OFFICE OF THE CITY TREASURER

KURT A. SUMMERS, .JR, • TREASURER • CITY OF CHICAGO

MEMORANDUM

To: The Honorable Carrie M. Austin
Chairman, Committee on the Budget and Government Operations

From: Kurt Summers
City Treasurer

CC: Deanne Millison
Mayor's Office of Legislative Counsel and Government Affairs

Date: October 31, 2017

Re: Request for Information from Annual Appropriation Committee Hearing

ID#: 28-01

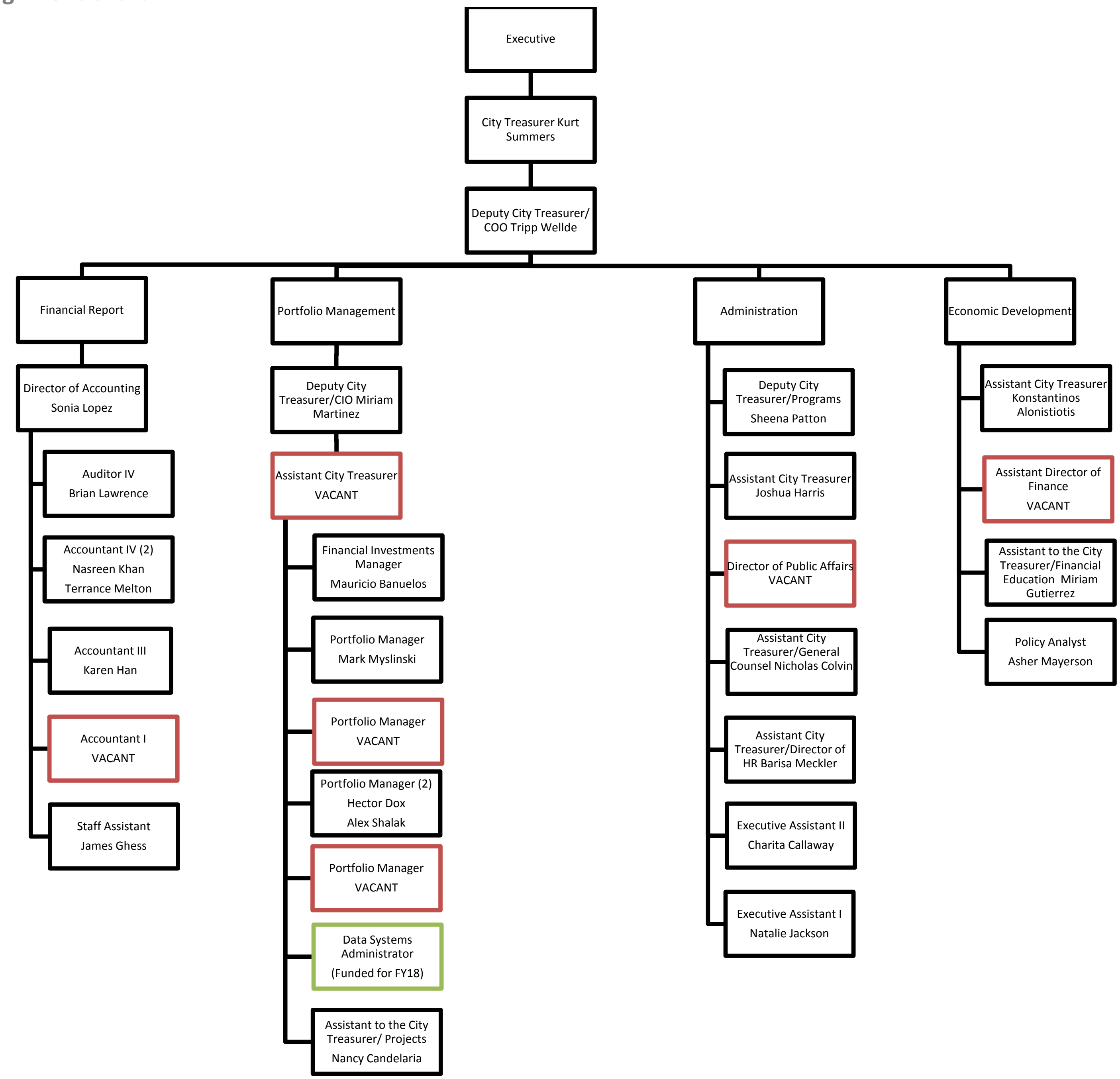
The below information is in response to questions posed at our department's hearing on October 24, 2017 to discuss the proposed 2018 budget.

Alderman Austin asked for a detailed organizational chart that includes names.

The detailed organizational chart – including names – is attached as an addendum.

As always, please let me know if you have any further questions.

028-Position and Assignment Chart



OFFICE OF THE CITY TREASURER

KURT A. SUMMERS, .JR, • TREASURER • CITY OF CHICAGO

MEMORANDUM

To: The Honorable Carrie M. Austin
Chairman, Committee on the Budget and Government Operations

From: Kurt Summers
City Treasurer

CC: Deanne Millison
Mayor's Office of Legislative Counsel and Government Affairs

Date: October 31, 2017

Re: Request for Information from Annual Appropriation Committee Hearing

ID#: 28-02

The below information is in response to questions posed at our department's hearing on October 24, 2017 to discuss the proposed 2018 budget.

Alderman Reilly asked for a list of dues, memberships, and subscriptions from fund 0166.

The chart below illustrates a list of dues, memberships, and subscriptions for the City Treasurer's office. The City Treasurer's office is in the process of reviewing all subscriptions for 2018.

Name of Membership/Subscription	Cost
Bloomberg Trading Terminals	$120,000 per quarter
American Banker	$1,657 per year
The Bond Buyer	$279 per year
Capital Fax	$500 per year
Chicago Tribune	$155.48 per year
Chicago Sun Times	$277.88 per year
Crains Chicago Business	$99 per year
The Daily Line	$1,300 per year
The Economist	$190 per year
Pension and Investments	$350 per year
Reuters	$3,327.96 per month
Wall Street Journal	$443.88 per year

OFFICE OF THE CITY TREASURER

KURT A. SUMMERS, .JR, • TREASURER • CITY OF CHICAGO

MEMORANDUM

To: The Honorable Carrie M. Austin
Chairman, Committee on the Budget and Government Operations

From: Kurt Summers
City Treasurer

CC: Deanne Millison
Mayor's Office of Legislative Counsel and Government Affairs

Date: October 31, 2017

Re: Request for Information from Annual Appropriation Committee Hearing

ID#: 28-03

The below information is in response to questions posed at our department's hearing on October 24, 2017 to discuss the proposed 2018 budget.

Alderman Reilly asked for a list of funded vacancies in FY18.

Currently, the City Treasurer's office has six vacancies. These are detailed below:

- Assistant Director of Finance
- Portfolio Managers (2 Positions)
- Director of Public Affairs
- Assistant City Treasurer
- Accountant 1

As always, please let me know if you have any further questions.

OFFICE OF THE CITY TREASURER

KURT A. SUMMERS, .JR, • TREASURER • CITY OF CHICAGO

MEMORANDUM

To: The Honorable Carrie M. Austin
Chairman, Committee on the Budget and Government Operations

From: Kurt Summers
City Treasurer

CC: Deanne Millison
Mayor's Office of Legislative Counsel and Government Affairs

Date: October 31, 2017

Re: Request for Information from Annual Appropriation Committee Hearing

ID#: 28-04

The below information is in response to questions posed at our department's hearing on October 24, 2017 to discuss the proposed 2018 budget.

Alderman Reilly asked for a list of cuts and reductions compared to last year.

The chart below illustrates a comparison of reductions in FY18 over FY17:

Fund	FY18	FY17	Difference
0159 (Lease Equipment)	$4,440.00	$4,774.00	$334.00
0181 (Mobile Comms)	$3,360.00	$9,312.00	$5,952.00
0190 (Telephone)	$4,000.00	$7,800.00	$3,800.00

As always, please let me know if you have any further questions.

OFFICE OF THE CITY TREASURER

KURT A. SUMMERS, .JR, • TREASURER • CITY OF CHICAGO

MEMORANDUM

To: The Honorable Carrie M. Austin
Chairman, Committee on the Budget and Government Operations

From: Kurt Summers
City Treasurer

CC: Deanne Millison
Mayor's Office of Legislative Counsel and Government Affairs

Date: October 31, 2017

Re: Request for Information from Annual Appropriation Committee Hearing

ID#: 28-05

The below information is in response to questions posed at our department's hearing on October 24, 2017 to discuss the proposed 2018 budget.

Alderman Reilly asked for a list of expected non-union salary increases in FY18.

The City Treasurer's office will have one non-union salary increase in FY18. The one non-union salary increase is for Barisa Meckler, Assistant City Treasurer/ Director of Human Resources. This salary will increase to $79,284 in FY18 from $76,500 in FY17.

As always, please let me know if you have any further questions.

OFFICE OF THE CITY TREASURER

KURT A. SUMMERS, .JR, • TREASURER • CITY OF CHICAGO

MEMORANDUM

To: The Honorable Carrie M. Austin
Chairman, Committee on the Budget and Government Operations

From: Kurt Summers
City Treasurer

CC: Deanne Millison
Mayor's Office of Legislative Counsel and Government Affairs

Date: October 31, 2017

Re: Request for Information from Annual Appropriation Committee Hearing

ID#: 28-06

The below information is in response to questions posed at our department's hearing on October 24, 2017 to discuss the proposed 2018 budget.

Alderman Hairston asked for a full list of 0140 vendors. The chart below illustrates 0140 vendor activity for FY17 to date:

Transaction	Amount
Jason's Deli (BACP Event)	713.91
Canon (Jan. 2017)	474.95
Canon (Jan. 2017)	269.57
Canon (Jan. 2017)	336.59
Canon (Jan. 2017)	474.95
Canon (Jan. 2017)	308.88
Canon (Jan. 2017)	364.74
Bloomberg Q2	156
Bloomberg Q2	798.88
Blue Ocean Software	595
Anchor Mechanical, Inc	13,577.21
Anchor Mechanical, Inc	515.97
Anchor Mechanical, Inc	8,489.60
Wall Street Journal	798.88
Sun Times Media, LLC	156.00
Total	**$28,031.31**

As always, please let me know if you have any further questions. We have also attached our trade activity with MBE/WBE broker dealers as requested. On a final note, we appreciate the Alderman’s comments about our intern program. We will re-double our efforts with the City Colleges of Chicago, Roosevelt, and other diverse institutions from a recruitment perspective.

As always, please let me know if you have any further questions.

Trade Volume by Broker Dealer FY 2017 (as of 2017-09-30)

	Purchases				Sales				Total			
Name	**Amount**	**Amount %**	**Count**	**Count %**	**Amount**	**Amount %**	**Count**	**Count %**	**Amount**	**Amount %**	**Count**	**Count %**
Castleoak Securities	$ 837,933,719.07	21.8%	96	17.3%	$ -	0.0%	0	0.0%	$ 837,933,719.07	21.1%	96	16.6%
Drexel Hamilton	$ 114,438,362.93	3.0%	11	2.0%	$ 51,782,929.44	36.6%	8	34.8%	$ 166,221,292.37	4.2%	19	3.3%
Great Pacific Securities	$ 78,042,104.49	2.0%	19	3.4%	$ 502,011.81	0.4%	1	4.3%	$ 78,544,116.30	2.0%	20	3.5%
Loop Capital Markets	$ 496,687,185.50	12.9%	95	17.1%	$ 52,549,305.01	37.1%	5	21.7%	$ 549,236,490.51	13.8%	100	17.3%
Mischler Financial Group	$ 939,394,970.48	24.5%	115	20.8%	$ -	0.0%	0	0.0%	$ 939,394,970.48	23.6%	115	19.9%
Ramirez & Co.	$ 54,161,825.65	1.4%	25	4.5%	$ 36,721,813.73	25.9%	9	39.1%	$ 90,883,639.38	2.3%	34	5.9%
Williams Capital Group	$ 91,762,294.78	2.4%	20	3.6%	$ -	0.0%	0	0.0%	$ 91,762,294.78	2.3%	20	3.5%
Blaylock Robert Van	$ 89,078,292.49	2.3%	17	3.1%	$ -	0.0%	0	0.0%	$ 89,078,292.49	2.2%	17	2.9%
Cabrera Captial Markets	$ 952,599,227.65	24.8%	127	22.9%	$ -	0.0%	0	0.0%	$ 952,599,227.65	23.9%	127	22.0%
Multi-Bank Securities	$ 5,355,128.73	0.1%	3	0.5%	$ -	0.0%	0	0.0%	$ 5,355,128.73	0.1%	3	0.5%
Penserra Securities	$ 12,997,270.00	0.3%	3	0.5%	$ -	0.0%	0	0.0%	$ 12,997,270.00	0.3%	3	0.5%
Rice Financial	$ 152,382,402.39	4.0%	22	4.0%	$ -	0.0%	0	0.0%	$ 152,382,402.39	3.8%	22	3.8%
IFS Securities	$ 14,022,304.80	0.4%	1	0.2%	$ -	0.0%	0	0.0%	$ 14,022,304.80	0.4%	1	0.2%
Total	**$ 3,838,855,088.96**	**100.0%**	**554**	**100.0%**	**$ 141,556,059.99**	**100.0%**	**23**	**100.0%**	**$ 3,980,411,148.95**	**100.0%**	**577**	**100.0%**

OFFICE OF THE CITY TREASURER

KURT A. SUMMERS, .JR, • TREASURER • CITY OF CHICAGO

MEMORANDUM

To:	The Honorable Carrie M. Austin Chairman, Committee on the Budget and Government Operations
From:	Kurt Summers City Treasurer
CC:	Deanne Millison Mayor's Office of Legislative Counsel and Government Affairs
Date:	October 31, 2017
Re:	Request for Information from Annual Appropriation Committee Hearing
ID#:	28-09

The information below is in response to questions posed at our department's hearing on October 24, 2017 to discuss the proposed 2018 budget.

Alderman Santiago asked for more information on Chicago Uplift 2020.

Chicago Uplift 2020 will escalate the deployment of financial literacy and empowerment programs throughout the City of Chicago to strengthen low- and middle-income families and help build an economy for all. We will achieve this by opening HOPE Inside Centers right in the communities that need help the most.

HOPE Inside is a financial empowerment program that provides free credit & money management, homeownership and small business counseling. These facilities will be located inside bank branches, grocery stores, and colleges - bringing the programs to everyone.

We are planning to open our first HOPE Inside Center in 2018.

As always, please let me know if you have any further questions.

OFFICE OF THE CITY TREASURER

KURT A. SUMMERS, .JR, • TREASURER • CITY OF CHICAGO

MEMORANDUM

To: The Honorable Carrie M. Austin
Chairman, Committee on the Budget and Government Operations

From: Kurt Summers
City Treasurer

CC: Deanne Millison
Mayor's Office of Legislative Counsel and Government Affairs

Date: October 31, 2017

Re: Request for Information from Annual Appropriation Committee Hearing

ID#: 28-10

The below information is in response to questions posed at our department's hearing on October 24, 2017 to discuss the proposed 2018 budget.

Alderman Tunney asked when Illinois Service Federal (ISF) became a municipal depository (MD).

ISF became a MD effective January 1, 2008.

As always, please let me know if you have any further questions.

OFFICE OF THE CITY TREASURER

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MEMORANDUM

To: The Honorable Carrie M. Austin
Chairman, Committee on the Budget and Government Operations

From: Kurt Summers
City Treasurer

CC: Deanne Millison
Mayor's Office of Legislative Counsel and Government Affairs

Date: October 31, 2017

Re: Request for Information from Annual Appropriation Committee Hearing

ID#: 28-11

The below information is in response to questions posed at our department's hearing on October 24, 2017 to discuss the proposed 2018 budget.

Alderman Pawar asked if the City had any investments in social media companies.

The City does not have any investments in social media companies.

As always, please let me know if you have any further questions.

OFFICE OF THE CITY TREASURER

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MEMORANDUM

To: The Honorable Carrie M. Austin
Chairman, Committee on the Budget and Government Operations

From: Kurt Summers
City Treasurer

CC: Deanne Millison
Mayor's Office of Legislative Counsel and Government Affairs

Date: October 31, 2017

Re: Request for Information from Annual Appropriation Committee Hearing

ID#: 28-12

The attached information is in response to questions posed at our department's hearing on October 24, 2017 to discuss the proposed 2018 budget.

Alderman Arena asked for reports referenced during hearing.

Attached are the following reports:

- Krolls Report (pgs. 6 & 15)
- S&P Report
- 2017 City of Chicago Financial Analysis

As always, please let me know if you have any further questions.

Chicago's Pension Liabilities: A Look Beyond Headlines and Ratios

Analytical Contacts:

William Cox, Managing Director
wcox@kbra.com, (646) 731-2472

Harvey Zachem, Managing Director
hzachem@kbra.com, (646) 731-2385

Justin Schneider, Analyst
jschneider@kbra.com, (646) 731-2453

Karen Daly, Senior Managing Director
kdaly@kbra.com, (646) 731-2347

Alice Cheng, Associate Director
acheng@kbra.com, (646) 731-2403

Table of Contents

Introduction

For good reason, the municipal market is increasingly focused on the issue of pension liabilities. Estimates of U.S. state and local government pension obligations range from $4.9 trillion[1] to $7.5 trillion[2]. And according to the Center for Retirement Research at Boston College, the unfunded portion of these liabilities ranges from $1.2 trillion to $4.1 trillion – depending on discount rate assumptions (See Figure 1).[3] For many state and local governments, tepid revenue growth combined with the twin challenges of aging workforces and aging infrastructure mean that the presence of pension driven credit concerns will be front and center for years to come.

Figure 1
Aggregate State and Local Pension Measures

Measure	Discount Rate				
	7.6%	7.0%	6.0%	5.0%	4.0%
Total Liability	4.5	5.1	5.8	6.6	7.5
Actuarial Assets	3.4	3.4	3.4	3.4	3.4
Unfunded Liability	1.2	1.8	2.5	3.3	4.1
Percent Funded	74.0%	65.0%	58.0%	51.0%	45.0%

Fiscal Year, 2015, Trillions of Dollars
Source: Center for Retirement Research at Boston College: Aggregate State and Local Pension Measures under Alternative Discount Rates

Given the complexity of politics and policy surrounding public pensions, KBRA believes that determining their impact on credit quality requires increasingly detailed analysis rather than over reliance on point-in-time ratios that are sometimes used by others to populate scorecards and sort issuers into rating categories. While new data and ratios resulting from GASB's pension reporting standards are very important and helpful,[4] in our view, the real value of these data is that they can steer all stakeholders toward deeper analytical questions – the most important of which for bondholders, KBRA believes, is whether or not a municipality's plans to fund pension obligations are *sustainable* and *affordable*.

By sustainable, KBRA means management's ability to strike a balance among competing labor, taxpayer, and various other short and long term stakeholder interests while, at the same time, stabilizing annual payment obligations and ultimately reducing unfunded liabilities. For example, New York City began its quest to fully fund its pension funds forty years ago – and the sustainable work continues. By *affordable* KBRA means the capacity of the underlying economy's households and businesses to generate the income to pay the annual taxes or fees associated with growing pension related payments – on top of other debt and ongoing municipal services.

KBRA notes that state and local pension payment schedules are creatures of public policy.[5] And KBRA understands why amortizing unfunded pension fund liabilities on a 30 year closed amortization schedule is

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[1] Board of Governors of the Federal Reserve System: FEDS Notes February 5th, 2016 https://www.federalreserve.gov/econresdata/notes/feds-notes/2016/state-and-local-pension-funding-in-the-enhanced-financial-accounts-20160205.html
[2] Center for Retirement Research at Boston College, The Funding of State and Local Pensions: 2015-2020 http://crr.bc.edu/wp-content/uploads/2016/06/slp_50.pdf
[3] Ibid.
[4] Governmental Accounting Standards Board (GASB): Summary - Statement No. 67: http://www.gasb.org/cs/ContentServer?site=GASB&c=Pronouncement_C&pagename=GASB%2FPronouncement_C%2FGASBSummaryPage&cid=1176160219444
[5] GASB's NEW PENSION STANDARDS: SETTING THE RECORD STRAIGHT:
"As just stated, the new pension Statements relate only to accounting and financial reporting, or how pension costs and obligations are measured and reported in external financial reports. How much governments actually contribute each year to a pension plan is a policy issue. Governments will likely report pension expense more quickly than under the prior standards; however, how or whether

considered ideal for most public pension systems. But absent this choice being made by policymakers in a given municipality, KBRA analyzes the *actual* costs and credit risks embedded in their alternative plans – not hypothetical costs based on any third party's ideal scenario. In other words, how a community meets its annual obligations to retirees may result in pension plan funded ratios and payment schedules that are less than ideal – but nevertheless result in full and timely payments to retirees and to bondholders in ways that are sustainable and affordable.[6]

The City of Chicago is a good example of the need for deeper analysis of *sustainability* and *affordability* of pension payment plans. By most measures, the city's debt and pension obligations are quite high compared to peers and over time will consume a high and increasing share of government spending. The city's plan to reverse over a decade of prior neglect and severe underfunding of its four pension systems is not elegant and does not achieve ideal ratios. But because the city's pension reform plan includes buy-in from a broad spectrum of stakeholders, and – over time – slows down and eventually reverses the growth in unfunded liabilities, we believe the plan is sustainable and a positive step forward.

Regarding the issue of affordability, KBRA analyzed the potential impact of higher taxes on various types of households by income level, and on businesses, and in comparison to regional and national peers. Based on this affordability analysis, described more fully below, KBRA believes that Chicago's businesses, households, and visitors – the city's wealth base – can afford the city's debt and pension obligations – even if it will be somewhat painful. Indeed, as discussed in **our last report** on the city's credit rating, KBRA rates the city BBB+ in part *because* of its pension and debt burdens as opposed to a higher rating category commensurate with the depth and diversity of its underlying economic base, effective management, improved financial controls, and ample reserves – conditions not present in situations like Detroit, Puerto Rico, and Stockton.

Regarding the issue of willingness, KBRA notes that behavior matters when assessing municipal credit risk. City leaders have demonstrated the political will necessary to execute their plans despite numerous obstacles. If current or future city leaders do not demonstrate similar commitment, then KBRA may re-visit our opinion of the city's credit rating.

Other issues KBRA will monitor include: the timing of political action needed to implement new revenue streams to meet the ramp-up to actuarially determined pension contributions; the need for continued healthy growth in the city's tax base; necessary discipline in the city's other governmental spending; and potential for spillover pressure on the city's tax base due to budget challenges at Chicago Public Schools.

Section 1: Direct Debt

This section includes discussion of the city's overall debt burden and identifies the amount of incremental revenue the city may need to raise from its wealth base to service its direct debt over the next decade.

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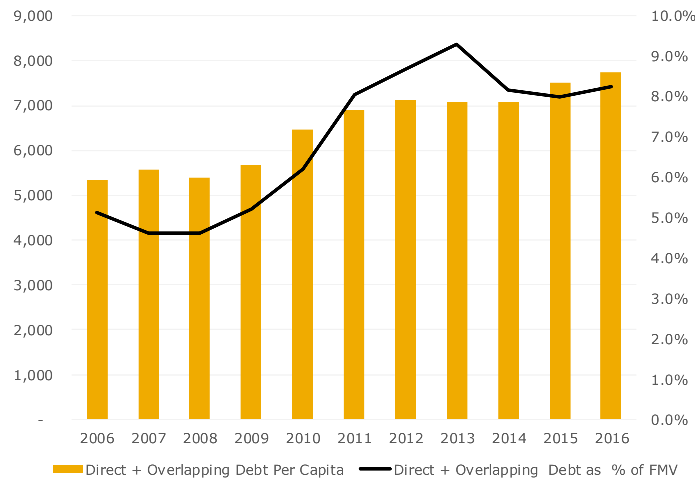
this information is used in assessing the amounts that governments will contribute to their pension plans is a public policy decision made by government officials."
http://www.gasb.org/cs/ContentServer?site=GASB&c=Page&pagename=GASB%2FPage%2FGASBSectionPage&cid=1176160432178
And

[6] Pew Charitable Trusts: The State Pension Funding Gap: 2014
"The National Association of State Retirement Administrators (NASRA) accurately notes that using net amortization may not always recognize funding policies that are sustainable and that could reduce pension debt over the long term." http://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2016/08/the-state-pension-funding-gap-2014 and National Association of State Retirement Administrators, letter to Moody's Investors Service, Oct. 8, 2014, http://www.nasra.org/files/Letters/NASRAtoMoodys100814.pdf.

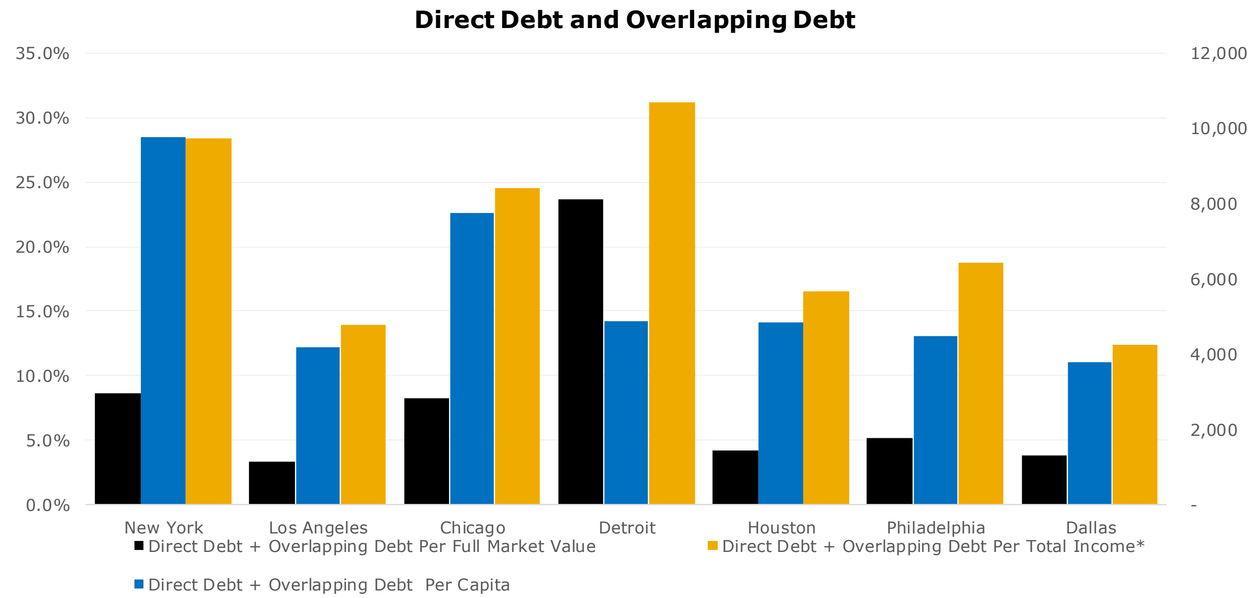
Figure 2



Source: City of Chicago CAFR & US Census

In recent years, the city has significantly increased its general obligation debt (See Figure 2). In KBRA's view, the city's total debt burden – including overlapping debt – remains moderate in relation to full property value, but has become high on a per capita basis and as a percentage of personal income. The city's debt ratios are not yet as high as New York's, but comparisons to other major cities show that Chicago has transitioned from a comparatively moderate to a comparatively high debt city over the past decade (See Figure 3). The city's growing debt has reduced its financial flexibility as measured by direct debt service growing to 13.5% of total governmental fund expenditures in 2016. We address the issue of total fixed charges – including pension payments – later in this report.

Figure 3



** Total Income is based on Income Per Capita and Population data from the US Census*
Source: City CAFRS & US Census

Meanwhile, for the purposes of examining the broader issue of affordability, KBRA identified the expenditure reductions or the incremental revenue the city may need to raise from its wealth base in order to meet its projected debt service obligations (See Figure 4). For purposes of this analysis, KBRA conservatively assumes all incremental needs will come from new revenues. Assuming the city does not issue new debt in a way that significantly increases the near term debt service schedule, and also assuming the city does no further restructuring of existing debt to "scoop and toss" debt service into future years, KBRA estimates the city may need to raise roughly $430 million more from its tax base compared to its fiscal 2017 debt service tax levy, for annual direct debt service when pension obligations plateau in 2023. KBRA notes that the Chicago City Council has already authorized the levy needed for all G.O. debt service obligations, but the $430 million is included in this examination of affordability because this portion of the levy has not yet been implemented.

Figure 4

Long-Term General Obligation Bonds Debt Service Schedule ($ Thousands)				
	Principal	**Interest**	**Total**	**GAP between the 2017 D/S Levy and the Future D/S Schedule**
2017	135,437	368,586	*504,022	78,502
2018	208,197	436,601	644,797	219,276
2019	280,034	462,247	742,281	316,760
2020	359,964	544,193	904,156	478,635
2021	357,907	526,382	884,289	458,768
2022	364,798	514,424	879,223	453,702
2023	***359,413***	***497,172***	***856,585***	***431,064***
2024	356,902	479,698	836,600	411,079
2025	349,474	462,899	812,373	386,852

As of February 1, 2017
Source: City of Chicago General Obligation Bonds, Project and Refunding Series 2017A and Taxable Project Series 2017B, Official Statement.
** The City's actual D/S Levy was roughly $425 million according to the Cook County Assesor Office. The City used approximately $80 million of bond proceeds for this debt service payment.*
Principle and Interest on City of Chicago's Direct General Obligation Debt and Other City General Obligation Debt Per footnote 1 page 85 of the 2017A and B Official Statement
Note: May not total due to rounding

Section 2: Direct Pension and OPEB

In this section, KBRA describes the fiscal condition of the city's four pension plans; the city's plan to reform them; the impact the reform plan has on the city's budget; and the incremental revenue the city may need to raise from its wealth base to meet the annual payment schedule associated with the pension reform plan.

Direct Pension Obligations Overview

The city contributes to four single-payer defined-benefit pension funds (See Figure 5).

Figure 5

City of Chicago's Four Pension Funds Funding Status								
City Pension Plans	**Valuation Date**	**Market Value of Assets ($ millions)**	**Actuarial Accrued Liability ($ millions)**	**Unfunded Actuarial Accrued Liability (UAAL) ($ millions)**	**Funded Ratio Based on Market Value of Assets Divided by UAAL**	**Five Year Average Investment Rates of Return**	**New GASB Discount Rate**	**Net Pension Liability ($ million)**
FABF	12/31/15	1,045	4,614	3,569	22.7%	7.5%	7.16%	3,781
PABF	12/31/16	2,865	12,857	9,992	22.3%	6.9%	7.07%	10,248
MEABF	12/31/16	4,436	15,055	10,619	29.5%	8.2%	3.91%	18,855
LABF	12/31/16	1,168	2,509	1,342	46.5%	6.6%	4.17%	2,526

Source: Pension Plan Actuarial Reports | City of Chicago General Obligation Bonds Series 2017 A & B Official Statement

The unfunded portion of these funds has been large and growing for the past decade. The contributing factors to this large unfunded liability are complex. Under the Illinois pension code, the city's pension contributions were based on a statutory formula. This formula, still used for the city's municipal (MEABF) and laborer (LABF) funds until this year, did not adjust for changes in investment returns, the changing demographics of retiring employees, or benefit enhancements – including automatic cost of living adjustments. Many years of non-actuarially based funding were compounded by economic downturns in 2000 and 2007-2009 that sharply lowered investment returns and further reduced funded ratios.

In 2015 the city transitioned to new GASB pension reporting standards[7] which caused an over $10 billion increase in Chicago's *reported* unfunded pension liabilities. This higher number was driven largely by a GASB requirement to use a much lower discount rate for determining the new net pension liability (NPL) of the MEABF and LABF funds[8] due to the fact that these funds – before full enactment of the city's reform plan – were projected to deplete their assets by 2024 and 2026 respectively.[9]

The lower discount rate and the resulting spike in reported liabilities had the impact KBRA believes GASB intended – it enhanced awareness, decision making, and accountability[10] for a better long term plan for funding pension obligations. This spike in reported liability was not, however, despite its impact on many analysts' new NPL ratios, an indicator of an imminent risk of default on pension or debt payments. For similar reasons, KBRA believes it will not be cause for celebration when there is an upward adjustment to a higher discount rate and a corresponding reduction in reported NPL after the city fully transitions to actuarially based contributions.

Pension Impact on Long Term Liabilities

Chicago's NPL relative to fair market value (FMV) of its tax base shows it is an outlier compared to other large cities. In order to enhance comparisons, KBRA engaged the actuarial consulting experts at The Terry Group[11] to develop a model that allowed us to incorporate all of the projected benefit characteristics of the four largest cities' pension funds and – among other things – compare their reported NPL's on an apples to apples basis using a similar discount rate. Using these normalized comparisons reveals that the city remains an outlier, though its pension burdens are somewhat more comparable to New York City than when using Chicago's current GASB discount rate (See Figure 6).

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[7] Governmental Accounting Standards Board (GASB): Summary - Statement No. 67: http://www.gasb.org/cs/ContentServer?site=GASB&c=Pronouncement_C&pagename=GASB%2FPronouncement_C%2FGASBSummaryPage&cid=1176160219444

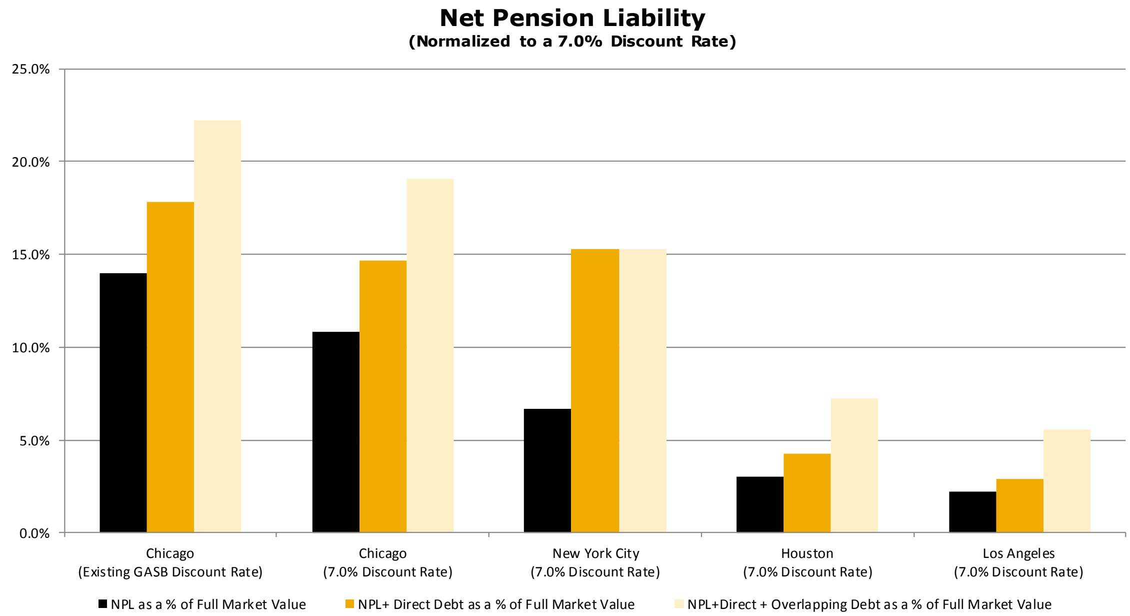
[8] Governmental Accounting Standards Board (GASB): Summary - Statement No. 68: http://www.gasb.org/jsp/GASB/Pronouncement_C/GASBSummaryPage&cid=1176160219492

[9] *GASB's NEW PENSION STANDARDS: SETTING THE RECORD STRAIGHT:*
"If a government reaches a *crossover point*—when projected benefit payments for current employees and inactive employees exceed projected plan net position related to those employees—then benefit payments projected to be made from that point forward will be discounted using a high-quality municipal bond interest rate. This liability-based rate is appropriate because the plan would no longer be expected to have sufficient assets related to those employees to produce investment income that will reduce how much an employer will have to contribute."
http://www.gasb.org/cs/ContentServer?site=GASB&c=Page&pagename=GASB%2FPage%2FGASBSectionPage&cid=1176160432178

[10] GASB Summary Statement No. 67: "The new information will enhance the decision-usefulness of the financial reports of these pension plans, their value for assessing accountability, and their transparency by providing information about measures of net pension liabilities and explanations of how and why those liabilities changed from year to year. The net pension liability information, including ratios, will offer an up-to-date indication of the extent to which the total pension liability is covered by the fiduciary net position of the pension plan". "The contribution schedule will provide measures to evaluate decisions related to the assessment of contribution rates in comparison to actuarially determined rates, when such rates are determined. In that circumstance, it also will provide information about whether employers and non-employer contributing entities, if applicable, are keeping pace with actuarially determined contribution measures."
http://www.gasb.org/cs/ContentServer?site=GASB&c=Pronouncement_C&pagename=GASB%2FPronouncement_C%2FGASBSummaryPage&cid=1176160219444

[11] The Terry Group provides expert advice and analysis in healthcare, pensions and investments. http://www.terrygroup.com/home

Figure 6



Source: KBRA Estimates, 2016 City CAFRS, and US Census

Nevertheless, KBRA believes there is a significant distinction between direct municipal bonded debt and pension obligations when examining municipal balance sheets.[12] KBRA believes that Chicago – a *going concern* municipality with ample liquidity, effective management, and a deep and diverse underlying economic base – is not rendered insolvent nor automatically likely to default on its general obligation debt because of its NPL ratios. KBRA certainly examines reported NPL and debt ratios and views them as indicators of relative long term burden. But it is more important, in our view, to use these ratios to point toward deeper analysis of the willingness and ability of the city to design a sustainable and affordable plan to fund related annual fixed obligations rather than to feed a scorecard that generates a credit rating.

Pension Reform Plan Overview

Figure 7

Budgeted Full Time Equivalent Positions	
2006	40,297
2007	40,207
2008	39,921
2009	37,419
2010	36,889
2011	36,448
2012	33,744
2013	33,555
2014	34,046
2015	34,129
2016	34,327

Source: City of Chicago 2016 CAFR

Chicago's management team collaborated with labor unions, the Illinois legislature, the City Council, and other stakeholders to develop a plan to gradually increase annual contributions to all four funds and stem the growth in unfunded liabilities. Overcoming adverse court decisions and other challenges, the city began to implement this plan, and to identify and dedicate new permanent revenue streams (property tax increase, water-sewer tax, and funds made available from the city's Corporate Fund because of the increase in the 911 surcharge) towards higher contributions. The city's plan includes higher employee contributions and other adjustments that, in combination with past attrition in the city's workforce (See Figure 7) help stabilize growth in the city's pension liabilities. Despite some observers' beliefs that the city's pension benefits are too generous, attempts to adjust benefits for existing beneficiaries were ruled unconstitutional by the State Supreme Court. Absent political will coming

[12] KBRA Local Government General Obligation Rating Methodology

from state leaders to amend the state constitution, the city must find ways to address its pension obligations as they are currently defined.

KBRA believes the city's overall plan to address its pension burden is a positive step forward, but there remain several weaknesses and challenges. Among the weaknesses is the fact that the city will need 40 years instead of 30 years to reach the state's target of a "90% funding level" for all of its pension funds. In KBRA's opinion, this elongated and back-weighted amortization schedule is not ideal and will mean that the city's unfunded pension liability will continue to grow for many years before reversing, and will remain a drag on the city's balance sheet. The city will also need five years to fully ramp up to the new actuarially based annual contributions. And the payment schedule in the city's plan assumes a 7.5% return on pension fund assets[13] which is somewhat high given pension fund investment returns in recent years. The risk here is that a period of returns on pension fund assets that are lower than this assumed discount rate would drive the city's new statutorily and actuarially based annual payments even higher. KBRA models this scenario later in this report.

Nevertheless, in the context of the historic severe underfunding of the pension funds and for the purpose of analyzing credit risk, in KBRA's opinion, the reform plan is positive because it is designed to achieve two important outcomes: retirees receive their promised benefits, and over time, the growth in unfunded liabilities is stabilized and eventually reversed. Further, from a bondholder's perspective, the reform plan and its related ramp up periods and elongated amortization schedule balance the need to achieve these two important goals while also giving the city capacity to meet its other obligations, including debt.

Annual Pension Payment Projections and Funding Gaps

The city will need to raise significant additional revenues or cut expenditures to fund the reform plan over the next five years. The state had previously enacted laws that allow the city to implement benefit reforms and increase annual payments to its police (PABF) and fire (FABF) pension funds, and the City Council approved a $543 million increase in the property tax levy, phased in over five years, to help fund this ramp up. KBRA notes that the State's laws governing contributions to the PABF and FABF funds explicitly subordinates those payment obligations to debt service related to any bonded debt of the city.[14]

Meanwhile, the state's recent and historic adoption of a fiscal 2018 budget includes laws that finally allow the city to enact similar benefit reforms and mandate increased annual payments to its MEABF and LABF funds. While waiting for this long delayed change in law, the city adopted, began collecting, and placed in escrow new funds made available by the change in the 911 surcharge and the water-sewer tax for this purpose. According to the city's estimates, these two revenue streams, plus approximately $45 million of existing enterprise fund transfers, will generate $324 million annually by fiscal 2021. In addition, the city has required enterprise funds to continue contributing their proportionate share of annual pension obligations based on their respective employees. Therefore, this transfer amount will grow to roughly $80 million in 2017 and will continue to grow as the city's annual payment obligations grow. For purposes of this affordability analysis, KBRA estimates the enterprise fund contributions will remain roughly 8% of the city's total annual pension obligations – and will grow to at least $179 million by 2023.

The net result of all these actions is that the city has already enacted roughly $1 billion of annualized revenue increases needed for its gradually increasing pension payment schedule. KBRA estimates that the city may need to identify about $885 million of additional revenue or expenditure reductions to meet the full ramp up to actuarially based contributions for all four funds by 2023 (See Figure 8).

[13] According to the recently released 2016 Actuarial report, the PABF has adjusted its discount rate to 7.25%.
[14] Illinois Public Act 099-0506

Figure 8

Estimates of City of Chicago Pension Obligations ($000)							
Fiscal Year	Estimated Projected Employer's Contributions				Total Pension Needs	− Resources Already Implemented (5)	= Remaining Annual Funding Needs
	FABF (1)	PABF (2)	MEABF (3)	LABF (4)			
2017	227,000	500,000	266,000	36,000	1,029,000		
2018	235,000	557,000	344,000	48,000	1,184,000	1,095,868	**88,132**
2019	245,000	579,000	421,000	60,000	1,305,000	1,171,110	**133,890**
2020	349,890	781,625	499,000	72,000	1,702,515	1,272,788	**429,727**
2021	358,280	801,465	576,000	84,000	1,819,745	1,329,130	**490,615**
2022	367,039	822,177	874,000	130,000	2,193,216	1,358,891	**834,325**
2023	***375,617***	***842,699***	***897,000***	***134,000***	***2,249,316***	***1,363,362***	***885,954***
2024	384,204	863,232	922,000	139,000	2,308,436	1,368,073	**940,363**
2025	***392,203***	***883,884***	***946,000***	***143,000***	***2,365,087***	***1,372,587***	***992,500***

(1) 2015 FABF Actuarial Report and City of Chicago General Obligation Bonds Series 2017 A & B Official Statement
(2) 2016 PABF Actuarial Report
(3) 2016 MEABF Actuarial Report and KBRA Estimates based on new legislation
(4) 2016 LABF Actuarial Report and KBRA Estimates based on new legislation
(5) Resources identified and implemented include:
- Corporate Fund contributions include funds made available by the 911 surcharge;
- FY 2017 property tax levies for pension contributions estimated at $905 million;
- Annual Utility Tax funding for MEABF, ramping up to $239 million by FY 2020;
- Enterprise Funds' share of annual pension contributions at $82 million (or 8%) in FY 2017 (per Annual Appropriation Ordinance) and remaining at 8% of total pension contributions in future years;
- Excludes one remaining year of MEABF property tax levy ramp up totaling $58 million which has not yet been levied.

The city's annual pension payments are then projected to level off to roughly 2.5% annual increases thereafter. The actual annual payment requirements could be somewhat higher or lower depending on a number of factors, including actual investment returns.

In KBRA's opinion, scenarios that assume the city can, will, or must convert to a 30 year closed amortization schedule to make up for the past decade of severe underfunding are not based in practical realities. Therefore, KBRA did not incorporate such a scenario in this analysis.

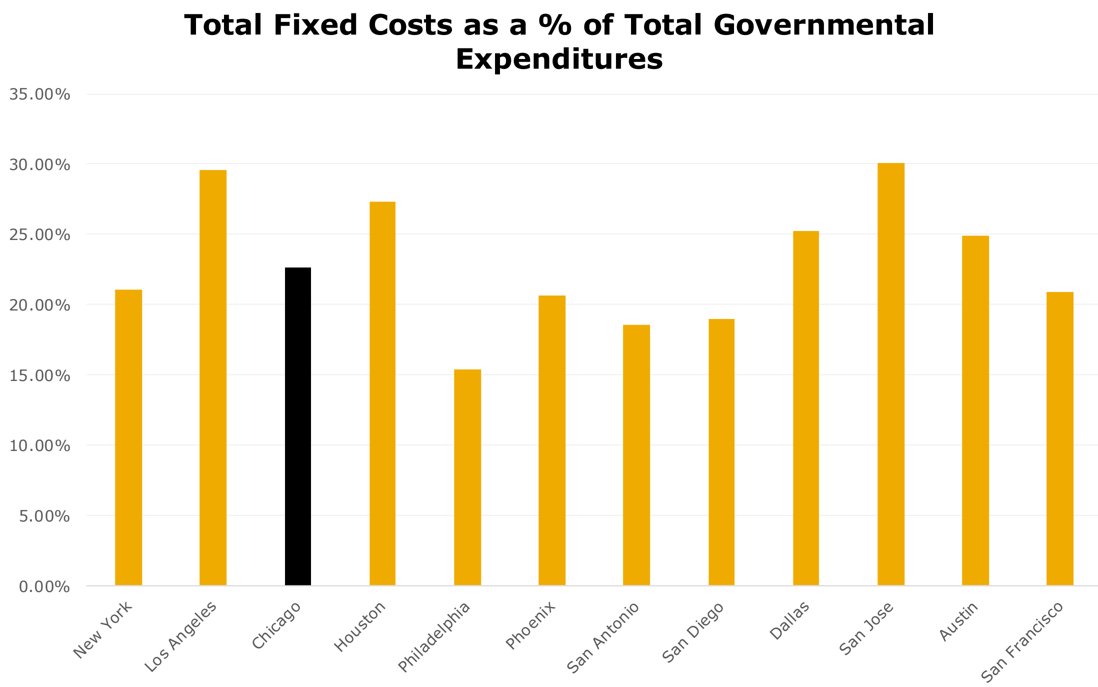
Pension Reform Plan's Impact on Fixed Charges

KBRA examined the impact the reform plan will have on the city's annual budget, cash flow, and fixed charges. It is important to note that when KBRA calculates fixed charge calculations related to pension payment obligations it uses actual contributions and, for projections, it uses the projected *required* contributions per the municipality's policies or laws – not KBRA's or any third party's hypothetical scenarios.

To calculate projected fixed charges, KBRA added projected debt service to the estimate of annual required payments to the city's four pension funds. KBRA also included a growth rate in other governmental spending of 3.3% - this is the base expenditure growth rate in the city's Annual Financial Analysis, and KBRA believes this is a reasonable assumption in the context of recent history.[15] Using these assumptions, KBRA concluded that the city's total fixed charges could begin to consume nearly 30% of governmental fund spending in 2023 or sooner, when the ramp up to actuarially based contributions is complete. According to KBRA methodology, this will be high but not completely out of line compared to some other major cities' current fixed charge ratios (See Figure 9).

[15] These expenditure growth scenarios are estimated based upon similar short run growth scenarios in the City's Annual Financial Analysis: https://www.cityofchicago.org/city/en/depts/obm/supp_info/disclaimer_and_advice.html

Figure 9



Source: City CAFRs

Another risk in the reform plan is that the city increases other governmental spending at faster rates than its base case assumptions. KBRA considered several scenarios of faster growth in other spending categories. While higher spending would have the perverse result of lowering the percentage of the city's budget consumed by fixed charges (another cautionary note about ratio driven analysis) it would have a negative impact on the fundamental issue of affordability. Therefore, KBRA believes that the success of the city's pension reforms and the stability of its credit rating require continued discipline regarding growth in other governmental spending.

OPEB Obligations

Given past agreements and court rulings, the city's annual exposure to other post-employment benefits (OPEB) remains quite manageable and contributions are made on an annual pay as you go basis. The city is in the process of phasing out health care subsidies for most retirees, which is now being litigated in the Illinois Appellate Court and the Illinois Supreme Court. KBRA believes that an unfavorable ruling could contribute to elevated budgetary pressures. However, at this time, the city's annual related OPEB payments are currently negligible in the context of the city's overall budget and this analysis.

Section 3: Resource Needs - Options and Flexibility

In this section of the report, KBRA presents several observations regarding Chicago's flexibility in its endeavors to raise revenue.

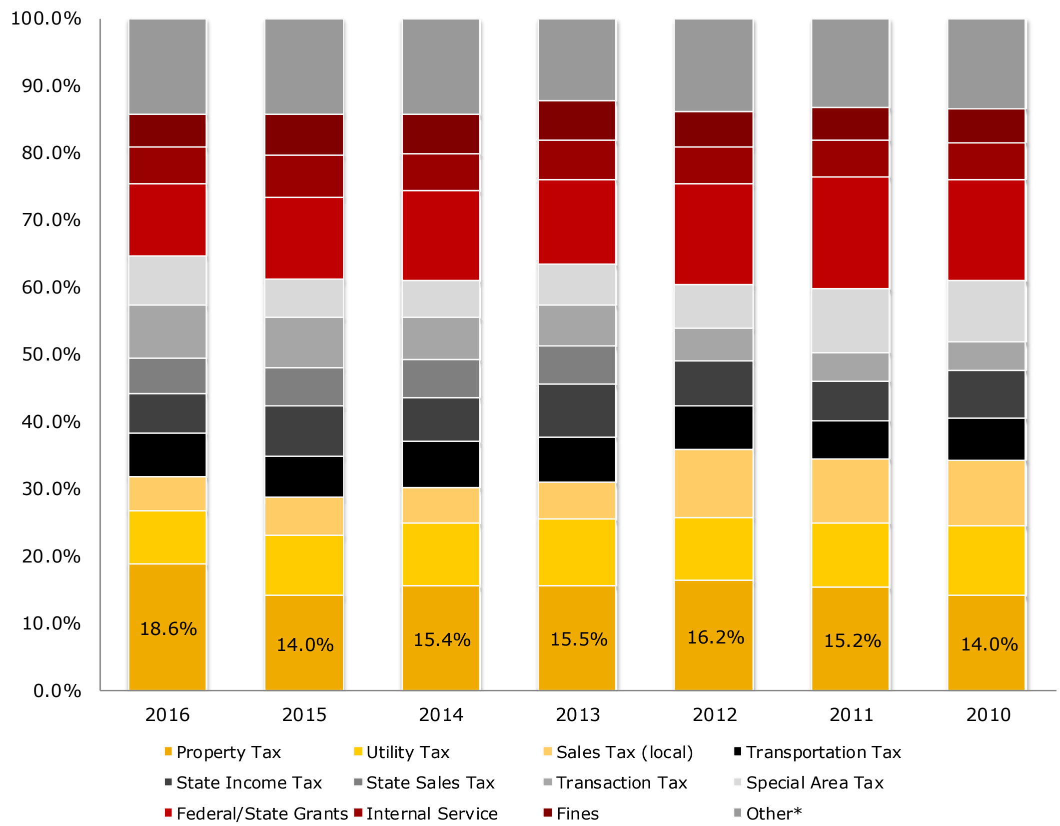
Diversity of Revenue Streams and Health of Tax Base

KBRA notes that the city uses a diverse blend of revenue streams to fund its general governmental operations (See Figure 10). In fact, the city is unique among large cities in that it does not use property taxes to fund general fund operations (See Figure 11). Property taxes – despite the recent increases to fund larger payments to the police and fire pension funds – remain a small portion of Chicago's overall general governmental funds budget. As a result, Chicago residents historically enjoyed the lowest composite property tax rates in all of Cook County even after including property taxes related to overlapping entities. While this offers the city some cushion as it ramps up to actuarially determined contributions, KBRA notes that raising property tax levies will remain very politically sensitive.

The process related to establishing fair market values, assessed values, and equalized values in Cook County is more complicated than in many municipalities. Nevertheless, the latest data indicate that the city's property tax base, after a slow start, has been recovering over the past several years from the trauma of the Great Recession (See Figure 32). The city's equalized assessed value (EAV) increased by over 9% during the fiscal 2016 triennial revaluation, and has grown another 4.3% on top of that according to the Cook County assessor's June 2017 report.[16] The next full revaluation is scheduled for the city's fiscal year 2019. It is important to note that growth in the overall tax base will help cushion the pain associated with any new levies and will also cause higher growth neighborhoods or sectors to absorb more of the burden than slower growth or declining neighborhoods.[17] Later in this report, our modeled scenarios reveal that a significant slowdown or reversal of the EAV and full market value (FMV) recoveries would make the transition to higher fixed charges more difficult.

Figure 10

Chicago Total Governmental Funds Revenue Diversity



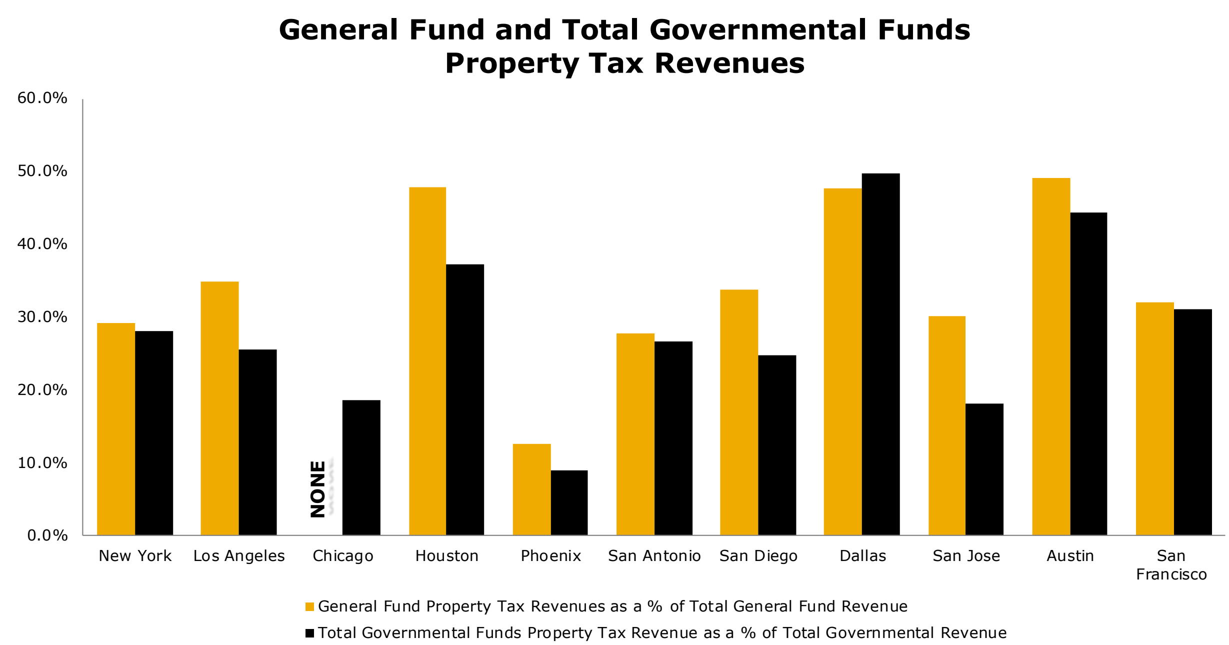
** Includes Recreation Tax, Other Taxes, Licenses and Permits, Investment Income (Loss), Charges for Services, and Miscellaneous*
Source: City of Chicago 2016 CAFR

[16] Cook County 2016 Tax rate Report http://www.cookcountyclerk.com/tsd/DocumentLibrary/2016%20Tax%20Rate%20Report.pdf
[17] Cook County 2015 Tax Rate Report file:///P:/2015%20Chicago%20Tax%20Rate%20Report.pdf
And Institute for Housing Studies at DePaul University
https://www.housingstudies.org/news/blog/who-will-be-hardest-hit-chicago-property-tax-incre/

KBRA examined the extent to which natural growth in the city's non-property tax revenue base may be able to absorb the ramped-up pension payments over the next decade. We examined non-property tax revenue and expenditure growth using three scenarios presented in the city's most recent Annual Financial Analysis. In all three (negative, base, and positive) scenarios, the city's short run expenditure growth – excluding fixed charges – is expected to slightly or moderately exceed revenue growth. This is due in part to the city's investment in police. While the conservative nature of the city's projections reflects management's tightened discipline in recent years, they also indicate it is unlikely that natural revenue growth will be enough to cover any significant portion of the new fixed charges.

In sum, KBRA believes that city leaders have demonstrated commitment and the capacity to tighten budget growth and to raise revenues from diverse sources. Chicago has also shown it has the ability and willingness to identify and implement new non-property tax revenue streams to support the increasing pension payment schedule. Home Rule authority confers significant ongoing operational flexibility in establishing and collecting many of these revenue streams. KBRA believes all of this history, these structures, and management's behaviors bode well for Chicago's plan to control expenditure growth and gradually raise new resources – including but not exclusively property taxes – to meet its growing pension fund payments.

Figure 11



Source: City CAFRS

Section 4: Overlapping Burdens

In this section, KBRA examines the projected burden caused by the growing debt and pension expenses of overlapping jurisdictions.

As described previously, Chicago's total debt, including overlapping debt, is high and has been growing (See Figure 12). Unlike the city, many of the overlapping entities are highly dependent on property taxes. And, except for Cook County which has Home Rule authority and recently enacted a 1% increase in sales tax rates to help fund pension obligations, the other entities are unlikely to be able to raise significant revenue from other sources. This adds greater importance to the city's plan to continue to diversify its sources of incremental revenues.

Figure 12

Chicago and Overlapping Entities Tax Rates and Debt Outstanding		
	Tax Rates	**Debt Outstanding ($000)**
City of Chicago	1.630	9,830,679 (1)
Community College District	0.169	245,995
Chicago Park District	0.362	562,370
Chicago Public Schools	3.725	6,578,983
Water Reclamation District	0.406	2,583,923
Cook County	0.533	1,814,679
Cook County Forest Preserve	0.063	52,025
Other*	0.257	-
City of Chicago General Composite**	**7.145**	**21,668,654**

Source: Individual entities' CAFRs and Cook County Clerk Tax Year 2016 Tax rate Releases | Tax Year 2016 equals Fiscal Year 2017

(1) City of Chicago General Obligation Bonds Series 2017 A & B Official Statement

** Includes Chicago School Building & Improvement Fund and Chicago Library Fund*

***City of Chicago General Composite tax rate does not include special districts such as mosquito abatement, special service areas, or home equity assurance district*

The overlapping entities' projected debt, pension, and operating needs will continue to impact the city's own pension funding options. Based upon published data[18] KBRA developed an estimate of the incremental revenue the overlapping entities might need to raise from the city's tax base for their own growing pension and debt obligations (See Figure 13). This estimate conservatively assumes that these entities do not fund the incremental fixed obligations from expenditure savings or from other sources of non-property tax revenue. KBRA recognizes that some of these entities do not plan, and or, in some cases, cannot raise all of these needed resources from increased property taxes because of the Property Tax Extension Limitation Law (PTELL). Nevertheless, for the purpose of modeling the issue of affordability, KBRA assumed that almost all of these incremental needs – roughly $339 million in 2023 – come from property tax levies. This estimate incorporates Chicago Public Schools' (CPS) new debt service schedule following its July 2017 bond sale, and also assumes CPS issues another $200 million of new debt. This estimate also assumes that the $220 million required increase in CPS' annual pension contributions between 2017 and 2025 is funded from the property tax base.

[18] Overlapping entities' latest available respective CAFR's, Actuarial Reports, and Official Statements.

Figure 13

Estimates of Additional Resources Needs ($000)				
Fiscal Year	**City's Pension Needs[1]**	**City's GO D/S[2]**	**Overlapping Entities' Pension and GO D/S[3][4]**	**Total**
2017	Base Year			
2018	88,132	219,276	112,489	419,898
2019	133,890	316,760	216,478	667,127
2020	429,727	478,635	290,665	1,199,028
2021	490,615	458,768	306,991	1,256,374
2022	834,325	453,702	320,145	1,608,172
2023	***885,954***	***431,064***	***338,728***	***1,655,747***
2024	940,363	411,079	352,548	1,703,990
2025	***992,500***	***386,852***	***430,878***	***1,810,230***

Source: City of Chicago CAFR

(1) See Figure 8

(2) Represents difference between annual D/S and the City's actual 2017 D/S Levy of $425 million (See Figure 4)

(3) Coterminous include:
Chicago Public Schools (100% overlaps with City)
Chicago Park District (100% overlaps with City)
KBRA assumes Cook County, Metropolitan Water Reclamation District, and Forest Preserve of Cook County overlap with City by 50%

(4) KBRA Base Case assumes overlapping entities' growing pension and GO D/S needs are funded by additional property tax levies, except for Cook County's growing pension needs are funded by recent sales tax increase and other sources

Many factors can and will influence the size of this overlapping funding need, including, the potential that these entities will issue more debt, that their operating expenditure growth will require more tax increases, and the impact of continued budgetary stress at CPS.

Section 5: Affordability

In this section, KBRA presents scenarios for the additional resources that may be needed to meet growing direct and overlapping pension and debt obligations. KBRA then discusses the potential impact these tax increases will have on several types of households and businesses, and provides an update on the relative health of the city's underlying economy.

Base Case

To examine the issue of affordability KBRA developed several scenarios. The base case scenario assumes the city and overlapping entities need to raise roughly $1.6 billion in new revenue to meet growing fixed costs by 2023. In this scenario, KBRA estimates that Chicago would need to increase annual revenue by roughly $1.3 billion by 2023, of which roughly $885 million will require new political action. (The $1.3 billion includes $430 million of property tax levy increases that the City Council has already authorized for growing debt service related to previously issued debt). KBRA's base case scenario assumes Chicago issues no new debt that significantly alters the near term debt service schedule, and also does no further debt restructuring to "scoop and toss" debt service into future years. KBRA also assumes that overlapping entities will need to raise an additional $339 million from the city's wealth base during the same timeframe (See Figure 13). As discussed previously, this estimate incorporates the effect of CPS' recent July 2017 bond sale and assumes CPS issues an additional $200 million of debt. This base case also assumes that the net $220 million required increase in CPS' annual pension contributions between 2017 and 2025 is funded from the property tax base.

High Needs Scenarios

To stress the issue of affordability, KBRA developed three additional higher needs scenarios that assume the need for even higher tax revenues or tax rates. In the first high needs scenario KBRA kept all of the assumptions of the base case but lowered Chicago's assumed discount rate and its annual return on all of its pension fund assets from 7.5% to 6.5%. This rate of return is more similar to the returns experienced in the past five years – which include the significant 2015 market disruption (See Figure 5). In this scenario, KBRA estimates that the city's combined annual contributions to all four pension funds would need to increase by over $140 million.

In the second high needs scenario, KBRA kept all of the base case assumptions but modeled the impact of minimal growth in the city's tax base – cutting expected growth in half from an already conservative 3% to 1.5% annual growth. In this scenario, KBRA also assumes that Chicago issues new debt that causes debt service to remain at the current schedule's peak of approximately $900 million.

In the third high needs scenario, KBRA kept all of the base case assumptions but added $300 million of additional annual tax base support for CPS's budget. This is on top of the assumption that $160 million of annual tax levies are needed to fund all of the ramp up of increasing pension obligations as well as its increasing debt service obligations. KBRA recognizes that CPS cannot raise all of these needed resources from increased property taxes because of the Property Tax Extension Limitation Law (PTELL). Nevertheless, for the purpose of modeling the issue of affordability, KBRA assumed that Chicago's property tax base is tapped to support the pension obligations.

For purposes of modeling, KBRA made several other assumptions:

- Overlapping entities will fund 100% of their resource needs through property taxes except for Cook County as noted in figure 13;
- The city will fund 65% of its additional pension related resource needs through property taxes and 35% through other taxes or fees. This assumption merely mimics the city's actions to date and is not meant to represent KBRA's recommendation or endorsement of this approach;
- Except in the relevant high needs scenario, the city's EAV grows 3%[19] per year; and
- Average household income and the average full value of a home each grow 2% per year.[20]

KBRA's modeled scenarios are not meant to be prescriptive or predictive. Instead, these scenarios, illustrated below, are meant to help quantify some of the concerns in the market regarding Chicago's fixed obligations.

[19] KBRA notes that the City's Fair Market Value began recovering from the trauma of the great recession in 2013 – experiencing 14% and 8% growth in the two most recently measured years (See Figure 32). Meanwhile, City's Equalized Assessed Value has grown 4%, 9%, and 4.3% in the 2014-2016 tax years respectively.

[20] U.S. Census indicates Chicago's Median Household Income increased 2.5% annually between 2010 and 2015, and 2.1% between 2005 and 2015, which includes the impact of the Great Recession.

Figure 15

Estimates of Additional Resource Needs ($ Thousands)					
		City's Pension	City's Debt Service	Coterminous Needs	Total Funding Needs for that Year
Base Case	2023	885,954	431,064	338,728	1,655,747
	2025	992,500	386,852	430,878	1,810,230
High Needs 1	2023	1,026,237	431,064	338,728	1,796,030
	2025	1,140,490	386,852	430,878	1,958,220
High Needs 2	2023	885,954	478,635	338,728	1,703,318
	2025	992,500	478,635	430,878	1,902,013
High Needs 3	2023	885,954	431,064	638,728	1,955,747
	2025	992,500	386,852	730,878	2,110,230

Source: KBRA Estimates

Impact and Affordability – Commercial and Industrial Sectors

Large Commercial and Industrial (50+ employees)

The city's commercial and industrial sectors are deep, diverse and support roughly 37% of the city's total property tax levy. KBRA notes that commercial property is assessed at 25% of full value versus 10% for residential property, which means that, all else being equal, commercial property absorbs a higher proportionate share of new and existing tax levies. To enhance our analysis of the impact that new taxes might have on larger businesses with 50 or more employees, KBRA examined two independent KPMG studies on this topic. The first, *Competitive Alternatives*,[21] is a biannual study done by KPMG since 1996 that analyzes and compares the cost factors that influence business location decisions in over 100 cities or metro areas in 10 countries. An addendum to this study focuses specifically on the impact of taxes. A second KPMG report, commissioned by World Business Chicago (WBC) in 2015, was based on the *Competitive Alternatives* framework, but specifically analyzed the potential impact of increased property taxes on several types of businesses in the City of Chicago.[22]

With regard to the first study, KBRA notes that Chicago scores higher than many U.S. cities in both the business cost index[23] and the total tax index[24] but has a lower *total cost* and *tax cost* across most industry types relative to New York, Los Angeles, and other major global economic capitals. Additionally, while Chicago's labor costs – which according to KPMG's research are the most important factor that drives business location decisions – are higher than those of many other Midwestern cities, they are lower than the major coastal cities in the U.S.

Further, the *Competitive Alternatives* report indicates that property tax costs are among the least significant drivers of medium to large manufacturing or professional services companies' location decisions – scoring a "1-2% relative significance." This concept was affirmed in the study commissioned by WBC. In that report KPMG determined that property taxes represented less than 3.9% of the total tax burden on

[21] KPMG Competitive Alternatives 2016 https://www.competitivealternatives.com/
[22] KPMG World Business Chicago Tax Study http://www.worldbusinesschicago.com/kpmg-wbc-tax-study/
[23] KPMG Competitive Alternatives 2016 https://www.competitivealternatives.com/
[24] KPMG Competitive Alternatives 2016 – Focus on Tax https://www.competitivealternatives.com/

the prototypical professional services firm and 2.8% on the modeled manufacturing firm.[25] KPMG's WBC study also determined that a one-time $750 million property tax levy increase – an unlikely and extreme stress scenario – changed these ratios moderately to 4.7% and 3.5% respectively.

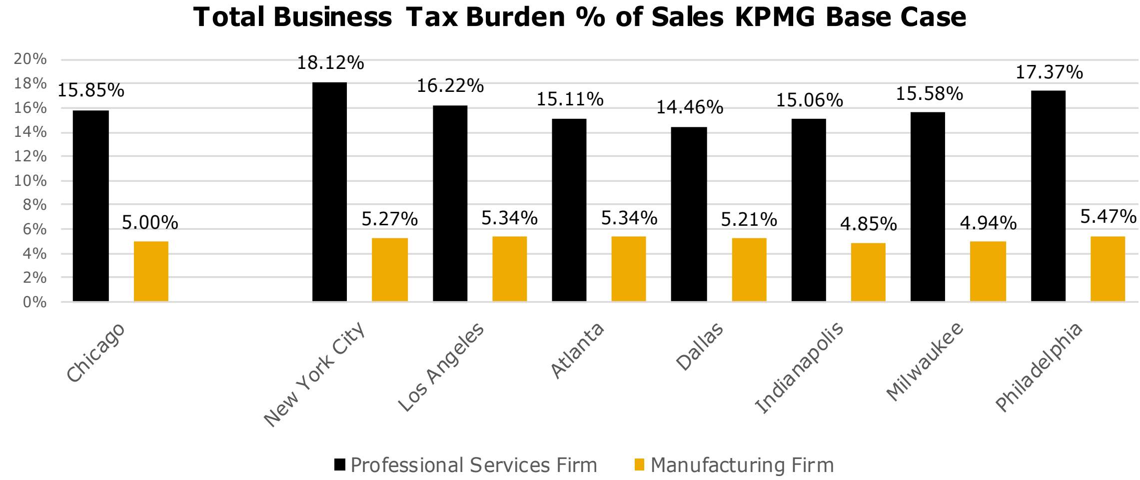
KPMG's WBC study also demonstrated that the City of Chicago, while more expensive than typical sunbelt and Midwestern cities, does not have an outsize tax burden on businesses relative to other major economic capitals (See Figure 16). The KPMG tax burden analysis includes sales, income, property, utility, and Illinois' personal property replacement tax. KPMG's scenario of higher property taxes also included Cook County's recent 1% sales tax increase. KBRA notes that KPMG's study occurred during the period that the state corporate income tax rate had been temporarily reduced to 5.25% from 7% because of the state's budget impasse. The state's new budget restores the corporate rate back to 7% which would have the effect in Figure 16 of bringing Chicago's total business tax burden closer to that in New York and Philadelphia.

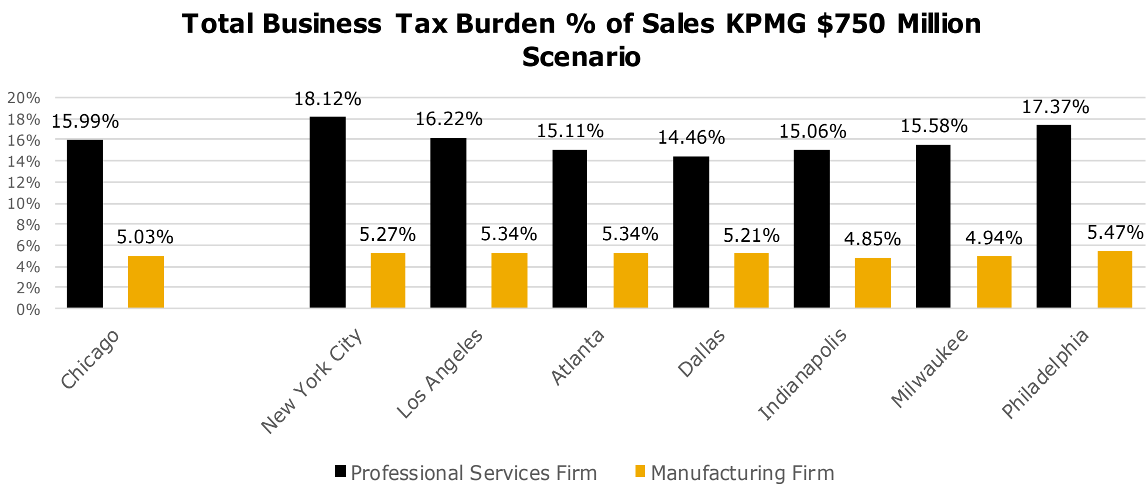
KBRA believes that KPMG's modeling of a one-time $750 million increase in the property tax levy was instructive. This high stress scenario demonstrated the impact of a dramatic one year increase in the property tax rate to 8.39% - the rate needed to generate the additional levy on the then existing tax base. And as shown in Figure 16, this had very little impact on the overall relative business tax burden. This is different than a more likely scenario that includes gradual property tax rate increases that would allow growth in the underlying tax base to somewhat cushion the impact on some taxpayers.[26] Nevertheless, this scenario had a modest comparative impact on the city's total business tax burdens relative to other large U.S. cities and to Chicago suburbs. It is worth noting that the Chicago suburbs modeled by KPMG often have much higher property tax rates, and similar or identical sales taxes and income taxes, and therefore offer a relatively weak competitive threat to the city based on relative tax burden alone.

Most important, KBRA notes that the 8.39% property tax rate assumed in the KPMG stress case is *higher* than the tax rate that will be needed in all of the scenarios described above (See Figures 22-25).

[25] KPMG World Business Chicago Tax Study http://www.worldbusinesschicago.com/kpmg-wbc-tax-study/
[26] Cook County 2016 Tax Rate Report: "When assessed values increase and a levy remains static, the tax rate will decrease. A tax bill is always a product of the amount of money sought from taxing districts (the levy), the property's assessed value, the state equalization factor, and the applicable tax rate."

Figure 16





Source: KPMG "Tax Burden on Residents and Businesses in the City of Chicago, U.S. Peer Cities, and Regional Municipalities"

KBRA recognizes that tax increases are never popular and rarely occur without controversy. But, in a city like Chicago where leadership has demonstrated willingness to act, bondholders should take note that there is also capacity to act. As it relates to taxing capacity Chicago, in KBRA's opinion, is not remotely equivalent to Detroit or Puerto Rico. And while hard to model quantitatively, it is reasonable to conclude that the city's continued status as the country's Midwestern hub of education, culture, transportation, and commerce is a more important decision driver for medium to large businesses than property taxes. Nevertheless, the health of the city's schools, the safety of its streets, and the stability of State income taxes may influence business leaders' decisions in years to come.

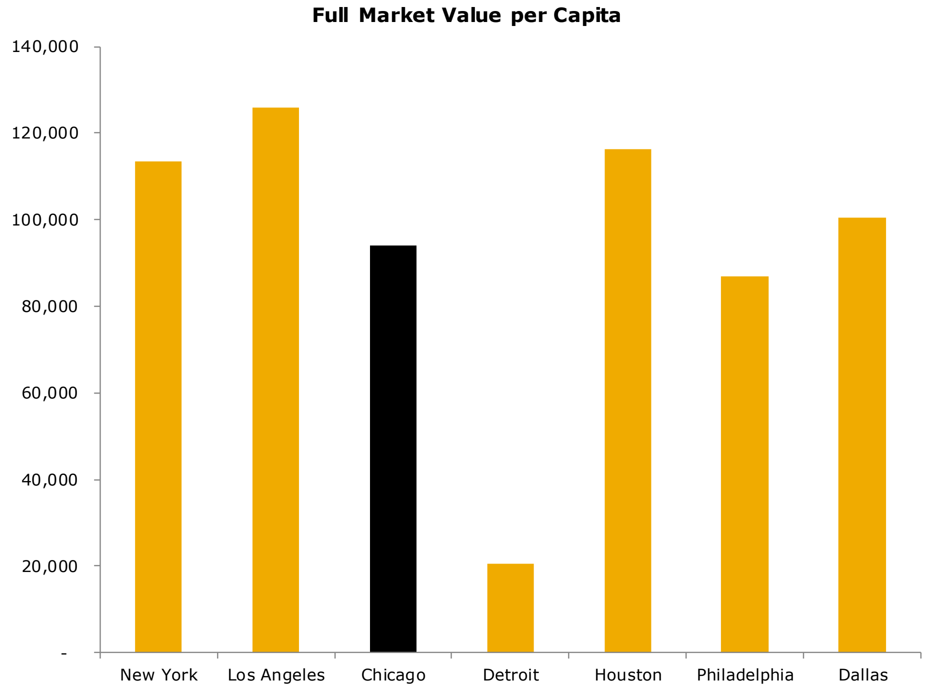
Small Commercial

For small businesses, the impact of higher property taxes may be more acute – depending on the type of business and its income level. As noted previously, commercial property is valued at 25% of fair market value. In 2017 the average commercial property – which the county assessor estimates to be valued at $270,000 – will pay $13,519 in property taxes.[27] In the scenarios KBRA developed, by 2023 this annual property tax bill could increase $2,500 – $4,000 assuming commercial property values grow 2% per year,

[27] Cook County 2016 Tax Rate Report http://www.cookcountyclerk.com/tsd/DocumentLibrary/2016%20Tax%20Rate%20Report.pdf

that assessment practices remain the same, and that the state's equalization formula does not significantly change. There are no comparative studies of small commercial tax burdens similar to the KPMG studies of larger businesses. But KBRA notes that small commercial businesses tend to be very regional and Chicago's composite property tax rates are likely to remain among the lowest in Cook County – even after recent and planned increases. Nevertheless, KBRA believes Chicago will likely need to be increasingly sensitive to small business tax burdens as it contemplates raising revenue in coming years.

Figure 17



Source: 2016 City CAFRs and 2015 US Census Population

Households

Background

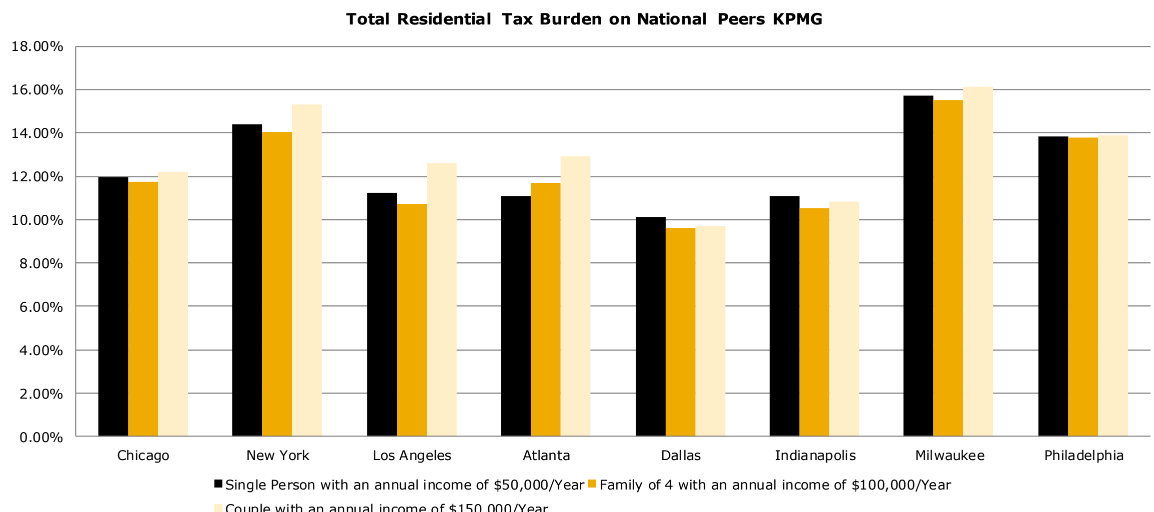
In developing our view of affordability for households, KBRA examined several studies on the topic of household tax burdens. While no study of this kind is perfect, KBRA notes that two studies are quite comprehensive and also include comparisons of Chicago with other cities. One study, done annually by Washington D.C., aims to calculate the combined state and local tax burdens that would apply to a hypothetical family at five different income levels.[28] The study includes four main tax types in its tax burden calculations: income, property, sales, and auto taxes. The other study, the "individual" portion of the KPMG study commissioned by WBC in late 2015, was designed to be similar to the D.C. study but also added various utility taxes and compared Chicago to ten peer cities and to ten of its suburbs.

KBRA notes that Chicago is not a low tax burden city. Nevertheless, despite the high visibility and impact of the county's recent sales tax increase, both studies show that Chicago's households do not now have a significantly higher or lower tax burden than many other major U.S. cities (See Figures 18-20). This will change somewhat after implementation of the state's higher income tax rates, but historically, this had been the result of the city's relatively low property taxes. KBRA also notes that both studies reveal that

[28] Washington D.C. office of the CFO https://cfo.dc.gov/page/tax-burdens-comparison

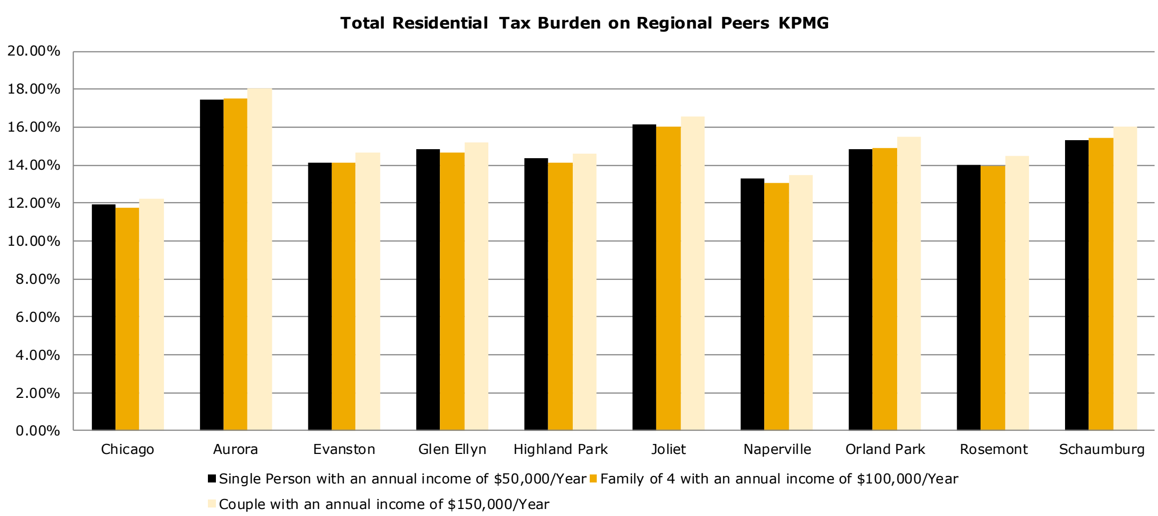
Chicago's higher income households are comparatively less burdened by taxes than in many of its peer cities. In KBRA's opinion, this is likely related to the state's flat income tax rates, the high total sales tax rate, and the absence of other policies or exemptions that can sometimes cushion lower income households. KBRA believes this relatively regressive tax environment may heighten political sensitivity to increased city taxes in coming years. Nevertheless, KBRA also notes that continued growth in the city's overall assessed value will mean that neighborhoods and households whose values are stagnant or declining will likely see much lower increases in their tax bills than the "average" increase.[29] This results in increasing sensitivity to the perceived fairness and transparency of the County's assessment process – issues that have already emerged in local media.

Figure 18



**As of September 2015*

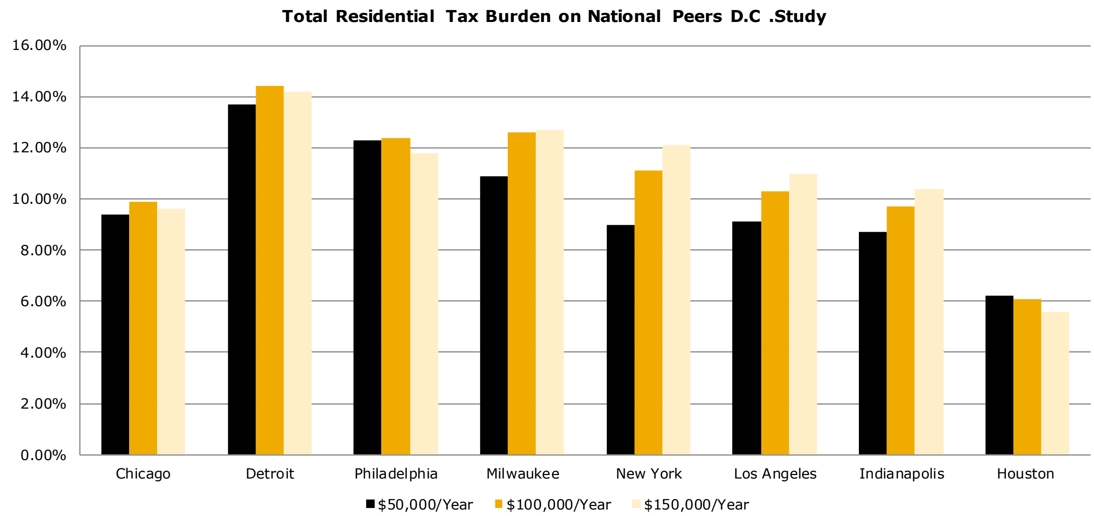
Figure 19



**As of September 2015*
Regional Peers Selected by World Business Chicago and KPMG

[29] Institute for Housing Studies at DePaul University
https://www.housingstudies.org/news/blog/who-will-be-hardest-hit-chicago-property-tax-incre/

Figure 20



Source: Government of the District of Columbia Issued December 2016

Meanwhile, the KPMG study reveals the city has significantly lower household tax burdens compared to several of its larger suburbs across all household income categories they studied (which also included households earning $200,000 and $250,000). This lower tax burden for city households is especially noticeable as it relates to property taxes – which on a combined basis still remain among the lowest in all of Cook County even after substantial increases in the past two years.[30]

KBRA notes that the characteristics of households selected by KPMG to compare across cities do not match perfectly with the D.C. study – and neither present a perfect "average" household. In particular, the KPMG household type of "single person with an income of $50,000" appeared out of context. But upon deeper examination, KBRA noted that this type of household enjoys fewer deductions and a higher income tax burden than a family with similar income. In any event, KBRA believes that both of these comprehensive studies indicate that the existing tax burden on Chicago households is slightly higher than in many large Midwestern and Sunbelt cities, lower than many of its surrounding suburbs, and in line with or below that on other major cities like New York and Los Angeles – especially at higher income levels.

New Taxes' Impact on Households

KBRA's analysis of the potential impact of new taxes on households differs from some other approaches that assume pension payments need to be made using a hypothetical 30 year amortization schedule, or assume a dramatic one year spike in property tax rates, or fail to incorporate growth in the underlying tax base over time. Instead, KBRA first calculated the potential additional resources needed for projected actual pension and debt payments, then determined the total property tax levy and other taxes needed to generate those resources across the ramp up period, and then determined the change in tax expenses for a prototype household.

In order to create the prototype household, KBRA compared information from the U.S. Census, the KPMG WBC report, the annual Cook County tax rate reports, and the D.C. study. The U.S. Census' ACS data[31] indicates that the city's median home value of $250,500 is occupied by a family with median income of $89,920. In June 2017, the Cook County assessor notes a similar average single family home value of

[30] Cook County 2016 Tax Rate Report http://www.cookcountyclerk.com/tsd/DocumentLibrary/2016%20Tax%20Rate%20Report.pdf
[31] U.S. Census Bureau https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk

$224,500. Meanwhile, the KPMG study assigned a household income level of $75,000 to a house value of $225,000 – utilizing an industry standard of home value at a 3x multiple of income.

Using these data, KBRA created a prototype household with a full market value of $250,000 and a household income of $90,000.[32] Using KPMG's various tax burden assumptions, we conservatively assumed the household had all the utility and retail sales consumption levels of a household that earned $100,000. KBRA updated property tax rates (7.145), sales tax rates (10.25%), and income tax rates (4.95%) to their new levels. This resulted in a current base line prototype household with a state and local total tax burden of 12.8% of annual income (See Figure 22).

Next, KBRA modeled the impact of taxes possibly needed to fund pension and debt obligations in both the base case and high needs scenarios. As discussed previously, based on decisions Chicago has made to date, KBRA assumed that the city's estimated needs (on top of sources already identified) would be met with a mix of 65% property taxes and 35% other taxes. We also assumed modest 3% annual growth in the property tax base; and 2% annual growth in household income and housing values (See footnotes 19 and 20).

Figure 21

KBRA's Base Case Resource Needs Assumptions

	City's EAV 1.5% Annual Growth Rate	City's EAV 3% Annual Growth Rate	Estimated Resources Needs	Portion Assumed to be Funded by Property Tax	Portion Assumed to be Funded by Other Taxes
2017	74,016,506	74,016,506	---------------------------Base Year---------------------------		
2023	88,379,579	88,379,579	1,655,747	1,345,663	310,084
2025	93,761,896	93,761,896	1,810,230	1,462,855	347,375

Source: KBRA Estimates

In comparison to Figure 18, Figure 22 reveals that, in the relatively conservative KBRA base case scenario, the total tax burden for the prototype Chicago family in six years could become similar to that experienced in New York, but remain below those of cities like Philadelphia and Milwaukee – assuming no changes in those cities' tax burdens.

Figure 22

KBRA Base Case Tax Burden with EAV Growth of 3%

Estimated State and Local Tax Burden for a Hypothetical Household Income $90,000 and a $250,000 Home Assuming Tax Base Grows by 3% Annually and Pension Discount Rate at 7.5%

Year	Income (1)	Home Value (1)	Projected Property Tax Rate (3)	Property Tax ($)	Total Other Taxes(2)	Total Burden ($)	Total Burden (%)(4)
2017	90,000	250,000	7.145	4,507	6,974	11,482	12.8%
2023	101,355	281,541	7.506	5,399	8,542	13,940	13.8%
2025	105,449	292,915	7.201	5,408	8,908	14,317	13.6%

(1) Assumes Income and Home Value grows by 2% annually
(2) Other taxes include sales tax at new rate of 10.25%; income tax at new rate of 4.95% as of July 1, 2017, including KBRA's estimates on income tax exemptions; auto tax, and other utilities
(3) For purpose of KBRA modeling, we assumes the state equalization factor stays relatively constant
(4)These numbers are comparable to the KPMG numbers

[32] U.S. Census Bureau *Financial Characteristics for Housing Units With a Mortgage* 2015 ACS

In the first high needs scenario, we stressed the base case by permanently lowering both the discount rate and the return on pension fund assets to 6.5%. This lower rate compares well to the five year average annual fair market value asset returns shown in Figure 5 – which include the substantial 2015 market disruption. We then incorporated all of the relevant characteristics of the four pension funds as well as the state funding requirements into our pension contribution model in order to estimate the corresponding increases in the city's pension contributions. This results in roughly $140 million in required annual contributions, the impact of which is modeled in Figure 23.

Figure 23

KBRA High Needs 1 Tax Burden with EAV Growth of 3%

Estimated State and Local Tax Burden of Major Taxes for a Hypothetical Household Income $90,000 and a $250,000 Home Assuming Tax Base Grows by 3% Annually and Pension Discount Rate at 6.5%							
Year	Income (1)	Home Value (1)	Projected Property Tax Rate (3)	Property Tax ($)	Total Other Taxes(2)	Total Burden ($)	Total Burden (%)(4)
2017	90,000	250,000	7.145	4,507	6,974	11,482	12.8%
2023	101,355	281,541	7.610	5,473	8,585	14,058	13.9%
2025	105,449	292,915	7.303	5,485	8,954	14,440	13.7%

(1) Assumes Income and Home Value grows by 2% annually
(2) Other taxes include sales tax at new rate of 10.25%; income tax at new rate of 4.95% as of July 1, 2017, including KBRA's estimates on income tax exemptions; auto tax, and other utilities
(3) For purpose of KBRA modeling, we assumes the state equalization factor stays relatively constant
(4)These numbers are comparable to the KPMG numbers

In the second high needs scenario, KBRA stressed the base case by lowering expected EAV growth from 3% to 1.5%. KBRA modeled this scenario to examine the impact of a substantial slow-down in the still recovering tax base.[33] This scenario also assumes that the city issues additional debt causing its annual debt service to remain at its 2020 peak of $904 million. This scenario demonstrates the important role that tax base growth will play during the transition to higher pension contributions (Figure 24).

Figure 24

KBRA High Needs 2 Tax Burden with EAV Growth of 1.5%

Estimated State and Local Tax Burden of a Hypothetical Household Income $90,000 and a $250,000 Home Assuming Tax Base Grows by 1.5% Annually and City Debt Service Remains at Peak of $904 million							
Year	Income (1)	Home Value (1)	Projected Property Tax Rate (3)	Property Tax ($)	Total Other Taxes(2)	Total Burden ($)	Total Burden (%)(4)
2017	90,000	250,000	7.145	4,507	6,975	11,482	12.8%
2023	101,355	281,541	8.256	5,938	8,542	14,479	14.3%
2025	105,449	292,915	8.207	6,164	8,908	15,073	14.3%

(1) Assumes Income and Home Value grows by 2% annually
(2) Other taxes include sales tax at new rate of 10.25%; income tax at new rate of 4.95% as of July 1, 2017, including KBRA's estimates on income tax exemptions; auto tax, and other utilities
(3) For purpose of KBRA modeling, we assumes the state equalization factor stays relatively constant
(4)These numbers are comparable to the KPMG numbers

In the third high needs scenario KBRA modeled the impact of significant increases in property taxes related to $300 million of additional annual support for CPS's budget. This is modeled on top of the assumptions that all of the CPS increasing debt service and all of the CPS increasing pension contributions are paid from the property tax base. KBRA notes this is an extreme stress, done only for modeling the issue of affordability, and not a scenario being contemplated by city leaders. (Figure 25).

[33] Cook County 2016 Tax Rate Report: "When assessed values increase and a levy remains static, the tax rate will decrease. A tax bill is always a product of the amount of money sought from taxing districts (the levy), the property's assessed value, the state equalization factor, and the applicable tax rate."

Figure 25

KBRA High Needs 3 Tax Burden with EAV Growth of 3%

Estimated State and Local Tax Burden of a Hypothetical Household Income $90,000 and a $250,000 Home Assuming Tax Base Grows by 3% Annually and City Provides an Additional $300 Million Annual Support to CPS							
Year	**Income (1)**	**Home Value (1)**	**Projected Property Tax Rate (3)**	**Property Tax ($)**	**Total Other Taxes(2)**	**Total Burden ($)**	**Total Burden (%)(4)**
2017	90,000	250,000	7.145	4,507	6,975	11,482	12.8%
2023	101,355	281,541	7.724	5,555	8,633	14,188	14.0%
2025	105,449	292,915	7.408	5,565	9,001	14,566	13.8%

(1) Assumes Income and Home Value grows by 2% annually
(2) Other taxes include sales tax at new rate of 10.25%; income tax at new rate of 4.95% as of July 1, 2017, including KBRA's estimates on income tax exemptions; auto tax, and other utilities
(3) For purpose of KBRA modeling, we assumes the state equalization factor stays relatively constant
(4)These numbers are comparable to the KPMG numbers

None of these or any modeled scenarios can project future events perfectly. Nevertheless the scenarios KBRA modeled help quantify the timing, size, and impact of the city's and overlapping entities' higher debt and pension payments. KBRA notes that these scenarios demonstrate that continued growth in the property tax base, the timing of levy increases, and the return on pension fund assets are all important factors determining the amount of political pressure the city will face. The recent increase in the income tax rate is also an important factor. KBRA believes that the ability of the city to continue to identify expenditure reductions or other non-property taxes to offset property tax increases will be important.

It is also important to note that tax policies are ultimately governed by state and local laws that may limit or adjust the timing and type of taxes in the modeled scenarios. Nevertheless these scenarios demonstrate that the city's wealth base could absorb and afford the impact of new taxes. Affordability, combined with effective management that has consistently demonstrated its willingness to leverage the city's home rule authority and its commitment to bondholder interests, in KBRA's view, are among the qualities that separate Chicago from situations like Detroit and Puerto Rico. The depth, diversity and relative health of the city's underlying economy further supports this conclusion, and is discussed more fully below.

The Chicago Economy

Chicago has often been compared to municipalities with severe financial distress such as Detroit and Puerto Rico because of its growing pension liabilities. KBRA notes that Chicago's underlying resource base, despite the impact of the great recession, is dramatically more vibrant than these troubled municipalities. Figure 26 shows Chicago's resource base metrics along with several major U.S. cities as well as Detroit and Puerto Rico.

Figure 26

	2015 Population	**Chg from 2010**	**2015 Age Dependency Ratio[1] [2]**	**Chg from 2010**	**2015 Population with B.A. Degree or Higher[2]**	**Chg from 2010**	**2015 Poverty Level[2]**	**Chg from 2010**	**2015 Income per Capita**	**Chg from 2010**
Chicago	2,720,556	0.8%	49.4%	-0.9	36.6%	3.3	20.9%	-1.6	$31,641	23.4%
New York	8,550,405	4.5%	52.2%	1.2	36.8%	3.4	20.0%	-0.1	$34,396	17.3%
Los Angeles	3,971,896	4.6%	49.4%	1.3	32.6%	1.9	20.5%	-1.1	$30,136	14.9%
Philadelphia	1,567,442	2.6%	53.4%	0.4	27.4%	4.8	25.8%	-0.9	$23,961	18.8%
Detroit	677,124	-4.9%	61.2%	-0.3	14.2%	2.2	39.8%	2.2	$15,611	10.6%
Puerto Rico	3,474,182	-6.7%	64.7%	1.3	NA	NA	46.1%	1.1	$11,677	8.5%
United States	321,418,821	3.9%	60.7%	1.8	30.6%	2.4	14.7%	-0.6	$29,979	15.0%

Source: U.S. Census Bureau is used as the source in order to provide a consistent comparison among different units of government.
[1] Age dependency ratio is the sum of the population under 18 yrs and over 65 yrs divided by persons age 18 to 64 yrs.
[2] Year over year change shown as nominal change in percentage points.

The city has a population of over 2.7 million including roughly 1.0 million households. Population growth has been relatively stable for the last five years, with a mix of small increases and small declines. Residents of Chicago are highly educated, with 36.6% of the population having a B.A. or advanced degree. This is above comparable state and national levels and reflects the nature and quality of the employment base in the city. Chicago's wealth levels are quite strong, with income per capita growing 23.4% from 2010 to 2015 and is on par with other major U.S. cities. The city has a sizable amount of poverty that is consistent with other large urban centers.

In contrast, Detroit and Puerto Rico's local economies have been challenged by severe depopulation, unfavorable business climates, and inability to attract or retain highly educated individuals. As a result, the wealth levels in Detroit and Puerto Rico severely lag national averages.

KBRA notes that Chicago exhibits characteristics of an important world business center and houses one of the world's largest and most diversified economies. The city is ranked number seventh on A.T. Kearney's Global Cities Index[34] based on business activity, human capital, information exchange, cultural experience, and political engagement. The city is an important regional hub for commerce and culture. The Chicago-Joliet-Naperville metropolitan statistical area is home to over 400 corporate headquarters, including 34 in the Fortune 500. As mentioned earlier, the tax burden on businesses in Chicago is comparable to those on other large U.S. cities such as New York, Los Angeles, San Francisco, and Philadelphia. Chicago is also a dynamic home of finance, recording approximately 17% of the world's futures, options, and derivatives trading. Its employment base is very diverse, with no single category and none of the top ten employers representing a disproportionate share of the city's total employment. Despite the severity of the Great Recession, Chicago has now returned to pre-recession peaks in employment (See Figures 27 & 28). Diverse employers combined with roughly 60 nearby postsecondary education institutions help the city continue to attract and retain talented individuals.

Figure 27

Employment (not seasonally adjusted)												
Year	**Chicago**	**% Change**	**New York**	**% Change**	**Los Angeles**	**% Change**	**Philadelphia**	**% Change**	**Detroit**	**% Change**	**Puerto Rico**	**% Change**
2005	1,194,716		3,581,672		1,749,532		**575,746**		324,368		1,221,818	
2006	1,222,410	2.32%	3,626,608	1.25%	1,769,769	1.16%	577,682	0.34%	321,446	-0.90%	1,270,693	4.00%
2007	1,242,947	1.68%	3,664,279	1.04%	1,784,155	0.81%	582,727	0.87%	314,777	-2.07%	1,232,266	-3.02%
2008	1,230,895	-0.97%	3,705,457	1.12%	1,761,084	-1.29%	586,024	0.57%	304,376	-3.30%	1,187,398	-3.64%
2009	**1,174,107**	-4.61%	3,591,529	-3.07%	**1,679,925**	-4.61%	588,815	0.48%	283,041	-7.01%	1,101,862	-7.20%
2010	1,206,243	2.74%	**3,573,552**	-0.50%	1,709,964	1.79%	615,042	4.45%	208,289	-26.41%	1,061,047	-3.70%
2011	1,208,382	0.18%	3,602,687	0.82%	1,721,395	0.67%	617,186	0.35%	**206,226**	-0.99%	1,025,558	-3.34%
2012	1,227,514	1.58%	3,646,479	1.22%	1,744,031	1.31%	623,227	0.98%	208,119	0.92%	1,021,387	-0.41%
2013	1,232,951	0.44%	3,705,551	1.62%	1,788,184	2.53%	626,500	0.53%	208,352	0.11%	999,530	-2.14%
2014	1,253,337	1.65%	3,804,556	2.67%	1,835,573	2.65%	635,451	1.43%	209,599	0.60%	**976,463**	-2.31%
2015	1,271,236	1.43%	3,883,658	2.08%	1,875,749	2.19%	646,604	1.76%	213,234	1.73%	987,644	1.15%
2016	1,282,117	0.86%	3,924,088	1.04%	1,920,172	2.37%	659,423	1.98%	218,295	2.37%	988,998	0.14%
Growth Since Low	108,010	9.20%	350,536	9.81%	240,247	14.30%	83,677	14.53%	12,069	5.85%	12,535	1.28%

Source: Bureau of Labor Statistics

[34] A.T. Kearney https://www.atkearney.com/documents/10192/12610750/Global+Cities+2017+-+Leaders+in+a+World+of+Disruptive+Innovation.pdf/c00b71dd-18ab-4d6b-8ae6-526e380d6cc4

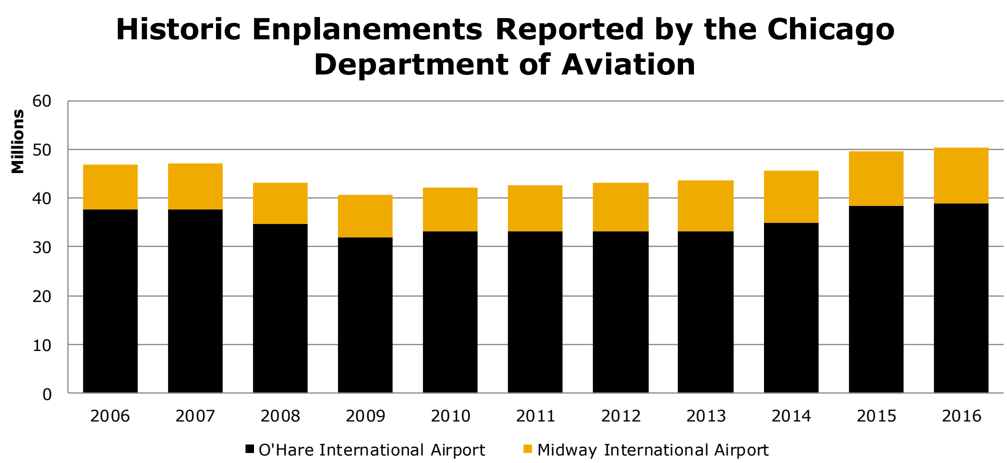
Figure 28

Unemployment Rates (not seasonally adjusted)						
Year	**Chicago**	**New York**	**Los Angeles**	**Philadelphia**	**Detroit**	**Puerto Rico**
2005	7.1	5.8	6.0	6.7	13.5	11.3
2006	5.4	5.0	5.3	6.2	13.4	10.5
2007	5.8	5.0	5.7	6.1	13.5	11.2
2008	7.0	5.6	8.4	7.1	15.0	11.8
2009	11.1	9.3	12.8	9.7	25.1	15.3
2010	11.2	9.5	13.2	10.6	24.8	16.4
2011	10.9	9.1	12.9	10.7	21.1	16.0
2012	10.0	9.3	11.5	10.9	19.2	14.5
2013	10.1	8.8	10.3	10.3	18.9	14.3
2014	7.8	7.3	8.7	8.1	16.1	13.9
2015	6.6	5.7	7.0	7.1	11.8	12.0
2016	6.5	5.2	5.6	6.8	10.9	11.8

Source: Bureau of Labor Statistics

Chicago is also a regional and international transportation hub, home to the third busiest U.S. airport - O'Hare International Airport. Including those at Midway Airport, where the city has also been investing, total enplanements at Chicago's area airports rank number three in the country after New York and Atlanta (see Figures 29 and 30).

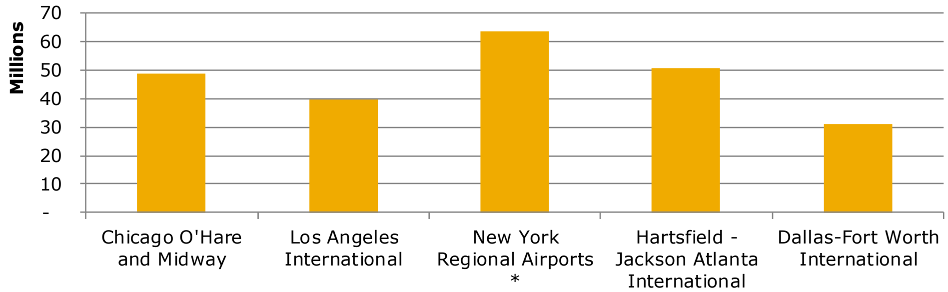
Figure 29



Source: Midway and O'Hare figures taken from Chicago Midway International Airport Annual Financial Statement

Figure 30

2016 Preliminary Revenue Enplanements Reported by the U.S Department of Transportation



**Includes JFK International, Newark Liberty International, and LaGuardia Airports*

Source: US Department of Transportation

In calendar year 2016, total number of visitors is estimated to have exceeded 53 million and Chicago is on target to meet its goal of attracting 55 million visitors annually by 2020. Hotel room nights increased by almost 13% in the past five years and daily room rates show year-over-year increases. Hotel tax revenue hit a record high in 2016 at over $127 million (see Figure 31). Tourism generated $14.9 billion in direct spending and $935 million in state and local tax revenues.

Figure 31

Chicago Central Business District
Historic Hotel Performance and Visitor Trends

	Total Hotel Room Nights	Average Hotel Occupancy Rate (%)	Average Daily Rate ($)	Chicago Hotel Tax Revenue ($)	Total Domestic Visitors (millions)	Total Overseas Visitors (millions)
2012	12,931,611	75.2%	187.20	101,532,357	45.00	1.37
2013	13,192,467	75.3%	191.82	106,304,670	46.96	1.38
2014	13,534,515	75.7%	198.76	113,592,474	48.71	1.33
2015	14,065,836	76.0%	207.83	123,978,511	50.97	1.62
2016	**14,599,631**	75.2%	**207.83**	**127,296,198**	52.35	*1.56
% Change 2016 vs 2012	12.9%	0.0%	11.0%	25.4%	16.3%	14.0%

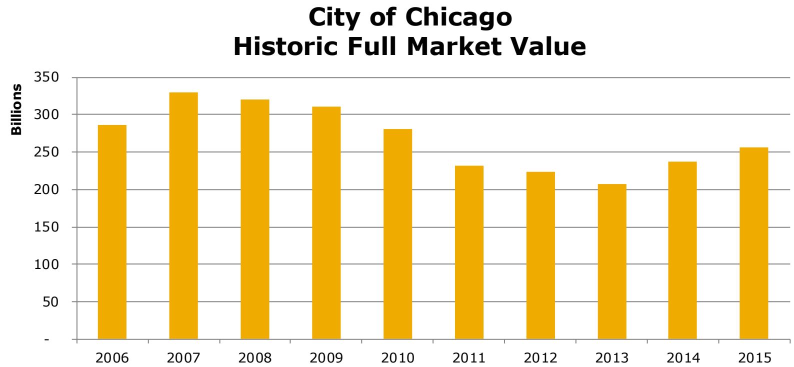
Source: Choose Chicago

**2016 Overseas number is a forecast*

Bolded values indicate a record for the City

Chicago's full market value (FMV) was hit hard by the Great Recession and experienced declines between 2008 and 2013. Since then FMV has stabilized and is recovering steadily (see Figure 32). Recent downtown developments are expected to provide further positive momentum for the Chicago's tax base.

Figure 32



Source: City of Chicago 2016 CAFR

Meanwhile, downtown office vacancy rates are at a 15-year low. An increase in downtown development is driven by increased demand for residential high-rises that are increasingly preferred by younger residents. Crane counts also indicate the strong demand for mixed-use and hospitality-type developments, followed by education, commercial, healthcare, and sports facilities, all of which are positive indicators supporting the city's tax base growth.

Conclusion

All these data support KBRA's belief that the City of Chicago's underlying economy has the ability to absorb and afford the transition needed to fund the city's growing pension and debt burdens. And as discussed previously, city leaders continue to demonstrate commitment to meeting all debt and pension obligations, even while confronting the fiscal challenges related to the state and school district. These economic and leadership conditions, setting aside political and headline headwinds, are in dramatic contrast to the environment in stressed municipalities like Detroit and Puerto Rico.

Chicago's Pension Liabilities: A Look Beyond Headlines and Ratios

In response to widespread market interest, Kroll Bond Rating Agency (KBRA) provides this special report to examine the affordability of Chicago's growing debt and pension obligations. KBRA notes that market interest in this topic intensified after Puerto Rico filed for protection from creditors, and during the State of Illinois' recent budget negotiations, and again after recent credit rating actions regarding Chicago's debt by another rating agency. In this report, KBRA examines data from the latest actuarial reports of the city's four pension plans, incorporates the impact of the state's new income tax rates, and models the effect of new taxes that may be needed to support the city's and overlapping entities' growing fixed obligations. In summary, KBRA concludes:

- Despite headlines and political challenges, in KBRA's view, the city's deep, diverse underlying wealth base has the capacity to afford the city's growing debt and pension obligations. This assessment of affordability includes the impact of growing debt and pension obligations at Chicago Public Schools, Cook County, and other overlapping municipalities.

- Regarding the issue of willingness, KBRA believes that behavior matters when assessing municipal credit risk. City leaders have demonstrated the political will necessary to execute their plans and protect bondholder interests despite numerous obstacles. If current or future city leaders do not demonstrate similar commitment, then KBRA will revisit the city's credit rating.

- Meanwhile, KBRA believes it is important to look beyond point-in-time ratios and hypothetical pension payment schedules that are sometimes used by others to populate scorecards and sort issuers into rating categories. Instead, KBRA assesses pension risk in Chicago and in other complex municipal credits by exploring deeper questions regarding whether or not a municipality's plans to fund pension obligations are sustainable and affordable.

- KBRA's credit ratings reflect our opinions of the willingness and capacity to re-pay debt, not our opinions about public policy or reactions to headlines. In the real world, pension payment schedules are creatures of public policy. Some pension funding plans, including Chicago's, can result in full and timely payments to retirees and to bondholders in ways that are sustainable and affordable despite not achieving ideal amortization schedules or pension liability funded ratios.[35]

- As stated in our last report **City of Chicago, Illinois General Obligation Bonds, Project and Refunding Series 2017A & Taxable Project Series 2017B** on the city's credit rating, the challenges and risks related to the city's severely underfunded pension plans are among the reasons KBRA rates Chicago BBB+ instead of a higher rating commensurate with the depth and diversity of its underlying economic base, effective management, improved financial controls, and ample reserves – conditions not present in situations like Detroit, Puerto Rico, and Stockton.
- KBRA estimates the city and overlapping entities may need to identify roughly $1.6 billion of expenditure reductions or revenue enhancements to meet growing annual pension and debt obligations by 2023 when the city's ramp up to actuarially determined pension contributions is complete. For purposes of examining

[35] GASB's NEW PENSION STANDARDS: SETTING THE RECORD STRAIGHT:
"As just stated, the new pension Statements relate only to accounting and financial reporting, or how pension costs and obligations are measured and reported in external financial reports. How much governments actually contribute each year to a pension plan is a policy issue. Governments will likely report pension expense more quickly than under the prior standards; however, how or whether this information is used in assessing the amounts that governments will contribute to their pension plans is a public policy decision made by government officials."
http://www.gasb.org/cs/ContentServer?site=GASB&c=Page&pagename=GASB%2FPage%2FGASBSectionPage&cid=1176160432178
and Pew Charitable Trusts: The State Pension Funding Gap: 2014
"The National Association of State Retirement Administrators (NASRA) accurately notes that using net amortization may not always recognize funding policies that are sustainable and that could reduce pension debt over the long term." http://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2016/08/the-state-pension-funding-gap-2014
And National Association of State Retirement Administrators, letter to Moody's Investors Service, Oct. 8, 2014, http://www.nasra.org/files/Letters/NASRAtoMoodys100814.pdf.

affordability in this report, KBRA assumes most of these resources will come from new revenues raised from the city's businesses, households, and visitors – the city's wealth base.

- KBRA believes the city's need to raise taxes will be politically painful, but affordable. To assess affordability, KBRA stressed several assumptions, such as the return on pension fund assets, embedded in the city's pension reform plan. KBRA also modeled the potential impact of higher taxes on various types of households by income level, and on businesses, and in comparison to regional and national peers. While tax burdens on households and businesses will grow – actual property tax rate increases will likely be much less than many analysts project and, in our opinion, will not result in tax burdens that are so high as to impact the city's position as the Midwest regional capital of commerce, culture, business, and education.

- KBRA's modeled scenarios are not meant to be prescriptive or predictive. Instead, these scenarios are meant to illustrate and quantify some of the concerns in the market regarding Chicago's fixed obligations. KBRA's modeling is distinct from some analyses that assume the city will need to abruptly convert to a 30 year amortization of its pension liabilities and fund such a hypothetical scenario with a one-time large spike in current property tax rates – a scenario that bondholders should take comfort in knowing is neither required by law, nor being considered by the city.

- KBRA notes that the potential needs for new revenue are substantial and politically sensitive. But city leaders have demonstrated the ability and willingness to control expenditure growth, and to identify and implement new non-property tax revenue streams to support the increasing pension payment obligations. The city's plan to use multiple sources of revenue or expenditure reductions, and to ramp up to actuarially determined contributions over the next five years will allow ongoing growth in the tax base to somewhat cushion the impact of any tax levy increases.

- Issues KBRA will continue to monitor include: the timing of political action needed to implement new revenue streams to complete the ramp-up to actuarially determined pension contributions; the need for continued healthy growth in the city's property tax base; necessary discipline in the city's other governmental spending; and the magnitude of spillover pressure on the city due to budget challenges at Chicago Public Schools.

These and other issues are discussed in more detail in the full report which is presented in five sections. In the first three sections, we estimate the incremental revenue the city and overlapping entities will likely need to raise from the city's wealth base over the next eight years to service increasing debt and pension obligations. In section four, KBRA discusses the city's revenue raising options in the context of its historic budgeting practices. In section five, we examine indicators of the city's underlying economic health and models the impact that cumulative incremental taxes may have on various types of businesses and households.

Analytical Contacts:

William Cox, Managing Director
wcox@kbra.com, (646) 731-2472

Harvey Zachem, Managing Director
hzachem@kbra.com, (646) 731-2385

Justin Schneider, Analyst
jschneider@kbra.com, (646) 731-2453

Karen Daly, Senior Managing Director
kdaly@kbra.com, (646) 731-2347

Alice Cheng, Associate Director
acheng@kbra.com, (646) 731-2403

City of Chicago

Annual Financial Analysis 2017

Mayor Rahm Emanuel

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Letter from the Mayor

Dear Fellow Chicagoans,

The City of Chicago's 2017 Annual Financial Analysis provides an overview of the City's revenue and expenditures and shares a picture of the City's overall financial health, including the progress we've made together to reduce our structural budget deficit by 82 percent since 2011 and improve our long-term financial stability.

When my Administration first took office, our structural budget deficit was $635 million, and all four of Chicago's pension funds were on the road to insolvency. Today, the City's finances are in a much different place. The projected shortfall for 2018 is $114.2 million, which is the lowest structural budget gap in more than a decade. The 2018 corporate fund gap is also 17 percent lower than 2017, and is an 82 percent reduction since I took office, and all four pension funds are on the road to solvency with dedicated revenue supporting increasing pension contributions in 2018.

Our significant reduction in the annual budget shortfall is the direct result of ongoing reforms, sustainable revenue growth, and tough choices. It demonstrates my follow through on the commitment I made to the people of Chicago six years ago, which was to address the City's financial challenges without sacrificing critical investments in our neighborhoods. We stopped using one time revenues, like proceeds from the sale of City assets, to balance the budget. We also developed funding plans for, and made substantial contributions to, all four of our pension funds. Today, by several critical measures, the City is more financially secure than it was six years ago. We achieved this while implementing significant savings and reforms to generate taxpayer savings over multiple years, including:

- Strategic energy and utility purchasing, consolidation of office spaces, and elimination of duplicative department functions, which provide year-over-year savings and also streamlines City government;
- Significant healthcare savings that have kept costs relatively stable since 2012;
- Transition of multiple City services – garbage collection and graffiti removal – to a grid system, boosting service and saving money; and
- Work with our partners in labor to implement reforms, such as the more flexible "General Laborers" title, competitive bidding, and apprenticeship programs.

We have also made meaningful progress towards my commitment to eliminate the need for "scoop and toss" by 2019. In 2016, the City began to eliminate this financial practice, and in 2018 we will continue building on the progress we've made over the last two years.

Together, we have created a better future, but we must remain focused on the financial reforms that got us to the lowest budget deficit in a decade, and build on those reforms to ensure we can continue to grow our investments in neighborhoods. The financial solvency of our government will allow us to focus on the things that reflect our common Chicago values: quality education, economic development in every neighborhood, modern infrastructure, and improved public safety in every community.

Rahm Emanuel

Rahm Emanuel
Mayor

Annual Financial Analysis
2017

Executive Summary

Executive Summary

2017 Annual Financial Analysis Available Online

In previous years the City of Chicago's Annual Financial Analysis (AFA) was distributed in print and the printed version was also available online. The full 2017 AFA is now available through an online platform on the City's website. This AFA provides readers with more detailed information in an interactive format.

This document provides the financial forecast for 2018 and upcoming years.

The full City of Chicago 2017 AFA is available at the following link: http://www.cityofchicago.org/city/en/depts/obm/supp_info/annual-budget-recommendations---documents.html

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Annual Financial Analysis 2017

Financial Forecast

Financial Forecast

INTRODUCTION

This section discusses the City's 2017 year-end estimates, 2018 preliminary revenue and expense projections, and three revenue and expense scenarios for the years 2019 and 2020 – with a base outlook, a negative outlook, and a positive outlook. These projections are based on historical revenue and expenditure data, current economic trends and conditions, and other known factors that are anticipated to have an impact on the City's finances. The purpose of this analysis is to ensure that the 2018 budget is formulated within the context of the City's current financial state, and with an informed view of future conditions and the long-term fiscal consequences of today's decisions.

This forecast focuses primarily on the corporate fund, which not only accounts for many of the basic services provided by the City, but also has historically experienced the largest disparity between revenues and expenditures. Projections for the City's major special revenue and enterprise funds are included at the end of this section.

GENERAL ECONOMIC CONSIDERATIONS[1]

As the U.S. economy continues to grow, benefiting from changing technologies and shifting consumer preferences, Chicago has seen overall growth in revenues in recent years with certain revenue sources growing at a faster pace than others.

Chicago continues to benefit from its diverse economic base. No single industry in the city employs more than 14.0 percent of the workforce, making Chicago one of the most diverse economies in the country and a key player in sectors from financial services to technology and healthcare. With ongoing investments in City services and infrastructure, the City has remained competitive with other emerging and established technology hubs across the country. Chicago is one of only four cities in the United States expected to be a top global technology innovation hub over the next four years.

Business growth and expansion has translated into an improved employment picture for Chicago and the metro area. Since 2011, Chicago has experienced significant job and wage growth. In fact, according to the Illinois Department of Employment Security report, more people are working in every part of Chicago than at any time since 2000. The City's unemployment rate declined to 6.5 percent in 2016 from 6.6 percent in 2015, and figures for June 2017 suggest continued improvement with an unemployment rate of 5.5 percent.

Consumer spending, aided by wage growth and low inflation, continues to help drive the economy at the local and national levels. Preliminary estimates indicate the U.S. gross domestic product (GDP) grew at an annual rate of 2.6 percent in the second quarter of 2017 following a 1.2 percent growth in the first quarter. Growth thus far has been helped by consumer spending, capital investments by businesses, and exports. GDP is projected to end 2017 around 2.2 percent, and is forecasted to grow in a range between 2.4 and 2.7 percent for 2018 through 2019.

Chicago's real estate development market is maintaining its growth. The city's industrial occupancy rate is at a 15-year high and 2016 closed with the lowest office vacancy rate in the central business district since 2008. The housing market continues to gain strength locally with home prices appreciating and with home sales at 3.2 percent higher in the first half of 2017 than the same period of 2016.

Low fuel-prices and air fares have increased airline travel with both of Chicago's airports seeing increased passenger volume in 2016 compared to 2015. A record 53.9 million visitors traveled to the City in 2016, marking a 2.5 percent increase over 2015.

Consumer sharing technologies, such as home and ride sharing services, have positively impacted the City's revenues. In 2015, the City began collecting a $5 fee for all rideshare vehicles picking up and dropping off at the City's airports, Navy Pier, and McCormick Place as well as an increased per ride charge for all rides that begin or end in Chicago. Also, a growing number of these visitors are booking overnight accommodations through HomeShare websites instead of

[1] The Economic Considerations in this section are developed from sources including the Bureau of Economic Analysis (www.bea.gov), the Bureau of Labor Statistics (www.bls.gov), Illinois Department of Economic Security (www.ides.illinois.gov), CBRE (www.CBRE.com) , the Chicago Aviation Department (www.flychicago.com), the Illinois Commission on Government Forecasting and Accountability (http://cgfa.ilga.gov/), the Illinois Comptroller Office (https://illinoiscomptroller.gov/), the Illinois Realtors (www.illinoisrealtor.org) and World Business Chicago (www.worldbusinesschicago.com).

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traditional hotels. Beginning in February 2015, the City required website booking facilitators, to collect the hotel accommodations tax on transactions facilitated by their websites, and starting in July 2016, the City implemented a 4.0 percent surcharge on rental of licensed vacation rentals and home sharing units.

While the City anticipates modest but steady economic growth in the coming years, lingering uncertainty around government spending and policies at the state and federal level may result in short-term negative impacts on the local, regional, and national economy. The State of Illinois recently adopted a full year budget for the first time in two years, resulting in certain revenue reductions for the remainder of the City's 2017 fiscal year and for fiscal year 2018. With over $14 billion of unpaid bills at the State due to the two year stalemate, the potential long-term economic effects of the State's budget impasse remain to be seen. Nationally, proposed infrastructure investments, revisions to the federal income tax code, and changes in the healthcare industry could all have impacts on the local economy as well.

These broader economic factors are accounted for in the following projections. The 2018 projections and the base outlook for 2019-2020 present what is currently viewed as the most likely scenario. The positive and negative outlooks for 2019 and 2020 provide insight into how changes in the economy and other related factors could affect the City's finances over the next three years.

2017 CORPORATE FUND YEAR-END ESTIMATES

2017 Year-End Revenues

The total corporate fund resources for 2017 are estimated to end this year approximately $11 million above budgeted levels at $3,745.9 million. Total revenues for 2017 are projected to end the year on target, while certain revenues are expected to end below budget. These include fine revenue due to recent programmatic changes in automated enforcement and other economically sensitive revenues growing at a more modest pace than budgeted. These reductions are offset by strong performances among other economically-sensitive revenues, such as personal property lease transaction tax and recreation taxes. Major categories of revenue and trends are discussed below, and more detail for each revenue source is included online in the Revenue section of the 2017 AFA.

Personal property lease tax revenues are estimated to end 14.0 percent, or $31 million, above 2017 budget expectations due to growth in the technology industry and other business sectors coupled with recent modifications to the lease transaction tax to improve compliance. As discussed further in the revenue section of the AFA, the City lowered the personal property lease tax rate and waived taxes, penalties and interest for years prior to 2015 for certain cloud software and infrastructure.

Despite economic growth nationally and locally, performance in certain economically sensitive revenue streams has slowed because of changing consumer behavior, among other factors. In recent years, the City's sales tax (Home Rule Occupation and Use Tax or HROT) revenue has remained relatively flat, following significant growth in the early 2010s as the economy rebounded. HROT collections were effectively flat in 2016 compared to 2015. 2017 HROT revenue is expected to end the year below budget estimates but close to the 2016 year-end revenues at $304.3 million. Part of the decline in the 2017 HROT revenue is due to a new 2.0 percent administrative charge that will be applied to local sales tax collections administered by the State of Illinois. This administrative charge was adopted by the General Assembly as part of the State's recent budget. The administrative charge will be applied starting with the July 2017 HROT distribution and all subsequent distributions,

2017-2018 PROJECTED EXPENDITURES AND REVENUES

$ Millions

	2017 YE Est	2018 Projected
Revenue	$3,745.9	$3,742.4
Expenditure	$3,735.4	$3,856.6
Budget Surplus/(Deficit)	**$10.5**	**($114.2)**

thereby reducing HROT revenue in 2017 by $4.6 million. In contrast, the City's share of the State's sales tax (Municipal Retailer Occupation Tax or MROT) revenue has grown each year since the recession, ending 2017 at an estimated $370.4 million or 1.0 percent above 2016 year-end revenues.

Despite employment and wage gains, state income tax revenues are expected to end 2017 below budgeted amounts at $250.0 million, while the City's share of personal property replacement tax (PPRT) revenue is estimated to finish the year nearly $30 million above budget at $160.4 million. The City previously expected to receive less PPRT revenue in 2017 as the State continued efforts to recover funds that were incorrectly paid to local taxing districts between April 2014 and March 2016. The reduction, however, has been less than expected, and PPRT revenue is ending 2017 well above budget projections. The City will continue to monitor PPRT disbursements in 2018 when all funds are expected to be fully recovered.

The mild winter, low natural gas prices, and increases in energy efficiencies have caused utility taxes to end $19.1 million below 2017 budgeted expectations. Transportation taxes are estimated to finish 4.5 percent above budget estimates due to the growing use of rideshare services. Additionally, amusement tax revenue continues to build on its year-over-year growth, and is ending the year $25.5 million above budget estimates helped by the popularity of professional sporting events and live theater performances in Chicago.

Non-tax revenues are expected to end 3.8 percent, or $42.7 million, below the 2017 budget, caused in part by a reduction in red light camera revenue from the elimination of six cameras and an increased grace period before the camera is triggered, which will reduce the total number of tickets issued in 2017. A 3.5 percent growth in charges for service and additional interest income from corporate fund investments are helping to offset revenue reductions in other non-tax revenues, but overall these revenues are down relative to budget.

2017 Year-End Expenditures

The 2017 corporate fund expenditures are currently expected to end the year on budget at $3,735.4 million. These estimates are based on year-to-date spending, incorporating payroll trends, market pricing for commodities, and any known changes or events that have or are anticipated to occur, during the remainder of 2017.

The year-end projections in 2017 reflect lower than expected expenses in salary and wages due to normal position turnover, but this reduction is offset by increased expenses related to public safety overtime. Additionally, the year-end expenditure projections reflect minor variations from the 2017 budget due to small adjustments in certain expense categories. Healthcare costs are estimated to end 2017 slightly below budget along with certain non-personnel expenses, including lower than budgeted costs related to diesel, gasoline and other commodities. This is due to favorable diesel and gasoline prices and a mild winter.

While corporate fund revenues and expenses are anticipated to end 2017 on budget, numerous factors can impact the City's revenues and expenditures, and these estimates may change as the year progresses. Decisions are made throughout the course of the year in response to new or changing needs and citywide priorities, and the City will continue to closely monitor its revenues and expenses.

2018 CORPORATE FUND PROJECTIONS

The difference between revenues and expenditures anticipated by the City in its preliminary corporate fund budget estimates each year is commonly referred to as the 'gap.' Based on current revenue and expenditure projections of existing operations, the City estimates a 2018 corporate fund gap of $114.2 million.

The $114.2 million gap for 2018 marks a 17.0 percent reduction from the 2017 structural deficit and an 82.0 percent decrease from 2011. This gap is also substantially smaller than what was projected for 2018 in both the 2015 and 2016 Annual Financial Analysis. This decrease is a direct result of sustainable and balanced revenue growth coupled with lasting savings and reforms made in the past six budgets. Savings and efficiencies resulting from strategic energy and utility purchasing, reduction of duplicative operations across departments, transition of garbage collection and other city services to a grid model, and healthcare cost savings have combined to reduce the City's structural deficit year-over-year. The City achieved this progress while concurrently phasing out the use of one-time revenue sources that had been used to balance the budget in the past.

The increased employer contributions to all four City pension funds are accounted for in the 2018 gap, as are the revenue sources that will be used to make those contributions. As discussed further in the in the pension section, the City has adopted a dedicated revenue source for each pension fund.

The following is a detailed outline of the City's operating revenue and expenditure projections for 2018. These expenditure and revenue projections do not assume any substantive changes to City operations, including expanded or new City services, in 2018. No cost-saving initiatives or new investments for 2018 are incorporated into these estimates as the 2018 projections reflect the structural gap in the City's operating budget related to existing expenses and revenues. As in all previous years, revenue and expense initiatives are developed by the City and will be included in the 2018 budget recommendation submitted to the City Council in October.

2018 Projected Corporate Fund Revenues

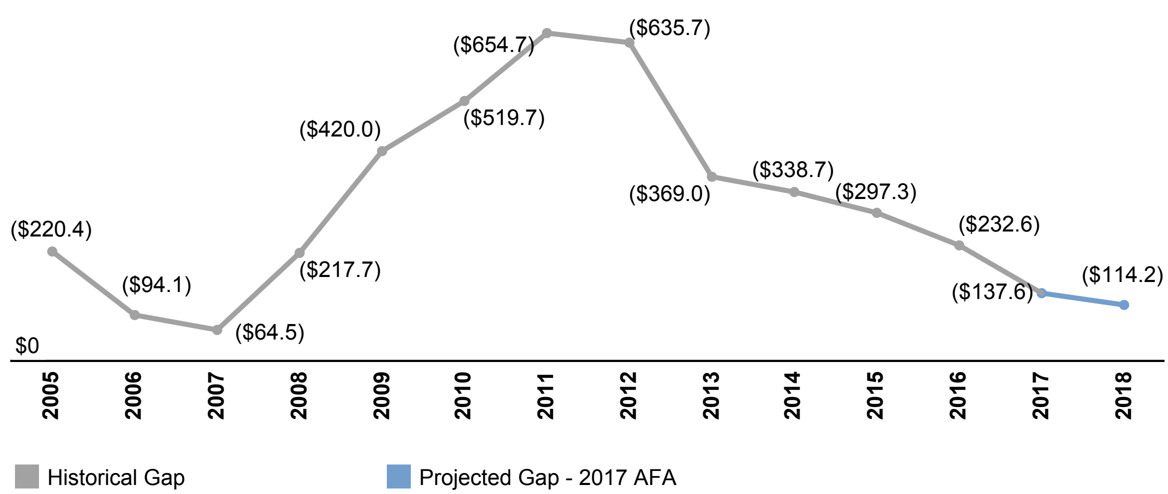
Corporate fund resources in 2018 are projected to be similar to 2017 year-end estimates at $3,742.4 million. While revenues appear flat compared to 2017 year-end estimates, this is largely due to the collection of water-sewer tax revenues, which are solely dedicated to paying increased Municipal pension fund expenses. In 2018, the City's corporate fund will receive $64.0 million from the water-sewer tax, which will be combined with other budgeted revenue to fund the 2018 Municipal pension contribution.

Generally, sales and use taxes, income taxes, PPRT and other intergovernmental revenues are expected to show modest growth over the 2017 year-end estimates with some gains offset by State policy changes included in its fiscal year 2018 budget. The City's portion of the state's sales tax (MROT) is expected to increase by $3.7 million in 2018 compared to 2017 year-end estimates, while the City's sales tax (HROT) in 2018 is expected to decrease slightly compared to 2017 year-end levels due primarily to the State imposing a 2.0 percent administrative charge on local sales tax collections administered by the State. PPRT revenue is held flat in 2018 compared to 2017 year-end estimates due to ongoing uncertainty around possible overpayment recovery by the State and continued diversion of local governments' share of PPRT revenue for State expenses.

Amusement tax revenue for 2017 year-end is $25.5 million above budget and is expected to increase by $1.8 million to $170.5 million in 2018. Compliance levels for the personal property lease tax are projected to remain high in 2018, keeping lease transaction tax revenues level with year-end 2017 figures. Revenue from real property transfer tax remains strong, but is estimated to decrease by $4.4 million compared to 2017 year-end estimates due to fewer large property transfers expected in 2018.

CORPORATE FUND PRELIMINARY GAP

$ Millions



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Business tax revenue is projected to decrease by $10.5 million to $126.1 million in 2018 compared to year-end 2017 estimates of $136.6 million. Revenue from the hotel accommodations tax is down $10.6 million compared to 2017 year-end estimates, but up $6.6 million relative to the 2017 budget. The 2017 year-end hotel tax revenue is ending above budget expectations due to the tax settlement payment made in spring 2017 by an internet hotel booking company. The City's hotel accommodation tax receipts continue to benefit from the increase in tourism and business travel in recent years which is also helping to increase the supply of rooms from both traditional hotels as well as vacation rentals or shared housing units. This expanding market is helping to increase the base of businesses that pay this tax.

Non-tax revenue is expected to decrease by 4.0 percent from 2017 year-end estimates. In 2017, the City eliminated six automated enforcement cameras for red lights and increased the grace period before the camera is triggered, which will reduce the number of red light violations issued. These programmatic changes are expected to reduce 2018 fine revenue related to red light cameras by approximately $19 million.

2018 Projected Corporate Fund Expenditures

The 2018 expenditures are forecast to grow by approximately $121 million over the 2017 budget and the 2017 year-end estimates to $3,856.6 million. These projections are based on 2017 estimates, adjusted for anticipated growth trends and known changes to existing expenses such as normal increases in contractual services, commodities and materials costs, and salary increases resulting from contractual obligations under collective bargaining agreements.

The majority of the projected expense increases for 2018 are personnel costs, primarily wages and other related expenses. The 2018 projection for these expenses assumes the same number of employees as 2017 with wages growing based on required contractual wage and prevailing rate increases. Further, the personnel services expenses are increased in 2018 based on trends in previous years to better account for

REVENUE – CORPORATE FUND

$ Millions

		YE Est 2017	Projected 2018
Tax Revenue	Business Taxes	$136.6	$126.1
	Income Tax, PPRT & Other Intergovernmental	$416.5	$418.9
	Recreation Taxes	$249.2	$250.4
	Sales and Use Taxes	$674.7	$676.1
	Transaction Taxes	$430.0	$422.6
	Transportation Taxes	$252.3	$252.0
	Utility Taxes and Fees	$417.9	$497.4
	Total	$2,577.2	$2,643.5
Non-Tax Revenue	Charges for Services	$119.0	$122.0
	Fines, Forfeitures and Penalties	$326.7	$319.7
	Leases, Rentals and Sales	$28.8	$36.6
	Licenses, Permits and Certificates	$128.2	$129.4
	Municipal Parking	$7.6	$7.6
	Reimbursement, Interest & Other	$468.4	$420.6
	Total	$1,078.7	$1,035.9
Proceeds and Transfers In	Proceeds and Transfers In	$37.0	$26.0
	Total	$37.0	$26.0
Appropriated Prior Year Fund Balance	Appropriated Prior Year Fund Balance	$53.0	$37.0
	Total	$53.0	$37.0
Grand Total		$3,745.9	$3,742.4

% Change -30.19% 30.19%

Financial Forecast

anticipated overtime expenses related to ongoing violence reduction efforts. Healthcare costs are expected to grow at a rate of 2.8 percent in 2018, which is well below national trends, due to the implementation of healthcare initiatives designed to reduce growth in the costs of the City's healthcare plan.

As discussed previously, the City has identified dedicated revenue sources to make the increased contributions to all four pension funds in 2018. Therefore, increases in corporate fund expenses related to pensions are matched by a revenue increase and are not impacting the City's structural gap in 2018.

In addition to addressing the 2018 operating deficit, the City will move forward with the second year of its two-year hiring plan in the Chicago Police Department and further investments in training, technology and personnel to support police reform efforts by the Administration. This increased cost is not incorporated into the 2018 operating deficit as it is a new investment for the upcoming year, not an existing, structural expense currently in the City's corporate budget. The City will also continue to move forward with its plan to eliminate the need for "scoop and toss" by 2019. Over the past two years, the City has increased the funds available to make its debt services payments, and in 2018, the City will continue its progress in eliminating this practice by 2019. As with all other new investments, these additional public safety resources and steps to eliminate "scoop and toss" will be incorporated into the 2018 budget recommendation.

2019-2020 CORPORATE FUND OUTLOOKS

The following three scenarios project budget gaps for the years 2019 and 2020 for the City's corporate fund based on different revenue and expenditure outlooks. While the City shows growth in the gap for 2019 and 2020, these numbers are based on the assumption that no substantive changes are made to City operations, revenue or the cost of City services as part of the 2018 budget and beyond.

Over the past six budgets, savings initiatives and revenue growth have steadily decreased the corporate fund gap and the out-year projected budget gaps. For example, as part of the 2015 AFA, the City projected a $436 million base outlook structural budget gap for 2018, and this year, the 2018 projected gap is $114.2 million.

The City's services are delivered through its workforce with unionized employees comprising more than 90.0 percent of its total workforce. Similar to previous years, the majority of the projected expense increases in 2018 are personnel related. These personnel costs are the primary driver of corporate fund expenses in 2019 and 2020 as detailed in the gap projections for those years. The projected gap in each of one of the scenarios highlights the expenditure growth relative to revenue growth.

As discussed previously, the City identified dedicated revenue sources to make the increased contributions to the

EXPENDITURES – CORPORATE FUND

$ Millions

		YE Est 2017	Projected 2018
Expenditures	Personnel Services	$2,428.7	$2,461.7
	Benefits	$446.1	$476.2
	Contractual Services	$330.9	$339.8
	Commodities and Equipment	$74.2	$77.0
	Claims, Refunds, Judgments, and Legal Fees	$64.5	$42.4
	Delegate Agencies and Other Program Costs	$112.1	$104.8
	Reimbursements and Financial Expenses	$20.4	$20.7
	Miscellaneous	$6.2	$6.4
	Transfers Out	$146.9	$146.8
	Pension	$105.5	$180.8
Grand Total		$3,735.4	$3,856.6

% Change -30.00% 30.00%

2019-2020 PROJECTED GAP, PREVIOUS AND CURRENT AFAS

$ Millions

	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020
2011 AFA	**$ (635.7)**	$ (741.4)	$ (790.7)						
2012 AFA		**$ (369.0)**	$ (466.0)	$ (580.0)					
2013 AFA			**$ (338.7)**	$ (400.9)	$ (528.6)				
2014 AFA				**$ (297.3)**	$ (430.2)	$ (587.7)			
2015 AFA					**$ (232.6)**	$ (334.9)	$ (436.0)		
2016 AFA						**$ (137.6)**	$ (233.2)	$ (324.2)	
2017 AFA							**$ (114.2)**	$ (212.7)	$ (330.3)

Municipal and Laborers' pension funds, thus they do not impact the 2019 and 2020 projected gap.

As it relates to Police and Fire pensions, the increasing pension contributions do not impact the gap through 2018 due to the four-year property tax increase adopted in 2015. In 2019, the required contribution for the Police and Fire pension funds will increase by $32 million and thus will increase the 2019 gap by $32 million. Under State law, beginning in 2020, the Police and Fire pension contributions will be actuarially determined, further increasing the City's pension contributions going forward. The 2020 contribution will increase the 2020 gap; however the final amount is not yet available and is highly dependent on interest returns as well as other factors. The exact amount of the contribution will not be known until the pension funds make their 2020 funding requests in the summer of 2019. The City previously secured ongoing and sustainable funding sources to match these growing contributions, and the funding sources for these increased contributions will be determined through our annual budget process. Because these increases will be coupled with dedicated funding, the Police and Fire 2019 and 2020 contributions are presented separately from the operating budget deficits discussed below.

In addition, the City will eliminate the need for "scoop and toss" by 2019, and consistent with previous AFAs, the expenses associated with ending "scoop and toss" are not incorporated in the structural budget gap as they will be dealt with separately, typically through the annual budget process.

Base Outlook

The base outlook projects overall corporate fund revenue growth is relatively flat compared to the prior year in both 2019 and 2020, resulting in total corporate fund revenues of $3,748.9 million and $3,747.2 million, respectively. As in past years, the City takes a conservative approach to these projections under the assumption that the economy will continue to experience modest growth going forward.

These projections are based on the continuation of similar revenue trends as discussed with respect to 2018, including a nearly 2.0 percent annual growth in recreation taxes in 2019 and 2020. Transaction taxes are expected to remain relatively flat which is similar to 2018 levels, while the City's portion of the state's sales tax (MROT) continues to grow at a projected pace of 1.0 percent annually in 2019 and 2020.

Corporate fund expenditures are projected to outpace corporate fund revenue growth during this period, due largely to normal growth in wages and other personnel related costs. In 2019 and 2020, expenditures are projected

2019-2020 PROJECTED OPERATING GAP

$ Millions

	2019	2020
Positive Outlook	($21.1)	($89.5)
Base Outlook	($212.7)	($330.3)
Negative Outlook	($604.7)	($812.1)

to increase by approximately 3.0 percent annually over 2018 costs. In 2019, the projected expenditures reach $3,961.6 million, and in 2020, expenditures are projected to increase to $4,077.4 million.

Under the base outlook, most non-personnel categories of expenditures, including motor fuel, settlements and judgments, and other miscellaneous expenses are assumed to grow at their historical average rates. Salary and wages and healthcare expenditures – the largest portion of the City's operating expenses – are projected based on the assumption that the number of full time equivalent positions will remain stable and that the costs associated with these positions will experience growth in line with long-term, historical trends.

Under the base outlook, the City would experience a structural budget shortfall of $212.7 million and $330.3 million in 2019 and 2020, respectively.

Negative Outlook

The negative outlook presents a picture of City finances under stagnant to declining economic conditions in which revenues do not grow and actually decrease in some cases with expenditures growing at a significantly outpacing. Total corporate fund revenues in 2019 under this scenario are projected to be $3,633.1 million in 2019 and $3,627.7 million in 2020.

Slow economic growth coupled with cautious consumer sentiment would limit spending on retail goods, entertainment, and tourism impacting the majority of economically sensitive revenues from amusement taxes to transaction taxes. Economic factors, such as rising unemployment and contractions in the real estate market, would impact transaction tax revenue as well.

Assuming a similarly negative outlook for expenditures, in which City spending increases more rapidly over the next three years, corporate fund operating expenditures are driving the large operating shortfall. Costs in 2019 and 2020 would significantly outpace revenues, growing at an average annual rate of roughly 5.0 percent to $4,237.8 million in 2019 and $4,439.9 million in 2020. Most categories of expenditures are assumed to grow at the rates seen during their fastest period of historical growth in the past decade.

Under the negative outlook, the City's operating budget shortfall would grow to $604.7 million in 2019 and $812.1 million in 2020.

Positive Outlook

The positive outlook assumes that the economy will grow at a slightly faster rate over the next three years resulting in modest revenue growth in corresponding revenues and slower average annual growth rate in expenses.

The positive outlook projects modest corporate fund revenue growth, resulting in total corporate fund revenues of $3,865.4 million in 2019 and $3,869.7 million in 2020. Under these projections, there is greater growth in areas where more moderate to flat growth was predicted under the base outlook. Transaction taxes and sales tax revenues grow in this scenario as the economy expands, tourism increases, and consumer confidence and spending also increase. In addition, as wages grow, employment rates improve, and corporate profits and income tax revenues increase. As a result, recreation taxes would grow at a rate of nearly 2.0 percent annually, while income tax is projected to grow by approximately 5.4 percent in 2019 and another 2.3 percent in 2020.

Under this positive outlook, the City is able to limit its future average annual growth rate, keeping expenditures lower than the base outlook. Total corporate fund expenditures grow to $3,886.4 million in 2019 and $3,959.3 million in 2020. Under this scenario, wage and salary costs experience a lower rate of growth, and healthcare costs remain flat. Spending on contractual services and commodities and materials grows slightly over current levels and favorable pricing is assumed for motor fuel and utilities, allowing the City to take further advantage of lower fuel prices through hedging.

Under a positive outlook, the ability to control expenditures, even with moderate revenue growth, the budget deficit in 2019 is projected to be $21.1 million and $89.5 million in 2020.

Outlook for Special Revenue Funds

Vehicle Tax Fund

The City anticipates revenue from the sale of vehicle stickers and other revenues in the vehicle tax fund will finish 2017 at $195.6 million, or 1.7 percent above budgeted expectations. The year-end revenue estimate for vehicle stickers is $126

Financial Forecast

million, which is $1.7 million below budgeted expectations, but this is offset by increased revenue from pavement cut fees, pushing the fund to end the year above budget.

Projected fund revenue for 2018 through 2020 is expected to increase slightly due to mandated increases in vehicle sticker fees resulting from rate adjustments based on consumer price index (CPI) changes. The first CPI rate adjustment was effective July 1, 2016, and another adjustment is expected on July 1, 2018. Rates increased 0.84 percent over prior rates in July 2016 and the 2018 vehicle sticker estimate assumes a 1.5 percent CPI increase effective July 1, 2018, with a similar increase in July 2020. Final rate adjustments will be based on actual CPI figures when available.

Other revenues to this fund, including impoundment fees, pavement cut fees, and reimbursements, are expected to remain approximately even with 2017 year-end revenue levels through 2020.

Motor Fuel Tax Fund

Revenues in the motor fuel tax fund are projected to end 2017 near budgeted levels at $72.3 million. Despite a long-term trend of declining revenue from fuel taxes, revenues are expected to increase slightly over the next few years as businesses and consumers alike continue to take advantage of low fuel prices.

The chart below reflects projected revenues in the motor fuel tax fund, which includes the City's distributive share of motor fuel tax revenues from the State of Illinois and other revenues related to the Chicago Riverwalk. Both revenue streams are expected to grow in the coming years. A portion of motor fuel tax revenue is used to pay debt service on outstanding bonds. Revenue from Riverwalk concessions and tour boat operations has been pledged to pay debt service on a loan issued by the U.S. Department of Transportation under the Transportation Infrastructure Finance Innovation Act (TIFIA). The City used proceeds from the TIFIA loan to fund expansion of the Chicago Riverwalk.

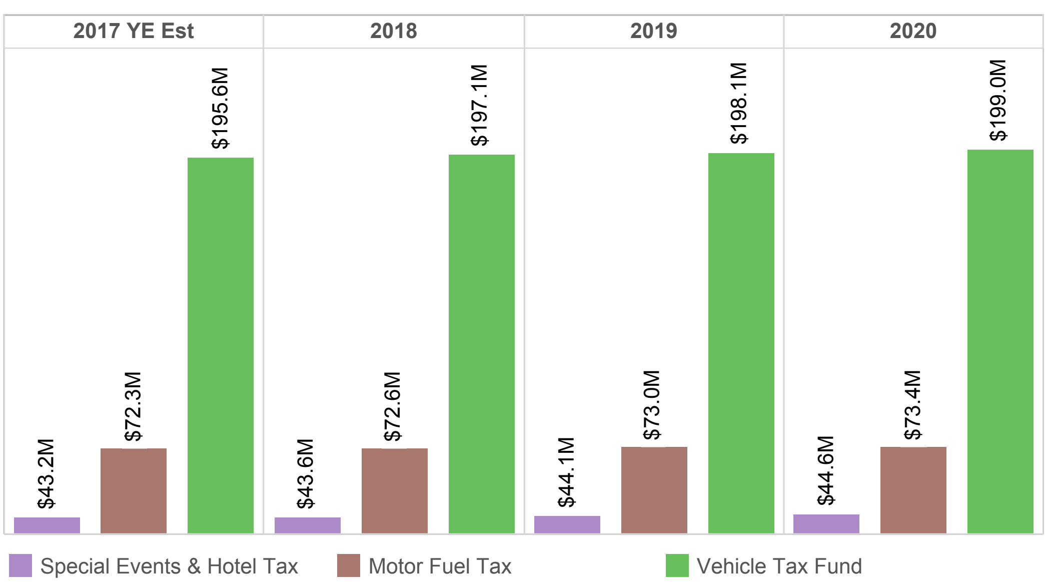
Special Events and Hotel Operators' Occupation Tax Fund

Further growth in business travel and tourism to Chicago will help hotel tax revenue and festival-related revenues grow modestly in 2017 and beyond. The year-end estimate for 2017 for hotel tax revenue is $23.6 million while the City's special events and festivals are expected to generate $11.8 million.

Industry forecasts remain positive for growth in tourism, convention, and business travel. Based on this forecast, the City anticipates growth in both occupancy and room rates, and hotel tax revenue is projected to have steady annual growth through 2020, while event fees are expected to remain constant over the same period.

PROJECTED SPECIAL REVENUE FUNDS

$ Millions



Outlook for Enterprise Funds

Water and Sewer Funds

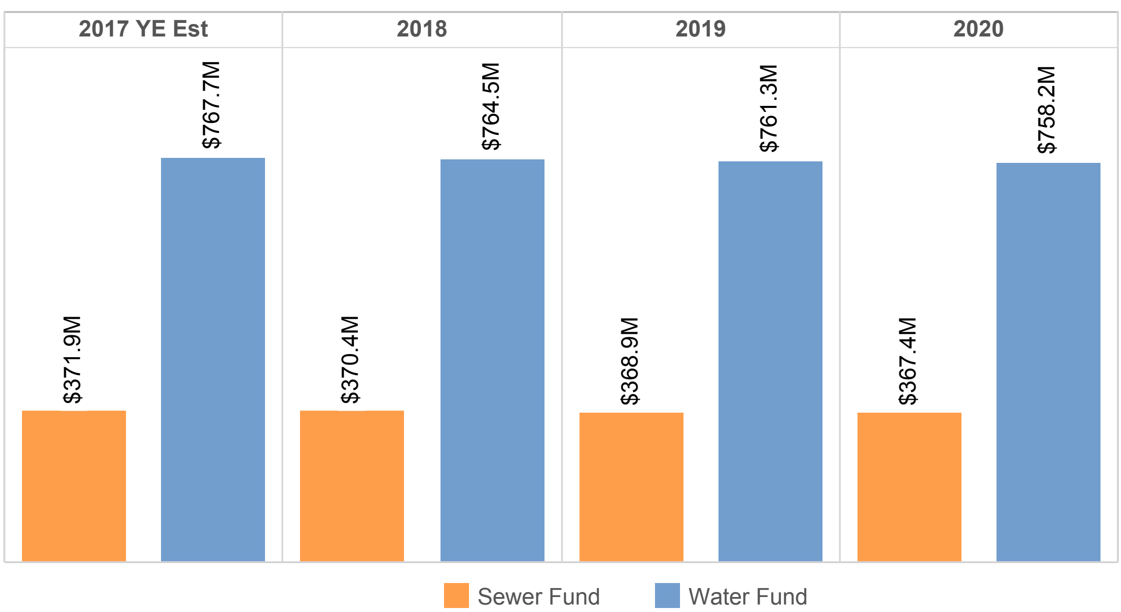
Water and sewer rates are expected to increase at the rate of inflation over the next three years, based on the current ordinance. The three-year projections in the chart below also account for anticipated population changes and collection rates; and, current trends in conservation efforts and meter installation. The repairs and upgrades funded with the revenue from these rate increases are discussed in the Capital Investment section of the online version of the AFA.

Aviation Funds

Estimates for the O'Hare and Midway International Airport funds anticipate that revenue, which is set at a level necessary to pay debt service and support the operations of the airports, will increase from 2017 levels by approximately 6.0 percent for O'Hare Airport and 6.0 percent for Midway airport in 2018. The City projects that similar growth will continue into 2019 and 2020 as the airports move forward with large scale capital projects and other improvements necessary to accommodate increased tourism and business travel.

PROJECTED WATER FUND AND SEWER FUND REVENUES

$ Millions



City of Chicago
Mayor Rahm Emanuel

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