# MEMO 2.5

Date: 9/17/15

To: Barrington Hills Board of Trustees

From: Trustee Croll

RE: William Blair Engagement/Pension Benefit Obligation Bond (PBOB)

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Your Finance Committee held on September 16th a teleconference with John Peterson, Mike McIntyre, and David Able of William Blair & Co. Notice of the meeting was published with an agenda to discuss their possible engagement by the Village for a proposed 25-year PBOB. William Blair agreed to prepare a market-based estimate of the repayment schedule and an analysis of the potential savings in pension contributions that would accrue to the Village. This analysis is expected to be available to the Trustees for its September meeting.

William Blair proposed a financial advisory services agreement not to exceed $23,500 to provide services that include: strategies, structuring, schedules, documentation, bid solicitations, a bid recommendation including True Interest Cost calculation, and a sales report. In short, William Blair will issue the PBOB for the Village and deposit the proceeds into our account. William Blair rejected the partial payment of $7,000 approved by the Board at its August meeting. They requested approval for the entire amount of the contract, and in turn I requested from them a not to exceed number that the Board can vote on at the upcoming September meeting.

The Finance Committee unanimously (2-0) approved to recommend that the Village hire William Blair to act as advisor in issuing the PBOB for an amount not to exceed $23,500.

Discussion to follow.

The current estimate for the par amount of the PBOB to be issued is $6,860,000, though this number is likely to change somewhat after the new market-based estimate. The amount of the bond is tied to the goal of achieving 100% funding of the PPF in 2040, which depends on the interest rates the Village will pay, and the actuarially assumed investment earnings, according to Lauterbach and Amen is estimated at 6.5% CAGR. Underwriter fees amount to approximately 1% of the value of par value of bonds issued.

As Committee Chairman I have asked William Blair to prepare before the September meeting of the Board a sensitivity analysis of the projected savings to the Village. They agreed to provide this at no additional charge.

Sensitivity analysis changes model assumptions to gauge their effect. In this case, I want to lower the assumed investment earnings using extreme but historically justified return assumptions to see what happens to the projected savings. These results are important to me in determining whether or not I support issuing a PBOB, which in practice will be set in motion by voting if the Board votes to hire William Blair as financial advisor.

It should also be noted that if the Board votes to engage William Blair, it is committing to spending up to $23,500, not to issuing the bond itself. The Village has the right to reject all of the bids to purchase the bond. However, that decision likely would have negative ramifications in any future efforts to issue bonds. The Village Board is required to vote to accept a bid or reject all bids on the day the bids are made. That day could be coordinated to occur on the November 19, 2015 meeting of the Board of Trustees.

William Blair advised the Finance Committee that they can recommend legal counsel for the bond issuance. They estimated the cost of counsel would be approximately $15,000.

From: "McIntyre, Mike" <MMcIntyre@williamblair.com>

Date: Sep 25, 2015 4:47 PM

Subject: RE: PBOB materials

To: "Rosemary Ryba" <treasurer@barringtonhills-il.gov>, "Bryan Croll" <bcroll@barringtonhills-il.gov>

Cc: "Peterson, John" <jpeterson@williamblair.com>

Rosemary,

As we discussed on the phone the attached is the financial advisor agreement. The outlined fee will not exceed $23,500.00 so long as the Village's bond issue is $10 million or below.

Also attached is the summary of the different scenarios with exhibits behind it.

Mike

Michael McIntyre | DCM Investment Banking

William Blair & Company | 222 West Adams Street, Chicago, Illinois 60606

+1 312 364 5452 | mmcintyre@williamblair.com | www.williamblair.com

**A RESOLUTION AUTHORIZING THE ACCEPTANCE OF A FINANCIAL ADVISORY AGREEMENT WITH WILLIAM BLAIR & COMPANY, L.L.C**

**WHEREAS**, the Village of Barrington Hills ("Village") is considering the financing of a bond offering for its Police Pension Obligations as established by the authority of the Illinois Pension Code, 40 ILCS 5/3-101 et al; and

**WHEREAS**, the Finance Committee of the Board of Trustees at its meeting of September 16, 2015 recommended the consideration of William Blair & Company to provide financial advice in the financing of a bond offering; and

**WHEREAS,** the Village is in receipt of a Financial Advisory Agreement (“Agreement”) from William Blair & Company which among other terms presents a cost not to exceed $23,500.00 which Agreement is attached hereto and incorporated herein by reference as Exhibit "A".

**NOW, THEREFORE, BE IT RESOLVED** by the President and Board of Trustees of the Village of Barrington Hills, located in the Counties of Cook, Kane, Lake and McHenry, Illinois, as a Home Rule Municipality the following:

**SECTION ONE:** The recitals set forth above are found to be true and incorporated herein and made a part hereof.

**SECTION TWO:** The Village President is hereby authorized and directed to execute on behalf of the Village of Barrington Hills, the Financial Advisory Agreement (“Agreement”) from William Blair & Company attached hereto and incorporated herein by reference as Exhibit "A" with such modifications as may be deemed necessary by the Village President and the Village Attorney.

**SECTION THREE:** This Resolution shall take effect immediately upon its passage and approval as provided by law.

Ayes: Nays: Absent:

PASSED AND APPROVED by the President and Board of Trustees of the Village of Barrington Hills, Illinois, this 28th day of September, 2015.

APPROVED:

________________________
Village President

ATTEST:

________________________
Village Clerk

*William Blair*

September 25, 2015

Mr. Martin McLaughlin
Village President
Village of Barrington Hills
112 Algonquin Road
Barrington Hills, IL 60010
847.551.3002 direct
www.barringtonhills-il.gov

Dear President McLaughlin:

Regulations of the Municipal Securities Rulemaking Board require that we have a written financial advisory agreement in order to provide financial advisory services to the Village for a financing or bond offering. An agreement is also good to have in order to have a record of the work we will perform for the Village. I have adapted what follows from the text of agreements I have used for financial advisory assignments with other Illinois communities over the past several years.

We propose to offer the Village for its forthcoming financing, services that include: the development of capital-raising strategies whether by bonds or loans; mathematical structuring of principal and interest payments; the various schedules related to arbitrage, yield and other comparative and regulatory calculations; the documentation of the securities offering (preliminary and final Official Statements, notices of sale, advertisements and bid solicitations, sale result reports, CUSIP numbers and other industry requirements, among others); the reinvestment portfolio structures for investment of proceeds or other Village investment needs; reports, in person and documented, on issues and ideas related to the Village's contemplated transactions; suggestions and assistance with the rating services and on issues related to the credit of the Village; coordination with the Village's Bond Counsel and other consultants and staff; and other advice and counsel as needed from time to time by the Village during or between bond sales or financings.

We will prepare such analyses as are requested or required by the Village to provide the Village Board with the financial alternatives and recommendations representing the most efficient and cost effective means of financing its projects; and we will prepare the Village's bonds or other obligations for market or placement, solicit and open bids on behalf of the Village, and recommend the highest price qualified bid to the Village Board for acceptance.

+1 312 236 1600 tel

**William Blair & Company, L.L.C.**
**222 West Adams Street**
**Chicago, Illinois 60606**

We propose, in other words, to provide all the services required to raise the capital you require, and to do so on your behalf, for a fee payable at the closing of the transaction. This fee structure will provide for consultations, meetings, reports and other advisory work as the Village may need without regard to particular transactions and between bond issues, and it will not be based on an hourly fee rate or retainer. Usually we do not expect to be compensated for transactions that begin and do not close, buy w respectfully request the right to discuss unusual circumstances regarding our work effort and the Village's policy decisions when that happens.

Our standard fee is $1.85 per bond, with a minimum of $18,500 per transaction. This covers our time and disbursements, but not the documented costs and expenses of other advisors or professionals, advertisements, industry fees or assessments, travel out of the Chicago region, or printing costs. One of those other costs is the cost of assembling county tax and related data which we usually retain a research firm to obtain. The cost per transaction ranges from $750 to approximately $3,500 depending on the extent and complexity of the research required, but it will not in any case exceed $5,000.

We will assume, if you accept this proposal that it will remain in effect until notice otherwise by the Village, at its discretion and subject to its satisfaction at all times with the services provided.

It is a pleasure to work with and be associated with the Village. I assure you of a high quality of attention and service to the Village's requirements. That promise begins with an invitation to discuss this letter, or the proposal generally in order to define accurately the job that you want done. If this proposal meets with your approval, we would be pleased to accept the assignment upon your countersigning a copy of this letter and returning it to us.

Sincerely,

John H Peterson
Managing Director
312 364-8639

Accepted:__________________________________

Village President
Village of Barrington Hills

Dated:______________________________________

## *Summary of Pension Funding Bonds Scenarios with Alternative Investment Return Projections*

| **Current Allocation and $7.2 million Bond Issuance** | | | |
|---|---|---|---|
| True Interest Cost (Bonds) | 4.63% | 4.63% | 4.63% |
| *Projected Return* | *6.50%* | *5.00%* | *Varies** |
| *Normal Cost (Statutory)* | *$10,183,405* | *$10,183,405* | *$10,183,405* |
| Unfunded Payment | 1,765,284 | 13,756,647 | 12,174,037 |
| Debt Service on Pension Bonds | 12,873,943 | 12,873,943 | 12,873,943 |
| **Total Contribution** | **$24,822,632** | **$36,813,995** | **$35,231,385** |
| *Savings* | *$4,062,894* | *$768,707* | *($785,571)* |

| **Current Allocation - No Bond Issuance** | | | |
|---|---|---|---|
| *Projected Return* | *6.50%* | *5.00%* | *Varies** |
| *Normal Cost (Statutory)* | *$10,183,405* | *$10,183,405* | *$10,183,405* |
| Unfunded Payment | 18,702,121 | 27,399,297 | 24,262,409 |
| Debt Service on Pension Bonds | - | - | - |
| **Total Contribution** | **$28,885,526** | **$37,582,702** | **$34,445,814** |
| *Savings* | - | - | - |

| **Proposed Allocation and $6.7 million Bond Issuance** | | | |
|---|---|---|---|
| True Interest Cost (Bonds) | 4.63% | 4.63% | 4.63% |
| *Projected Return* | 6.75% | 5.00% | *Varies** |
| *Normal Cost (Statutory)* | *$9,445,259* | *$9,445,259* | *$9,445,259* |
| Unfunded Payment | 1,760,619 | 15,443,907 | 13,757,155 |
| Debt Service on Pension Bonds | 12,039,833 | 12,039,833 | 12,039,833 |
| **Total Contribution** | **$23,245,711** | **$36,928,999** | **$35,242,247** |
| *Savings* | *$4,424,795* | *$740,090* | *($938,044)* |

| **Proposed Allocation - No Bond Issuance** | | | |
|---|---|---|---|
| *Projected Return* | 6.75% | 5.00% | *Varies** |
| *Normal Cost (Statutory)* | *$9,445,259* | *$9,445,259* | *$9,445,259* |
| Unfunded Payment | 18,225,247 | 28,223,830 | 24,858,944 |
| Debt Service on Pension Bonds | - | - | - |
| **Total Contribution** | **$27,670,506** | **$37,669,089** | **$34,304,203** |
| *Savings* | - | - | - |

All amounts shown are based on the Village's actuarial projections to achieve 100% funding by the year 2040. All returns are net of the 0.30% administration feesthat Lauterbach & Amen assumed in their projections.

**Pension Fund Allocation Breakdown**

| | Current | Proposed |
|---|---|---|
| Equities | 45.00% | 55.00% |
| Bonds | 52.00% | 42.00% |
| Cash | 3.00% | 3.00% |
| Actuarial Projection ROI | 6.50% | 6.75% |

*The Projected Retun "Varies" assumes the following:

| *Asset Class* | | *Return* |
|---|---|---|
| Equities | | |
| | 2016-2025 | 0.00% |
| | 2026-2040 | 10.00% |
| Bonds | | |
| | 2016-2025 | 4.50% |
| | 2026-2040 | 6.25% |
| Cash | | |
| | 2016-2020 | 0.00% |
| | 2021-2040 | 2.50% |

"Varies" represents approximately 3.98% and 4.02% geometric returns for the Current and Proposed Allocations, respectively.

# Exhibit A-1

## Barrington Hills Police Pension Fund
## Pension Funding Bonds Analysis

Current Asset Allocation

| | |
|---|---|
| Projected Par Amount | $7,295,000 |
| Projections Assume Dated Date | 10/1/2015 |
| Estimated Market Value of Assets (12/31/2014) | $7,995,421 |
| Estimated Actuarial Accrued Liability (12/31/2014) | $14,659,175 |
| Estimated Unfunded Actuarial Accrued Liability (12/31/2014) | $6,663,754 |
| Estimated Actuarial Value of Assets Percent Funded (12/31/2014) | 54.5% |
| True Interest Cost | 4.62% |
| Assumed Investment Earnings | 6.50% |

| | | No Bond Proceeds | | | Bond Proceeds Scenario ($7.2 MM in Proceeds) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | A + B = C | | D | A + D = E | F | E + F = G | | C - G = H | |
| Plan Year | Normal Cost (Statutory Requirement) | Unfunded Payment | Normal Cost + Unfunded Payment = Contribution to Pension Fund | Funded % | Unfunded Payment | Normal Cost + Unfunded Payment = Contribution to Pension Fund | Principal & Interest Due on Bonds (Debt Service) | Contribution to Pension Fund + Debt Service | Funded % | Savings Generated from Issuance of Funding Bonds | Present Value Savings based 6.50% Investment Earnings |
| 2013 | **$315,954** | $446,217 | $762,171 | 51.7% | $446,217 | $762,171 | $ - | $762,171 | 51.7% | $ - | $ - |
| 2014 | **330,172** | 307,424 | 637,596 | 54.5% | 307,424 | 637,596 | - | 637,596 | 54.5% | - | - |
| *2015* | ***345,029*** | *400,097* | *745,126* | *54.1%* | ***$7,596,930*** | ***301,930*** | - | *301,930* | *100.0%* | - | - |
| 2016 | **298,129** | 401,741 | 699,870 | 56.2% | 401,741 | 699,870 | 237,753 | 937,623 | 102.1% | (237,753) | (234,039) |
| 2017 | **305,582** | 444,799 | 750,381 | 58.3% | - | 305,582 | 349,748 | 655,330 | 101.8% | 95,051 | 87,856 |
| 2018 | **313,221** | 463,958 | 777,179 | 60.2% | (22,410) | 290,811 | 359,252 | 650,063 | 101.5% | 127,116 | 110,322 |
| 2019 | **321,052** | 482,377 | 803,429 | 62.1% | (21,295) | 299,757 | 368,402 | 668,159 | 101.1% | 135,270 | 110,234 |
| 2020 | **329,078** | 501,519 | 830,597 | 63.8% | (18,427) | 310,651 | 382,202 | 692,853 | 100.8% | 137,744 | 105,399 |
| 2021 | **337,305** | 521,524 | 858,829 | 65.6% | (15,149) | 322,156 | 405,312 | 727,468 | 100.5% | 131,361 | 94,380 |
| 2022 | **345,738** | 542,458 | 888,196 | 67.2% | (11,517) | 334,221 | 427,692 | 761,913 | 100.2% | 126,283 | 85,194 |
| 2023 | **354,381** | 564,384 | 918,765 | 68.7% | (7,499) | 346,882 | 449,067 | 795,949 | 99.9% | 122,816 | 77,798 |
| 2024 | **363,241** | 587,376 | 950,617 | 70.1% | (3,050) | 360,191 | 469,267 | 829,458 | 99.7% | 121,159 | 72,065 |
| 2025 | **372,322** | 611,518 | 983,840 | 71.6% | 1,882 | 374,204 | 468,125 | 842,329 | 99.4% | 141,512 | 79,033 |
| 2026 | **381,630** | 636,907 | 1,018,537 | 73.0% | 7,359 | 388,989 | 486,627 | 875,616 | 99.2% | 142,922 | 74,949 |
| 2027 | **391,170** | 663,655 | 1,054,825 | 74.3% | 13,453 | 404,623 | 494,021 | 898,644 | 99.0% | 156,181 | 76,903 |
| 2028 | **400,950** | 691,897 | 1,092,847 | 75.7% | 20,253 | 421,203 | 515,529 | 936,732 | 98.8% | 156,115 | 72,179 |
| 2029 | **410,973** | 721,791 | 1,132,764 | 77.0% | 27,869 | 438,842 | 530,629 | 969,471 | 98.7% | 163,293 | 70,890 |
| 2030 | **421,248** | 753,535 | 1,174,783 | 78.3% | 36,435 | 457,683 | 544,464 | 1,002,147 | 98.5% | 172,636 | 70,372 |
| 2031 | **431,779** | 787,374 | 1,219,153 | 79.7% | 46,123 | 477,902 | 546,984 | 1,024,886 | 98.4% | 194,267 | 74,356 |
| 2032 | **442,573** | 823,624 | 1,266,197 | 81.1% | 57,159 | 499,732 | 563,408 | 1,063,140 | 98.2% | 203,058 | 72,977 |
| 2033 | **453,638** | 862,699 | 1,316,337 | 82.7% | 69,844 | 523,482 | 592,193 | 1,115,675 | 98.1% | 200,663 | 67,715 |
| 2034 | **464,979** | 905,172 | 1,370,151 | 84.4% | 84,593 | 549,572 | 598,863 | 1,148,435 | 98.1% | 221,717 | 70,253 |
| 2035 | **476,603** | 951,861 | 1,428,464 | 86.2% | 102,012 | 578,615 | 624,358 | 1,202,973 | 98.1% | 225,492 | 67,089 |
| 2036 | **488,518** | 1,004,010 | 1,492,528 | 88.2% | 123,027 | 611,545 | 642,738 | 1,254,283 | 98.1% | 238,246 | 66,557 |
| 2037 | **500,731** | 1,063,660 | 1,564,391 | 90.5% | 149,165 | 649,896 | 648,988 | 1,298,884 | 98.2% | 265,508 | 69,646 |
| 2038 | **513,250** | 1,134,528 | 1,647,778 | 93.0% | 183,224 | 696,474 | 693,813 | 1,390,287 | 98.4% | 257,492 | 63,421 |
| 2039 | **526,081** | 1,224,509 | 1,750,590 | 95.8% | 231,160 | 757,241 | 720,313 | 1,477,554 | 98.7% | 273,037 | 63,145 |
| 2040 | **539,233** | 1,355,245 | 1,894,478 | 99.0% | 309,332 | 848,565 | 754,200 | 1,602,765 | 99.3% | 291,713 | 63,347 |
| **Totals** | **10,528,434** | **19,102,218** | **$29,630,652** | | **$9,362,214** | **$12,250,619** | **$ 12,873,943** | **25,124,562** | | **$ 4,062,894** | **1,632,043** |

# Exhibit A-2

## Barrington Hills Police Pension Fund
## Pension Funding Bonds Analysis

Current Asset Allocation

| | |
|---|---|
| Projected Par Amount | $7,295,000 |
| Projections Assume Dated Date | 10/1/2015 |
| Estimated Market Value of Assets (12/31/2014) | $7,995,421 |
| Estimated Actuarial Accrued Liability (12/31/2014) | $14,659,175 |
| Estimated Unfunded Actuarial Accrued Liability (12/31/2014) | $6,663,754 |
| Estimated Actuarial Value of Assets Percent Funded (12/31/2014) | 54.5% |
| True Interest Cost | 4.62% |
| Assumed Investment Earnings | VARIES |

| | | No Bond Proceeds | | | Bond Proceeds Scenario ($7.2 MM in Proceeds) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **A** | **B** | **A + B = C** | | **D** | **A + D = E** | **F** | **E + F = G** | | **C - G = H** | |
| Plan Year | Normal Cost (Statutory Requirement) | Unfunded Payment | Normal Cost + Unfunded Payment = Contribution to Pension Fund | Funded % | Unfunded Payment | Normal Cost + Unfunded Payment = Contribution to Pension Fund | Principal & Interest Due on Bonds (Debt Service) | Contribution to Pension Fund + Debt Service | Funded % | Savings Generated from Issuance of Funding Bonds | Present Value Savings based 6.50% Investment Earnings |
| 2013 | **$315,954** | $446,217 | $762,171 | 51.7% | $446,217 | $762,171 | $ - | $762,171 | 51.7% | $ - | $ - |
| 2014 | **330,172** | 307,424 | 637,596 | 54.5% | 307,424 | 637,596 | - | 637,596 | 54.5% | - | - |
| *2015* | ***345,029*** | *400,097* | *745,126* | *54.1%* | ***$7,596,930*** | ***301,930*** | - | *301,930* | *100.0%* | - | - |
| 2016 | **298,129** | 401,741 | 699,870 | 54.0% | 401,741 | 699,870 | 237,753 | 937,623 | 98.0% | (237,753) | (234,039) |
| 2017 | **305,582** | 444,799 | 750,381 | 53.8% | - | 305,582 | 349,748 | 655,330 | 93.7% | 95,051 | 87,856 |
| 2018 | **313,221** | 487,276 | 800,497 | 53.7% | 21,276 | 334,497 | 359,252 | 693,749 | 89.6% | 106,748 | 92,645 |
| 2019 | **321,052** | 533,356 | 854,408 | 53.6% | 73,367 | 394,419 | 368,402 | 762,821 | 85.9% | 91,587 | 74,636 |
| 2020 | **329,078** | 583,588 | 912,666 | 53.5% | 131,339 | 460,417 | 382,202 | 842,619 | 82.6% | 70,047 | 53,599 |
| 2021 | **337,305** | 638,360 | 975,665 | 53.5% | 193,903 | 531,208 | 405,312 | 936,520 | 79.7% | 39,145 | 28,125 |
| 2022 | **345,738** | 698,142 | 1,043,880 | 53.4% | 261,419 | 607,157 | 427,692 | 1,034,849 | 77.0% | 9,031 | 6,093 |
| 2023 | **354,381** | 762,833 | 1,117,214 | 53.3% | 333,421 | 687,802 | 449,067 | 1,136,869 | 74.6% | (19,655) | (12,451) |
| 2024 | **363,241** | 833,525 | 1,196,766 | 53.3% | 411,354 | 774,595 | 469,267 | 1,243,862 | 72.5% | (47,096) | (28,012) |
| 2025 | **372,322** | 910,836 | 1,283,158 | 53.4% | 495,871 | 868,193 | 468,125 | 1,336,318 | 70.6% | (53,160) | (29,689) |
| 2026 | **381,630** | 995,501 | 1,377,131 | 56.2% | 587,717 | 969,347 | 486,627 | 1,455,974 | 72.4% | (78,843) | (41,345) |
| 2027 | **391,170** | 1,088,457 | 1,479,627 | 59.1% | 687,839 | 1,079,009 | 494,021 | 1,573,030 | 74.5% | (93,403) | (45,992) |
| 2028 | **400,950** | 1,122,676 | 1,523,626 | 61.9% | 706,358 | 1,107,308 | 515,529 | 1,622,837 | 76.6% | (99,211) | (45,870) |
| 2029 | **410,973** | 1,151,070 | 1,562,043 | 64.8% | 716,156 | 1,127,129 | 530,629 | 1,657,758 | 78.7% | (95,715) | (41,553) |
| 2030 | **421,248** | 1,178,109 | 1,599,357 | 67.7% | 723,399 | 1,144,647 | 544,464 | 1,689,111 | 80.8% | (89,754) | (36,587) |
| 2031 | **431,779** | 1,203,924 | 1,635,703 | 70.6% | 728,290 | 1,160,069 | 546,984 | 1,707,053 | 82.8% | (71,350) | (27,309) |
| 2032 | **442,573** | 1,228,122 | 1,670,695 | 73.5% | 730,336 | 1,172,909 | 563,408 | 1,736,317 | 84.9% | (65,622) | (23,584) |
| 2033 | **453,638** | 1,250,116 | 1,703,754 | 76.6% | 728,804 | 1,182,442 | 592,193 | 1,774,635 | 87.1% | (70,881) | (23,919) |
| 2034 | **464,979** | 1,269,081 | 1,734,060 | 79.9% | 722,674 | 1,187,653 | 598,863 | 1,786,516 | 89.3% | (52,456) | (16,621) |
| 2035 | **476,603** | 1,283,750 | 1,760,353 | 83.2% | 710,410 | 1,187,013 | 624,358 | 1,811,371 | 91.5% | (51,018) | (15,179) |
| 2036 | **488,518** | 1,292,118 | 1,780,636 | 86.8% | 689,609 | 1,178,127 | 642,738 | 1,820,865 | 93.7% | (40,229) | (11,238) |
| 2037 | **500,731** | 1,290,816 | 1,791,547 | 90.5% | 656,270 | 1,157,001 | 648,988 | 1,805,989 | 96.0% | (14,442) | (3,788) |
| 2038 | **513,250** | 1,273,567 | 1,786,817 | 94.2% | 602,984 | 1,116,234 | 693,813 | 1,810,047 | 98.2% | (23,230) | (5,722) |
| 2039 | **526,081** | 1,226,907 | 1,752,988 | 98.0% | 513,924 | 1,040,005 | 720,313 | 1,760,318 | 100.3% | (7,330) | (1,695) |
| 2040 | **539,233** | 1,113,739 | 1,652,972 | 101.7% | 345,576 | 884,809 | 754,200 | 1,639,009 | 102.0% | 13,963 | 3,032 |
| **Totals** | **10,183,405** | **24,262,409** | **$34,445,814** | | **$12,174,037** | **$22,357,442** | **$ 12,873,943** | **35,231,385** | | **$ (785,571)** | **(298,608)** |

## Exhibit A-3

# Barrington Hills Police Pension Fund
# Pension Funding Bonds Analysis

*Proposed Allocation*

| | |
|---|---|
| Projected Par Amount | $6,785,000 |
| Projections Assume Dated Date | 10/1/2015 |
| Estimated Market Value of Assets (12/31/2014) | $7,995,421 |
| Estimated Actuarial Accrued Liability (12/31/2014) | $14,659,175 |
| Estimated Unfunded Actuarial Accrued Liability (12/31/2014) | $6,663,754 |
| Estimated Actuarial Value of Assets Percent Funded (12/31/2014) | 54.5% |
| True Interest Cost | 4.63% |
| Assumed Investment Earnings | 6.75% |

| | | No Bond Proceeds | | | Bond Proceeds Scenario ($6.7 MM in Proceeds) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | A + B = C | | D | A + D = E | F | E + F = G | | C - G = H | |
| Plan Year | Normal Cost (Statutory Requirement) | Unfunded Payment | Normal Cost + Unfunded Payment = Contribution to Pension Fund | Funded % | Unfunded Payment | Normal Cost + Unfunded Payment = Contribution to Pension Fund | Principal & Interest Due on Bonds (Debt Service) | Contribution to Pension Fund + Debt Service | Funded % | Savings Generated from Issuance of Funding Bonds | Present Value Savings based 6.50% Investment Earnings |
| 2013 | **$288,645** | $473,526 | $762,171 | 53.5% | $473,526 | $762,171 | $ - | $762,171 | 53.5% | $ - | $ - |
| 2014 | **301,634** | 335,926 | 637,560 | 56.2% | 335,962 | 637,596 | - | 637,596 | 56.2% | - | - |
| *2015* | ***315,208*** | *429,918* | *745,126* | *55.7%* | ***$7,171,292*** | ***386,292*** | - | *386,292* | *100.0%* | - | - |
| 2016 | **276,519** | 375,228 | 651,747 | 57.6% | 375,228 | 651,747 | 222,633 | 874,380 | 102.0% | (222,633) | (219,027) |
| 2017 | **283,432** | 416,649 | 700,081 | 59.6% | - | 283,432 | 324,348 | 607,780 | 101.7% | 92,301 | 85,064 |
| 2018 | **290,517** | 435,860 | 726,377 | 61.4% | (20,797) | 269,720 | 328,914 | 598,634 | 101.4% | 127,743 | 110,283 |
| 2019 | **297,780** | 454,487 | 752,267 | 63.1% | (19,655) | 278,125 | 338,234 | 616,359 | 101.0% | 135,908 | 109,913 |
| 2020 | **305,225** | 473,900 | 779,125 | 64.8% | (16,863) | 288,362 | 352,234 | 640,596 | 100.7% | 138,529 | 104,949 |
| 2021 | **312,855** | 494,237 | 807,092 | 66.4% | (13,669) | 299,186 | 370,596 | 669,782 | 100.4% | 137,310 | 97,448 |
| 2022 | **320,677** | 515,566 | 836,243 | 67.9% | (10,121) | 310,556 | 393,369 | 703,925 | 100.1% | 132,318 | 87,967 |
| 2023 | **328,694** | 537,960 | 866,654 | 69.3% | (6,186) | 322,508 | 405,179 | 727,687 | 99.8% | 138,967 | 86,546 |
| 2024 | **336,911** | 561,496 | 898,407 | 70.7% | (1,818) | 335,093 | 421,179 | 756,272 | 99.6% | 142,135 | 82,921 |
| 2025 | **345,334** | 586,264 | 931,598 | 72.0% | 3,035 | 348,369 | 436,090 | 784,459 | 99.4% | 147,140 | 80,413 |
| 2026 | **353,967** | 612,370 | 966,337 | 73.3% | 8,434 | 362,401 | 460,133 | 822,534 | 99.2% | 143,803 | 73,620 |
| 2027 | **362,816** | 639,933 | 1,002,749 | 74.6% | 14,454 | 377,270 | 457,899 | 835,169 | 99.0% | 167,581 | 80,368 |
| 2028 | **371,887** | 669,095 | 1,040,982 | 75.9% | 21,185 | 393,072 | 485,179 | 878,251 | 98.8% | 162,732 | 73,108 |
| 2029 | **381,184** | 700,029 | 1,081,213 | 77.1% | 28,735 | 409,919 | 490,873 | 900,792 | 98.6% | 180,422 | 75,930 |
| 2030 | **390,714** | 732,941 | 1,123,655 | 78.4% | 37,241 | 427,955 | 505,723 | 933,678 | 98.4% | 189,978 | 74,896 |
| 2031 | **400,481** | 768,091 | 1,168,572 | 79.7% | 46,875 | 447,356 | 519,283 | 966,639 | 98.3% | 201,934 | 74,576 |
| 2032 | **410,493** | 805,812 | 1,216,305 | 81.1% | 57,864 | 468,357 | 531,353 | 999,710 | 98.2% | 216,596 | 74,933 |
| 2033 | **420,756** | 846,542 | 1,267,298 | 82.6% | 70,507 | 491,263 | 541,078 | 1,032,341 | 98.1% | 234,958 | 76,145 |
| 2034 | **431,275** | 890,878 | 1,322,153 | 84.3% | 85,225 | 516,500 | 569,628 | 1,086,128 | 98.0% | 236,026 | 71,655 |
| 2035 | **442,057** | 939,676 | 1,381,733 | 86.1% | 102,616 | 544,673 | 581,063 | 1,125,736 | 98.0% | 255,998 | 72,804 |
| 2036 | **453,108** | 994,234 | 1,447,342 | 88.1% | 123,609 | 576,717 | 601,088 | 1,177,805 | 98.1% | 269,538 | 71,807 |
| 2037 | **464,436** | 1,056,676 | 1,521,112 | 90.3% | 149,728 | 614,164 | 614,000 | 1,228,164 | 98.2% | 292,948 | 73,109 |
| 2038 | **476,047** | 1,130,862 | 1,606,909 | 92.8% | 183,756 | 659,803 | 615,250 | 1,275,053 | 98.4% | 331,856 | 77,583 |
| 2039 | **487,948** | 1,224,985 | 1,712,933 | 95.7% | 231,626 | 719,574 | 720,313 | 1,439,887 | 98.7% | 273,047 | 59,798 |
| 2040 | **500,146** | 1,361,476 | 1,861,622 | 99.0% | 309,610 | 809,756 | 754,200 | 1,563,956 | 99.3% | 297,666 | 61,067 |
| **Totals** | **9,445,259** | **18,225,247** | **$27,670,506** | | **$1,760,619** | **$11,205,878** | **$12,039,833** | **$23,245,711** | | **$4,424,795** | **1,717,876** |

## Exhibit A-4

## Barrington Hills Police Pension Fund
## Pension Funding Bonds Analysis

*Proposed Allocation*

| | |
|---|---|
| Projected Par Amount | $6,785,000 |
| Projections Assume Dated Date | 10/1/2015 |
| Estimated Market Value of Assets (12/31/2014) | $7,995,421 |
| Estimated Actuarial Accrued Liability (12/31/2014) | $14,659,175 |
| Estimated Unfunded Actuarial Accrued Liability (12/31/2014) | $6,663,754 |
| Estimated Actuarial Value of Assets Percent Funded (12/31/2014) | 54.5% |
| True Interest Cost | 4.63% |
| Assumed Investment Earnings | Varies |

| | | No Bond Proceeds | | | Bond Proceeds Scenario ($6.7 MM in Proceeds) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | A + B = C | | D | A + D = E | F | E + F = G | | C - G = H | |
| Plan Year | Normal Cost (Statutory Requirement) | Unfunded Payment | Normal Cost + Unfunded Payment = Contribution to Pension Fund | Funded % | Unfunded Payment | Normal Cost + Unfunded Payment = Contribution to Pension Fund | Principal & Interest Due on Bonds (Debt Service) | Contribution to Pension Fund + Debt Service | Funded % | Savings Generated from Issuance of Funding Bonds | Present Value Savings based 6.50% Investment Earnings |
| 2013 | **$288,645** | $473,526 | $762,171 | 53.5% | $473,526 | $762,171 | $ - | $762,171 | 53.4% | $ - | $ - |
| 2014 | **301,634** | 335,926 | 637,560 | 56.2% | 335,962 | 637,596 | - | 637,596 | 56.2% | - | - |
| *2015* | ***315,208*** | *429,918* | *745,126* | *55.7%* | ***$7,171,292*** | ***386,292*** | - | *386,292* | *100.0%* | - | - |
| 2016 | **276,519** | 375,228 | 651,747 | 55.0% | 375,228 | 651,747 | 222,633 | 874,380 | 97.3% | (222,633) | (220,197) |
| 2017 | **283,432** | 416,649 | 700,081 | 554.3% | - | 283,432 | 324,348 | 607,780 | 92.3% | 92,301 | 87,360 |
| 2018 | **290,517** | 462,838 | 753,355 | 53.7% | 28,255 | 318,772 | 328,914 | 647,686 | 87.7% | 105,669 | 95,705 |
| 2019 | **297,780** | 513,250 | 811,030 | 53.1% | 86,403 | 384,183 | 338,234 | 722,417 | 83.6% | 88,613 | 76,801 |
| 2020 | **305,225** | 568,151 | 873,376 | 52.6% | 150,611 | 455,836 | 352,234 | 808,070 | 79.9% | 65,306 | 54,164 |
| 2021 | **312,855** | 627,941 | 940,796 | 52.2% | 219,685 | 532,540 | 370,596 | 903,136 | 76.7% | 37,660 | 29,890 |
| 2022 | **320,677** | 693,133 | 1,013,810 | 51.9% | 294,033 | 614,710 | 393,369 | 1,008,079 | 73.7% | 5,731 | 4,353 |
| 2023 | **328,694** | 763,704 | 1,092,398 | 51.5% | 373,304 | 701,998 | 405,179 | 1,107,177 | 71.1% | (14,779) | (10,741) |
| 2024 | **336,911** | 840,777 | 1,177,688 | 51.3% | 458,947 | 795,858 | 421,179 | 1,217,037 | 68.7% | (39,349) | (27,367) |
| 2025 | **345,334** | 925,020 | 1,270,354 | 51.1% | 551,661 | 896,995 | 436,090 | 1,333,085 | 66.7% | (62,731) | (41,750) |
| 2026 | **353,967** | 1,017,233 | 1,371,200 | 53.9% | 652,261 | 1,006,228 | 460,133 | 1,466,361 | 68.7% | (95,161) | (60,606) |
| 2027 | **362,816** | 1,118,442 | 1,481,258 | 56.9% | 761,784 | 1,124,600 | 457,899 | 1,582,499 | 71.0% | (101,241) | (61,702) |
| 2028 | **371,887** | 1,156,603 | 1,528,490 | 59.8% | 784,756 | 1,156,643 | 485,179 | 1,641,822 | 73.3% | (113,332) | (66,096) |
| 2029 | **381,184** | 1,188,628 | 1,569,812 | 62.8% | 798,596 | 1,179,780 | 490,873 | 1,670,653 | 75.6% | (100,841) | (56,279) |
| 2030 | **390,714** | 1,219,301 | 1,610,015 | 65.8% | 809,817 | 1,200,531 | 505,723 | 1,706,254 | 77.9% | (96,239) | (51,397) |
| 2031 | **400,481** | 1,248,747 | 1,649,228 | 68.8% | 818,608 | 1,219,089 | 519,283 | 1,738,372 | 80.2% | (89,144) | (45,558) |
| 2032 | **410,493** | 1,276,524 | 1,687,017 | 71.9% | 824,415 | 1,234,908 | 531,353 | 1,766,261 | 82.5% | (79,244) | (38,755) |
| 2033 | **420,756** | 1,301,975 | 1,722,731 | 75.2% | 826,421 | 1,247,177 | 541,078 | 1,788,255 | 84.9% | (65,524) | (30,665) |
| 2034 | **431,275** | 1,324,173 | 1,755,448 | 78.6% | 823,482 | 1,254,757 | 569,628 | 1,824,385 | 87.4% | (68,937) | (30,873) |
| 2035 | **442,057** | 1,341,693 | 1,783,750 | 82.2% | 813,879 | 1,255,936 | 581,063 | 1,836,999 | 90.0% | (53,249) | (22,820) |
| 2036 | **453,108** | 1,352,274 | 1,805,382 | 85.9% | 794,918 | 1,248,026 | 601,088 | 1,849,114 | 92.6% | (43,732) | (17,935) |
| 2037 | **464,436** | 1,352,116 | 1,816,552 | 89.9% | 762,106 | 1,226,542 | 614,000 | 1,840,542 | 95.2% | (23,990) | (9,415) |
| 2038 | **476,047** | 1,334,138 | 1,810,185 | 93.9% | 707,134 | 1,183,181 | 615,250 | 1,798,431 | 97.7% | 11,754 | 4,414 |
| 2039 | **487,948** | 1,283,142 | 1,771,090 | 98.0% | 612,240 | 1,100,188 | 720,313 | 1,820,501 | 100.2% | (49,411) | (17,757) |
| 2040 | **500,146** | 1,157,264 | 1,657,410 | 101.9% | 428,611 | 928,757 | 754,200 | 1,682,957 | 102.2% | (25,547) | (8,786) |
| **Totals** | **9,445,259** | **24,858,944** | **$34,304,203** | | **$13,757,155** | **$23,202,414** | **$12,039,833** | **$35,242,247** | | **($938,044)** | **(466,010)** |

# Exhibit B-1 Current Allocation

**Bond Debt Service**

The Village of Barrington Hills, Illinois
Proposed 2015 Taxable Pension Funding Bonds

| Maturity Date | Principal | Rate | Interest | Debt Service |
|---|---|---|---|---|
| 1/1/2016 | $160,000 | 0.79% | $77,753 | $237,753 |
| 1/1/2017 | 40,000 | 1.24% | 309,748 | 349,748 |
| 1/1/2018 | 50,000 | 1.70% | 309,252 | 359,252 |
| 1/1/2019 | 60,000 | 2.00% | 308,402 | 368,402 |
| 1/1/2020 | 75,000 | 2.52% | 307,202 | 382,202 |
| 1/1/2021 | 100,000 | 2.62% | 305,312 | 405,312 |
| 1/1/2022 | 125,000 | 2.90% | 302,692 | 427,692 |
| 1/1/2023 | 150,000 | 3.20% | 299,067 | 449,067 |
| 1/1/2024 | 175,000 | 3.51% | 294,267 | 469,267 |
| 1/1/2025 | 180,000 | 3.61% | 288,125 | 468,125 |
| 1/1/2026 | 205,000 | 3.71% | 281,627 | 486,627 |
| 1/1/2027 | 220,000 | 3.86% | 274,021 | 494,021 |
| 1/1/2028 | 250,000 | 3.96% | 265,529 | 515,529 |
| 1/1/2029 | 275,000 | 4.06% | 255,629 | 530,629 |
| 1/1/2030 | 300,000 | 4.16% | 244,464 | 544,464 |
| 1/1/2031 | 315,000 | 4.31% | 231,984 | 546,984 |
| 1/1/2032 | 345,000 | 4.70% | 218,408 | 563,408 |
| 1/1/2033 | 390,000 | 4.70% | 202,193 | 592,193 |
| 1/1/2034 | 415,000 | 4.70% | 183,863 | 598,863 |
| 1/1/2035 | 460,000 | 4.70% | 164,358 | 624,358 |
| 1/1/2036 | 500,000 | 4.75% | 142,738 | 642,738 |
| 1/1/2037 | 530,000 | 4.75% | 118,988 | 648,988 |
| 1/1/2038 | 600,000 | 4.75% | 93,813 | 693,813 |
| 1/1/2039 | 655,000 | 4.75% | 65,313 | 720,313 |
| 1/1/2040 | 720,000 | 4.75% | 34,200 | 754,200 |
| | 7,295,000 | | 5,578,943 | 12,873,943 |

# Exhibit B-2 Proposed Allocation

**Bond Debt Service**

The Village of Barrington Hills, Illinois
Proposed 2015 Taxable Pension Funding Bonds

| Maturity Date | Principal | Rate | Interest | Debt Service |
|---|---|---|---|---|
| 1/1/2016 | $150,000 | 0.79% | $72,633 | $222,633 |
| 1/1/2017 | 35,000 | 1.24% | 289,348 | 324,348 |
| 1/1/2018 | 40,000 | 1.70% | 288,914 | 328,914 |
| 1/1/2019 | 50,000 | 2.00% | 288,234 | 338,234 |
| 1/1/2020 | 65,000 | 2.52% | 287,234 | 352,234 |
| 1/1/2021 | 85,000 | 2.62% | 285,596 | 370,596 |
| 1/1/2022 | 110,000 | 2.90% | 283,369 | 393,369 |
| 1/1/2023 | 125,000 | 3.20% | 280,179 | 405,179 |
| 1/1/2024 | 145,000 | 3.51% | 276,179 | 421,179 |
| 1/1/2025 | 165,000 | 3.61% | 271,090 | 436,090 |
| 1/1/2026 | 195,000 | 3.71% | 265,133 | 460,133 |
| 1/1/2027 | 200,000 | 3.86% | 257,899 | 457,899 |
| 1/1/2028 | 235,000 | 3.96% | 250,179 | 485,179 |
| 1/1/2029 | 250,000 | 4.06% | 240,873 | 490,873 |
| 1/1/2030 | 275,000 | 4.16% | 230,723 | 505,723 |
| 1/1/2031 | 300,000 | 4.31% | 219,283 | 519,283 |
| 1/1/2032 | 325,000 | 4.70% | 206,353 | 531,353 |
| 1/1/2033 | 350,000 | 4.70% | 191,078 | 541,078 |
| 1/1/2034 | 395,000 | 4.70% | 174,628 | 569,628 |
| 1/1/2035 | 425,000 | 4.70% | 156,063 | 581,063 |
| 1/1/2036 | 465,000 | 4.75% | 136,088 | 601,088 |
| 1/1/2037 | 500,000 | 4.75% | 114,000 | 614,000 |
| 1/1/2038 | 525,000 | 4.75% | 90,250 | 615,250 |
| 1/1/2039 | 655,000 | 4.75% | 65,313 | 720,313 |
| 1/1/2040 | 720,000 | 4.75% | 34,200 | 754,200 |
| | 6,785,000 | | 5,254,833 | 12,039,833 |