column G of the table.

The real estate portfolio achieved a total return net of fees of 7.6% in FY17 which was an anticipated reduction from the unsustainable high real estate net returns achieved by BWC of 10.2% for FY16, 14.5% for FY15 and 11.4% for FY14. BWC first invested in real estate funds at the end of calendar year 2012, with FY14 being the first full fiscal year of owning real estate assets in the BWC investment portfolio. The $192 million of adjusted fair value increase of real estate assets for FY17 was comprised of $101 million of dividend income and $118 million of realized/unrealized capital gains, reduced by $27 million of management fees paid.

The total fair value of the BWC real estate portfolio on June 30, 2017 of $2,806 million representing 10.5% of total BWC invested assets. The real estate portfolio was represented by seven core funds with total fair value of $2.1 billion, six core plus funds at $479 million and eight value-added real estate funds at $221 million. On June 30, 2017, core real estate funds comprised 7.9% of total fair value of BWC assets with core plus and value-added real estate funds comprising 1.8% and 0.8%, respectively, of total fair value of BWC assets.

Cash and Cash Equivalents

Total BWC cash and cash equivalents had a fair value of $431 million on June 30, 2017 (1.6% of total assets at fair value) compared to $298 million on June 30, 2016. BWC utilized an institutional U.S. government money market fund offered by its custodian bank (JP Morgan Bank) during FY17 to earn interest income on its short-term invested assets, including all overnight cash held by its outside investment managers in all managed separate accounts. After the Federal Reserve Bank finally initially raised its target federal funds rate by 0.25% in December 2015 from a range of 0% to 0.25% that existed since the Great Financial Crisis, the Fed raised its federal funds rate three additional times by 0.25% each in FY17. These actions resulted in the 7-day yield on the JP Morgan government money market fund to steadily increase from 0.30% on June 30, 2016 to 0.85% on June 30, 2017. BWC earned $1.9 million in interest income from cash and cash equivalents (via JP Morgan government money market fund) in FY17 which represented an average month-end net return on daily cash balances of 0.49%.

Portfolio Interest Rate Sensitivity

BWC investment consultant RVK prepared an updated SIF fixed income portfolio sensitivity analysis based on the market value and composition of the SIF bond portfolio as of June 30, 2017. This annual sensitivity analysis examined estimated changes in the aggregate market values of the SIF fixed income portfolio for given hypothetical increases in interest rate levels.

The SIF bond portfolio with a market value of $13.4 billion on June 30, 2017 had an estimated effective duration of 10.8 years on that date and an estimated duration of SIF total liability payments of approximately ten years. This close matching of the duration of SIF fixed income assets with its duration of liability payments is intentional and consistent with the stated investment policy. Because of the long-term nature of its liability payments and its supporting long duration bond portfolio, the SIF bond portfolio market value is quite sensitive to movements in interest rate levels in both directions.

The following are some observations made from the RVK fixed income sensitivity analysis on the June 30, 2017 SIF fixed income portfolio. These observations are based on defined interest rate movements over a one-year (12 month) time frame across the entire yield curve from 0 year to 30+ year maturities.

If interest rate levels remain unchanged, the total SIF fixed income portfolio could earn a return of +3.7%, resulting in an increase in market value of +$491 million.

If interest rate levels increase by +0.50%, the total SIF fixed income portfolio could decline in value by -1.5%, resulting in a decrease in market value of -$198 million.

If interest rate levels increase by +1.00%, the total SIF fixed income portfolio could decline in value by -6.1%, resulting in a decrease in market value of -$821 million.

If interest rate levels increase by +2.00%, the total SIF fixed income portfolio could decline in value by -14.0%, resulting in a decrease in market value of -$1,872 million.

Summary Table

As referenced throughout this Annual Report, the table that follows provides a summary of asset class valuations, asset class sales to fund operations, transfers of funds involving transition activity, and performance returns of asset classes of the total portfolio for FY17.

Prepared by: Bruce Dunn, CFA
BWC Chief Investment Officer
October 16, 2017

Ohio Bureau of Workers' Compensation
Asset Class Fair Value/Performance Summary
Fiscal Year Ending June 30, 2017

($millions)

Asset Class	(A) Fair Value 6/30/17	(B) Fair Value 6/30/16	(C) Actual Fair Value Change	(D) Net From Portfolio Transitions	(E) Net For Operations Fundings	(F) Total Inflow/ (Outflow)	(G) Adjusted Fair Value Change	**FY 2017 Annual Net Return**
Bonds	$ 14,763	$ 14,852	$ (89)	$ (169)	$ (140)	$ (309)	$ 220	+ **1.4%**
U.S. Equities	6,112	5,617	495	(160)	(362)	(522)	1,017	+ 18.8%
Non-U.S. Equities	2,682	2,227	455				455	+ 20.4%
Total Public Equities	8,794	7,844	950	(160)	(362)	(522)	1,472	**+ 19.3%**
Real Estate	2,806	2,253	553	329	32	361	192	+ **7.6%**
Miscellaneous	1	0	1				1	
Cash & Cash Equivalents	431	299	132		470	470	(338)	+ 0.5%
Net Change				0	0	0	1,547	
Total Invested Assets	$ 26,795	$ 25,248	$ 1,547				*1,885	+ **7.5%**

Column Definitions
C = A minus B
F = D plus E
G = C minus F

***** represents all fair value Asset Class changes except Cash & Cash Equivalents

Asset Class fair values shown include accrued investment income and Cash includes net trade payables/receivables

Amounts rounded to nearest $1 million