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City of Binghamton, New York
REFUNDING BONDS
REFUNDING OF 02/01/2012 BONDS (02/01/2020 - 2029)

(AA INSURED 2022 - 2029) ; (A2 UNDERLYING)
(NOT BQ) ; (NON-CALLABLE)

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** Market rates & SLGS at the close of business on 02/15/2019 **

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RFP Response

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REFUNDING HIGHLIGHTS

City of Binghamton, New York
REFUNDING BONDS
REFUNDING OF 02/01/2012 BONDS (02/01/2020 - 2029)

(AA INSURED 2022 - 2029) ; (A2 UNDERLYING)
(NOT BQ) ; (NON-CALLABLE)

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** Market rates & SLGS at the close of business on 02/15/2019 **

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RFP Response

Dated/Delivery Date	04/15/2019
Refunding Bond Par Amount	7,525,000.00
Bond Arbitrage Yield	1.956303%
Escrow Yield	2.392163%
Refunded Bonds Par Amount	8,585,000.00
<hr/>	
Net PV Savings	447,749.86
% Savings of Refunded Bonds	5.2155%

Date	FY Savings
12/31/2019	22,990.28
12/31/2020	49,825.00
12/31/2021	47,375.00
12/31/2022	45,875.00
12/31/2023	45,275.00
12/31/2024	45,725.00
12/31/2025	47,275.00
12/31/2026	45,000.00
12/31/2027	49,000.00
12/31/2028	44,400.00
12/31/2029	46,250.00
<hr/>	
	488,990.28
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SOURCES AND USES OF FUNDS

City of Binghamton, New York
REFUNDING BONDS
REFUNDING OF 02/01/2012 BONDS (02/01/2020 - 2029)

(AA INSURED 2022 - 2029) ; (A2 UNDERLYING)
(NOT BQ) ; (NON-CALLABLE)

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** Market rates & SLGS at the close of business on 02/15/2019 **

-
RFP Response

Dated Date 04/15/2019
Delivery Date 04/15/2019

Sources:

Bond Proceeds:	
Par Amount	7,525,000.00
Premium	1,237,942.15
	<hr/>
	8,762,942.15

Uses:

Refunding Escrow Deposits:	
Cash Deposit	0.66
SLGS Purchases	8,645,143.00
	<hr/>
	8,645,143.66

Delivery Date Expenses:	
Cost of Issuance	75,000.00
Underwriter's Discount	25,660.25
Bond Insurance	16,799.09
	<hr/>
	117,459.34

Other Uses of Funds:	
Additional Proceeds	339.15
	<hr/>
	8,762,942.15

SUMMARY OF REFUNDING RESULTS

City of Binghamton, New York
REFUNDING BONDS
REFUNDING OF 02/01/2012 BONDS (02/01/2020 - 2029)

(AA INSURED 2022 - 2029) ; (A2 UNDERLYING)
(NOT BQ) ; (NON-CALLABLE)

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** Market rates & SLGS at the close of business on 02/15/2019 **

-
RFP Response

Dated Date	04/15/2019
Delivery Date	04/15/2019
Arbitrage yield	1.956303%
Escrow yield	2.392163%
Bond Par Amount	7,525,000.00
True Interest Cost	2.013969%
Net Interest Cost	2.191724%
All-In TIC	2.183897%
Average Coupon	5.000000%
Average Life	5.737
Par amount of refunded bonds	8,585,000.00
Average coupon of refunded bonds	3.204839%
Average life of refunded bonds	5.570
PV of prior debt to 04/15/2019 @ 1.918680%	9,210,352.86
Net PV Savings	447,749.86
Percentage savings of refunded bonds	5.215491%

SAVINGS

City of Binghamton, New York
 REFUNDING BONDS
 REFUNDING OF 02/01/2012 BONDS (02/01/2020 - 2029)

(AA INSURED 2022 - 2029) ; (A2 UNDERLYING)
 (NOT BQ) ; (NON-CALLABLE)

** Market rates & SLGS at the close of business on 02/15/2019 **

RFP Response

Date	Prior Debt Service	Refunding Debt Service	Savings	Annual Savings	Present Value to 04/15/2019 @ 1.9186803%
08/01/2019	133,775.00	110,784.72	22,990.28		22,861.38
12/31/2019				22,990.28	
02/01/2020	873,775.00	773,125.00	100,650.00		99,134.64
08/01/2020	122,675.00	173,500.00	-50,825.00		-49,584.11
12/31/2020				49,825.00	
02/01/2021	887,675.00	793,500.00	94,175.00		91,002.70
08/01/2021	111,200.00	158,000.00	-46,800.00		-44,793.81
12/31/2021				47,375.00	
02/01/2022	896,200.00	808,000.00	88,200.00		83,616.93
08/01/2022	99,425.00	141,750.00	-42,325.00		-39,744.42
12/31/2022				45,875.00	
02/01/2023	904,425.00	821,750.00	82,675.00		76,896.55
08/01/2023	87,350.00	124,750.00	-37,400.00		-34,455.44
12/31/2023				45,275.00	
02/01/2024	927,350.00	849,750.00	77,600.00		70,811.10
08/01/2024	74,750.00	106,625.00	-31,875.00		-28,810.00
12/31/2024				45,725.00	
02/01/2025	939,750.00	866,625.00	73,125.00		65,465.50
08/01/2025	61,775.00	87,625.00	-25,850.00		-22,922.43
12/31/2025				47,275.00	
02/01/2026	956,775.00	892,625.00	64,150.00		56,344.34
08/01/2026	48,350.00	67,500.00	-19,150.00		-16,660.03
12/31/2026				45,000.00	
02/01/2027	978,350.00	917,500.00	60,850.00		52,434.99
08/01/2027	34,400.00	46,250.00	-11,850.00		-10,114.22
12/31/2027				49,000.00	
02/01/2028	994,400.00	946,250.00	48,150.00		40,706.51
08/01/2028	20,000.00	23,750.00	-3,750.00		-3,140.16
12/31/2028				44,400.00	
02/01/2029	1,020,000.00	973,750.00	46,250.00		38,360.68
12/31/2029				46,250.00	
	10,172,400.00	9,683,409.72	488,990.28	488,990.28	447,410.71

Savings Summary

PV of savings from cash flow	447,410.71
Plus: Refunding funds on hand	339.15
Net PV Savings	447,749.86

BOND PRICING

City of Binghamton, New York
 REFUNDING BONDS
 REFUNDING OF 02/01/2012 BONDS (02/01/2020 - 2029)

(AA INSURED 2022 - 2029) ; (A2 UNDERLYING)
 (NOT BQ) ; (NON-CALLABLE)

** Market rates & SLGS at the close of business on 02/15/2019 **

RFP Response

Bond Component	Maturity Date	Amount	Rate	Yield	Price
Uninsured Serial Bonds:					
	02/01/2020	585,000	5.000%	1.600%	102.670
	02/01/2021	620,000	5.000%	1.650%	105.896
		<u>1,205,000</u>			
Insured Serial Bonds:					
	02/01/2022	650,000	5.000%	1.640%	109.138
	02/01/2023	680,000	5.000%	1.670%	112.191
	02/01/2024	725,000	5.000%	1.710%	115.080
	02/01/2025	760,000	5.000%	1.770%	117.711
	02/01/2026	805,000	5.000%	1.860%	119.951
	02/01/2027	850,000	5.000%	1.950%	121.952
	02/01/2028	900,000	5.000%	2.040%	123.716
	02/01/2029	950,000	5.000%	2.140%	125.147
		<u>6,320,000</u>			
		7,525,000			

Dated Date	04/15/2019	
Delivery Date	04/15/2019	
First Coupon	08/01/2019	
Par Amount	7,525,000.00	
Premium	1,237,942.15	
Production	8,762,942.15	116.451058%
Underwriter's Discount	-25,660.25	-0.341000%
Purchase Price	8,737,281.90	116.110058%
Accrued Interest		
Net Proceeds	8,737,281.90	

BOND DEBT SERVICE

City of Binghamton, New York
 REFUNDING BONDS
 REFUNDING OF 02/01/2012 BONDS (02/01/2020 - 2029)

(AA INSURED 2022 - 2029) ; (A2 UNDERLYING)
 (NOT BQ) ; (NON-CALLABLE)

** Market rates & SLGS at the close of business on 02/15/2019 **

RFP Response

Period Ending	Principal	Coupon	Interest	Debt Service	Annual Debt Service
08/01/2019			110,784.72	110,784.72	
12/31/2019					110,784.72
02/01/2020	585,000	5.000%	188,125.00	773,125.00	
08/01/2020			173,500.00	173,500.00	
12/31/2020					946,625.00
02/01/2021	620,000	5.000%	173,500.00	793,500.00	
08/01/2021			158,000.00	158,000.00	
12/31/2021					951,500.00
02/01/2022	650,000	5.000%	158,000.00	808,000.00	
08/01/2022			141,750.00	141,750.00	
12/31/2022					949,750.00
02/01/2023	680,000	5.000%	141,750.00	821,750.00	
08/01/2023			124,750.00	124,750.00	
12/31/2023					946,500.00
02/01/2024	725,000	5.000%	124,750.00	849,750.00	
08/01/2024			106,625.00	106,625.00	
12/31/2024					956,375.00
02/01/2025	760,000	5.000%	106,625.00	866,625.00	
08/01/2025			87,625.00	87,625.00	
12/31/2025					954,250.00
02/01/2026	805,000	5.000%	87,625.00	892,625.00	
08/01/2026			67,500.00	67,500.00	
12/31/2026					960,125.00
02/01/2027	850,000	5.000%	67,500.00	917,500.00	
08/01/2027			46,250.00	46,250.00	
12/31/2027					963,750.00
02/01/2028	900,000	5.000%	46,250.00	946,250.00	
08/01/2028			23,750.00	23,750.00	
12/31/2028					970,000.00
02/01/2029	950,000	5.000%	23,750.00	973,750.00	
12/31/2029					973,750.00
	7,525,000		2,158,409.72	9,683,409.72	9,683,409.72

ESCROW REQUIREMENTS

City of Binghamton, New York
REFUNDING BONDS
REFUNDING OF 02/01/2012 BONDS (02/01/2020 - 2029)

(AA INSURED 2022 - 2029) ; (A2 UNDERLYING)
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** Market rates & SLGS at the close of business on 02/15/2019 **

-
RFP Response

Period Ending	Interest	Principal Redeemed	Total
05/15/2019	77,292.22	8,585,000.00	8,662,292.22
	77,292.22	8,585,000.00	8,662,292.22

ESCROW DESCRIPTIONS

City of Binghamton, New York
REFUNDING BONDS
REFUNDING OF 02/01/2012 BONDS (02/01/2020 - 2029)

(AA INSURED 2022 - 2029) ; (A2 UNDERLYING)
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** Market rates & SLGS at the close of business on 02/15/2019 **

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RFP Response

Type of Security	Type of SLGS	Maturity Date	First Int Pmt Date	Par Amount	Rate	Max Rate
Apr 15, 2019:						
SLGS	Certificate	05/15/2019	05/15/2019	8,645,143	2.420%	2.420%
				8,645,143		

SLGS Summary

SLGS Rates File
Total Certificates of Indebtedness

15FEB19
8,645,143.00

ESCROW STATISTICS

City of Binghamton, New York
 REFUNDING BONDS
 REFUNDING OF 02/01/2012 BONDS (02/01/2020 - 2029)

 (AA INSURED 2022 - 2029) ; (A2 UNDERLYING)
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 ** Market rates & SLGS at the close of business on 02/15/2019 **

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 RFP Response

	Total Escrow Cost	Modified Duration (years)	Yield to Receipt Date	Yield to Disbursement Date	Perfect Escrow Cost	Value of Negative Arbitrage	Cost of Dead Time
Global Proceeds Escrow:	8,645,143.66	0.082	2.392163%	2.392163%	8,648,250.51	-3,106.85	
	8,645,143.66				8,648,250.51	-3,106.85	0.00

Delivery date 04/15/2019
 Arbitrage yield 1.956303%

ESCROW SUFFICIENCY

City of Binghamton, New York
REFUNDING BONDS
REFUNDING OF 02/01/2012 BONDS (02/01/2020 - 2029)

(AA INSURED 2022 - 2029) ; (A2 UNDERLYING)
(NOT BQ) ; (NON-CALLABLE)

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** Market rates & SLGS at the close of business on 02/15/2019 **

-
RFP Response

Date	Escrow Requirement	Net Escrow Receipts	Excess Receipts	Excess Balance
04/15/2019		0.66	0.66	0.66
05/15/2019	8,662,292.22	8,662,291.56	-0.66	
	8,662,292.22	8,662,292.22	0.00	

PROOF OF ARBITRAGE YIELD

City of Binghamton, New York
 REFUNDING BONDS
 REFUNDING OF 02/01/2012 BONDS (02/01/2020 - 2029)

 (AA INSURED 2022 - 2029) ; (A2 UNDERLYING)
 (NOT BQ) ; (NON-CALLABLE)

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 ** Market rates & SLGS at the close of business on 02/15/2019 **

-
 RFP Response

Date	Debt Service	Present Value to 04/15/2019 @ 1.9563032372%
08/01/2019	110,784.72	110,151.49
02/01/2020	773,125.00	761,259.67
08/01/2020	173,500.00	169,182.39
02/01/2021	793,500.00	766,258.32
08/01/2021	158,000.00	151,097.73
02/01/2022	808,000.00	765,217.33
08/01/2022	141,750.00	132,944.11
02/01/2023	821,750.00	763,235.07
08/01/2023	124,750.00	114,744.46
02/01/2024	849,750.00	774,024.92
08/01/2024	106,625.00	96,182.35
02/01/2025	866,625.00	774,176.80
08/01/2025	87,625.00	77,519.25
02/01/2026	892,625.00	782,029.52
08/01/2026	67,500.00	58,563.96
02/01/2027	917,500.00	788,325.08
08/01/2027	46,250.00	39,353.52
02/01/2028	946,250.00	797,352.44
08/01/2028	23,750.00	19,818.95
02/01/2029	973,750.00	804,705.69
	9,683,409.72	8,746,143.06

Proceeds Summary

Delivery date	04/15/2019
Par Value	7,525,000.00
Premium (Discount)	1,237,942.15
Arbitrage expenses	-16,799.09
Target for yield calculation	8,746,143.06

SUMMARY OF BONDS REFUNDED

City of Binghamton, New York
 REFUNDING BONDS
 REFUNDING OF 02/01/2012 BONDS (02/01/2020 - 2029)

 (AA INSURED 2022 - 2029) ; (A2 UNDERLYING)
 (NOT BQ) ; (NON-CALLABLE)

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 ** Market rates & SLGS at the close of business on 02/15/2019 **

-
 RFP Response

Bond	Maturity Date	Interest Rate	Par Amount	Call Date	Call Price
2012 Bonds, 2012:					
BOND	02/01/2020	3.000%	740,000.00	05/15/2019	100.000
	02/01/2021	3.000%	765,000.00	05/15/2019	100.000
	02/01/2022	3.000%	785,000.00	05/15/2019	100.000
	02/01/2023	3.000%	805,000.00	05/15/2019	100.000
	02/01/2024	3.000%	840,000.00	05/15/2019	100.000
	02/01/2025	3.000%	865,000.00	05/15/2019	100.000
	02/01/2026	3.000%	895,000.00	05/15/2019	100.000
	02/01/2027	3.000%	930,000.00	05/15/2019	100.000
	02/01/2028	3.000%	960,000.00	05/15/2019	100.000
	02/01/2029	4.000%	1,000,000.00	05/15/2019	100.000
			8,585,000.00		

PRIOR BOND DEBT SERVICE

City of Binghamton, New York
 REFUNDING BONDS
 REFUNDING OF 02/01/2012 BONDS (02/01/2020 - 2029)

 (AA INSURED 2022 - 2029) ; (A2 UNDERLYING)
 (NOT BQ) ; (NON-CALLABLE)

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 ** Market rates & SLGS at the close of business on 02/15/2019 **

-
 RFP Response

Period Ending	Principal	Coupon	Interest	Debt Service	Annual Debt Service
08/01/2019			133,775	133,775	
12/31/2019					133,775
02/01/2020	740,000	3.000%	133,775	873,775	
08/01/2020			122,675	122,675	
12/31/2020					996,450
02/01/2021	765,000	3.000%	122,675	887,675	
08/01/2021			111,200	111,200	
12/31/2021					998,875
02/01/2022	785,000	3.000%	111,200	896,200	
08/01/2022			99,425	99,425	
12/31/2022					995,625
02/01/2023	805,000	3.000%	99,425	904,425	
08/01/2023			87,350	87,350	
12/31/2023					991,775
02/01/2024	840,000	3.000%	87,350	927,350	
08/01/2024			74,750	74,750	
12/31/2024					1,002,100
02/01/2025	865,000	3.000%	74,750	939,750	
08/01/2025			61,775	61,775	
12/31/2025					1,001,525
02/01/2026	895,000	3.000%	61,775	956,775	
08/01/2026			48,350	48,350	
12/31/2026					1,005,125
02/01/2027	930,000	3.000%	48,350	978,350	
08/01/2027			34,400	34,400	
12/31/2027					1,012,750
02/01/2028	960,000	3.000%	34,400	994,400	
08/01/2028			20,000	20,000	
12/31/2028					1,014,400
02/01/2029	1,000,000	4.000%	20,000	1,020,000	
12/31/2029					1,020,000
	8,585,000		1,587,400	10,172,400	10,172,400

BOND SUMMARY STATISTICS

City of Binghamton, New York
 REFUNDING BONDS
 REFUNDING OF 02/01/2012 BONDS (02/01/2020 - 2029)

(AA INSURED 2022 - 2029) ; (A2 UNDERLYING)
 (NOT BQ) ; (NON-CALLABLE)

** Market rates & SLGS at the close of business on 02/15/2019 **

RFP Response

Dated Date	04/15/2019
Delivery Date	04/15/2019
Last Maturity	02/01/2029
Arbitrage Yield	1.956303%
True Interest Cost (TIC)	2.013969%
Net Interest Cost (NIC)	2.191724%
All-In TIC	2.183897%
Average Coupon	5.000000%
Average Life (years)	5.737
Weighted Average Maturity (years)	5.911
Par Amount	7,525,000.00
Bond Proceeds	8,762,942.15
Total Interest	2,158,409.72
Net Interest	946,127.82
Total Debt Service	9,683,409.72
Maximum Annual Debt Service	973,750.00
Average Annual Debt Service	988,663.50
Underwriter's Fees (per \$1000)	
Average Takedown	
Other Fee	3.410000
Total Underwriter's Discount	3.410000
Bid Price	116.110058

Bond Component	Par Value	Price	Average Coupon	Average Life
Uninsured Serial Bonds	1,205,000.00	104.330	5.000%	1.309
Insured Serial Bonds	6,320,000.00	118.762	5.000%	6.581
	7,525,000.00			5.737

	TIC	All-In TIC	Arbitrage Yield
Par Value	7,525,000.00	7,525,000.00	7,525,000.00
+ Accrued Interest			
+ Premium (Discount)	1,237,942.15	1,237,942.15	1,237,942.15
- Underwriter's Discount	-25,660.25	-25,660.25	
- Cost of Issuance Expense		-75,000.00	
- Other Amounts	-16,799.09	-16,799.09	-16,799.09
Target Value	8,720,482.81	8,645,482.81	8,746,143.06
Target Date	04/15/2019	04/15/2019	04/15/2019
Yield	2.013969%	2.183897%	1.956303%

PROOF OF EFFECTIVE INTEREST COST

City of Binghamton, New York
 REFUNDING BONDS
 REFUNDING OF 02/01/2012 BONDS (02/01/2020 - 2029)

(AA INSURED 2022 - 2029) ; (A2 UNDERLYING)
 (NOT BQ) ; (NON-CALLABLE)

** Market rates & SLGS at the close of business on 02/15/2019 **

RFP Response

NPV of Debt Service at EIC

Date	Debt Service to Final Maturity	PV factor at EIC of 1.919%	PV of Cashflow
08/01/2019	110,784.72	0.9943932560	110,163.58
02/01/2020	773,125.00	0.9849442902	761,485.05
08/01/2020	173,500.00	0.9755851107	169,264.02
02/01/2021	793,500.00	0.9663148644	766,770.84
08/01/2021	158,000.00	0.9571327063	151,226.97
02/01/2022	808,000.00	0.9480377992	766,014.54
08/01/2022	141,750.00	0.9390293142	133,107.41
02/01/2023	821,750.00	0.9301064300	764,314.96
08/01/2023	124,750.00	0.9212683331	114,928.22
02/01/2024	849,750.00	0.9125142181	775,408.96
08/01/2024	106,625.00	0.9038432867	96,372.29
02/01/2025	866,625.00	0.8952547486	775,850.15
08/01/2025	87,625.00	0.8867478209	77,701.28
02/01/2026	892,625.00	0.8783217281	784,011.93
08/01/2026	67,500.00	0.8699757021	58,723.36
02/01/2027	917,500.00	0.8617089820	790,617.99
08/01/2027	46,250.00	0.8535208144	39,475.34
02/01/2028	946,250.00	0.8454104526	799,969.64
08/01/2028	23,750.00	0.8373771575	19,887.71
02/01/2029	973,750.00	0.8294201967	807,647.92
	9,683,409.72		8,762,942.15

Effective Interest Cost	1.91868026%
Par	7,525,000.00
Accrued Interest -OID / +OIP	1,237,942.15
Proceeds	8,762,942.15