

# Q4 2019 PERFORMANCE REPORT

## POLICEMEN'S ANNUITY AND BENEFIT FUND OF CHICAGO



**February 25, 2019**

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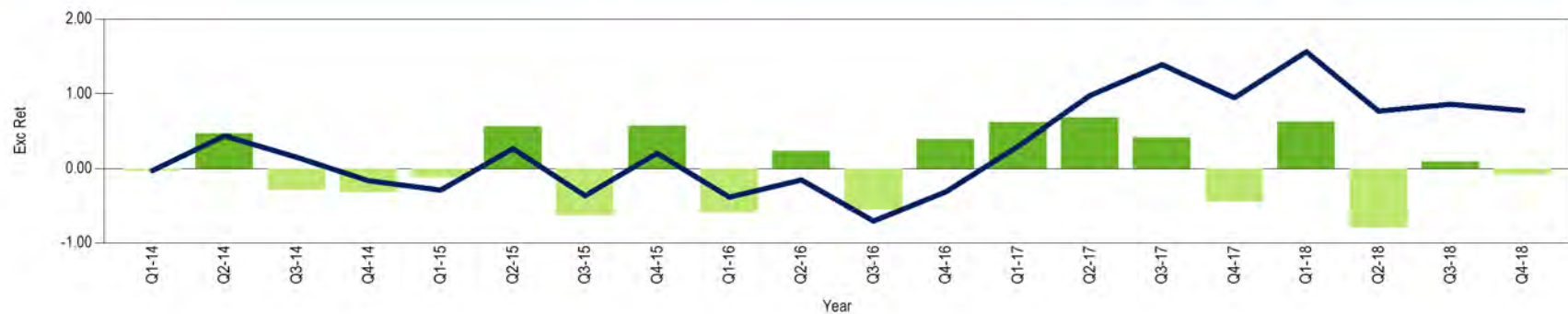
BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

## Chicago Police Annuity and Benefit Fund

# TOTAL PLAN PERFORMANCE SUMMARY

	Market Value	3 Mo	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank
<b>Composite</b>	<b>\$2,323,050,012</b>	<b>-7.12%</b>	<b>27</b>	<b>-5.36%</b>	<b>78</b>	<b>5.77%</b>	<b>42</b>	<b>4.59%</b>	<b>44</b>
Allocation Index		-7.04%	25	-5.19%	74	5.58%	51	4.44%	53
Policy Index		-5.51%	7	-2.53%	10	6.23%	22	4.55%	47
Beta Index		-0.79%	1	-3.32%	24	0.04%	99	1.45%	99
90% / 10% Index		-6.39%	14	-5.03%	70	5.24%	69	4.31%	63
InvestorForce Public DB Net Median		-8.24%		-4.39%		5.59%		4.49%	

Quarterly and Cumulative Excess Performance



Actual vs Target Allocation (%)



\*Beta Index: 50% Systematic Diversified Index/ 50% BBgBarc US Aggregate TR.



## Chicago Police Annuity and Benefit Fund

# TOTAL PLAN PERFORMANCE SUMMARY

	Market Value	3 Mo	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank
<b>Composite</b>	<b>\$2,323,050,012</b>	<b>-7.12%</b>	<b>27</b>	<b>-5.36%</b>	<b>78</b>	<b>5.77%</b>	<b>42</b>	<b>4.59%</b>	<b>44</b>
Allocation Index		-7.04%	25	-5.19%	74	5.58%	51	4.44%	53
Policy Index		-5.51%	7	-2.53%	10	6.23%	22	4.55%	47
Beta Index		-0.79%	1	-3.32%	24	0.04%	99	1.45%	99
90% / 10% Index		-6.39%	14	-5.03%	70	5.24%	69	4.31%	63
InvestorForce Public DB Net Median		-8.24%		-4.39%		5.59%		4.49%	

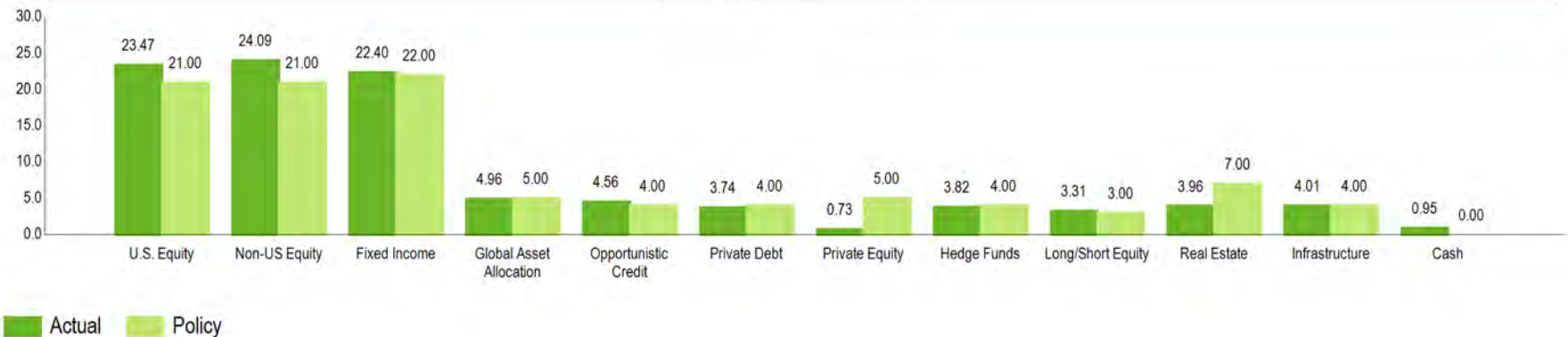
### 3 Years Ending December 31, 2018

	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
Composite	5.77%	42	6.36%	39	0.74	37	0.80	24
Allocation Index	5.58%	51	6.13%	31	0.74	37	0.77	29
Policy Index	6.23%	22	5.49%	12	0.94	8	0.96	8

### 5 Years Ending December 31, 2018

	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Sharpe Ratio	Rank	Sortino Ratio	Rank
Composite	4.59%	44	6.18%	31	0.64	37	0.97	30
Allocation Index	4.44%	53	5.83%	20	0.65	31	0.96	32
Policy Index	4.55%	47	5.62%	14	0.70	19	1.11	12

### Actual vs Target Allocation (%)

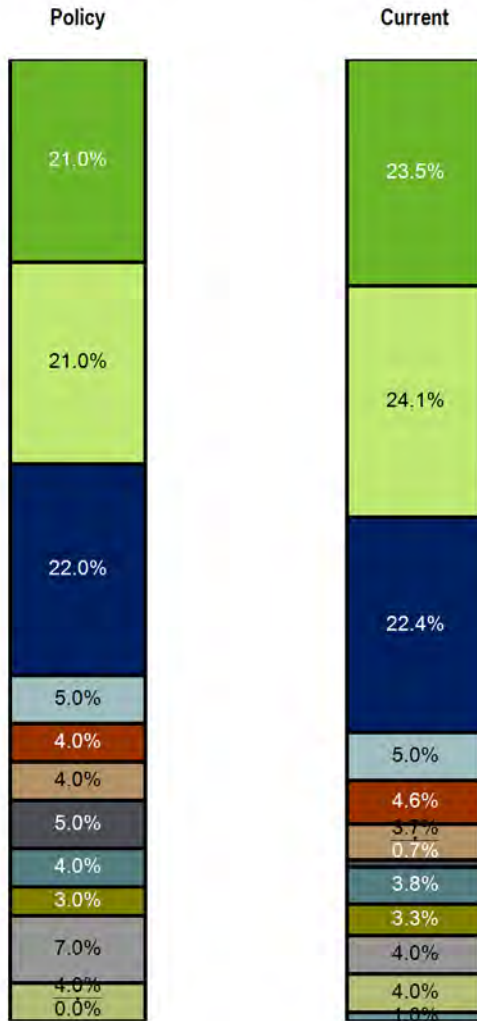


\*Beta Index: 50% Systematic Diversified Index/ 50% BBgBarc US Aggregate TR.



## Chicago Police Annuity and Benefit Fund

# TOTAL PLAN ASSET ALLOCATION VS. POLICY TARGETS



Asset Allocation vs. Target				
	Current	Policy	Current	Difference*
U.S. Equity	\$545,195,269	21.00%	23.47%	2.47%
Non-US Equity	\$559,652,460	21.00%	24.09%	3.09%
Fixed Income	\$520,263,294	22.00%	22.40%	0.40%
Global Asset Allocation	\$115,108,700	5.00%	4.96%	-0.04%
Opportunistic Credit	\$105,884,014	4.00%	4.56%	0.56%
Private Debt	\$86,884,514	4.00%	3.74%	-0.26%
Private Equity	\$16,994,495	5.00%	0.73%	-4.27%
Hedge Funds	\$88,827,326	4.00%	3.82%	-0.18%
Long/Short Equity	\$76,929,107	3.00%	3.31%	0.31%
Real Estate	\$92,033,457	7.00%	3.96%	-3.04%
Infrastructure	\$93,180,435	4.00%	4.01%	0.01%
Cash	\$22,096,941	0.00%	0.95%	0.95%
<b>Total</b>	<b>\$2,323,050,012</b>	<b>100.00%</b>	<b>100.00%</b>	

\*Difference between Policy and Current Allocation



## Chicago Police Annuity and Benefit Fund

# TOTAL PLAN NET PERFORMANCE DETAIL

	Market Value (\$)	% of Portfolio	Policy %	Ending December 31, 2018											
				3 Mo (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
<b>Composite</b>	<b>2,323,050,012</b>	<b>100.00</b>	<b>100.00</b>	<b>-7.12</b>	<b>27</b>	<b>-5.36</b>	<b>78</b>	<b>5.77</b>	<b>42</b>	<b>4.59</b>	<b>44</b>	<b>8.32</b>	<b>34</b>	<b>8.31</b>	<b>Jan-84</b>
Allocation Index				-7.04	25	-5.19	74	5.58	51	4.44	53	8.31	35	--	Jan-84
Over/Under				-0.08		-0.17		0.19		0.15		0.01			
Policy Index				-5.51	7	-2.53	10	6.23	22	4.55	47	7.70	65	--	Jan-84
Beta Index				-0.79	1	-3.32	24	0.04	99	1.45	99	1.89	99	--	Jan-84
90% / 10% Index				-6.39	14	-5.03	70	5.24	69	4.31	63	7.70	65	--	Jan-84
InvestorForce Public DB Net Median				-8.24		-4.39		5.59		4.49		8.03		8.31	Jan-84
<b>Total Equity</b>	<b>1,181,776,836</b>	<b>50.87</b>	<b>45.00</b>	<b>-13.82</b>	<b>56</b>	<b>-11.36</b>	<b>64</b>	<b>6.69</b>	<b>32</b>	<b>4.57</b>	<b>46</b>	<b>10.63</b>	<b>33</b>	<b>6.37</b>	<b>Oct-96</b>
MSCI ACWI				-12.75	44	-9.42	50	6.60	34	4.26	52	9.46	54	5.87	Oct-96
Over/Under				-1.07		-1.94		0.09		0.31		1.17		0.50	
eV All Global Equity Net Median				-13.47		-9.43		5.78		4.35		9.71		7.56	Oct-96
<b>Total Domestic Equity</b>	<b>545,195,269</b>	<b>23.47</b>	<b>21.00</b>	<b>-15.83</b>	<b>48</b>	<b>-8.01</b>	<b>53</b>	<b>7.64</b>	<b>44</b>	<b>7.02</b>	<b>35</b>	<b>12.97</b>	<b>44</b>	<b>10.35</b>	<b>Jan-84</b>
Russell 3000				-14.30	33	-5.24	36	8.97	28	7.91	23	13.18	40	10.52	Jan-84
Over/Under				-1.53		-2.77		-1.33		-0.89		-0.21		-0.17	
eV All US Equity Net Median				-16.14		-7.67		7.25		5.88		12.64		11.21	Jan-84
<b>Total Large Cap</b>	<b>269,819,439</b>	<b>11.61</b>	<b>15.00</b>	<b>-13.68</b>	<b>43</b>	<b>-8.00</b>	<b>66</b>	<b>7.23</b>	<b>61</b>	<b>6.92</b>	<b>54</b>	<b>12.43</b>	<b>49</b>	<b>8.32</b>	<b>Oct-95</b>
Russell 1000				-13.82	46	-4.78	42	9.09	28	8.21	30	13.28	30	8.60	Oct-95
Over/Under				0.14		-3.22		-1.86		-1.29		-0.85		-0.28	
eV US Large Cap Equity Net Median				-14.13		-5.79		7.81		7.10		12.29		8.75	Oct-95
NTGI Russell 1000	79,810,648	3.44		-13.82	46	-4.86	43	9.06	29	8.23	30	--	--	10.99	Mar-12
Russell 1000				-13.82	46	-4.78	42	9.09	28	8.21	30	13.28	30	11.47	Mar-12
Over/Under				0.00		-0.08		-0.03		0.02				-0.48	
eV US Large Cap Equity Net Median				-14.13		-5.79		7.81		7.10		12.29		10.43	Mar-12
Montag & Caldwell	51,143,535	2.20		-12.52	14	-1.07	48	6.61	92	6.88	88	11.37	92	6.99	Dec-96
Russell 1000 Growth				-15.89	57	-1.51	52	11.15	20	10.40	13	15.29	22	7.32	Dec-96
Over/Under				3.37		0.44		-4.54		-3.52		-3.92		-0.33	
eV US Large Cap Growth Equity Net Median				-15.54		-1.32		9.46		8.82		14.03		8.44	Dec-96

\*Current Policy Index: 15% Russell 1000, 6% Russell 2500, 2% MSCI EAFE, 6% MSCI Emerging Markets, 5% MSCI World ex USA Small Cap, 8% MSCI ACWI ex USA, 3% Citi 3mth Treasury Bill, 13% BBgBarc US Aggregate TR, 9% 3-Month LIBOR + 3%, 4% BBgBarc Global Aggregate TR, 4% NCREIF Property Index, 5% - 60% MSCI ACWI (Net) / 40% CITI WGBI, 1% NAREIT Equity Index, 5% Private Equity Benchmark (1 Qtr. Lag), 6% NCREIF Property (1 Qtr Lag), 4% HFRI Fund of Funds Composite Index, 4% 50% CS Leveraged Loan / 50% ICE BofA ML US HY BB-B Rated Constrained Index.

\*Beta Index: 50% Systematic Diversified Index/ 50% BBgBarc US Aggregate TR.



## Chicago Police Annuity and Benefit Fund

# TOTAL PLAN NET PERFORMANCE DETAIL

Ending December 31, 2018																
	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date	
Denali Advisors	51,371,587	2.21		-11.98	31	-13.68	87	5.35	80	5.37	59	10.67	69	6.15	Nov-05	
<i>Russell 1000 Value</i>				-11.72	29	-8.27	43	6.95	47	5.95	40	11.18	49	6.57	Nov-05	
<i>Over/Under</i>				-0.26		-5.41		-1.60		-0.58		-0.51		-0.42		
<i>eV US Large Cap Value Equity Net Median</i>				-13.46		-8.99		6.76		5.64		11.15		6.91	Nov-05	
Great Lakes	87,493,669	3.77		-15.11	76	-12.86	82	6.07	63	5.36	59	11.43	42	9.82	Jul-89	
<i>S&amp;P 500/Citi Pure Value</i>				-16.61	86	-12.00	75	7.41	36	5.11	62	16.28	1	--	Jul-89	
<i>Over/Under</i>				1.50		-0.86		-1.34		0.25		-4.85				
<i>eV US Large Cap Value Equity Net Median</i>				-13.46		-8.99		6.76		5.64		11.15		9.60	Jul-89	
<b>Total SMID Cap</b>	<b>275,375,830</b>	<b>11.85</b>	<b>6.00</b>	<b>-17.91</b>	<b>40</b>	<b>-6.49</b>	<b>28</b>	<b>9.06</b>	<b>22</b>	<b>7.57</b>	<b>9</b>	<b>14.71</b>	<b>14</b>	<b>8.86</b>	<b>Nov-04</b>	
<i>Russell 2500</i>				-18.49	47	-10.00	47	7.32	44	5.15	37	13.15	39	8.29	Nov-04	
<i>Over/Under</i>				0.58		3.51		1.74		2.42		1.56		0.57		
<i>eV US Small-Mid Cap Equity Net Median</i>				-18.59		-10.55		6.59		4.52		12.73		8.48	Nov-04	
William Blair SMID Growth	99,332,899	4.28		-18.60	31	-1.99	40	10.57	25	9.14	5	15.99	14	10.18	Nov-04	
<i>Russell 2500 Growth</i>				-20.08	56	-7.47	71	8.11	58	6.19	41	14.76	26	9.13	Nov-04	
<i>Over/Under</i>				1.48		5.48		2.46		2.95		1.23		1.05		
<i>eV US Small-Mid Cap Growth Equity Net Median</i>				-19.74		-4.81		9.00		5.33		13.84		9.29	Nov-04	
Fisher Investment	90,815,444	3.91		-18.55	63	-10.22	18	7.76	18	6.15	8	--	--	9.21	Feb-13	
<i>Russell 2500 Value</i>				-17.12	30	-12.36	30	6.59	28	4.16	27	11.62	51	7.45	Feb-13	
<i>Over/Under</i>				-1.43		2.14		1.17		1.99				1.76		
<i>eV US Small-Mid Cap Value Equity Net Median</i>				-18.05		-13.83		4.41		3.06		11.62		7.41	Feb-13	
Chicago Equity SMID Value	42,978,375	1.85		-17.12	30	--	--	--	--	--	--	--	--	-13.11	May-18	
<i>Russell 2500 Value</i>				-17.12	30	-12.36	30	6.59	28	4.16	27	11.62	51	-10.94	May-18	
<i>Over/Under</i>				0.00										-2.17		
<i>eV US Small-Mid Cap Value Equity Net Median</i>				-18.05		-13.83		4.41		3.06		11.62		-12.75	May-18	
BMO Micro Cap Equity	42,249,112	1.82		-15.50	13	--	--	--	--	--	--	--	--	-15.50	Oct-18	
<i>Russell Microcap</i>				-22.14	90	-13.08	51	5.79	75	3.08	79	11.71	74	-22.14	Oct-18	
<i>Over/Under</i>				6.64										6.64		
<i>eV US Micro Cap Value Equity Net Median</i>				-18.91		-13.08		7.58		5.04		12.81		-18.91	Oct-18	



## Chicago Police Annuity and Benefit Fund

# TOTAL PLAN NET PERFORMANCE DETAIL

	Ending December 31, 2018														
	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
<b>Total International Equity</b>	<b>559,652,460</b>	<b>24.09</b>	<b>21.00</b>	<b>-12.88</b>	<b>38</b>	<b>-15.27</b>	<b>46</b>	<b>5.42</b>	<b>23</b>	<b>2.29</b>	<b>30</b>	<b>7.93</b>	<b>53</b>	<b>8.35</b>	<b>Jan-84</b>
MSCI ACWI ex USA				-11.46	21	-14.20	36	4.48	38	0.68	58	6.57	70	--	Jan-84
Over/Under				-1.42		-1.07		0.94		1.61		1.36			
eV All ACWI ex-US Equity Net Median				-13.60		-15.75		3.60		1.07		8.04		--	Jan-84
<b>Total Developed Int'l Equity</b>	<b>409,347,795</b>	<b>17.62</b>	<b>15.00</b>	<b>-14.66</b>	<b>64</b>	<b>-15.33</b>	<b>46</b>	<b>3.59</b>	<b>51</b>	<b>1.96</b>	<b>36</b>	<b>--</b>	<b>--</b>	<b>4.58</b>	<b>Jan-11</b>
MSCI ACWI ex USA				-11.46	21	-14.20	36	4.48	38	0.68	58	6.57	70	2.33	Jan-11
Over/Under				-3.20		-1.13		-0.89		1.28				2.25	
eV All ACWI ex-US Equity Net Median				-13.60		-15.75		3.60		1.07		8.04		3.67	Jan-11
Artisan Partner	104,020,393	4.48		-11.33	18	-10.37	9	2.27	72	0.70	58	8.78	34	5.69	Apr-05
MSCI ACWI ex USA				-11.46	21	-14.20	36	4.48	38	0.68	58	6.57	70	4.24	Apr-05
Over/Under				0.13		3.83		-2.21		0.02		2.21		1.45	
eV All ACWI ex-US Equity Net Median				-13.60		-15.75		3.60		1.07		8.04		5.16	Apr-05
William Blair International Growth	105,012,361	4.52		-16.11	77	-16.96	63	1.90	64	0.58	65	7.70	44	4.45	Apr-05
MSCI EAFE				-12.54	26	-13.79	37	2.87	50	0.53	66	6.32	76	3.79	Apr-05
Over/Under				-3.57		-3.17		-0.97		0.05		1.38		0.66	
eV All EAFE Equity Net Median				-14.04		-15.81		2.66		1.12		7.18		4.49	Apr-05
UBS International	95,809,437	4.12		-14.35	59	-14.45	39	5.08	26	1.39	46	8.42	39	9.45	Jan-84
MSCI ACWI ex USA				-11.46	21	-14.20	36	4.48	38	0.68	58	6.57	70	--	Jan-84
Over/Under				-2.89		-0.25		0.60		0.71		1.85			
eV All ACWI ex-US Equity Net Median				-13.60		-15.75		3.60		1.07		8.04		--	Jan-84
Acadian	104,505,604	4.50		-16.61	40	-18.91	34	6.27	18	5.52	10	--	--	5.52	Jan-14
MSCI EAFE Small Cap				-16.05	33	-17.89	28	3.73	44	3.06	46	10.51	66	3.06	Jan-14
Over/Under				-0.56		-1.02		2.54		2.46				2.46	
eV EAFE Small Cap Equity Net Median				-17.20		-20.20		3.06		2.87		11.50		2.87	Jan-14



## Chicago Police Annuity and Benefit Fund

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	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
<b>Total Emerging Markets Equity</b>	<b>150,304,665</b>	<b>6.47</b>	<b>6.00</b>	<b>-7.62</b>	<b>53</b>	<b>-15.44</b>	<b>46</b>	<b>10.19</b>	<b>21</b>	<b>3.45</b>	<b>15</b>	<b>--</b>	<b>--</b>	<b>3.45</b>	<b>Jan-14</b>
MSCI Emerging Markets				-7.47	48	-14.58	36	9.25	30	1.65	42	8.02	60	1.65	Jan-14
Over/Under				-0.15		-0.86		0.94		1.80				1.80	
eV Emg Mkts All Cap Equity Net Median				-7.52		-15.97		8.16		1.36		8.66		1.36	Jan-14
<b>EARNEST Partners</b>	<b>73,707,340</b>	<b>3.17</b>		<b>-6.99</b>	<b>40</b>	<b>-11.10</b>	<b>12</b>	<b>10.07</b>	<b>24</b>	<b>3.35</b>	<b>15</b>	<b>--</b>	<b>--</b>	<b>3.35</b>	<b>Jan-14</b>
MSCI Emerging Markets				-7.47	48	-14.58	36	9.25	30	1.65	42	8.02	60	1.65	Jan-14
Over/Under				0.48		3.48		0.82		1.70				1.70	
eV Emg Mkts All Cap Equity Net Median				-7.52		-15.97		8.16		1.36		8.66		1.36	Jan-14
<b>Lazard</b>	<b>76,597,325</b>	<b>3.30</b>		<b>-8.23</b>	<b>61</b>	<b>-19.20</b>	<b>88</b>	<b>10.34</b>	<b>21</b>	<b>3.57</b>	<b>15</b>	<b>--</b>	<b>--</b>	<b>3.57</b>	<b>Jan-14</b>
MSCI Emerging Markets				-7.47	48	-14.58	36	9.25	30	1.65	42	8.02	60	1.65	Jan-14
Over/Under				-0.76		-4.62		1.09		1.92				1.92	
eV Emg Mkts All Cap Equity Net Median				-7.52		-15.97		8.16		1.36		8.66		1.36	Jan-14
<b>Long/Short Equities</b>	<b>76,929,107</b>	<b>3.31</b>	<b>3.00</b>	<b>-5.08</b>	<b>32</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>-3.84</b>	<b>Mar-18</b>
Long/Short Custom Index				0.57	11	1.86	23	0.99	73	0.60	74	0.35	97	1.64	Mar-18
Over/Under				-5.65										-5.48	
eV Alt Fundamental - Long/Short Equity Median				-8.06		-6.39		4.09		3.31		8.53		-7.31	Mar-18
<b>UBS Bucktown CPD LLC</b>	<b>47,238,000</b>	<b>2.03</b>		<b>-5.52</b>	<b>34</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>-5.52</b>	<b>May-18</b>
Long/Short Custom Index				0.57	11	1.86	23	0.99	73	0.60	74	0.35	97	1.37	May-18
Over/Under				-6.09										-6.89	
eV Alt Fundamental - Long/Short Equity Median				-8.06		-6.39		4.09		3.31		8.53		-6.77	May-18
<b>Pluscios L/S EQ FD</b>	<b>29,691,107</b>	<b>1.28</b>		<b>-4.36</b>	<b>28</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>-1.03</b>	<b>Apr-18</b>
Long/Short Custom Index				0.57	11	1.86	23	0.99	73	0.60	74	0.35	97	1.51	Apr-18
Over/Under				-4.93										-2.54	
eV Alt Fundamental - Long/Short Equity Median				-8.06		-6.39		4.09		3.31		8.53		-6.52	Apr-18

\*Long/Short Custom Index: 100% FTSE T-Bill 3 Months TR





Chicago Police Annuity and Benefit Fund

# TOTAL PLAN NET PERFORMANCE DETAIL

Ending December 31, 2018															
	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
<b>Total Fixed Income</b>	<b>520,263,294</b>	<b>22.40</b>	<b>22.00</b>	<b>0.35</b>	<b>62</b>	<b>-0.36</b>	<b>62</b>	<b>2.72</b>	<b>42</b>	<b>2.60</b>	<b>47</b>	<b>4.54</b>	<b>45</b>	<b>7.08</b>	<b>Jan-84</b>
BBgBarc US Aggregate TR				1.64	11	0.01	55	2.06	58	2.52	51	3.48	63	6.98	Jan-84
Over/Under				-1.29		-0.37		0.66		0.08		1.06		0.10	
eV All US Fixed Inc Net Median				0.62		0.28		2.35		2.54		4.18		7.30	Jan-84
<b>Core Fixed Income</b>	<b>304,895,964</b>	<b>13.12</b>	<b>13.00</b>	<b>0.96</b>	<b>79</b>	<b>-0.54</b>	<b>74</b>	<b>2.47</b>	<b>25</b>	<b>2.75</b>	<b>31</b>	<b>--</b>	<b>--</b>	<b>3.31</b>	<b>Dec-10</b>
BBgBarc US Aggregate TR				1.64	15	0.01	37	2.06	60	2.52	56	3.48	80	2.63	Dec-10
Over/Under				-0.68		-0.55		0.41		0.23		0.68		0.68	
eV US Core Fixed Inc Net Median				1.29		-0.21		2.14		2.55		4.05		2.86	Dec-10
LM	88,073,463	3.79		0.60	91	-1.23	93	2.14	50	2.48	62	4.22	42	4.55	May-06
BBgBarc US Aggregate TR				1.64	15	0.01	37	2.06	60	2.52	56	3.48	80	4.12	May-06
Over/Under				-1.04		-1.24		0.08		-0.04		0.74		0.43	
eV US Core Fixed Inc Net Median				1.29		-0.21		2.14		2.55		4.05		4.30	May-06
Wellington	95,526,097	4.11		0.56	92	-0.46	70	3.20	8	3.03	16	5.98	6	4.71	Dec-04
BBgBarc US Aggregate TR				1.64	15	0.01	37	2.06	60	2.52	56	3.48	80	3.88	Dec-04
Over/Under				-1.08		-0.47		1.14		0.51		2.50		0.83	
eV US Core Fixed Inc Net Median				1.29		-0.21		2.14		2.55		4.05		4.03	Dec-04
Wells Capital	121,296,404	5.22		1.53	23	-0.09	42	2.24	43	2.72	33	4.73	24	4.52	Mar-04
BBgBarc US Aggregate TR				1.64	15	0.01	37	2.06	60	2.52	56	3.48	80	3.78	Mar-04
Over/Under				-0.11		-0.10		0.18		0.20		1.25		0.74	
eV US Core Fixed Inc Net Median				1.29		-0.21		2.14		2.55		4.05		3.92	Mar-04
<b>Diversified Fixed Income</b>	<b>39,649,502</b>	<b>1.71</b>	<b>2.00</b>	<b>1.10</b>	<b>8</b>	<b>0.23</b>	<b>40</b>	<b>3.60</b>	<b>54</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>2.00</b>	<b>Jun-15</b>
3-Month LIBOR + 3%				1.43	5	5.43	1	4.51	28	4.02	9	3.73	94	4.33	Jun-15
Over/Under				-0.33		-5.20		-0.91						-2.33	
eV Global Unconstrained Fixed Inc Net Median				-0.90		-1.01		3.84		2.49		5.80		2.06	Jun-15
GAM Unconstrained Bond Fund	39,649,502	1.71		1.10	8	0.23	40	3.60	54	--	--	--	--	2.00	Jun-15
3-Month LIBOR + 3%				1.43	5	5.43	1	4.51	28	4.02	9	3.73	94	4.33	Jun-15
Over/Under				-0.33		-5.20		-0.91						-2.33	
eV Global Unconstrained Fixed Inc Net Median				-0.90		-1.01		3.84		2.49		5.80		2.06	Jun-15



## Chicago Police Annuity and Benefit Fund

# TOTAL PLAN NET PERFORMANCE DETAIL

Ending December 31, 2018															
	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
<b>Global Multi Sector Fixed Income</b>	<b>116,118,836</b>	<b>5.00</b>	<b>4.00</b>	<b>-1.49</b>	<b>65</b>	<b>-2.69</b>	<b>60</b>	<b>1.83</b>	<b>84</b>	--	--	--	--	<b>1.17</b>	<b>Jun-15</b>
<i>BBgBarc Global Aggregate TR</i>				<u>1.20</u>	7	<u>-1.20</u>	53	<u>2.70</u>	78	<u>1.08</u>	85	<u>2.49</u>	99	<u>2.11</u>	<i>Jun-15</i>
Over/Under				<b>-2.69</b>		<b>-1.49</b>		<b>-0.87</b>						<b>-0.94</b>	
<i>eV Global Unconstrained Fixed Inc Net Median</i>				-0.90		-1.01		3.84		2.49		5.80		2.06	<i>Jun-15</i>
<b>Manulife Asset Management</b>	<b>116,118,836</b>	<b>5.00</b>		<b>-1.49</b>	<b>65</b>	<b>-2.69</b>	<b>60</b>	<b>1.83</b>	<b>84</b>	--	--	--	--	<b>1.17</b>	<b>Jun-15</b>
<i>BBgBarc Global Aggregate TR</i>				<u>1.20</u>	7	<u>-1.20</u>	53	<u>2.70</u>	78	<u>1.08</u>	85	<u>2.49</u>	99	<u>2.11</u>	<i>Jun-15</i>
Over/Under				<b>-2.69</b>		<b>-1.49</b>		<b>-0.87</b>						<b>-0.94</b>	
<i>eV Global Unconstrained Fixed Inc Net Median</i>				-0.90		-1.01		3.84		2.49		5.80		2.06	<i>Jun-15</i>
<b>Absolute Return Fixed Income</b>	<b>58,366,063</b>	<b>2.51</b>	<b>3.00</b>	<b>-1.41</b>	<b>62</b>	<b>-0.48</b>	<b>47</b>	<b>3.36</b>	<b>62</b>	--	--	--	--	<b>1.67</b>	<b>Jun-15</b>
<i>3-Month LIBOR + 3%</i>				<u>1.43</u>	5	<u>5.43</u>	1	<u>4.51</u>	28	<u>4.02</u>	9	<u>3.73</u>	94	<u>4.33</u>	<i>Jun-15</i>
Over/Under				<b>-2.84</b>		<b>-5.91</b>		<b>-1.15</b>						<b>-2.66</b>	
<i>eV Global Unconstrained Fixed Inc Net Median</i>				-0.90		-1.01		3.84		2.49		5.80		2.06	<i>Jun-15</i>
<b>Mackay Shields</b>	<b>58,366,063</b>	<b>2.51</b>		<b>-1.41</b>	<b>62</b>	<b>-0.48</b>	<b>47</b>	<b>3.36</b>	<b>62</b>	--	--	--	--	<b>1.67</b>	<b>Jun-15</b>
<i>3-Month LIBOR + 3%</i>				<u>1.43</u>	5	<u>5.43</u>	1	<u>4.51</u>	28	<u>4.02</u>	9	<u>3.73</u>	94	<u>4.33</u>	<i>Jun-15</i>
Over/Under				<b>-2.84</b>		<b>-5.91</b>		<b>-1.15</b>						<b>-2.66</b>	
<i>eV Global Unconstrained Fixed Inc Net Median</i>				-0.90		-1.01		3.84		2.49		5.80		2.06	<i>Jun-15</i>
<b>Short Duration</b>	<b>1,232,929</b>	<b>0.05</b>	--	<b>0.64</b>	<b>90</b>	<b>2.20</b>	<b>2</b>	--	--	--	--	--	--	<b>1.76</b>	<b>Jan-17</b>
<i>BBgBarc US Govt/Credit 1-3 Yr. TR</i>				<u>1.18</u>	62	<u>1.60</u>	3	<u>1.24</u>	98	<u>1.03</u>	99	<u>1.52</u>	99	<u>1.22</u>	<i>Jan-17</i>
Over/Under				<b>-0.54</b>		0.60								0.54	
<i>eV US Core Fixed Inc Net Median</i>				1.29		-0.21		2.14		2.55		4.05		1.76	<i>Jan-17</i>
<b>HGK Asset Management</b>	<b>1,232,929</b>	<b>0.05</b>		<b>0.64</b>	<b>76</b>	<b>2.20</b>	<b>1</b>	--	--	--	--	--	--	<b>1.76</b>	<b>Jan-17</b>
<i>BBgBarc US Govt/Credit 1-3 Yr. TR</i>				<u>1.18</u>	12	<u>1.60</u>	22	<u>1.24</u>	69	<u>1.03</u>	75	<u>1.52</u>	80	<u>1.22</u>	<i>Jan-17</i>
Over/Under				<b>-0.54</b>		0.60								0.54	
<i>eV US Short Duration Fixed Inc Net Median</i>				0.86		1.42		1.44		1.27		2.04		1.38	<i>Jan-17</i>
<b>Total Private Equity</b>	<b>16,994,495</b>	<b>0.73</b>	<b>5.00</b>	<b>0.81</b>	--	<b>12.42</b>	--	<b>3.04</b>	--	<b>7.73</b>	--	<b>6.62</b>	--	<b>8.11</b>	<b>Oct-95</b>
<i>Private Equity Benchmark (1 Qtr. Lag)</i>				<u>3.79</u>	--	<u>18.01</u>	--	<u>14.51</u>	--	<u>13.40</u>	--	<u>9.08</u>	--	<u>17.13</u>	<i>Oct-95</i>
Over/Under				<b>-2.98</b>		<b>-5.59</b>		<b>-11.47</b>		<b>-5.67</b>		<b>-2.46</b>		<b>-9.02</b>	
<b>Adams Street Partners</b>	<b>4,077,521</b>	<b>0.18</b>		<b>3.46</b>	--	<b>12.37</b>	--	<b>3.65</b>	--	<b>5.98</b>	--	<b>6.04</b>	--	<b>9.02</b>	<b>Oct-95</b>
<b>Invesco Vent Alpha Fund</b>	<b>12,902,819</b>	<b>0.56</b>		<b>0.00</b>	--	<b>12.46</b>	--	--	--	--	--	--	--	<b>7.63</b>	<b>Jul-17</b>



## Chicago Police Annuity and Benefit Fund

# TOTAL PLAN NET PERFORMANCE DETAIL

Ending December 31, 2018															
	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
<b>Total Infrastructure</b>	<b>93,180,435</b>	<b>4.01</b>	<b>4.00</b>	<b>5.71</b>	--	<b>14.20</b>	--	<b>27.74</b>	--	<b>24.35</b>	--	<b>15.01</b>	--	<b>9.17</b>	<b>Nov-07</b>
<i>NCREIF Property Index</i>				<u>1.37</u>	--	<u>6.71</u>	--	<u>7.22</u>	--	<u>9.33</u>	--	<u>7.49</u>	--	<u>6.34</u>	<i>Nov-07</i>
Over/Under				4.34		7.49		20.52		15.02		7.52		2.83	
Global Infrastructure Partners	20,064,583	0.86		8.15	--	16.67	--	38.91	--	39.22	--	23.09	--	16.94	Nov-07
Global Infrastructure Partners III	19,734,028	0.85		7.82	--	14.19	--	--	--	--	--	--	--	3.27	Jan-17
Ullico Infra Taxable	52,085,622	2.24		4.17	--	--	--	--	--	--	--	--	--	4.17	May-18
<b>Total Real Estate</b>	<b>92,033,457</b>	<b>3.96</b>	<b>7.00</b>	<b>0.08</b>	--	<b>1.51</b>	--	<b>4.45</b>	--	<b>6.12</b>	--	<b>5.09</b>	--	<b>5.63</b>	<b>Oct-95</b>
<i>NCREIF Property Index 1 Qtr. Lag</i>				<u>1.67</u>	--	<u>7.16</u>	--	<u>7.76</u>	--	<u>9.57</u>	--	<u>6.42</u>	--	<u>9.52</u>	<i>Oct-95</i>
Over/Under				-1.59		-5.65		-3.31		-3.45		-1.33		-3.89	
<b>Private Real Estate</b>	<b>78,345,135</b>	<b>3.37</b>	--	<b>1.30</b>	--	<b>3.68</b>	--	<b>5.15</b>	--	<b>7.66</b>	--	--	--	<b>7.85</b>	<b>Dec-10</b>
Sound Mark Partners LLC	17,544,713	0.76		1.31	--	5.14	--	--	--	--	--	--	--	4.32	Sep-17
Brookfield RE Fund B	3,624,090	0.16		1.73	--	0.51	--	--	--	--	--	--	--	6.66	Jul-17
UBS Realty Investors	19,076,775	0.82		1.67	--	4.94	--	6.35	--	7.62	--	4.94	--	4.00	Jan-07
M.S. Prime Property	20,696,387	0.89		1.59	--	6.40	--	8.17	--	9.29	--	6.44	--	5.06	Dec-06
Mesirow RE Value	1,200,901	0.05		0.26	--	-9.40	--	6.02	--	8.17	--	--	--	7.60	Jul-12
Blackrock Asia III	36,434	0.00		0.00	--	0.00	--	-12.22	--	-2.83	--	-48.47	--	-47.56	May-08
DRA Advisors	387,257	0.02		0.77	--	-0.54	--	6.18	--	45.35	--	22.90	--	21.56	Oct-07
Newport Capital Partners	1	0.00		-4.20	--	16.54	--	3.26	--	8.99	--	--	--	-10.45	Dec-12
Morgan Stanley RE VI	227,541	0.01		-0.37	--	4.36	--	7.69	--	7.27	--	-10.08	--	-12.72	Jul-07
Lone Star X	7,445,703	0.32		1.75	--	-49.99	--	--	--	--	--	--	--	-47.26	Dec-17
Lone Star Global	617,925	0.03		0.33	--	1.43	--	-1.58	--	5.19	--	5.12	--	4.41	Aug-08
Lone Star Fund VI	1,730,979	0.07		-0.88	--	0.03	--	-0.93	--	0.53	--	7.16	--	6.53	Jul-08
Apollo Real Estate Advisors	253,695	0.01		-37.38	--	-62.65	--	-28.74	--	-14.74	--	-8.22	--	-14.45	May-08
AG Core Plus Realty II	454,424	0.02		-0.05	--	-14.81	--	-4.73	--	6.24	--	6.29	--	5.32	Aug-07
ABR Chesapeake III	1,201,999	0.05		13.40	--	21.43	--	4.35	--	5.21	--	3.21	--	2.80	Sep-06
Mesirow FIN RE Val III	3,843,527	0.17		1.21	--	--	--	--	--	--	--	--	--	-7.43	May-18
<b>REIT</b>	<b>13,688,322</b>	<b>0.59</b>	--	<b>-6.02</b>	<b>90</b>	<b>-8.14</b>	<b>99</b>	<b>1.12</b>	<b>99</b>	<b>3.13</b>	<b>99</b>	<b>9.69</b>	<b>38</b>	<b>11.22</b>	<b>Dec-08</b>
<i>eV EAFE REIT Net Median</i>				-4.95		-4.52		5.54		4.76		9.48		9.80	<i>Dec-08</i>
ING Clarion	13,688,322	0.59		-6.02	90	-8.14	99	1.12	99	3.13	99	9.69	38	11.22	Dec-08
<i>NAREIT Equity Index</i>				<u>-6.73</u>	99	<u>-5.04</u>	74	<u>2.74</u>	99	<u>7.81</u>	1	<u>12.07</u>	1	<u>13.66</u>	<i>Dec-08</i>
Over/Under				0.71		-3.10		-1.62		-4.68		-2.38		-2.44	
<i>eV EAFE REIT Net Median</i>				-4.95		-4.52		5.54		4.76		9.48		9.80	<i>Dec-08</i>



## Chicago Police Annuity and Benefit Fund

# TOTAL PLAN NET PERFORMANCE DETAIL

Ending December 31, 2018															
	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
<b>Total Hedge Funds</b>	<b>128,080,150</b>	<b>5.51</b>	<b>4.00</b>	<b>-0.02</b>	<b>7</b>	<b>4.59</b>	<b>5</b>	--	--	--	--	--	--	<b>5.69</b>	<b>Aug-16</b>
<i>HFRI Fund of Funds Composite Index</i>				<u>-5.00</u>	56	<u>-4.08</u>	66	<u>1.29</u>	70	<u>1.38</u>	71	<u>3.11</u>	88	<u>2.07</u>	<i>Aug-16</i>
Over/Under				4.98		8.67								3.62	
<i>eV Alt Fund of Funds - Multi-Strategy Median</i>				-4.44		-2.08		2.32		2.70		5.33		3.16	<i>Aug-16</i>
<b>Pluscios</b>	<b>32,798,501</b>	<b>1.41</b>		<b>-2.86</b>	<b>30</b>	<b>4.50</b>	<b>5</b>	--	--	--	--	--	--	<b>5.66</b>	<b>Aug-16</b>
<i>HFRI Fund of Funds Composite Index</i>				<u>-5.00</u>	56	<u>-4.08</u>	66	<u>1.29</u>	70	<u>1.38</u>	71	<u>3.11</u>	88	<u>2.07</u>	<i>Aug-16</i>
Over/Under				2.14		8.58								3.59	
<i>eV Alt Fund of Funds - Multi-Strategy Median</i>				-4.44		-2.08		2.32		2.70		5.33		3.16	<i>Aug-16</i>
<b>EnTrust Permal</b>	<b>56,028,825</b>	<b>2.41</b>		<b>1.51</b>	<b>2</b>	<b>6.83</b>	<b>3</b>	--	--	--	--	--	--	<b>6.12</b>	<b>Feb-17</b>
<i>HFRI Fund of Funds Composite Index</i>				<u>-5.00</u>	56	<u>-4.08</u>	66	<u>1.29</u>	70	<u>1.38</u>	71	<u>3.11</u>	88	<u>1.21</u>	<i>Feb-17</i>
Over/Under				6.51		10.91								4.91	
<i>eV Alt Fund of Funds - Multi-Strategy Median</i>				-4.44		-2.08		2.32		2.70		5.33		2.32	<i>Feb-17</i>
<b>Blueprint Capital Advisors</b>	<b>39,252,824</b>	<b>1.69</b>		<b>-0.40</b>	<b>11</b>	<b>1.02</b>	<b>24</b>	--	--	--	--	--	--	<b>1.45</b>	<b>Aug-17</b>
<i>Blueprint Capital Custom Index</i>				<u>-5.00</u>	56	<u>-4.08</u>	66	--	--	--	--	--	--	<u>-0.60</u>	<i>Aug-17</i>
Over/Under				4.60		5.10								2.05	
<i>eV Alt Fund of Funds - Multi-Strategy Median</i>				-4.44		-2.08		2.32		2.70		5.33		0.13	<i>Aug-17</i>
<b>Total Global Asset Allocation</b>	<b>115,108,700</b>	<b>4.96</b>	<b>5.00</b>	<b>-3.68</b>	<b>23</b>	<b>-5.31</b>	<b>30</b>	<b>5.50</b>	<b>11</b>	<b>2.20</b>	<b>38</b>	--	--	<b>4.37</b>	<b>Dec-11</b>
<i>60% MSCI ACWI (Net) / 40% FTSE WGBI</i>				<u>-7.06</u>	51	<u>-5.85</u>	35	<u>5.19</u>	18	<u>3.01</u>	23	<u>6.46</u>	45	<u>5.17</u>	<i>Dec-11</i>
Over/Under				3.38		0.54		0.31		-0.81				-0.80	
<i>eV Global TAA Net Median</i>				-7.03		-7.05		3.11		1.75		6.02		4.07	<i>Dec-11</i>
<b>GMO</b>	<b>12,847,652</b>	<b>0.55</b>		<b>-6.44</b>	<b>44</b>	<b>-7.26</b>	<b>55</b>	<b>4.32</b>	<b>28</b>	<b>1.94</b>	<b>43</b>	--	--	<b>4.47</b>	<b>Dec-11</b>
<i>GMO GBAL Index</i>				<u>-7.82</u>	56	<u>-6.00</u>	37	<u>5.14</u>	19	<u>3.80</u>	12	<u>7.45</u>	25	<u>6.26</u>	<i>Dec-11</i>
Over/Under				1.38		-1.26		-0.82		-1.86				-1.79	
<i>eV Global TAA Net Median</i>				-7.03		-7.05		3.11		1.75		6.02		4.07	<i>Dec-11</i>
<b>PIMCO</b>	<b>102,261,048</b>	<b>4.40</b>		<b>-3.32</b>	<b>20</b>	<b>-5.06</b>	<b>27</b>	<b>6.93</b>	<b>5</b>	<b>2.35</b>	<b>34</b>	--	--	<b>4.05</b>	<b>Dec-11</b>
<i>PIMCO All Asset Index</i>				<u>-1.27</u>	6	<u>-1.14</u>	6	<u>3.48</u>	42	<u>3.06</u>	22	<u>5.53</u>	60	<u>3.44</u>	<i>Dec-11</i>
Over/Under				-2.05		-3.92		3.45		-0.71				0.61	
<i>eV Global TAA Net Median</i>				-7.03		-7.05		3.11		1.75		6.02		4.07	<i>Dec-11</i>



## Chicago Police Annuity and Benefit Fund

# TOTAL PLAN NET PERFORMANCE DETAIL

Ending December 31, 2018															
	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
<b>Opportunistic Credit</b>	<b>66,631,190</b>	<b>2.87</b>	<b>4.00</b>	<b>-0.57</b>	--	<b>2.64</b>	--	--	--	--	--	--	--	<b>4.88</b>	<b>Nov-16</b>
<i>Opportunistic Credit Custom Index</i>				<u>-3.46</u>	--	<u>-0.43</u>	--	<u>5.69</u>	--	--	--	--	--	<u>2.96</u>	<i>Nov-16</i>
Over/Under				2.89		3.07								1.92	
Beach Point LP	23,168,200	1.00		<b>-0.49</b>	--	<b>4.11</b>	--	--	--	--	--	--	--	<b>7.31</b>	Dec-16
<i>Opportunistic Credit Custom Index</i>				<u>-3.46</u>	--	<u>-0.43</u>	--	<u>5.69</u>	--	--	--	--	--	<u>3.13</u>	<i>Dec-16</i>
Over/Under				2.97		4.54								4.18	
Voya	21,090,325	0.91		<b>-1.04</b>	--	<b>0.63</b>	--	--	--	--	--	--	--	<b>2.48</b>	Nov-16
<i>Opportunistic Credit Custom Index</i>				<u>-3.46</u>	--	<u>-0.43</u>	--	<u>5.69</u>	--	--	--	--	--	<u>2.96</u>	<i>Nov-16</i>
Over/Under				2.42		1.06								<b>-0.48</b>	
Eagle Point Credit Management	19,945,632	0.86		<b>1.24</b>	--	--	--	--	--	--	--	--	--	<b>3.19</b>	Aug-18
<i>Opportunistic Credit Custom Index</i>				<u>-3.46</u>	--	<u>-0.43</u>	--	<u>5.69</u>	--	--	--	--	--	<u>-2.30</u>	<i>Aug-18</i>
Over/Under				4.70										5.49	
Monroe Capital Private	2,427,033	0.10													
<b>Private Debt</b>	<b>86,884,514</b>	<b>3.74</b>	<b>4.00</b>	<b>2.14</b>	--	<b>10.52</b>	--	--	--	--	--	--	--	<b>7.13</b>	<b>Nov-16</b>
<i>Private Debt Custom Index</i>				<u>1.43</u>	--	<u>5.43</u>	--	<u>4.51</u>	--	--	--	--	--	<u>4.82</u>	<i>Nov-16</i>
Over/Under				0.71		5.09								2.31	
Clareant Euro Dir	22,302,428	0.96		<b>2.12</b>	--	<b>10.80</b>	--	--	--	--	--	--	--	<b>9.30</b>	Nov-16
Dorchester Secondaries Offshore IV	28,419,474	1.22		<b>2.40</b>	--	<b>10.26</b>	--	--	--	--	--	--	--	<b>7.24</b>	Mar-17
Monroe Capital (PE)	20,910,122	0.90		<b>1.71</b>	--	<b>11.48</b>	--	--	--	--	--	--	--	<b>10.43</b>	Nov-16
Crestline Opportunity FD III	13,222,340	0.57		<b>2.30</b>	--	<b>8.20</b>	--	--	--	--	--	--	--	<b>6.58</b>	Jun-17
Clareant Euro Dir III	2,030,150	0.09		--	--	--	--	--	--	--	--	--	--	--	Dec-18

\*Monroe Capital Private was funded on 10/31/2018, therefore 3 Mo performance is unavailable.

\*Clareant Euro Dir III was funded on 11/30/2018, therefore 3 Mo performance is unavailable.

\*Opportunistic Credit Custom Index: 50% CS Leveraged Loan / 50% ICE BofA ML US HY BB-B Rated Constrained Index.

\*Private Debt Custom Index: 3 - Month LIBOR + 3%.