

# Community College Internal Auditors Spring Conference

## Refunding General Obligation Bonds



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Presented by  
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Vice President  
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# Introduction

- KNN Public Finance – financial advisory firm, located in Oakland, CA, serving public agencies since 1983
- Provide objective advice on bond financings to public agencies throughout the State
- Ruth Alahydoian, Vice President
  - In public finance since 1995
  - Specialize in general obligation bonds, school district finance.

# Outline

- Background on Bonds
- Refunding Concept and Mechanics
- Structuring Alternatives

# Long Term Debt

- General Obligation Bonds
  - California Constitution, Article 16, Section 18a:
    - *No county, city, town, township, board of education, or school district, shall incur any indebtedness or liability in any manner or for any purpose exceeding in any year the income and revenue provided for such year, without the assent of two-thirds [now 55% for schools] of the voters of the public entity voting at an election to be held for that purpose [...]*
  - Ed. Code, Title 1, Division 1, Part 10
- Leases or Certificates of Participation
  - Leases are not debt because they are contingent on use of equipment or property

# Think of a Mortgage

BUT, with a few significant differences:

- Separate interest rate affixed to each maturity (principal amount)
- For GO's, payments are being paid by “thoughtful relative” – the taxpayers
- Costs of issuance
  - Fixed costs: Rating, bond counsel, financial advisor
  - Variable costs: Underwriter compensation, bond insurance

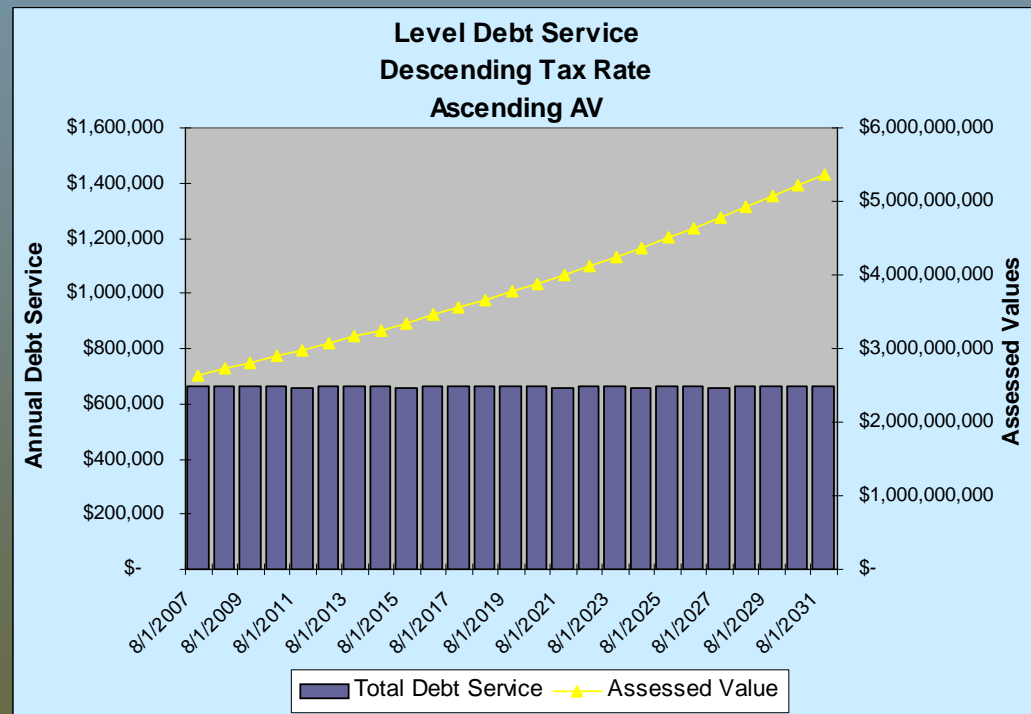
# Bond Repayment and Tax Rates

- Bonds are repaid by taxpayers
- At the time of election, tax rate promise was made based on assumptions about growth and interest rates
- Bond repayment (debt service schedule & interest rate) is fixed once bonds are sold, but growth rates will change, resulting in variations in tax rates in the future

# Debt Service, Tax Rates and AV

- Level Debt Service, tax rate declining from \$25 to \$12, AV growing at 3%

Year Ending	Total Debt Service	Tax Rate	Assessed Value
8/1/2007	\$ 661,360	\$ 25	\$ 2,645,440,000
8/1/2008	662,720	24	2,724,803,200
8/1/2009	663,670	24	2,806,547,296
8/1/2010	664,232	23	2,890,743,715
8/1/2011	659,404	22	2,977,466,026
8/1/2012	664,312	22	3,066,790,007
8/1/2013	663,408	21	3,158,793,707
8/1/2014	661,828	20	3,253,557,519
8/1/2015	659,552	20	3,351,164,244
8/1/2016	661,624	19	3,451,699,171
8/1/2017	662,889	19	3,555,250,147
8/1/2018	663,364	18	3,661,907,651
8/1/2019	663,034	18	3,771,764,880
8/1/2020	661,922	17	3,884,917,827
8/1/2021	660,055	16	4,001,465,362
8/1/2022	662,425	16	4,121,509,323
8/1/2023	663,849	16	4,245,154,602
8/1/2024	659,319	15	4,372,509,240
8/1/2025	664,045	15	4,503,684,518
8/1/2026	662,583	14	4,638,795,053
8/1/2027	660,143	14	4,777,958,905
8/1/2028	661,664	13	4,921,297,672
8/1/2029	661,911	13	5,068,936,602
8/1/2030	660,927	13	5,221,004,700
8/1/2031	663,702	12	5,377,634,841
	\$ 16,553,938		Growth Rate: 3%

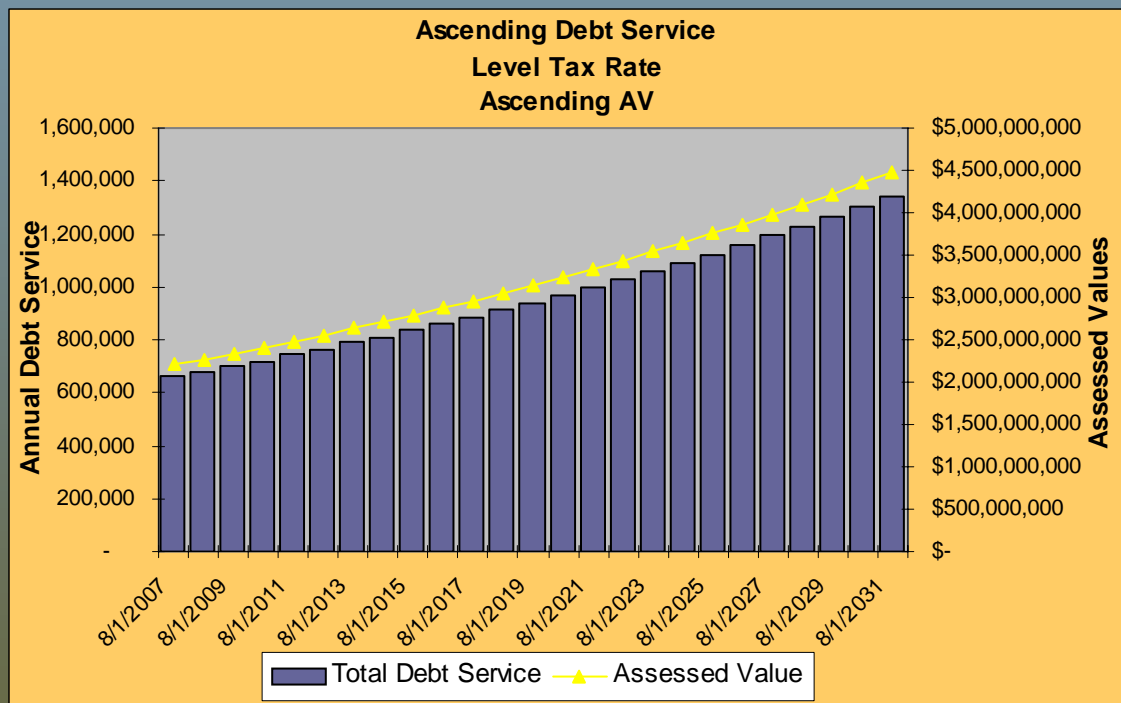


Amount Issued: \$10 Million

# Debt Service, AV and Tax Rates (2)

- Ascending Debt Service, tax rate maintained at \$25, AV growing at 3%

Year Ending	Total Debt Service	Tax Rate	Assessed Value
8/1/2007	659,276	\$ 25	\$ 2,645,440,000
8/1/2008	676,576	25	2,724,803,200
8/1/2009	698,137	25	2,806,547,296
8/1/2010	718,781	25	2,890,743,715
8/1/2011	743,503	25	2,977,466,026
8/1/2012	762,081	25	3,066,790,007
8/1/2013	789,561	25	3,158,793,707
8/1/2014	810,490	25	3,253,557,519
8/1/2015	834,996	25	3,351,164,244
8/1/2016	857,876	25	3,451,699,171
8/1/2017	884,141	25	3,555,250,147
8/1/2018	913,578	25	3,661,907,651
8/1/2019	940,938	25	3,771,764,880
8/1/2020	971,222	25	3,884,917,827
8/1/2021	999,232	25	4,001,465,362
8/1/2022	1,029,937	25	4,121,509,323
8/1/2023	1,058,153	25	4,245,154,602
8/1/2024	1,088,858	25	4,372,509,240
8/1/2025	1,121,812	25	4,503,684,518
8/1/2026	1,156,772	25	4,638,795,053
8/1/2027	1,193,492	25	4,777,958,905
8/1/2028	1,226,628	25	4,921,297,672
8/1/2029	1,266,136	25	5,068,936,602
8/1/2030	1,301,632	25	5,221,004,700
8/1/2031	1,343,082	25	5,377,634,841
	\$ 24,046,884		Growth Rate: 3%

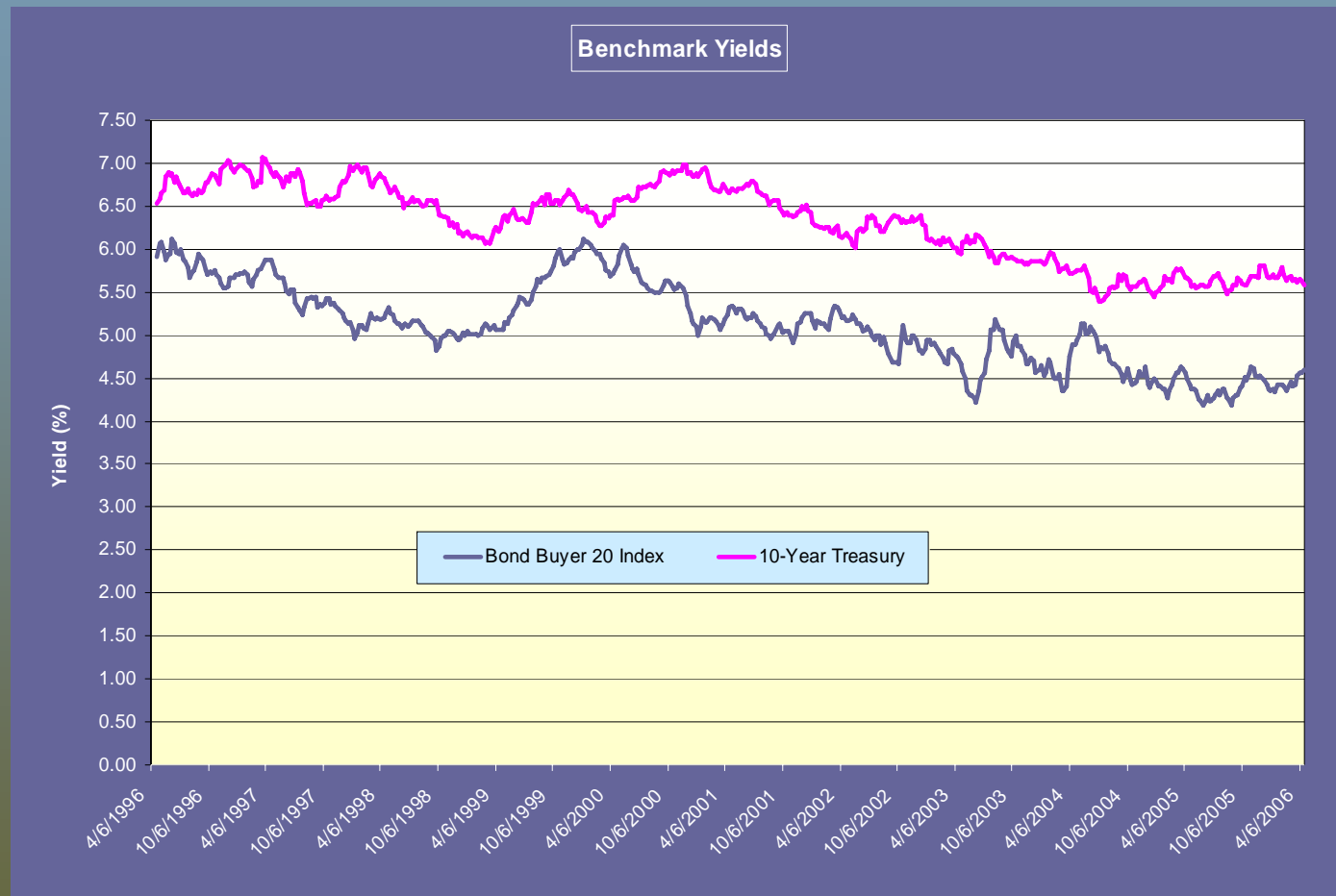


Amount Issued: \$13.530 Million

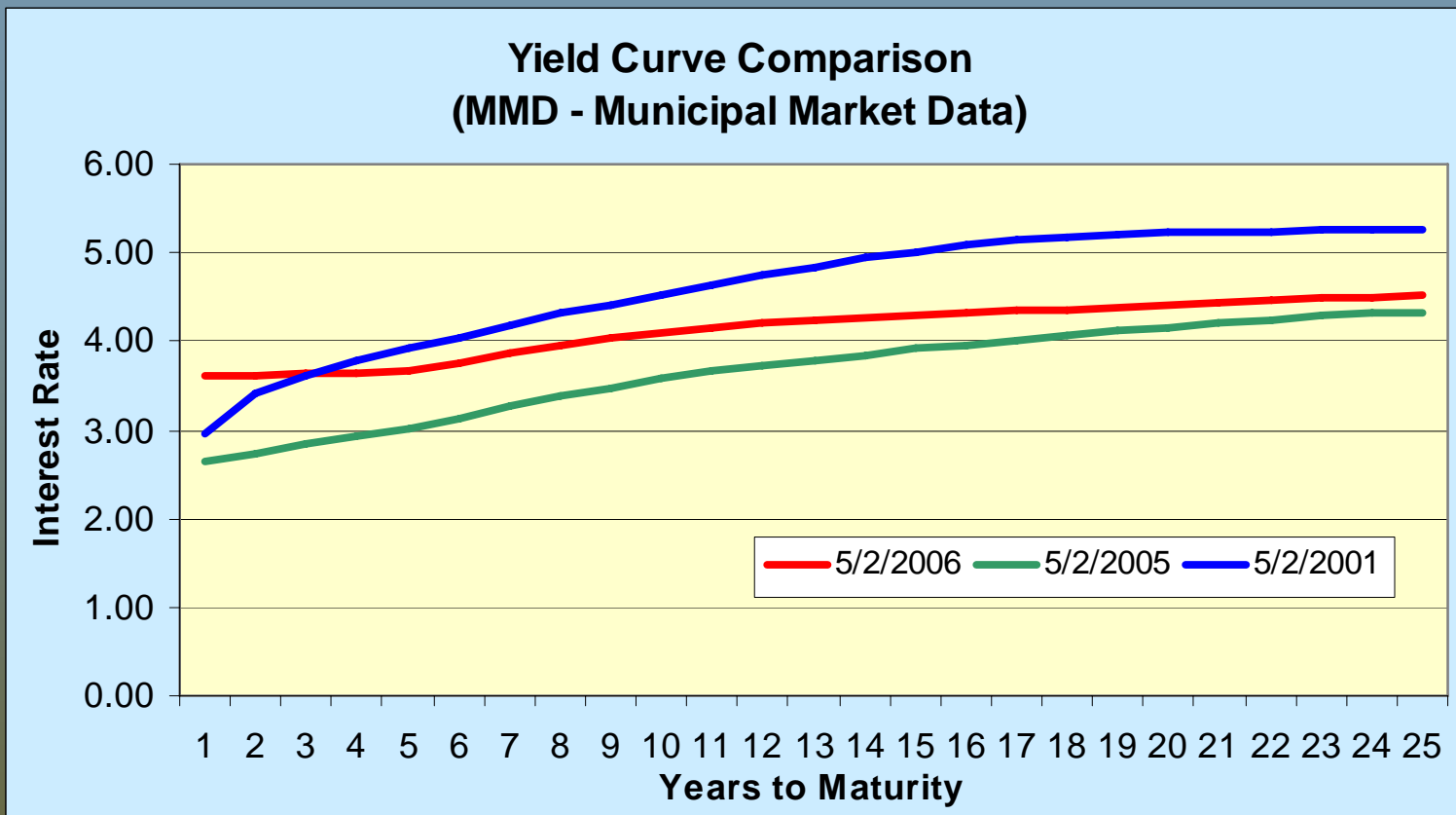
# Original Sale

- Principal maturities, with interest associated with each maturity determined  
(This becomes the Debt Service Schedule)
- Call provisions determined
  - Call provision is earliest possible date and penalty (if any) for early prepayment

# Benchmark Interest Rates



# Yield Curve



# Debt Service Comparison

- DS on bonds sold 5 years ago, vs new debt service

## Today (May 2006) ...

Year Ending	Principal	Interest Rate	Interest	Total Debt Service
8/1/2007	\$ 240,000	3.60%	\$ 421,360	\$ 661,360
8/1/2008	250,000	3.62%	412,720	662,720
8/1/2009	260,000	3.63%	403,670	663,670
8/1/2010	270,000	3.64%	394,232	664,232
8/1/2011	275,000	3.67%	384,404	659,404
8/1/2012	290,000	3.76%	374,312	664,312
8/1/2013	300,000	3.86%	363,408	663,408
8/1/2014	310,000	3.96%	351,828	661,828
8/1/2015	320,000	4.04%	339,552	659,552
8/1/2016	335,000	4.10%	326,624	661,624
8/1/2017	350,000	4.15%	312,889	662,889
8/1/2018	365,000	4.20%	298,364	663,364
8/1/2019	380,000	4.24%	283,034	663,034
8/1/2020	395,000	4.27%	266,922	661,922
8/1/2021	410,000	4.30%	250,055	660,055
8/1/2022	430,000	4.32%	232,425	662,425
8/1/2023	450,000	4.34%	213,849	663,849
8/1/2024	465,000	4.36%	194,319	659,319
8/1/2025	490,000	4.38%	174,045	664,045
8/1/2026	510,000	4.40%	152,583	662,583
8/1/2027	530,000	4.43%	130,143	660,143
8/1/2028	555,000	4.46%	106,664	661,664
8/1/2029	580,000	4.48%	81,911	661,911
8/1/2030	605,000	4.50%	55,927	660,927
8/1/2031	635,000	4.52%	28,702	663,702
	<b>\$ 10,000,000</b>		<b>\$ 6,553,938</b>	<b>\$ 16,553,938</b>

## Five Years Ago (May 2001) ...

Year Ending	Principal	Interest Rate	Interest	Total Debt Service	Difference in Debt Service
8/1/2002	\$ 230,000	2.97%	\$ 480,521	\$ 710,521	\$ (49,161)
8/1/2003	235,000	3.40%	473,690	708,690	(45,970)
8/1/2004	245,000	3.60%	465,700	710,700	(47,030)
8/1/2005	255,000	3.77%	456,880	711,880	(47,648)
8/1/2006	265,000	3.91%	447,266	712,266	(52,862)
8/1/2007	275,000	4.05%	436,905	711,905	(47,593)
8/1/2008	285,000	4.19%	425,767	710,767	(47,360)
8/1/2009	295,000	4.31%	413,826	708,826	(46,998)
8/1/2010	310,000	4.41%	401,111	711,111	(51,560)
8/1/2011	325,000	4.51%	387,440	712,440	(50,817)
8/1/2012	340,000	4.64%	372,783	712,783	(49,894)
8/1/2013	355,000	4.74%	357,007	712,007	(48,643)
8/1/2014	370,000	4.84%	340,180	710,180	(47,146)
8/1/2015	390,000	4.94%	322,272	712,272	(50,350)
8/1/2016	405,000	5.01%	303,006	708,006	(47,951)
8/1/2017	430,000	5.09%	282,715	712,715	(50,290)
8/1/2018	450,000	5.14%	260,828	710,828	(46,979)
8/1/2019	470,000	5.18%	237,698	707,698	(48,379)
8/1/2020	495,000	5.21%	213,352	708,352	(44,307)
8/1/2021	520,000	5.22%	187,563	707,563	(44,980)
8/1/2022	550,000	5.23%	160,419	710,419	(50,276)
8/1/2023	580,000	5.24%	131,654	711,654	(49,990)
8/1/2024	610,000	5.25%	101,262	711,262	(49,351)
8/1/2025	640,000	5.26%	69,237	709,237	(48,310)
8/1/2026	675,000	5.27%	35,573	710,573	(46,871)
	<b>\$ 10,000,000</b>		<b>\$ 7,764,647</b>	<b>\$ 17,764,647</b>	<b>\$(1,210,709)</b>

# Amount of New Bonds

- Need to borrow enough to pay off old bonds
- Costs of Issuance
- If an advance refunding, interest on old bonds to call date

Sources and Uses	
<b>Sources</b>	
Bond Proceeds (Par Amount)	\$ 8,200,000.00
<b>Total Sources</b>	<b>\$ 8,200,000.00</b>
<b>Uses</b>	
Refunding Escrow Deposits:	
Cash Deposit	\$ 7,935,000.00
Delivery Date Expenses:	
Cost of Issuance	150,000.00
Underwriter's Discount	82,000.00
Bond Insurance	28,970.70
	<u>260,970.70</u>
Other Uses of Funds:	
Rounding	4,029.30
<b>Total Uses</b>	<b>\$ 8,200,000.00</b>

# Refunding Requirements

- All in comparison, old debt service to new debt service
- Must have positive savings
- Issued per government code
  - Gov. Code Section 53550
- Board can set minimum savings threshold

# Savings Comparison

- Old Debt Service to New Debt Service
- Present value
- Plus (or minus) other funds on hand at the time of refunding

# Savings Analysis

Year Ending	Original Debt Service	New Debt Service	Savings	NPV of Savings
8/1/2007	\$ 706,750	\$ 680,689	\$ 26,062	\$ 25,667
8/1/2008	707,800	683,089	24,712	23,368
8/1/2009	707,915	679,876	28,040	25,342
8/1/2010	707,173	681,263	25,910	22,489
8/1/2011	705,382	682,067	23,315	19,444
8/1/2012	707,511	682,204	25,307	20,183
8/1/2013	708,284	681,412	26,872	20,507
8/1/2014	707,866	684,621	23,245	17,044
8/1/2015	706,237	681,603	24,634	17,281
8/1/2016	708,512	682,615	25,897	17,387
8/1/2017	709,382	682,525	26,857	17,262
8/1/2018	708,882	681,360	27,522	16,938
8/1/2019	707,107	679,100	28,007	16,505
8/1/2020	708,892	680,780	28,112	15,864
8/1/2021	709,138	681,227	27,911	15,082
8/1/2022	707,723	680,427	27,296	14,122
8/1/2023	709,763	683,427	26,336	13,044
	<b>\$ 12,034,311</b>	<b>\$ 11,588,279</b>	<b>\$ 446,032</b>	<b>\$ 317,530</b>

NPV  
calculated  
using  
Arbitrage  
Yield:  
4.19%

**Savings as % of Refunded Bonds: 4.05%**  
Refunded Bonds: 7,935,000

**Savings as % of Refunding Bonds: 3.92%**  
Refunding Bonds: 8,200,000

PV of savings from cash flow 317,530  
Plus: Refunding funds on hand 4,029  
Net PV Savings 321,560

# Are Savings Enough to Pull the Trigger?

- Savings as a percentage (%) of old bonds
- Savings as a percentage (%) of new bonds
- Industry standard: 3% - 5%
- OR, minimum dollar savings: \$500,000

# Advance vs. Current

- Call date means can't "call" or prepay until date certain
- New bond funds deposited in "escrow" pay interest on old bonds until call date
  - Need to borrow enough to cover interest and principal to be prepaid
  - Interest rates available at the time of refunding determine how much you need to borrow to cover payments
- May be a premium for calling early
- Only one "advance" refunding allowed

# How to Decide, Advance or Not

- No easy answer
- Headline test
- Compare a refunding now versus waiting until call, at same or slightly higher interest rates.
- Sensitivity analysis

# Sensitivity Analysis

- Interest rates at future call date are unknown, but repayment would be further along “curve”
- Example: If we wait for call date, and if interest rates are the same or have increased by...

Change in Interest Cost	Net Present Value Savings	NPV as % of Refunded Bonds
0.00%	\$ 3,233,680.13	8.00%
0.10%	2,900,363.07	7.18%
0.25%	2,408,655.36	5.96%
0.50%	1,613,709.47	3.99%
1.00%	107,662.01	0.27%

# New Bond Structure

- Generally, proportional to old bond structure
- Alternative structures could affect savings:
  - Move principal to create “window” of savings
  - Keep payments as is, but reduce term of repayment

# Shortened Term Structure

Year Ending	Original Debt Service	New Debt Service	Savings	NPV of Savings
8/1/2007	\$ 706,750	\$ 708,512	\$ (1,762)	\$ (1,009)
8/1/2008	707,800	709,832	(2,032)	(1,219)
8/1/2009	707,915	710,533	(2,618)	(1,693)
8/1/2010	707,173	710,650	(3,477)	(2,361)
8/1/2011	705,382	710,180	(4,799)	(3,352)
8/1/2012	707,511	709,032	(1,522)	(672)
8/1/2013	708,284	711,924	(3,641)	(2,249)
8/1/2014	707,866	708,589	(724)	(76)
8/1/2015	706,237	709,185	(2,949)	(1,625)
8/1/2016	708,512	708,581	(70)	333
8/1/2017	709,382	711,851	(2,470)	(1,222)
8/1/2018	708,882	708,819	63	356
8/1/2019	707,107	709,669	(2,562)	(1,210)
8/1/2020	708,892	709,229	(337)	72
8/1/2021	709,138	712,541	(3,404)	(1,601)
8/1/2022	707,723	709,376	(1,654)	(649)
8/1/2023	709,763	-	709,763	352,359
	\$ 12,034,311	\$ 11,358,502	\$ 675,809	\$ 334,181

# Cash Out Refundings

- Typically, savings go to taxpayers (thoughtful relative)
- In a “Cash Out” refunding, taxpayers “share” the savings with the district
- Legally controversial
- Politically controversial

# Cash Out Structure

Sources and Uses	
<b>Sources</b>	
Par Amount	\$ 8,200,000
<b>Premium</b>	<b>246,932</b>
<b>Total Sources</b>	<b>8,446,932</b>
<b>Uses</b>	
<b>Building Fund</b>	<b>240,000</b>
Refunding Escrow Deposits:	
Cash Deposit	7,935,000
Delivery Date Expenses:	
Cost of Issuance	150,000
Underwriter's Discount	82,000
Bond Insurance	29,988
	261,988
Other Uses of Funds:	
Rounding	9,944
<b>Total Uses</b>	<b>\$ 8,446,932</b>

Year Ending	Original Debt Service	New Debt Service	Savings	NPV of Savings
8/1/2007	706,750	703,442	3,309	3,556
8/1/2008	707,800	705,953	1,848	2,053
8/1/2009	707,915	707,849	67	379
8/1/2010	707,173	704,161	3,012	2,847
8/1/2011	705,382	705,070	312	509
8/1/2012	707,511	705,310	2,201	1,942
8/1/2013	708,284	704,623	3,661	2,933
8/1/2014	707,866	707,939	(74)	95
8/1/2015	706,237	705,029	1,208	952
8/1/2016	708,512	706,150	2,362	1,654
8/1/2017	709,382	704,325	5,057	3,292
8/1/2018	708,882	706,600	2,282	1,443
8/1/2019	707,107	702,750	4,357	2,588
8/1/2020	708,892	705,250	3,642	2,076
8/1/2021	709,138	706,250	2,888	1,580
8/1/2022	707,723	705,750	1,973	1,036
8/1/2023	709,763	708,750	1,013	511
	<b>12,034,311</b>	<b>11,995,200</b>	<b>39,111</b>	<b>29,447</b>

# Take Away

- Thoughtful relative
- Like refinancing a mortgage, but with complications
- Advance vs. Current
- 3% or \$500,000
- Caution on Cash Outs

# Questions?

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