

*City of New York*

January 15, 2019

Hon. Helene Weinstein  
Chair, Assembly Ways and Means Committee  
Room 711-A, Legislative Office Building  
Albany, NY 12248

Comptroller Thomas P. DiNapoli  
Gov. A.E. Smith Office Building  
Albany, NY 12236

Hon. Liz Krueger  
Chair, Senate Finance Committee  
172 State Street, Capitol Building  
Room 416 Cap  
Albany, NY 12247

Robert Mujica, Director  
New York State Division of the Budget  
The Capitol  
Albany, NY 12224

Re: Quarterly Report on Interest Rate Exchange Agreements pursuant  
to Section 54.90 of the Local Finance Law as of December 31,  
2018

Dear Sirs and Mesdames:

The City of New York (the "City") is filing this report pursuant to Section 54.90 of the New York State Local Finance Law ("LFL"). Terms used herein that are not defined have the meanings ascribed thereto in Section 54.90 of the LFL. The City Swap Transaction Summary (the "Summary") is attached hereto as Exhibit A. The Summary indicates whether each interest rate exchange agreement described below was entered into pursuant to Section 54.90.c or 54.90.d of the LFL or Section 2926 of the Public Authorities Law of the State of New York. For information on Interest Rate Exchange Agreements ("IREAs") that have terminated, please see Exhibit C hereto.

## Description of the Interest Rate Exchange Agreements

### A. City as Counterparty

The City has entered into a separate ISDA Master Agreement and Schedule to the Master Agreement (collectively, a “Master Agreement”) with each counterparty or its assignee (each individually, a “Counterparty” and collectively, the “Counterparties”) listed in the table below. Each Master Agreement, together with the related confirmation or confirmations, is hereinafter referred to as an “Interest Rate Exchange Agreement”, “IREA” or “Swap”. Details of each IREA are included in the Summary. IREAs numbered 6, 7, 9-12 and 14 have terminated and are not described in this Quarterly Report other than in exhibits hereto.

<b>Transaction Number and Type</b>	<b>Counterparty</b>	<b>Notional Amount as of 12/31/2018</b>	<b>Initial Trade Date</b>	<b>Termination Date</b>
1: Synthetic Fixed	JPMorgan Chase Bank, N.A. (“JPM”)	\$82,137,500	October 30, 2002	August 1, 2020
2: Synthetic Fixed	Merrill Lynch Capital Services Inc. (“MLCS”)	\$27,379,167	October 30, 2002	August 1, 2020
3: Synthetic Fixed	U.S. Bank, N.A. (“USB”)	\$27,379,167	October 30, 2002	August 1, 2020
4: Synthetic Fixed	USB	\$27,379,166	October 30, 2002	August 1, 2020
5: Synthetic Fixed	USB	\$85,075,000	January 9, 2003	August 1, 2026
8: Synthetic Fixed	Wells Fargo Bank, National Association (“WFBNA”)	\$350,000,000	July 1, 2003	August 1, 2031
13: Basis Swap	JPM	\$500,000,000	July 29, 2004	December 1, 2033
		Total: \$1,099,350,000		

The total notional amount of IREAs outstanding as of December 31, 2018 is \$1,099,350,000. Exhibit A attached hereto sets forth the terms of the IREAs in greater detail.

Each of the City's IREAs numbered 1 through 5 and 13 was initially procured through negotiation between the City and the respective initial Counterparty. In IREAs numbered 1 through 4, the City negotiated with a specific Counterparty and gave one or more additional Counterparties the opportunity to match the price. IREA number 8 was procured through competitive bidding. The City received an independent finding that the terms and conditions of each of the transactions reflected fair market value as of their respective pricing dates.

On April 1, 2008, the City executed a bond refunding transaction pursuant to which a portion of IREA number 5 was deemed terminated solely for tax purposes as of May 1, 2008. Nevertheless, IREA number 5 remains in effect.

As of March 3, 2009, pursuant to novations, the City's IREAs with Bear Stearns Financial Products Inc. ("BSFP") were assigned from BSFP to JPM. These IREAs are numbered 1 and 13.

On March 20, 2010, the Office of the Comptroller of the Currency certified as effective the merger of Wachovia Bank, NA with and into WFBNA, with WFBNA becoming the resulting bank. This development relates to IREA number 8.

On November 20, 2012, IREA number 3 was novated from Morgan Stanley Capital Services, Inc. ("MSCS") to USB. The rating of Morgan Stanley was Baa1/A-. The rating of USB was Aa2/AA-.

On August 15, 2013, October 16, 2013 and June 18, 2015, the City executed bond refunding transactions pursuant to which portions of IREAs numbered 1, 2, 3 and 4 were deemed terminated solely for tax purposes as of July 30, 2013, September 25, 2013 and June 2, 2015 respectively. Nevertheless IREAs numbered 1, 2, 3 and 4 remain in effect.

On March 25, 2014, October 3, 2017, and April 19, 2018, the City executed bond refunding transactions pursuant to which a portion of IREA number 8 was deemed terminated solely for tax purposes as of March 25, 2014, September 14, 2017 and April 11, 2018, respectively. Nevertheless, IREA number 8 remains in effect.

On October 5, 2016, the City novated IREAs numbered 4 and 5 from UBS AG ("UBS") to USB. The rating of UBS was A1/A+. The rating of USB was A1/AA-

The estimated total mid-marked-to-market value of all of the remaining transactions, as of December 31, 2018, is approximately (\$55,165,931). (This is the net amount the City would owe to the Counterparties if all of the transactions were terminated on that date exclusive of unwind costs or benefits in connection with the termination.) The estimated mid-marked-to-market value of the transactions by current counterparty, as of December 31, 2018, is as follows: JPM (\$3,438,519); MLCS (\$830,299); WFBNA (\$42,475,526); and USB (\$8,421,588). See Exhibit A attached hereto for the mid-marked-to-market values stated separately for each transaction.

### Payments under the Transactions

As of December 31, 2018, the City has received a total of \$670,619,187 from the Counterparties under the outstanding, matured and terminated IREAs, which includes \$245,424,782 from the Counterparties under the outstanding IREAs and \$425,194,405 from matured and terminated IREAs. See Exhibit A attached hereto for a full breakdown of the payments the City has received for each transaction.

As of December 31, 2018, the City has made payments of \$771,816,247 to the Counterparties under the outstanding, matured and terminated IREAs, which includes \$496,413,115 under the outstanding IREAs and \$275,403,131 under the matured and terminated IREAs.

### Credit Enhancement

There are no liquidity facilities or reserves provided in connection with the IREAs. In each outstanding IREA, the City and each Counterparty have agreed to post collateral securing the termination value of the applicable IREA. Under the Master Agreements with JPM and MLCS, the City is required to post collateral if the City's credit rating goes below Baa1 or BBB+. Under the Master Agreement with WFBNA, the City is required to post collateral if the City's credit rating goes below Baa3 or BBB-. Under the Master Agreement with USB, the City is required to post collateral if the credit rating of the City goes below Baa3 and BBB-. MLCS is required to post collateral if one of the credit ratings of Merrill Lynch Derivative Products AG ("MLDP") goes below A3/A-. JPM is required to post collateral if it has at least one rating below the double-A category. WFBNA is required to post collateral if one of its credit ratings goes below A2/A. USB is required to post collateral if one of its credit ratings goes below Aa3/AA-.

The obligations of MLCS under its IREA (other than MLCS's obligation to make payments upon a termination of the Agreement) are guaranteed by Bank of America Corp. ("BAC"), which assumed all of Merrill Lynch & Co. Inc.'s obligations on October 1, 2013. MLCS's obligation to make payments upon a termination of the IREA is guaranteed by MLDP. The City's obligation to make payments pursuant to IREA number 13 is insured by Financial Security Assurance, Inc.

### Costs and Expenses

The aggregate costs and expenses incurred in connection with the execution of IREAs numbered 1 through 4 were approximately \$69,000, consisting of approximately \$25,000 in legal fees and \$44,000 in financial advisory fees.

The aggregate costs and expenses incurred in connection with the execution of IREAs numbered 5 and 6 were approximately \$65,000, consisting of approximately \$25,000 in legal fees and \$40,000 in swap advisory fees. The costs and expenses for IREA number 5 were aggregated with costs and expenses associated with IREA number 6, which was subsequently terminated and is not included in this Quarterly Report.

The costs and expenses incurred in connection with the execution of IREA number 8 were approximately \$65,000, consisting of approximately \$25,000 in legal fees and \$40,000 in

swap advisory fees.

The costs and expenses incurred in connection with the execution of IREA number 13 consisted of \$10,000 in legal fees and \$100,000 in swap advisory fees.

The costs and expenses incurred in connection with the unwind of a portion of IREA number 7 and the novations of IREA number 3 and a portion of IREA number 7 consisted of \$25,000 in legal fees and \$10,000 in swap advisory fees.

The costs and expenses incurred in connection with the novation of IREAs numbered 4 and 5 consisted of \$7,500 in swap advisory fees.

### Description of Counterparties

MLCS is a Delaware corporation and is a subsidiary of BAC. MLCS is not rated. BAC is rated A3/A-. MLDP is rated Aa3/AA. JPM is a national bank incorporated in the State of Delaware and is rated Aa2/A+. WFBNA, a national banking association organized under the laws of the United States, is rated Aa2/A+. USB, a national banking association organized under the laws of the United States, is rated A1/AA-. The rating of JPM is such that JPM could be required to post collateral if the mark-to-market of an IREA with JPM is positive to the City. However, as of December 31, 2018, the mark-to-market of JPM's IREAs with New York City were all negative to the City and therefore JPM has not posted collateral. All ratings are as of December 31, 2018.

### Risk Assessment

*Counterparty Risk:* The risk is that a counterparty (or its guarantor) will not meet its obligations under the swap. If a counterparty were to default under its agreement when the counterparty would owe a termination payment to the City, the City may have to pay another entity to assume the position of the defaulting counterparty. The City has sought to limit its counterparty risk by contracting only with highly rated entities or requiring guarantees of the counterparty's obligations under the swap documents. The City also manages counterparty risk by exercising its rights under the various Master Agreements to novate IREAs to higher-rated counterparties, or terminate IREAs, as it did in November, 2012 with some of its MSCS IREAs.

*Termination Risk:* The risk is that a counterparty will optionally terminate a swap at a time when the City owes it a termination payment. The City has mitigated this risk by specifying that the counterparty has the right to terminate only as a result of certain events, including: a payment default by the City; other City defaults which remain uncured for 30 days after notice; City bankruptcy; insolvency of the City (or similar events); or a downgrade of the City's credit rating below investment grade (i.e., Baa3/BBB-).

*Basis Risk:* The risk is that the City's variable rate bond payments will not equal its variable rate swap receipts because they are based on different indices. Under the terms of its LIBOR-based synthetic fixed rate swap transactions (IREAs numbered 1-5 and 8), the City pays a variable rate on its bonds based on the tax-exempt variable rate market but receives a variable rate on the swaps based on different percentages of one month LIBOR. For IREA number 13, a basis swap, the basis risk is between the payments that the City receives based on a percentage of the one month LIBOR index and the payments it makes based on the SIFMA index. The

percentage of one month LIBOR that the City receives under IREA number 13 changes with the level of one month LIBOR in order to mitigate the risk of higher SIFMA/LIBOR ratios during lower interest rate environments. The City currently receives and will continue to receive 85.10% of one month LIBOR as long as one month LIBOR is greater than or equal to 2% but less than 3.45%. The percentage received by the City will increase as one-month LIBOR decreases and decrease as one month LIBOR increases. One month LIBOR has averaged approximately 1.52% over the last sixteen years, 2.02% over the last 12 months, and 2.35% for the three month period ending December 31, 2018. The SIFMA/one month LIBOR ratio has averaged approximately 72.46% over the past 16 years, 69.57% over the last 12 months, and 66.38% for the three month period ending December 31, 2018. The SIFMA/LIBOR ratio can be affected by many variables, including the absolute level of interest rates. The City budgets sufficient amounts to cover any basis costs.

*Tax Risk:* The risk is that a change in Federal tax rates will alter the fundamental relationship between the SIFMA and LIBOR indices. A reduction in Federal tax rates, for example, will likely increase the City's payment on its underlying variable rate bonds in the synthetic fixed rate transactions and its variable payer rate in IREA number 13. The Tax Cuts and Jobs Act ("TCJA") reduced the corporate federal income tax rate from 35% to 21% effective as of January 1, 2018, in addition to reducing certain individual income tax brackets. While SIFMA rates have increased since the TCJA went into effect, there has been no definitive pattern and the outlook for the future of SIFMA rates and the SIFMA/LIBOR ratios remains uncertain.

*Discontinuation of LIBOR Risk:* The United Kingdom's Financial Conduct Authority has announced that it will no longer require LIBOR panel banks to provide quotes to set the LIBOR benchmark as of the end of 2021. IREAs numbered 5, 8 and 13 are scheduled to still be in effect at such time. The City receives a percentage of LIBOR in each of IREAs numbered 5, 8 and 13. Following the end of 2021, it is unclear whether banks will continue to provide quotes voluntarily, or if LIBOR will continue to be deemed a viable index by market participants.

In the United States, the Alternative Reference Rates Committee ("ARRC") has developed the Secured Overnight Financing Rate ("SOFR") as an alternative risk-free rate, and subsequently identified SOFR as a possible replacement rate for LIBOR. SOFR is a broad measure of the cost of borrowing U.S. Treasury securities overnight. ARRC and market participants are currently in the process of identifying a methodology for which LIBOR-based instruments may be transitioned into using SOFR, in the event LIBOR is no longer published or utilized.

It is currently unclear what the impact, if any, of such a transition could be on the City and its IREAs. The City is monitoring all developments related to the potential LIBOR discontinuation in order to improve its understanding of how it may be affected going forward.

See Exhibit B for a matrix showing how changes in market conditions would affect the City's exposure (defined as "Value at Risk" in the City's Interest Rate Exchange Agreement Policy) on the Interest Rate Exchange Agreements.

B. Dormitory Authority of the State of New York as Counterparty:

The Dormitory Authority of the State of New York (“DASNY”) entered into separate Master Agreements with each of the Counterparties listed in the table below for Transactions numbered D3 and D4. The City is obligated, subject to appropriation, to make lease payments to DASNY reflecting DASNY’s obligations. IREAs numbered D1 and D2 have terminated and are not described in this Quarterly Report.

<b>Transaction</b>	<b>Counterparty</b>	<b>Notional Amount as of 12/31/2018</b>	<b>Trade Date</b>	<b>Termination Date</b>
D3: Synthetic Fixed	Goldman Sachs Matsui Marine Derivative Products LP (“GSMMDP”)	\$80,680,000	June 1, 2005	May 15, 2039
D4: Synthetic Fixed	JPM	\$44,820,000	June 1, 2005	May 15, 2039
		Total: \$125,500,000		

Each of DASNY’s IREAs was procured through negotiation among DASNY, the City and the Counterparties. DASNY received an independent finding that the terms and conditions of each of the transactions reflected fair market value as of their respective pricing dates.

The estimated total mid-marked-to-market value of IREAs D3 and D4, as of December 31, 2018, is approximately (\$22,450,205). The estimated mid-marked-to-market value of the IREAs by counterparty is as follows: GSMMDP (\$14,432,539); JPM (\$8,017,666).

Payments under the Transactions

As of December 31, 2018, DASNY received payments of \$40,690,600 under its outstanding and terminated IREAs, which includes \$16,465,600 under its outstanding IREAs and \$24,225,000 under its terminated IREAs. As of December 31, 2018, DASNY has made payments of \$50,800,008 under its outstanding IREAs. DASNY made no payments under its terminated IREAs.

Credit Enhancement

There are no liquidity facilities or reserves provided in connection with the DASNY IREAs. Under the Master Agreements with GSMMDP and JPM, DASNY is required to post collateral if the City’s credit rating goes below Baa2 and BBB. Each of GSMMDP and JPM is required to post collateral if each of its credit ratings is below Aa3 or AA- or if it has any credit rating of less than A3 or A-.

### Costs and Expenses

The costs and expenses incurred in connection with the DASNY IREAs were paid by DASNY and consisted of \$25,000 in legal fees and \$111,000 in swap advisory fees. The costs and expenses for the DASNY IREAs numbered D3 and D4 were aggregated with the costs and expenses associated with IREAs D1 and D2, which were subsequently terminated and are not described in this Quarterly Report.

### Description of Counterparties

GSMMDP is a limited partnership organized under the laws of the State of Delaware. It is a joint venture of The Goldman Sachs Group and Mitsui Sumitomo Insurance Co., Ltd. GSMMDP is rated Aa2/AA-. JPM is a national bank incorporated in the State of Delaware and is rated Aa2/A+. All ratings are as of December 31, 2018.

### Risk Assessment

The counterparty risks associated with the DASNY IREAs are comparable to those of the City in connection with its IREAs. The termination risk involves the Counterparty's ability to terminate should the City's credit rating fall below Baa3/BBB-. The transactions involve the risk of a shortfall between the variable rate paid on the underlying bonds and the variable rate received in connection with the IREAs. The tax risk and potential discontinuation of LIBOR risk associated with the DASNY IREAs are comparable to those of the City in connection with its IREAs. The steps taken by DASNY to reduce or mitigate risks on the DASNY IREAs are comparable to those taken by the City in connection with its IREAs.

See Exhibit B for a matrix showing how changes in market conditions would affect DASNY's exposure in connection with the DASNY IREAs.

### C. New York City Industrial Development Agency as Counterparty:

The IREAs that were entered into with the New York City Industrial Development Agency have terminated and are described in Exhibit C hereto.



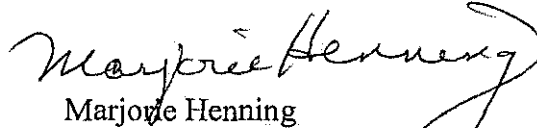
This report reflects information in connection with IREAs through December 31, 2018.

A copy of the City's Interest Rate Exchange Agreement Policy (the "Policy") adopted by the Mayor and Comptroller of the City was provided to you with the quarterly report dated January 14, 2003. The Policy was amended for the first time on June 26, 2013. The Policy, as amended, was provided to you with the quarterly report dated July 15, 2013.

Yours truly,



Alan Anders  
Deputy Director  
New York City Office of  
Management and Budget



Marjorie Henning  
Deputy Comptroller for Public Finance  
New York City Comptroller's Office

# City of New York

## Swap Transaction Summary

Transaction	1	2	3	4	5
Current Authorizing Law	54.90.d*	54.90.c*	54.90.c*	54.90.c*	54.90.c*
Corresponding Bond Series	2003 C, D, & E	2003 C, D, & E	2003 C	2012 G-6	2012 G-6
Swap Type	Synthetic Fixed	Synthetic Fixed	Synthetic Fixed	Synthetic Fixed	Synthetic Fixed
Counterparty	J.P. Morgan Chase Bank, N.A.	Merrill Lynch Capital Services Inc	U.S. Bank National Association <sup>1</sup>	U.S. Bank National Association <sup>2</sup>	U.S. Bank National Association <sup>2</sup>
Credit Ratings (S&P / Moody's)	A+/Aa2	NR	AA-/A1	AA-/A1	AA-/A1
Guarantor Credit Ratings (S&P/Moody's)	See above	A-/A3 (BAC) AA/Aa3 (MLDP)-for Termination Payment	See above	See above	See above
Original Notional Amount	\$200,000,000	\$66,666,667	\$66,666,667	\$66,666,666	\$135,050,000
Current Notional Amount	\$82,137,500	\$27,379,167	\$27,379,167	\$27,379,166	\$85,075,000
Up Front Cash Payment to City	N/A	N/A	N/A	N/A	N/A
Effective Date	11/13/2002	11/13/2002	11/13/2002	11/13/2002	1/22/2003
Termination Date	8/1/2020	8/1/2020	8/1/2020	8/1/2020	8/1/2026
Option Exercise Date	N/A	N/A	N/A	N/A	Expired
Option Premium	N/A	N/A	N/A	N/A	\$7,467,000.00
City Pays	3.269%	3.269%	3.269%	3.269%	3.259%
Actual Payments Made by City as of 12/31/2018	(\$98,074,195.23)	(\$32,691,398.46)	MS: (\$21,175,855.62) USB: (\$11,515,542.84)	UBS: (\$29,681,957.03) USB: (\$3,009,441.40)	UBS: (\$57,228,080.74) USB: (\$6,305,350.26)
Actual Payments Received by City as of 12/31/2018	\$28,952,553.10	\$9,650,880.04	MS: \$8,516,785.12 USB: \$1,133,827.64	UBS: \$8,885,088.06 Novation: \$75,000 USB: \$765,672.92	UBS: \$17,365,971.82 Novation: \$75,000 USB: \$1,750,446.66
City Receives	62.8 % of USD-LIBOR- BBA.	62.8 % of USD-LIBOR- BBA.	62.8 % of USD-LIBOR- BBA.	62.8 % of USD-LIBOR- BBA.	60.8% of USD-LIBOR- BBA
First Counterparty Payment Date	12/2/2002	12/2/2002	MS: 12/2/2002 U.S. Bank: 12/3/2012	UBS: 12/2/2002 U.S. Bank: 11/1/2016	UBS: 2/3/2003 U.S. Bank: 11/1/2016
First City Payment Date	8/1/2003	8/1/2003	MS: 8/1/2003 U.S. Bank: 2/1/2013	UBS: 8/1/2003 U.S. Bank: 2/1/2017	UBS: 8/1/2003 U.S. Bank: 2/1/2017
Marked to Market Value as of 12/31/2018 (shown as negative number if the City would owe payment)	(\$2,490,896.16)	(\$830,298.73)	(\$830,298.73)	(\$830,282.29)	(\$6,761,006.49)

\*The City's swaps were executed under Section 54.90 of the Local Finance Law of the State of New York.

<sup>1</sup>Novated to U.S. Bank from Morgan Stanley on 11/20/2012.

<sup>2</sup>Novated to U.S. Bank from UBS on 10/5/2016.

## City of New York Swap Transaction Summary

Transaction	6 - Matured	7 - Terminated	8	9 - Terminated	10 - Terminated
Current Authorizing Law	54.90.c*	54.90.c*	54.90.c*	54.90.c*	54.90.d*
Corresponding Bond Series	2003 G-2, G-3 and H-2	2004 F-2, 2006 I-4, and 2009 B-3	2004 A and B	2004 F	1998F, 1998G, 1998H, 1999A, 1999F, 2001D, 2001G, 2002G, 2003A, 2003C-1, and 2003G-1
Swap Type	Synthetic Fixed	Basis Swap	Synthetic Fixed	Total Return	Swaption to Floating
Counterparty	UBS AG	The Bank of New York Mellon <sup>3</sup>	Wells Fargo Bank, National Association	Citigroup Financial Products Inc	J.P. Morgan Chase Bank, N.A.
Credit Ratings (S&P / Moody's)	A+/Aa3	AA-/Aa2	A+/Aa2	NR	A+/Aa2
Guarantor Credit Ratings (S&P/Moody's)	See above	See above	See above	BBB+/Baa1 (CGMH)	See above
Original Notional Amount	\$80,000,000	\$671,245,000	\$350,000,000	\$500,000,000	\$250,000,000
Current Notional Amount	\$0	\$0	\$350,000,000	\$0	\$0
Up Front Cash Payment to City	N/A	\$20,000,000.00	N/A	N/A	N/A
Effective Date	1/22/2003	3/14/2003	7/14/2003	12/18/2003	8/1/2007
Termination Date	8/1/2014	3/15/2029	8/1/2031	12/15/2011	8/1/2024
Option Exercise Date	Expired	N/A	N/A	N/A	8/1/2007
Option Premium	\$2,345,000.00	N/A	N/A	N/A	\$7,177,004.00
City Pays	3.109% *amended 4/11/07	SIFMA Index x 1.36	2.964%	SIFMA Index + .0035	SIFMA
Actual Payments Made by City as of 12/31/2018	(\$18,945,035.01)	MS: (\$128,475,662.00) BONYM: (\$942,753.74)	(\$156,099,883.33)	(\$83,399,384.83)	\$0.00
Actual Payments Received by City as of 12/31/2018	\$9,704,767.21	MS: \$135,498,449.78 Termination: \$123,000.00 BONYM: \$2,359,459.17 Termination: \$2,410,000.00	\$50,787,948.98	\$188,936,674.03 plus Termination Payment of \$18,708,175.28	\$0.00
City Receives	61.8% of USD-LIBOR-BBA	USD-LIBOR-BBA	61.85% of USD-LIBOR-BBA	Adjusted Fixed Rates as Set forth in the Confirm	4.10%
First Counterparty Payment Date	2/3/2003	various dates, starting with 7/15/2003 (MS) & 2/15/2013 (BONYM)	8/1/2003	6/15/2004	N/A
First City Payment Date	8/1/2003	various dates, starting with 7/15/2003 (MS) & 2/15/2013 (BONYM)	2/4/2004	6/15/2004	N/A
Marked to Market Value as of 12/31/2018 (shown as negative number if the City would owe payment)	Matured 8/1/14	Terminated 11/19/2012 and 8/4/2015	(\$42,475,525.62)	Terminated 12/15/11	Terminated 8/1/09 (Option Expired)

\*The City's swaps were executed under Section 54.90 of the Local Finance Law of the State of New York.

<sup>3</sup>The City terminated 3 of the individual basis swaps with Morgan Stanley totaling \$178,690,000 in notional amount on 11/19/2012. The remaining 3 basis swaps totaling \$364,100,000 in notional amount were novated to the Bank of New York Mellon on 11/20/2012, and were terminated on 8/4/2015.

# City of New York

## Swap Transaction Summary

Transaction	11 - Terminated	12 - Matured	13	14 - Matured
Current Authorizing Law	54.90.d*	54.90.d*	54.90.d*	54.90.d*
Corresponding Bond Series	1998F, 1998G, 1998H, 1999A, 1999F, 2001D, 2001G, 2002G, 2003A, 2003C-1, and 2003G-1	2005A and 2005B	2002C, 2002D, 2003F, 2003I, 2004C, 2004D, and 2004F	2005J, 2005K and 2005L
Swap Type	Swaption to Floating	CPI Swap to Fixed	Basis Swap	CPI Swap to Fixed
Counterparty	Lehman Brothers Derivative Products Inc	Morgan Stanley Capital Services Inc	J.P. Morgan Chase Bank, N.A.	J.P. Morgan Chase Bank, N.A.
Credit Ratings (S&P / Moody's)	NR	NR	A+/Aa2	A+/Aa2
Guarantor Credit Ratings (S&P/Moody's)	NR/NR	BBB+/A3 (MS)	See above	See above
Original Notional Amount	\$100,000,000	\$50,000,000	\$500,000,000	\$44,145,000
Current Notional Amount	\$0	\$0	\$500,000,000	\$0
Up Front Cash Payment to City	N/A	N/A	\$20,585,000.00	N/A
Effective Date	8/1/2007	7/29/2004	8/1/2004	3/3/2005
Termination Date	8/1/2024	8/1/2014	12/1/2033	8/1/2017
Option Exercise Date	8/1/2007	N/A	N/A	N/A
Option Premium	\$2,870,801.00	N/A	N/A	N/A
City Pays	SIFMA	4.120%	SIFMA	4.710%
Actual Payments Made by City as of 12/31/2018	Termination Payment (\$623,265.00)	(\$19,333,791.66)	(\$80,631,410.37)	(\$23,683,239.12)
Actual Payments Received by City as of 12/31/2018	\$0.00	\$15,964,867.94	\$89,413,607.23	\$19,096,206.60
City Receives	4.10%	CPI plus .90%	Stepped % of 1-month LIBOR	CPI plus 1.60%
First Counterparty Payment Date	N/A	2/1/2005	9/1/2004	8/1/2005
First City Payment Date	N/A	2/1/2005	9/1/2004	8/1/2005
Marked to Market Value as of 12/31/2018 (shown as negative number if the City would owe payment)	Terminated 4/20/09	Matured 8/1/14	(\$947,622.99)	Matured 8/1/2017

\*The City's swaps were executed under Section 54.90 of the Local Finance Law of the State of New York.

## Swap Transaction Summary

Transaction	D-1 - Terminated	D-2 - Terminated	D-3	D-4
Current Authorizing Law	Section 2926*	Section 2926*	Section 2926*	Section 2926*
Corresponding Bond Series	DASNY 2005 A & B	DASNY 2005 A & B	DASNY 2005 A & B	DASNY 2005 A & B
Swap Type	Synthetic Float	Synthetic Float	Synthetic Fixed	Synthetic Fixed
Counterparty	Goldman Sachs Mitsui Marine Derivative Products LP	JP Morgan Chase Chase Bank, N.A.	Goldman Sachs Mitsui Marine Derivative Products LP	JP Morgan Chase Chase Bank, N.A.
Credit Ratings (S&P/Moody's)	AA-/Aa2	A+/Aa2	AA-/Aa2	A+/Aa2
Guarantor Credit Ratings (S&P/Moody's)	See above	See above	See above	See above
Original Notional Amount	\$80,680,000	\$44,820,000	\$80,680,000	\$44,820,000
Current Notional Amount	\$0	\$0	\$80,680,000	\$44,820,000
Up Front Cash Payment to DASNY	N/A	N/A	N/A	N/A
Effective Date	5/1/2013	5/1/2013	6/15/2005	6/15/2005
Termination Date	5/15/2032	5/15/2032	5/15/2039	5/15/2039
Option Exercise Date	N/A	N/A	N/A	N/A
Option Premium	N/A	N/A	N/A	N/A
DASNY Pays	SIFMA	SIFMA	3.017%	3.017%
Actual Payments Made by DASNY as of 12/31/2018	\$0	\$0	(\$32,657,726.12)	(\$18,142,281.88)
Actual Payments Received by DASNY as of 12/31/2018	Termination Payment \$15,655,000.00	Termination Payment \$8,570,000.00	\$10,509,979.49	\$5,955,620.61
DASNY Receives	4.179%	4.179%	64.3 % of USD-LIBOR- BBA.	64.3 % of USD-LIBOR- BBA.
First Counterparty Payment Date	11/15/2013	11/15/2013	7/15/2005	7/15/2005
First DASNY Payment Date	11/15/2013	11/15/2013	11/15/2005	11/15/2005
Marked to Market Value as of 12/31/2018 (shown as negative number if the DASNY would owe payment)	Terminated 9/27/11	Terminated 9/27/11	(\$14,432,539.15)	(\$8,017,666.32)

\* DASNY swaps were executed under Section 2926 of the Public Authorities Law of the State of New York

**City of New York Value at Risk Termination Matrix**

Swap 1 (JP Morgan Chase)			
Rate Change from Value Date 12/31/18	Valuation Net of Accruals 12/31/18	Accruals (1) 12/31/18	Mid-Market Valuation 12/31/18
0.00%	(\$1,471,977)	(\$1,018,919)	(\$2,490,896)
0.25%	(\$1,357,627)	(\$1,018,919)	(\$2,376,546)
0.50%	(\$1,243,797)	(\$1,018,919)	(\$2,262,716)
0.75%	(\$1,130,486)	(\$1,018,919)	(\$2,149,405)
-0.25%	(\$1,586,851)	(\$1,018,919)	(\$2,605,770)
-0.50%	(\$1,702,252)	(\$1,018,919)	(\$2,721,171)

(1) Accruals represent \$1,118,781.20 of fixed rate accruals since last Fixed Rate Payer Date less \$99,862.05 of variable rate accruals since last Floating Rate Payer Date.

Swap 1 (JP Morgan Chase)	
Swap Cashflows Since Swap Inception	
Total Variable Cashflows Accrued/Received by City	\$29,052,415.15
Total Fixed Accrued/Paid Outflows of City	(\$99,192,976.43)
Net Cashflows	(\$70,140,561.28)

Swap 2 (Merrill Lynch)			
Rate Change from Value Date 12/31/18	Valuation Net of Accruals 12/31/18	Accruals (1) 12/31/18	Mid-Market Valuation 12/31/18
0.00%	(\$490,659)	(\$339,640)	(\$830,299)
0.25%	(\$452,542)	(\$339,640)	(\$792,182)
0.50%	(\$414,599)	(\$339,640)	(\$754,239)
0.75%	(\$376,829)	(\$339,640)	(\$716,468)
-0.25%	(\$528,950)	(\$339,640)	(\$868,590)
-0.50%	(\$567,417)	(\$339,640)	(\$907,057)

(1) Accruals represent \$372,927.07 of fixed rate accruals since last Fixed Rate Payer Date less \$33,287.35 of variable rate accruals since last Floating Rate Payer Date.

Swap 2 (Merrill Lynch)	
Swap Cashflows Since Swap Inception	
Total Variable Cashflows Accrued/Received by City	\$9,684,167.39
Total Fixed Accrued/Paid Outflows of City	(\$33,064,325.53)
Net Cashflows	(\$23,380,158.14)

Swap 3 (U.S. Bank)			
Rate Change from Value Date 12/31/18	Valuation Net of Accruals 12/31/18	Accruals (1) 12/31/18	Mid-Market Valuation 12/31/18
0.00%	(\$490,659)	(\$339,640)	(\$830,299)
0.25%	(\$452,542)	(\$339,640)	(\$792,182)
0.50%	(\$414,599)	(\$339,640)	(\$754,239)
0.75%	(\$376,829)	(\$339,640)	(\$716,468)
-0.25%	(\$528,950)	(\$339,640)	(\$868,590)
-0.50%	(\$567,417)	(\$339,640)	(\$907,057)

(1) Accruals represent \$372,927.07 of fixed rate accruals since last Fixed Rate Payer Date less \$33,287.35 of variable rate accruals since last Floating Rate Payer Date.

(2) The swap was novated to U.S. Bank from Morgan Stanley on 11/20/2012.

Swap 3 (U.S. Bank)	
Swap Cashflows Since Swap Inception	
Total Variable Cashflows Accrued/Received by City	\$9,683,900.11
Total Fixed Accrued/Paid Outflows of City	(\$33,064,325.53)
Net Cashflows	(\$23,380,425.42)

Swap 4 (U.S. Bank)			
Rate Change from Value Date 12/31/18	Valuation Net of Accruals 12/31/18	Accruals (1) 12/31/18	Mid-Market Valuation 12/31/18
0.00%	(\$490,659)	(\$339,623)	(\$830,282)
0.25%	(\$452,543)	(\$339,623)	(\$792,165)
0.50%	(\$414,599)	(\$339,623)	(\$754,222)
0.75%	(\$376,829)	(\$339,623)	(\$716,452)
-0.25%	(\$528,951)	(\$339,623)	(\$868,574)
-0.50%	(\$567,418)	(\$339,623)	(\$907,041)

(1) Accruals represent \$372,927.06 of fixed rate accruals since last Fixed Rate Payer Date less \$33,304.10 of variable rate accruals since last Floating Rate Payer Date.

(2) The swap was novated to U.S. Bank from UBS on 10/5/2016.

Swap 4 (U.S. Bank)	
Swap Cashflows Since Swap Inception	
Total Variable Cashflows Accrued/Received by City	\$9,684,065.08
Total Fixed Accrued/Paid Outflows of City	(\$33,064,325.49)
Net Cashflows	(\$23,380,260.41)

\*City received a novation payment of \$75,000 which is not included above.

**City of New York Value at Risk Termination Matrix**

Swap 5 (U.S. Bank)			
Rate Change from Value Date 12/31/18	Valuation Net of Accruals 12/31/18	Accruals (1) 12/31/18	Mid-Market Valuation 12/31/18
0.00%	(\$5,714,091)	(\$1,046,915)	(\$6,761,006)
0.25%	(\$5,183,559)	(\$1,046,915)	(\$6,230,474)
0.50%	(\$4,660,580)	(\$1,046,915)	(\$5,707,496)
0.75%	(\$4,145,033)	(\$1,046,915)	(\$5,191,948)
-0.25%	(\$6,252,303)	(\$1,046,915)	(\$7,299,218)
-0.50%	(\$6,798,321)	(\$1,046,915)	(\$7,845,237)

(1) Accruals represent \$1,155,247.60 of fixed rate accruals since last Fixed Rate Payer Date less \$108,332.52 of variable rate accruals since last Floating Rate Payer Date.

(2) The swap was novated to U.S. Bank from UBS on 10/5/2016.

Swap 8 (Wells Fargo)			
Rate Change from Value Date 12/31/18	Valuation Net of Accruals 12/31/18	Accruals (1) 12/31/18	Mid-Market Valuation 12/31/18
0.00%	(\$38,572,326)	(\$3,903,199)	(\$42,475,526)
0.25%	(\$33,885,060)	(\$3,903,199)	(\$37,788,259)
0.50%	(\$29,307,628)	(\$3,903,199)	(\$33,210,828)
0.75%	(\$24,837,231)	(\$3,903,199)	(\$28,740,430)
-0.25%	(\$43,372,308)	(\$3,903,199)	(\$47,275,507)
-0.50%	(\$48,287,967)	(\$3,903,199)	(\$52,191,167)

(1) Accruals represent \$4,322,500.00 of fixed rate accruals since last Fixed Rate Payer Date less \$419,300.67 of variable rate accruals since last Floating Rate Payer Date.

Swap 13 (JPMorgan Chase)			
Ratio Change from Value Date 6/30/2018	Valuation Net of Accruals 12/31/18	Accruals (1) 12/31/18	Mid-Market Valuation 12/31/18
0.00%	(\$1,077,901)	\$130,278	(\$947,623)
-1.00%	\$358,323	\$130,278	\$488,600
-2.00%	\$1,794,546	\$130,278	\$1,924,823
1.00%	(\$2,514,124)	\$130,278	(\$2,383,846)
2.00%	(\$3,950,347)	\$130,278	(\$3,820,069)
3.00%	(\$5,386,570)	\$130,278	(\$5,256,293)

(1) Accruals represent \$793,428.08 of LIBOR accruals since last LIBOR Payer Date less \$663,150.55 of SIFMA accruals since last SIFMA Payer Date.

Swap 5 (U.S. Bank)	
Swap Cashflows Since Swap Inception	
Total Variable Cashflows Accrued/Received by City	\$19,224,751.00
Total Fixed Accrued/Paid Outflows of City	(\$64,688,678.60)
Net Cashflows	(\$45,463,927.60)

\*City received an upfront cash payment of \$7,467,000 and a novation payment of \$75,000 which is not included above.

Swap 8 (Wells Fargo)	
Swap Cashflows Since Swap Inception	
Total Variable Cashflows Accrued/Received by City	\$51,207,249.65
Total Fixed Accrued/Paid Outflows of City	(\$160,422,383.33)
Net Cashflows	(\$109,215,133.68)

Swap 13 (JPMorgan Chase)	
Swap Cashflows Since Swap Inception	
Total Variable Cashflows Accrued/Received by City	\$90,207,035.31
Total Variable Accrued/Paid Outflows of City	(\$81,294,560.92)
Net Cashflows	\$8,912,474.39

\*City received an upfront cash payment of \$20,585,000 which is not included above.

**City of New York Value at Risk Termination Matrix**

Swap D-3 (Goldman Sachs)			
Rate Change from Value Date 12/31/18	Valuation Net of Accruals 12/31/18	Accruals (1) 12/31/18	Mid-Market Valuation 12/31/18
0.00%	(\$14,181,285)	(\$251,254)	(\$14,432,539)
0.25%	(\$12,183,173)	(\$251,254)	(\$12,434,428)
0.50%	(\$10,263,204)	(\$251,254)	(\$10,514,459)
0.75%	(\$8,418,070)	(\$251,254)	(\$8,669,324)
-0.25%	(\$16,261,001)	(\$251,254)	(\$16,512,256)
-0.50%	(\$18,425,950)	(\$251,254)	(\$18,677,204)

(1) Accruals represent \$311,025.88 of fixed rate accruals since last Fixed Rate Payer Date less \$59,771.46 of variable rate accruals since last Floating Rate Payer Date.

Swap D-3 (Goldman Sachs)	
Swap Cashflows Since Swap Inception	
Total Variable Cashflows Accrued/Received by DASNY	\$10,569,750.95
Total Fixed Accrued/Paid Outflows of DASNY	(\$32,968,752.00)
Net Cashflows	(\$22,399,001.05)

Swap D-4 (JPMorgan Chase)			
Rate Change from Value Date 12/31/18	Valuation Net of Accruals 12/31/18	Accruals (1) 12/31/18	Mid-Market Valuation 12/31/18
0.00%	(\$7,878,087)	(\$139,579)	(\$8,017,666)
0.25%	(\$6,768,083)	(\$139,579)	(\$6,907,662)
0.50%	(\$5,701,488)	(\$139,579)	(\$5,841,067)
0.75%	(\$4,676,466)	(\$139,579)	(\$4,816,045)
-0.25%	(\$9,033,426)	(\$139,579)	(\$9,173,005)
-0.50%	(\$10,236,113)	(\$139,579)	(\$10,375,692)

(1) Accruals represent \$172,783.59 of fixed rate accruals since last Fixed Rate Payer Date less \$33,204.72 of variable rate accruals since last Floating Rate Payer Date.

Swap D-4 (JP Morgan Chase)	
Swap Cashflows Since Swap Inception	
Total Variable Cashflows Accrued/Received by DASNY	\$5,988,825.33
Total Fixed Accrued/Paid Outflows of DASNY	(\$18,315,065.47)
Net Cashflows	(\$12,326,240.14)

Global Swap Assumptions

- 1) Swap Values evaluated using market data as of December 31, 2018.
- 2) Change from Value Date represents parallel curve shifts from the base rate / ratio curve as of December 31, 2018.
- 3) Valuation Net of Accrual represents swap mid-market valuation at the respective interest rates levels net of accruals on December 31, 2018.
- 4) Accruals represent (payments)/receipts accrued by the City at December 31, 2018 under the swap agreements. Accruals calculated as City's accrued receipts less accrued payments.
- 5) Mid-market valuations are indicative only and subject to change with varying market conditions.
- 6) Accrual information calculated and provided by City.
- 7) Swaps D-3 and D-4 are swaps executed by DASNY. The City is obligated, subject to lease appropriation, to make lease payments to DASNY.



# City of New York IDA Swap Transaction Summary

Transaction	IDA-1 - Terminated	IDA-2 - Terminated	IDA-3 - Terminated
Authorizing Law	Chap 590 of 2000	Chap 590 of 2000	Chap 590 of 2000
Corresponding Bond Series	2004A and B	2004A and B	2004A and B
Swap Type	Total Return	Total Return	Total Return
Counterparty	Morgan Stanley Capital Services Inc	Morgan Stanley Capital Services Inc	Morgan Stanley Capital Services Inc
Credit Ratings (S&P/Moody's) Guarantor Credit Ratings (S&P/Moody's)	NR A/A2	NR A/A2	NR A/A2
Original Notional Amount	\$18,520,000.00	\$2,580,000.00	\$2,710,000.00
Current Notional Amount	\$0.00	\$0.00	\$0.00
Upfront Cash	N/A	N/A	N/A
Effective Date	8/21/2003	8/21/2003	8/21/2003
Termination Date	5/29/2008	2/29/2012	12/12/2012
Option Exercise Date	N/A	N/A	N/A
Option Premium	N/A	N/A	N/A
City Pays	SIFMA Index + .67%	SIFMA Index + .67%	SIFMA Index + .67%
Payments Made by IDA as of 3-31-2009	(\$2,432,329.43)	(\$441,007.40)	(\$463,228.70)
Payments Received by IDA as of 3-31-2009	\$3,792,416.40	\$670,083.33	\$721,443.40
City Receives	4.80%	5.00%	5.13%
First Counterparty Payment Date	11/1/2003	11/1/2003	11/1/2003
First City Payment Date	10/1/2003	10/1/2003	10/1/2003
Marked to Market Value as of 12-31-2008 (shown as negative number if New York City IDA would owe payment)	Terminated 5/29/08	Terminated 2/10/09	Terminated 2/10/09

# City of New York IDA Swap Transaction Summary

Exhibit C

Transaction	IDA-4 - Terminated	IDA-5 - Terminated	IDA-6 - Terminated
Authorizing Law	Chap 590 of 2000	Chap 590 of 2000	Chap 590 of 2000
Corresponding Bond Series	2004A and B	2004A and B	2004A and B
Swap Type	Total Return	Total Return	Total Return
Counterparty	Morgan Stanley Capital Services Inc	Morgan Stanley Capital Services Inc	Morgan Stanley Capital Services Inc
Credit Ratings (S&P/Moody's) Guarantor Credit Ratings (S&P/Moody's)	NR A/A2	NR A/A2	NR A/A2
Original Notional Amount	\$2,850,000.00	\$3,000,000.00	\$3,155,000.00
Current Notional Amount	\$0.00	\$0.00	\$0.00
Upfront Cash	N/A	N/A	N/A
Effective Date	8/21/2003	8/21/2003	8/21/2003
Termination Date	10/2/2013	7/23/2014	5/13/2015
Option Exercise Date	N/A	N/A	N/A
Option Premium	N/A	N/A	N/A
City Pays	SIFMA Index + .67%	SIFMA Index + .67%	SIFMA Index + .67%
Payments Made by IDA as of 3-31-2009	(\$487,159.34)	(\$512,799.30)	(\$539,293.93)
Payments Received by IDA as of 3-31-2009	\$769,816.67	\$825,916.67	\$884,977.50
City Receives	5.20%	5.30%	5.40%
First Counterparty Payment Date	11/1/2003	11/1/2003	11/1/2003
First City Payment Date	10/1/2003	10/1/2003	10/1/2003
Marked to Market Value as of 12-31-2008 (shown as negative number if New York City IDA would owe payment)	Terminated 2/10/09	Terminated 2/10/09	Terminated 2/10/09

# City of New York IDA Swap Transaction Summary

Exhibit C

Transaction	IDA-7 - Terminated	IDA-8 - Terminated	IDA-9 - Terminated
Authorizing Law	Chap 590 of 2000	Chap 590 of 2000	Chap 590 of 2000
Corresponding Bond Series	2004A and B	2004A and B	2004A and B
Swap Type	Total Return	Total Return	Total Return
Counterparty	Morgan Stanley Capital Services Inc	Morgan Stanley Capital Services Inc	Morgan Stanley Capital Services Inc
Credit Ratings (S&P/Moody's) Guarantor Credit Ratings (S&P/Moody's)	NR A/A2	NR A/A2	NR A/A2
Original Notional Amount	\$3,325,000.00	\$41,820,000.00	\$11,240,000.00
Current Notional Amount	\$0.00	\$0.00	\$0.00
Upfront Cash	N/A	N/A	N/A
Effective Date	8/21/2003	8/21/2003	8/21/2003
Termination Date	2/24/2016	8/19/2020	11/19/2010
Option Exercise Date	N/A	N/A	N/A
Option Premium	N/A	N/A	N/A
City Pays	SIFMA Index + .67%	SIFMA Index + .67%	SIFMA Index + .67%
Payments Made by IDA as of 3-31-2009	(\$568,352.56)	(\$7,148,422.24)	(\$136,314.22)
Payments Received by IDA as of 3-31-2009	\$932,662.50	\$12,219,281.31	\$155,861.33
City Receives	5.40%	5.63%	4.80%
First Counterparty Payment Date	11/1/2003	11/1/2003	11/1/2003
First City Payment Date	10/1/2003	10/1/2003	10/1/2003
Marked to Market Value as of 12-31-2008 (shown as negative number if New York City IDA would owe payment)	Terminated 2/10/09	Terminated 2/10/09	Terminated 2/10/09