Business Leaders for Michigan

The Impact of Unfunded Liabilities on a Community's Ability to Fulfill Promises Made to Public Employees

Presented by
The Honorable David M. Walker,
Senior Strategic Advisor for PwC Public Sector &
Former U.S. Comptroller General

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Agenda

- Introduction
- Unfunded Pension And OPEB Liabilities
- Why The Issue Must Be Addressed
- A Framework For Reform

- Appendices

Relative Financial Position and Competitiveness by State

1. Alaska (5)	70.0%
2. North Dakota (2)	49.5%
3. Wyoming (3)	43.3%
4. Utah (1)	7.2%
5. South Dakota (2)	6.0%
6. Nebraska (2)	5.8%
7. New Mexico (4)	5.3%
8. Idaho (2)	4.6%
9. Tennessee (1)	4.4%
10. Iowa (1)	1.8%
11. Oregon (3)	0.7%
12. Florida (1)	2.3%
13. Virginia (1)	2.4%
14. Minnesota (2)	2.6%
15. Montana (3)	2.9%
16. Arkansas (4)	3.3%
17. Indiana (1)	4.6%
18. Missouri (3)	5.9%
18. Oklahoma (3)	5.9%
20. Colorado (1)	6.0%
21. Arizona (2)	6.1%
22. Nevada (3)	7.1%
22. New Hampshire (4)	7.1%
24. Georgia (1)	7.7%
25. Wisconsin (2)	8.3%
26. Ohio (2)	9.4%
27. Kansas (3)	11.8%
28. Texas (1)	13.6%
29. North Carolina (1)	15.2%
30. Washington (2)	15.5%
31. Maine (5)	16.5%
32. Maryland (4)	20.1%
33. South Carolina (2)	21.8%
34. Rhode Island (5)	25.5%
35. Pennsylvania (4)	25.7%
36. Vermont (5)	28.9%
37. Mississippi (5)	29.5%
38. Alabama* (4)	30.1%
39. West Virginia (5)	32.5%
40. California (4)	32.8%
41. Michigan (3)	33.6%
42. Delaware (3)	34.1%
43. New York (4)	34.7%
44. Louisiana (5)	37.9%
45. Hawaii (5)	44.2%
46. Massachusetts (3)	44.7%
47. Connecticut (5)	67.2%
48. Illinois (4)	75.3%
49. Kentucky (4)	79.5%
50. New Jersey (5)	86.9%

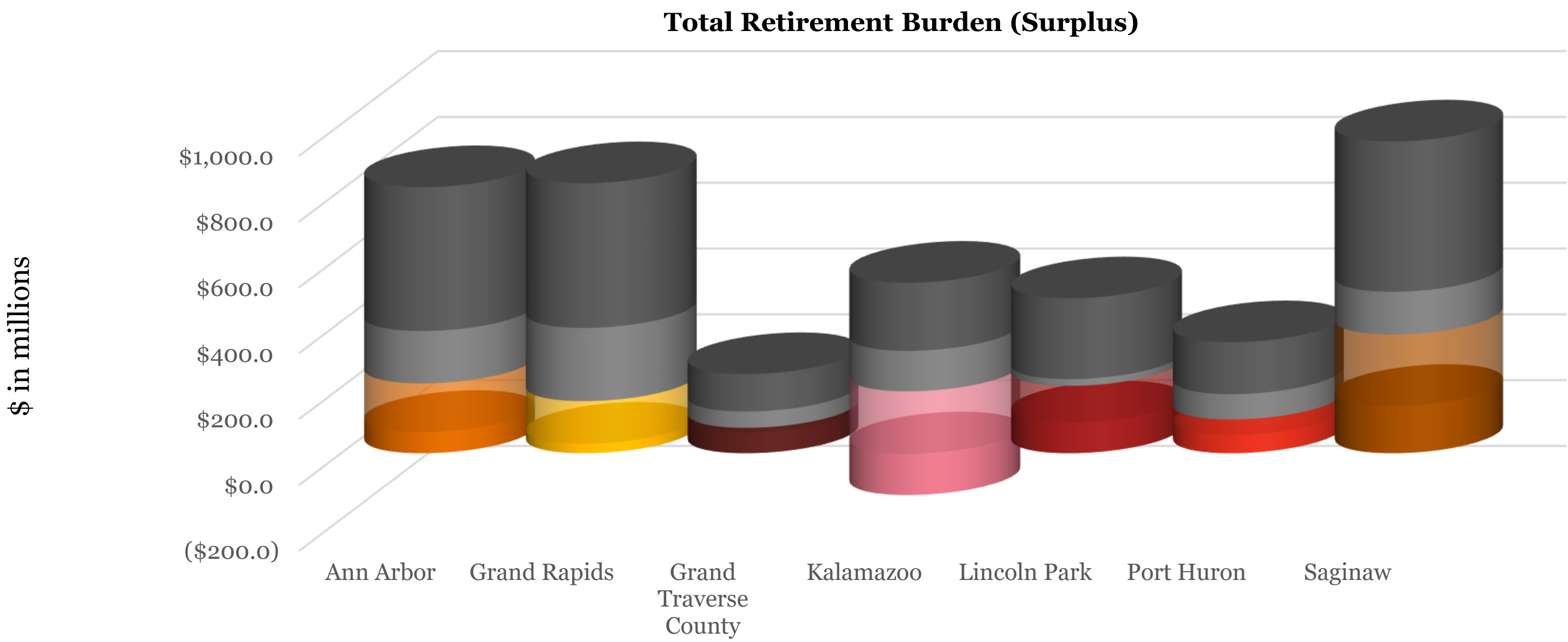
Completed: January 2017
Rankings are based on Fiscal 2015 CAFR financial data and the latest migration and competitiveness data for 2016
*Alabama Fiscal Year 2015 CAFR had not yet been released. Fiscal Year 2014 CAFR data is used here instead.
- State names in black denote positive state migration, state names in red denote negative state migration for the period 7/1/15-6/30/16
- Percentages in red denote an accumulated burden per taxpayer as a percentage of median household income, percentages in black denote an accumulated surplus per taxpayer as a percentage of household income
- Relative Competitive Posture in 2016 By Quintile – (1), (2), (3), (4) and (5)
- Sources: Truth in Accounting's State Data Lab, U.S. Census Bureau, Forbes, CEO Magazine, and CNBC
- The initial and full PwC State Financial Position Index (SFPI) and Competitiveness Report that used 2014 CAFR and 2015 competitiveness and migration data can be found at http://pwc.to/1O6S85f. This report contains explanations of key terms and computations.

Introduction

- PwC was previously engaged by the Grand Rapids Area Chamber of Commerce to conduct a study of the defined benefit pension and OPEB benefits provided to employees of the following municipalities:
  - City of Ann Arbor
  - City of Grand Rapids
  - Grand Traverse County
  - City of Kalamazoo
  - City of Lincoln Park
  - City of Port Huron
  - City of Saginaw
- The City of Detroit and State of Michigan have been added and are also presented.
- PwC compiled financial information disclosed in the 2015 comprehensive annual financial reports (CAFRs) of each municipality and population data from the U.S. Census Bureau.
  - Retirement benefit liabilities and assets.
  - Revenue and tax rates.
- To Illustrate the potential magnitude of retirement benefit liabilities not reflected in the financial statements, we then estimated the liabilities using alternative, normalized assumptions for discount rate and mortality.
- This following slides include results from that study, which were presented at the West Michigan Policy Forum in September 2016.

Unfunded Pension And OPEB Liabilities

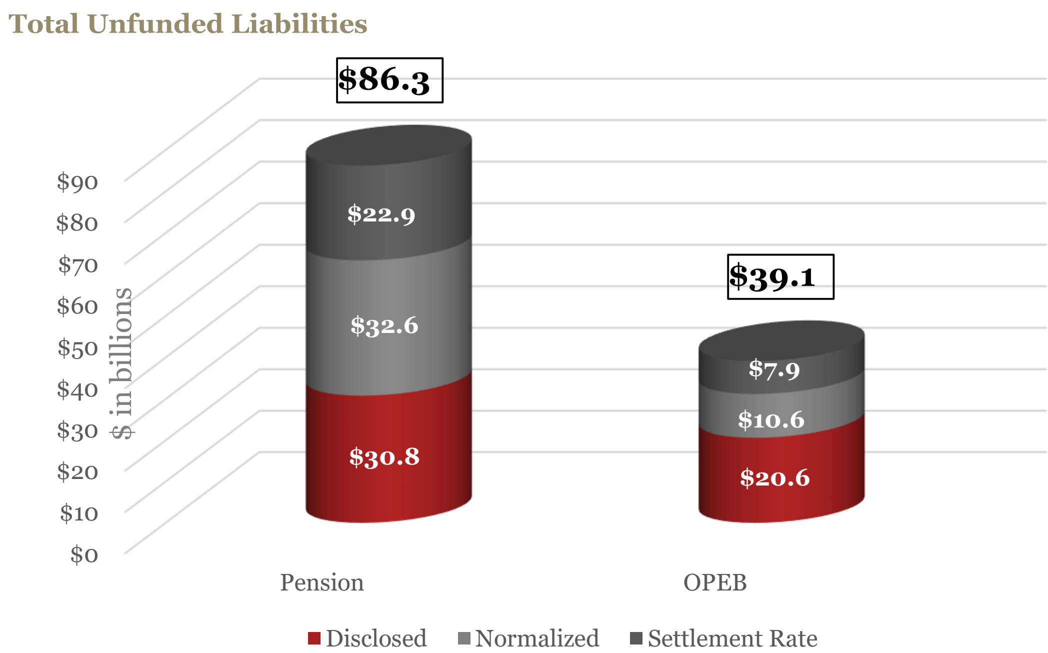
Total Retirement Burden



- Solid colors represent reported unfunded pension liability. Opaque colors represent reported unfunded OPEB liability.
- Light grey represents additional unfunded pension and OPEB liability using a 5.75% discount rate and updated mortality tables.
  - 5.75% based on the average asset allocation of state-wide pension funds from the Public Fund Survey with average 2016 capital market expectations from JP Morgan, Horizon, and Callan. Unfunded OPEB liabilities currently valued at a rate below 5.75% were unchanged.
  - Mortality based on the RP-2014 tables and MP-2015 improvement scale recently released by the Society of Actuaries. Blue collar mortality adjustments and 90% male population are reflected for police and fire plans
- Dark grey represents additional unfunded pension and OPEB liability using a 3.46% discount rate.
  - Based on the Citigroup Pension Liability Index on August 31, 2016, a commonly used discount rate in the private sector, where discount rates are required to reflect the rate at which the liability could effectively be settled. The Citigroup Pension Liability Index is also the basis used by Moody's to adjust reported liabilities for municipal bond rating.
- In 2015, Kalamazoo issued $67.4 million of OPEB obligation bonds and made a total of $91.3 million in contributions to the OPEB plan, which is not reflected in figures above.
- OPEB liability shown for Lincoln Park is prior to the elimination of OPEB benefits at the direction of the City's Emergency Manager.

Unfunded Pension And OPEB Liabilities

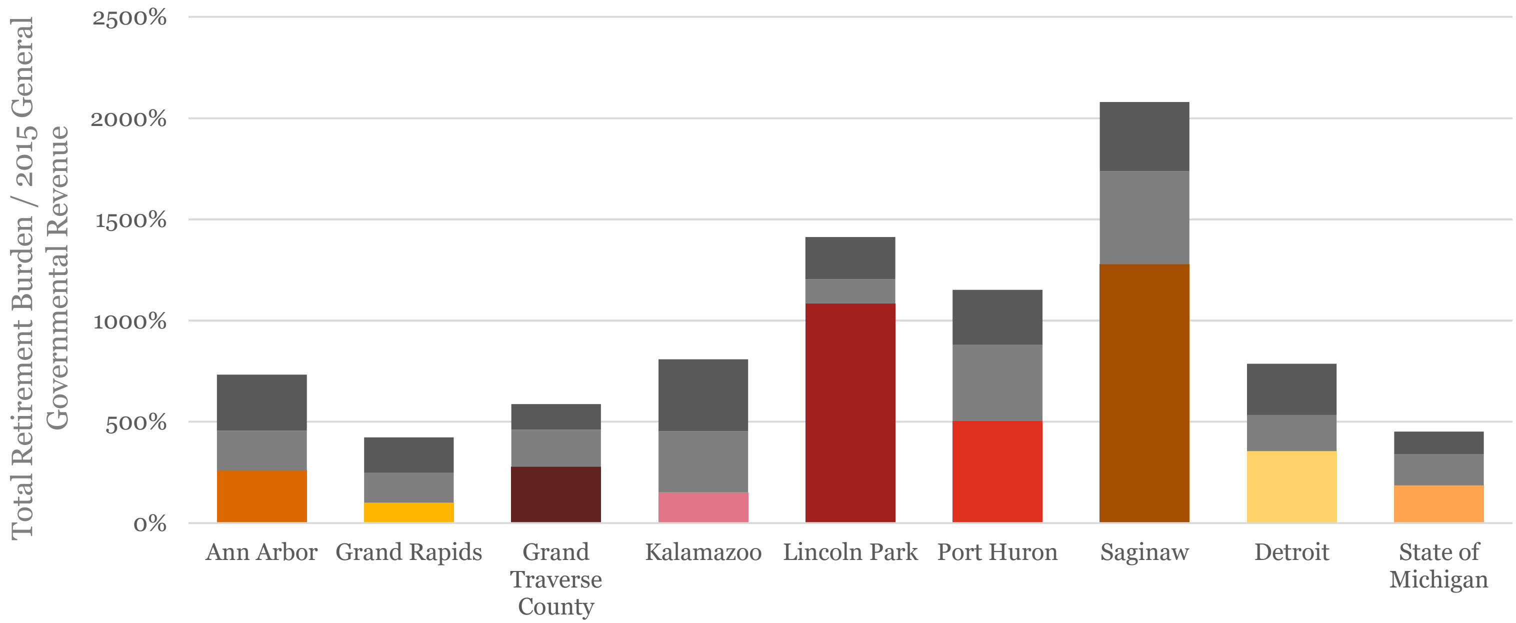
Summary of Findings – State of Michigan



- Unfunded liabilities for the State of Michigan. Includes the Public School Employees Retirement System. The maroon portion of each bar represents the unfunded liabilities disclosed in the CAFRs.
- The light gray portion represents the increase in liability due to the normalized assumptions, including a 5.75% discount rate. The dark gray portion represents the increase in liability for using a corporate bond based discount rate of 3.46%.

Unfunded Pension And OPEB Liabilities

Total Retirement Burden as a Percent of General Governmental Revenue



- 2015 General Governmental Revenue is equal to all taxes (property, income, other) State shared revenue, unrestricted grants, investment earnings, and other miscellaneous income for government activities.
  - Excludes program revenue (e.g. charges for services, operating grants) for government activities and all revenue for business-type activities.

Why the Issue Must be Addressed

- Current state and municipal pension and retiree health care obligations are huge, growing, and unsustainable.

- It may be years before there is clarity regarding the future state of the Affordable Care Act and the related exchanges and subsidies.

- Compared to the federal government, states and local municipalities have a greater need to reform retirement benefits when they face financial challenges.
  - Cannot print money.
  - Greater interest rate risk.
  - Greater competitiveness challenges – residents are mobile.

- In Michigan, the cap on growth in taxable property values limits the growth in government revenue used to fund pension and retire health care benefits.

- Failure to engage in restructuring of existing retirement programs will ultimately result in:
  - Less resources for other priority services – education, public safety, infrastructure.
  - Higher taxes – mill rates, income tax, other fees / taxes.
  - Diminished competitiveness to other jurisdictions.

- Restructuring of benefits for future new hires only is typically not sufficient to prevent these outcomes.

A Framework For Reform

Retiree Health Care

Retiree health care reform framework:

- Move local government and school system retirees who are 65 and older to Medicare.

- Move early retirees to federal, state, or private health care exchanges, or to active employee plans with stipends, as appropriate.
  - The government should only be providing coverage and financial support to people who are truly retired and are not otherwise eligible for Medicare.
  - Guarantee access at group rates to best replicate current benefit and cost levels.

- For severely underfunded plans, consider an employee's years of service when restructuring.
  - The government should provide defined dollar benefits to help defray the cost of the related premiums for people who have a minimum numbers of years of service (e.g. 10 years) and who retire from the government.

- Consider the investment capabilities and savings vehicles offered by MERS to achieve economies scale.

A Framework For Reform

Pension

Pension reform framework:

- Pursue pension reforms consistent with ERISA's accrued benefit and anti-cutback rules for legacy employees.
  - Consider freezing existing defined benefit plans and provide future accruals under a lower cost plan, consistent with benefits provided to new hires.
- Eliminate / Reduce / Cap COLAs.
- Eliminate abuses for current employees (e.g., double dipping) and consideration of amounts in excess of base compensation.
- Create a lower cost plan (defined benefit, defined contribution, or hybrid) for new employees.
  - This has already been done by the State and many local municipalities.
- Offer voluntary early retirement options and other settlement offers (e.g. lump sum offers) to reduce workforce covered under legacy defined benefit plans.
- Offer voluntary conversion options, pending more comprehensive solutions.
- For local municipalities, consider the investment capabilities and administrative expertise offered by MERS to achieve economies scale.

Thank you!

APPENDIX I – Disclosed Financial Status Detail

Disclosed Financial Status Detail

Entity	Unfunded Pension Obligations ($ millions)	Unfunded OPEB Obligations ($ millions)	Total Retirement Burden ($ millions)	Total Retirement Burden Per Household	Total Retirement Burden Per Household/ Median Household Income	Total Retirement Burden /2015 General Governmental Revenue
City of Ann Arbor	$64.4	$147.6	$212.0	$4,560	8.0%	2.6
City of Grand Rapids	$28.9	$129.2	$158.1	$2,179	5.5%	1.0
Grand Traverse County	$62.3	$14.7	$77.1	$2,212	4.2%	2.78
City of Kalamazoo	($126.2)	$187.9	$61.6	$2,197	6.7%	1.5
City of Lincoln Park	$93.5	$110.9	$204.4	$13,943	35.0%	10.8
City of Port Huron	$54.8	$47.7	$102.5	$8,466	25.7%	5.0
City of Saginaw	$143.5	$217.3	$360.8	$18,620	64.1%	12.8
City of Detroit	$2,918.0	$0.0	$2,918.0	$11,479	44.0%	3.6
State of Michigan	$5,853.5	$9,442.6	$15,296.1	$3,996	8.1%	0.6
State of Michigan*	$30,827.1	$20,621.6	$51,448.7	$13,441	27.4%	1.9

* Includes the Public School Employees' Retirement System

- The unfunded pension and OPEB obligations shown are as disclosed in the 2015 CAFR for each municipality.
- The total retirement burden is equal to the sum of the underfunded/(overfunded) pension and OPEB obligations.
- Number of Households (Households, 2010-2014) and Median Household Income (Median household income in 2014 dollars, 2010-2014) were found using the QuickFacts search on the US Census Bureau website (https://www.census.gov/quickfacts/table).
- Note, the 2015 liabilities include the OPEB liability for Lincoln Park prior to the elimination of OPEB benefits at the direction of the City's Emergency Manager. For Kalamazoo, the 2015 asset value does not include the $91M contribution in 2014.

APPENDIX II – Actuarial Assumption Normalization

Actuarial Assumption Normalization

- Each municipality is unique in terms of the pension and OPEB benefits provided to employees, the demographic characteristics of covered employees, financial condition, pension and OPEB financing strategy, etc.
- As a result, the actuarial assumptions used to value pension and OPEB liabilities can vary greatly, making direct comparisons difficult.
- Two key trends affecting pension and OPEB liabilities and cost are:
  - Investment returns on plan assets are likely to be lower than historical averages over the next several years.
  - Participants are living longer.
- We have estimated the pension and OPEB liability of each municipality using normalized assumptions for investment return and mortality in order to reflect these trends and provide greater comparability.

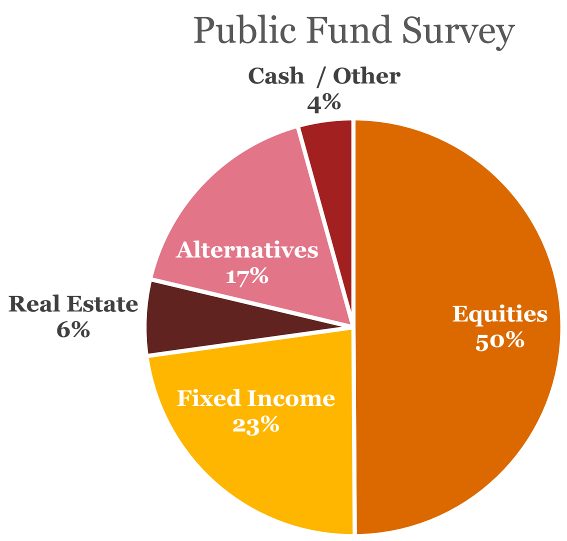
Actuarial Assumption Normalization

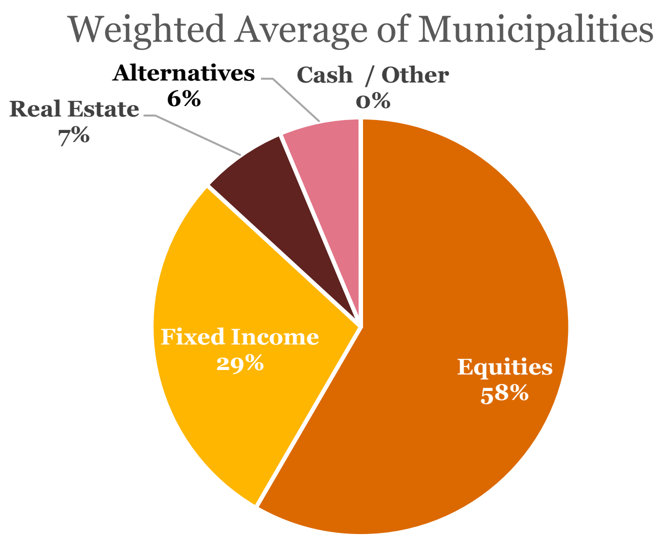
Discount Rate

- Under GASB 67 and 68, the discount rate is the single rate that reflects the long-term expected rate of return on pension plan investments that are expected to be used to finance the benefit payments, to the extent that the pension plan's fiduciary net position is projected to be sufficient to make projected benefit payments.
  - The long-term expected rate of return was used as the discount rate for all pre-funded plans in our study, regardless of current funded status.
- Using the Public Fund Survey, the average asset mix among broad investment categories was identified and used in setting a normalized expected return assumption.
  - The survey provided the most recent average asset allocation for 84 state systems.
- 2016 capital market return expectations for each asset category published by JP Morgan, Callan, and Horizon and were averaged and applied to the average asset mix to arrive at a normalized investment return.
- The weighted average return based on the average asset mix and average capital market expectations yielded a normalized rate of 5.75% over a 10 to 20-year horizon.
- Using the normalized rate of 5.75% as the discount rate, the impact on the obligation for the pension plans was determined using the disclosed +/-1% sensitivity in each CAFR.
- For OPEB plans, the impact was determined using a common duration of 13, consistent with the adjustment methodology used by Moody's.

Actuarial Assumption Normalization

Discount Rate – Average Asset Mix





- The municipalities included in the study have a slightly higher allocation to traditional equity and fixed income, though the overall allocation is not significantly different than the average state wide fund.
- The asset allocations for the municipalities are as of the most recent CAFR date. If the municipalities had more than one plan with different asset mixes, the allocations were dollar weighted.

Actuarial Assumption Normalization

Discount Rate – Capital Market Expectations

	Equities	Fixed Income	Real Estate	Alternatives	Cash/Other	Total
Average Portfolio	**49.90%**	**22.90%**	**5.90%**	**17.00%**	**4.30%**	**100%**
Expected Arithmetic Returns						
JP Morgan	8.09%	5.22%	6.12%	6.56%	2.25%	
Horizon	9.25%	5.58%	7.75%	8.67%	2.31%	
Callan	7.40%	3.70%	6.00%	5.43%	2.30%	
Average Return	*8.25%*	*4.83%*	*6.62%*	*6.89%*	*2.29%*	
Weighted Average	*4.12%*	*1.11%*	*0.39%*	*1.17%*	*0.10%*	***6.88%***
Standard Deviations						
JP Morgan	15.50%	10.00%	11.50%	15.60%	1.50%	
Horizon	16.92%	10.49%	14.74%	16.67%	1.78%	
Callan	18.70%	11.40%	16.50%	20.20%	0.90%	
Average Return	*17.04%*	*10.63%*	*14.25%*	*17.49%*	*1.39%*	
Weighted Average	*8.50%*	*2.43%*	*0.84%*	*2.97%*	*0.06%*	***14.81%***

Weighted average expected return = 6.88% - $(14.81\%)^2$ / 2 = 5.78%

- The estimated total return was rounded to the nearest 25 basis points, 5.75%.
- Sources: (1) JP Morgan 2016 Long-Term Capital Market Assumptions, (2) Horizon Survey of Capital Market Assumptions – 2016 Edition, and (3) Callan 2016 Capital Market Projections.

Actuarial Assumption Normalization

Mortality

- Given the headcounts disclosed in the CAFRs, it does not appear that any of the municipalities would have fully credible data in order to determine their own mortality table.

- The RP-2014 mortality tables, projected generationally with improvement scale MP-2015, were chosen as the normalized mortality assumption.
  - The RP-2014 tables and MP-2015 improvement scale are based on a recent large-scale study of mortality across the United States by the Society of Actuaries.
  - The "blue collar" versions of the RP-2014 tables were used for police and fire plans. For all other plans, the standard "total dataset" RP-2014 tables was used.

- Adjustments made to the disclosed liability for plans where other mortality tables are assumed were based on differences in life annuity factors at ages from 35 to 80, with higher weighting given to ages 55-70 where the majority of retirement plan liability is concentrated.
  - For police and fire plans, the adjustments were weighted to assume 90% male participation. For the remaining plans, the adjustments were weighted to assume 50% male participation.

- The mortality impact on the OPEB plan was assumed to be the same as the respective pension plan for each municipality.

Actuarial Assumption Normalization

Total Impact of Normalization on Funded Status

	Pension Funded Status Impact			OPEB Funded Status Impact		
Municipality	**Discount Rate Adjustment**	**Mortality Adjustment**	**Total Adjustment**	**Discount Rate Adjustment**	**Mortality Adjustment**	**Total Adjustment**
City of Ann Arbor	(11%)	(4%)	**(14%)**	(6%)	(2%)	**(8%)**
City of Grand Rapids	(16%)	(4%)	**(20%)**	(0%)	(1%)	**(1%)**
Grand Traverse County	(11%)	(4%)	**(14%)**	(0%)	(0%)	**(0%)**
City of Kalamazoo	(22%)	(4%)	**(26%)**	(0%)	(0%)	**(0%)**
Lincoln Park	(3%)	(1%)	**(3%)**	(0%)	(0%)	**(0%)**
City of Port Huron	(13%)	(5%)	**(17%)**	(4%)	(2%)	**(5%)**
City of Saginaw	(10%)	(5%)	**(14%)**	(0%)	(0%)	**(0%)**
City of Detroit	(9%)	(1%)	**(10%)**	N/A	N/A	**N/A**

- Discount rates were not adjusted for OPEB plans, unless the discount rate was greater than 5.75% (i.e. the plan is funded, using an expected return for the discount rate).
- The impact shown for each municipality is on the funded status of all pension and OPEB plans combined.
- The OPEB plans for Grand Traverse County, Kalamazoo, Lincoln Park and Saginaw are unfunded (or essentially unfunded). As such, the total impact on the funded status is 0%.

Actuarial Assumption Normalization

Total Impact of Normalization on Funded Status

	Pension Funded Status Impact			OPEB Funded Status Impact		
Municipality	**Disclosed Funded Status**	**Total Adjustment**	**Adjusted Funded Status**	**Disclosed Funded Status**	**Total Adjustment**	**Adjusted Funded Status**
City of Ann Arbor	88%	**(14%)**	74%	44%	**(8%)**	36%
City of Grand Rapids	97%	**(20%)**	77%	21%	**(1%)**	20%
Grand Traverse County	52%	**(14%)**	38%	1%	**(0%)**	1%
City of Kalamazoo	127%	**(26%)**	101%	4%	**(0%)**	4%
Lincoln Park	21%	**(3%)**	18%	0%	**(0%)**	0%
City of Port Huron	60%	**(17%)**	43%	18%	**(5%)**	13%
City of Saginaw	56%	**(14%)**	42%	0%	**(0%)**	0%
City of Detroit	64%	**(10%)**	54%	N/A	**N/A**	N/A

- Discount rates were not adjusted for OPEB plans, unless the discount rate was greater than 5.75% (i.e. the plan is funded, using an expected return for the discount rate).
- The impact shown for each municipality is on the funded status of all pension and OPEB plans combined.

APPENDIX III – Settlement Rate Normalization

Settlement Rate Normalization

- Each municipality included in our study employs an investment strategy for pension and OPEB plan assets that includes a significant allocation of assets to risky investments, such as equities.
- Municipalities bear the investment risk for defined benefit plans.
- Municipalities must manage the risk of volatile returns from one year to the next and understand the ramifications of not achieving the returns assumed.
- To quantify the risk / dependency on assumed investment returns, we have also estimated the pension and OPEB liabilities of each municipality using a rate of interest that is representative of the rate at which pension and OPEB liabilities could be effectively be settled.
- Similar to discount rates used in the private sector, a corporate bond discount rate was used to illustrates the level of risk taken in the current financing of the benefits.
- The Citigroup Pension Liability Index as of August 31, 2016 of 3.46% was used as a proxy for the settlement rate. The Citigroup Index is a commonly used index for setting discount rates in the private sector and is used by Moody's when normalizing liabilities.
- Annuity purchase rates as of August 2016 range from 2.10% for retirees to 2.95% for actives.

Settlement Rate Normalization

Total Impact of Assumption Changes on Funded Status

	Pension Funded Status Impact			OPEB Funded Status Impact		
Municipality	**Normalized Discount Rate and Mortality**	**Additional Discount Rate Adjustment (3.46%)**	**Total Adjustment**	**Normalized Discount Rate and Mortality**	**Additional Discount Rate Adjustment (3.46%)**	**Total Adjustment**
City of Ann Arbor	(14%)	(14%)	**(28%)**	(8%)	(7%)	**(15%)**
City of Grand Rapids	(20%)	(14%)	**(34%)**	(1%)	(3%)	**(4%)**
Grand Traverse County	(14%)	(6%)	**(20%)**	(0%)	(0%)	**(0%)**
City of Kalamazoo	(26%)	(19%)	**(44%)**	(0%)	(0%)	**(0%)**
Lincoln Park	(3%)	(3%)	**(6%)**	(0%)	(0%)	**(0%)**
City of Port Huron	(17%)	(7%)	**(24%)**	(5%)	(2%)	**(8%)**
City of Saginaw	(14%)	(6%)	**(21%)**	(0%)	(0%)	**(0%)**
City of Detroit	(10%)	(10%)	**(19%)**	N/A	N/A	**N/A**

- The impact shown for each municipality is on the funded status of all pension and OPEB plans combined.

Settlement Rate Normalization

Total Impact of Assumption Changes on Funded Status

	Pension Funded Status Impact			OPEB Funded Status Impact		
Municipality	**Disclosed Funded Status**	**Total Adjustment**	**Adjusted Funded Status**	**Disclosed Funded Status**	**Total Adjustment**	**Adjusted Funded Status**
City of Ann Arbor	88%	**(28%)**	60%	44%	**(15%)**	29%
City of Grand Rapids	97%	**(34%)**	63%	21%	**(4%)**	17%
Grand Traverse County	52%	**(20%)**	32%	1%	**(0%)**	1%
City of Kalamazoo	127%	**(44%)**	83%	4%	**(0%)**	4%
Lincoln Park	21%	**(6%)**	15%	0%	**(0%)**	0%
City of Port Huron	60%	**(24%)**	36%	18%	**(8%)**	10%
City of Saginaw	56%	**(21%)**	35%	0%	**(0%)**	0%
City of Detroit	64%	**(19%)**	45%	N/A	**N/A**	N/A

- The impact shown for each municipality is on the funded status of all pension and OPEB plans combined.

APPENDIX IV – Disclosures

Disclosures

The actuaries responsible for the estimates contained in this presentation are members of the Society of Actuaries and the American Academy of Actuaries, are Enrolled Actuaries, and meet the "General Qualification Standards of for Actuaries Issuing Statements of Actuarial Opinion in the United States" relating to pension plans. The analysis presented herein has been conducted in accordance with generally accepted actuarial principles and practices.

The estimates of pension and OPEB liabilities using the "normalized" and "settlement" assumptions disclosed herein were computed using standard actuarial techniques and sensitivities to adjust disclosed liabilities that were computed using assumptions selected by each municipality. The assumptions used in our analysis are intended to be objective and reasonable for the purposes of this analysis, which are to illustrate the potential pension and OPEB liability that exists if the assumptions selected by each municipality are not realized, as well as to illustrate the magnitude of pension and OPEB liabilities on a settlement basis. The assumptions selected for our analysis should not be construed as an opinion that the assumptions selected by each municipality are unreasonable or as advocacy of measuring pension and OPEB liabilities at a market or settlement rate for disclosure purposes.

The actual cost of each benefit plan included in our analysis will depend on the actual investment experience and the actual experience of plan members. Over the life of any benefit plan, the benefit payments and expenses paid by the plan must be supported by contributions to the plan and investment returns on the invested assets of the plan. To the extent that benefit payments and expenses are higher than anticipated and / or investment returns are less than anticipated, higher contributions would be required, all else equal. The opposite is also true.

Disclosures

Our work is intended to illustrate the potential magnitude of retirement benefit liabilities in the selected municipalities, as well as potential restructuring efforts that could be taken to address them. The illustrative reforms presented herein should not be construed as a recommendation in favor of, or in opposition to, the particular reforms presented, or as a recommendation in favor of, or in opposition to, defined benefit, defined contribution, or other hybrid plan arrangements. The reforms presented are illustrative based on the reforms enacted by other, similar entities to achieve desired cost levels and competitive levels of overall compensation and benefits for employees.

There is no relationship between the PwC practitioners involved in this engagement and the municipalities included in our study that may impair the objectivity of our work.